Manila Community Services District Flood Reduction and Drainage Enhancement Project

Client Circulation Draft IS/MND

Manila Community Services District

February 16, 2023

→ The Power of Commitment

Client Circulation Draft IS/MND

Manila Community Services District Flood Reduction and Drainage Enhancement Project

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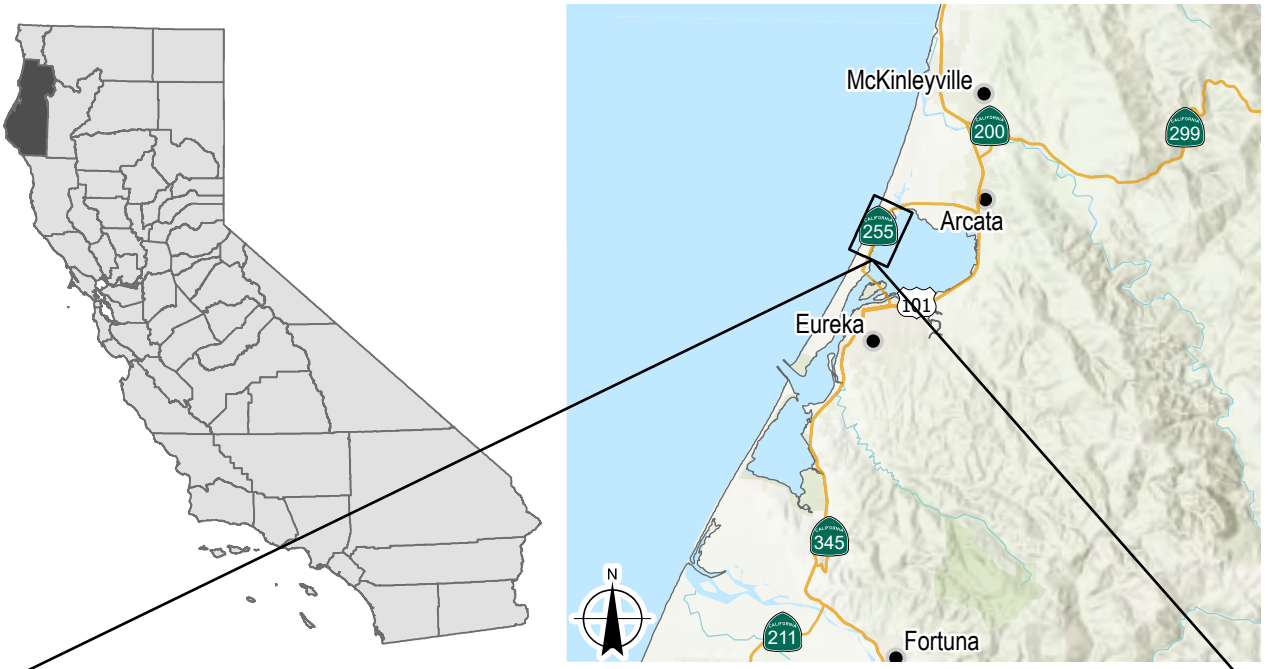

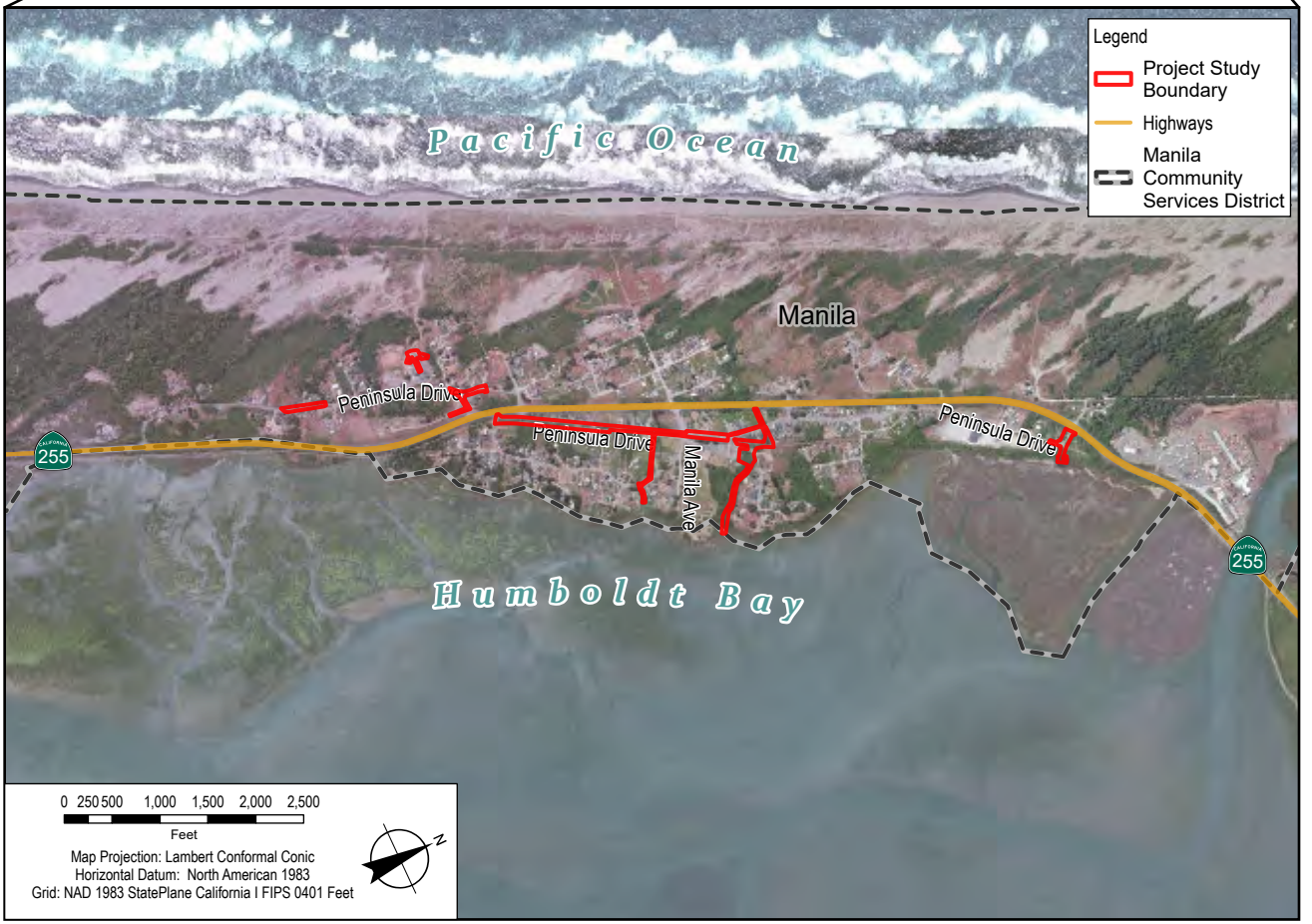

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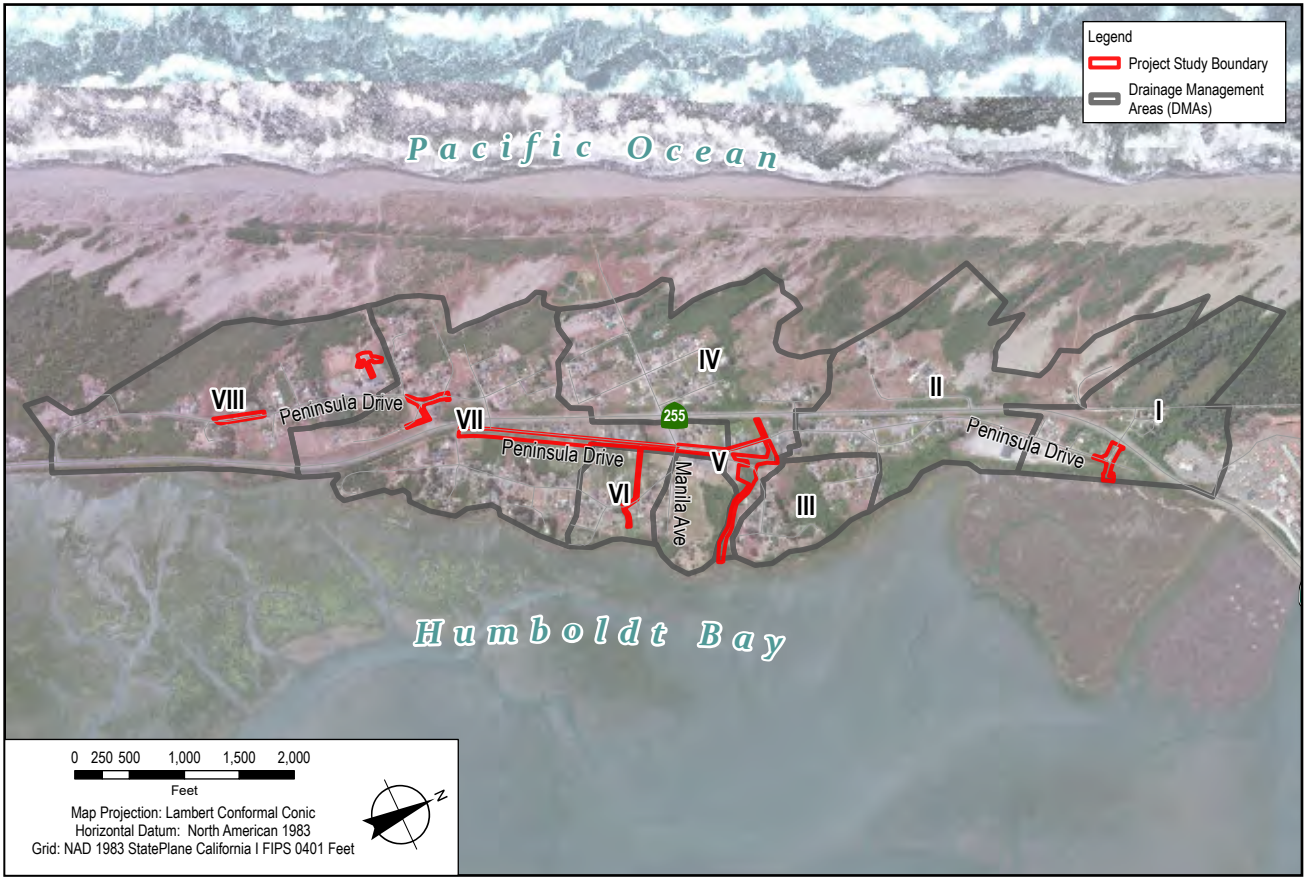

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Legend

- Project Study Boundary
- Drainage Management Areas (DMAs)
- DMA Sub-Basins

Existing

- Bioswale
- Culvert

Proposed Project

- Bioswale (Minor Grading and Debris/ Vegetation Removal)
- New Culvert/ Stormdrain Pipe (Within Existing Roadway/Driveway)
- Replace Existing Culvert
- Remove Culvert
- Proposed Rain Gardens
- Replace Existing Flap Gate

Paper Size ANSI B

0 50 100 150 200 250

Feet

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

GHD

Manila Community Services District
Manila Flood Reduction & Drainage Enhancement Project

Project Components

Project No. **12572691**
Revision No. **-**
Date **Feb 2023**

FIGURE 3 - 1

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Legend

- Project Study Boundary
- Drainage Management Areas (DMAs)
- DMA Sub-Basins

Existing

- Bioswale
- Culvert

Proposed Project

- Bioswale (Minor Grading and Debris/ Vegetation Removal)
- New Culvert/ Stormdrain Pipe (Within Existing Roadway/Driveway)
- Replace Existing Culvert
- Remove Culvert
- Valley Gutters with New Driveway Aprons,Replacement
- Proposed Rain Gardens

Paper Size ANSI B

0 50 100 150 200 250 300

Feet

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

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Manila Community Services District
Manila Flood Reduction & Drainage Enhancement Project

Project Components

Project No. **12572691**
Revision No. **-**
Date **Feb 2023**

FIGURE 3 - 2

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Paper Size ANSI B

0 50 100 150 200 250

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

Manila Community Services District
Manila Flood Reduction &
Drainage Enhancement Project

Project Components

Project No. **12572691**
Revision No. **-**
Date **Feb 2023**

FIGURE 3 - 3

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Appendix B

CalEEMod Modeling Information and Results

Manila Drainage Project - Construction - Humboldt County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Manila Drainage Project - Construction

Humboldt County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Asphalt Surfaces	3.36	1000sqft	0.08	3,360.00	0
City Park	0.35	Acre	0.35	15,246.00	0

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	103
Climate Zone	1			**Operational Year**	2024
Utility Company	Pacific Gas and Electric Company				
CO2 Intensity (lb/MWhr)	203.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Construction Only

Land Use - Apprx. 0.35 acres of grading activity for swales, and 3,360sf of repaving

Construction Phase - Site Prep increased to 5 working days. Grading and Repaving increased to 10 working days each.

Off-road Equipment - Default Equipment and Activity

Grading - 1,000 CY for Veg Offhaul, 1,099 CY for Swales off-haul

Demolition - 60.9 Tons of Asphalt to Haul

Trips and VMT - Default Worker and Haul Trips. Assumed 1 Vendor trip per day during repaving.

Vehicle Trips - Construction Only

Manila Drainage Project - Construction - Humboldt County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	2.00	10.00
tblConstructionPhase	NumDays	5.00	10.00
tblConstructionPhase	NumDays	1.00	5.00
tblConstructionPhase	PhaseEndDate	2/15/2023	2/27/2023
tblConstructionPhase	PhaseEndDate	7/12/2023	7/19/2023
tblConstructionPhase	PhaseEndDate	2/13/2023	2/17/2023
tblGrading	MaterialExported	0.00	1,099.00
tblGrading	MaterialExported	0.00	1,000.00
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblTripsAndVMT	VendorTripNumber	0.00	1.00
tblVehicleTrips	ST_TR	1.96	0.00
tblVehicleTrips	SU_TR	2.19	0.00
tblVehicleTrips	WD_TR	0.78	0.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2023	0.0142	0.1472	0.1228	3.2000e-004	0.0332	5.6100e-003	0.0388	0.0143	5.2400e-003	0.0196	0.0000	28.1573	28.1573	5.1000e-003	1.3300e-003	28.6802
Maximum	**0.0142**	**0.1472**	**0.1228**	**3.2000e-004**	**0.0332**	**5.6100e-003**	**0.0388**	**0.0143**	**5.2400e-003**	**0.0196**	**0.0000**	**28.1573**	**28.1573**	**5.1000e-003**	**1.3300e-003**	**28.6802**

Manila Drainage Project - Construction - Humboldt County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition - Pavement	Demolition	1/30/2023	2/10/2023	5	10	
2	Site Preparation - Vegetation Removal	Site Preparation	2/11/2023	2/17/2023	5	5	
3	Grading - Swale	Grading	2/14/2023	2/27/2023	5	10	
4	Paving - Repaving	Paving	7/6/2023	7/19/2023	5	10	

Acres of Grading (Site Preparation Phase): 2.5

Acres of Grading (Grading Phase): 7.5

Acres of Paving: 0.08

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating –

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition - Pavement	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition - Pavement	Rubber Tired Dozers	1	1.00	247	0.40
Demolition - Pavement	Tractors/Loaders/Backhoes	2	6.00	97	0.37
Site Preparation - Vegetation Removal	Graders	1	8.00	187	0.41
Site Preparation - Vegetation Removal	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Grading - Swale	Graders	1	6.00	187	0.41
Grading - Swale	Rubber Tired Dozers	1	6.00	247	0.40
Grading - Swale	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Paving - Repaving	Cement and Mortar Mixers	4	6.00	9	0.56
Paving - Repaving	Pavers	1	7.00	130	0.42
Paving - Repaving	Rollers	1	7.00	80	0.38
Paving - Repaving	Tractors/Loaders/Backhoes	1	7.00	97	0.37

Manila Drainage Project - Construction - Humboldt County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition - Pavement	4	10.00	0.00	6.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation - Vegetation Removal	2	5.00	0.00	125.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Grading - Swale	3	8.00	0.00	137.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Paving - Repaving	7	18.00	1.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Manila Drainage Project - Construction - Humboldt County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.2 Demolition - Pavement - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					6.5000e-004	0.0000	6.5000e-004	1.0000e-004	0.0000	1.0000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.2300e-003	0.0289	0.0370	6.0000e-005		1.4100e-003	1.4100e-003		1.3500e-003	1.3500e-003	0.0000	5.2091	5.2091	9.5000e-004	0.0000	5.2328
Total	**3.2300e-003**	**0.0289**	**0.0370**	**6.0000e-005**	**6.5000e-004**	**1.4100e-003**	**2.0600e-003**	**1.0000e-004**	**1.3500e-003**	**1.4500e-003**	**0.0000**	**5.2091**	**5.2091**	**9.5000e-004**	**0.0000**	**5.2328**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.0000e-005	5.2000e-004	9.0000e-005	0.0000	5.0000e-005	0.0000	5.0000e-005	1.0000e-005	0.0000	2.0000e-005	0.0000	0.1772	0.1772	0.0000	3.0000e-005	0.1855
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.5000e-004	2.5000e-004	2.4100e-003	1.0000e-005	6.0000e-004	0.0000	6.0000e-004	1.6000e-004	0.0000	1.6000e-004	0.0000	0.4974	0.4974	2.0000e-005	2.0000e-005	0.5033
Total	**3.6000e-004**	**7.7000e-004**	**2.5000e-003**	**1.0000e-005**	**6.5000e-004**	**0.0000**	**6.5000e-004**	**1.7000e-004**	**0.0000**	**1.8000e-004**	**0.0000**	**0.6746**	**0.6746**	**2.0000e-005**	**5.0000e-005**	**0.6888**

Manila Drainage Project - Construction - Humboldt County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.3 Site Preparation - Vegetation Removal - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					1.3800e-003	0.0000	1.3800e-003	1.5000e-004	0.0000	1.5000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.3400e-003	0.0155	9.8100e-003	2.0000e-005		5.7000e-004	5.7000e-004		5.2000e-004	5.2000e-004	0.0000	2.1374	2.1374	6.9000e-004	0.0000	2.1547
Total	**1.3400e-003**	**0.0155**	**9.8100e-003**	**2.0000e-005**	**1.3800e-003**	**5.7000e-004**	**1.9500e-003**	**1.5000e-004**	**5.2000e-004**	**6.7000e-004**	**0.0000**	**2.1374**	**2.1374**	**6.9000e-004**	**0.0000**	**2.1547**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.8000e-004	0.0108	1.7900e-003	4.0000e-005	1.0300e-003	9.0000e-005	1.1200e-003	2.8000e-004	9.0000e-005	3.7000e-004	0.0000	3.6906	3.6906	1.0000e-005	5.8000e-004	3.8637
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	9.0000e-005	6.0000e-005	6.0000e-004	0.0000	1.5000e-004	0.0000	1.5000e-004	4.0000e-005	0.0000	4.0000e-005	0.0000	0.1244	0.1244	0.0000	0.0000	0.1258
Total	**2.7000e-004**	**0.0109**	**2.3900e-003**	**4.0000e-005**	**1.1800e-003**	**9.0000e-005**	**1.2700e-003**	**3.2000e-004**	**9.0000e-005**	**4.1000e-004**	**0.0000**	**3.8150**	**3.8150**	**1.0000e-005**	**5.8000e-004**	**3.9895**

Manila Drainage Project - Construction - Humboldt County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.4 Grading - Swale - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0266	0.0000	0.0266	0.0129	0.0000	0.0129	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	4.6700e-003	0.0509	0.0278	7.0000e-005		2.1000e-003	2.1000e-003		1.9300e-003	1.9300e-003	0.0000	6.1905	6.1905	2.0000e-003	0.0000	6.2406
Total	**4.6700e-003**	**0.0509**	**0.0278**	**7.0000e-005**	**0.0266**	**2.1000e-003**	**0.0287**	**0.0129**	**1.9300e-003**	**0.0148**	**0.0000**	**6.1905**	**6.1905**	**2.0000e-003**	**0.0000**	**6.2406**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	2.0000e-004	0.0119	1.9600e-003	4.0000e-005	1.1300e-003	1.0000e-004	1.2300e-003	3.1000e-004	1.0000e-004	4.1000e-004	0.0000	4.0449	4.0449	1.0000e-005	6.4000e-004	4.2346
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.8000e-004	2.0000e-004	1.9300e-003	0.0000	4.8000e-004	0.0000	4.8000e-004	1.3000e-004	0.0000	1.3000e-004	0.0000	0.3979	0.3979	1.0000e-005	1.0000e-005	0.4027
Total	**4.8000e-004**	**0.0121**	**3.8900e-003**	**4.0000e-005**	**1.6100e-003**	**1.0000e-004**	**1.7100e-003**	**4.4000e-004**	**1.0000e-004**	**5.4000e-004**	**0.0000**	**4.4429**	**4.4429**	**2.0000e-005**	**6.5000e-004**	**4.6372**

Manila Drainage Project - Construction - Humboldt County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.5 Paving - Repaving - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	3.0600e-003	0.0275	0.0351	6.0000e-005		1.3200e-003	1.3200e-003		1.2300e-003	1.2300e-003	0.0000	4.6996	4.6996	1.3700e-003	0.0000	4.7338
Paving	1.0000e-004					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**3.1600e-003**	**0.0275**	**0.0351**	**6.0000e-005**		**1.3200e-003**	**1.3200e-003**		**1.2300e-003**	**1.2300e-003**	**0.0000**	**4.6996**	**4.6996**	**1.3700e-003**	**0.0000**	**4.7338**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.0000e-005	2.7000e-004	8.0000e-005	0.0000	3.0000e-005	0.0000	3.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0929	0.0929	0.0000	1.0000e-005	0.0968
Worker	6.3000e-004	4.6000e-004	4.3300e-003	1.0000e-005	1.0800e-003	1.0000e-005	1.0900e-003	2.9000e-004	1.0000e-005	2.9000e-004	0.0000	0.8954	0.8954	3.0000e-005	3.0000e-005	0.9060
Total	**6.4000e-004**	**7.3000e-004**	**4.4100e-003**	**1.0000e-005**	**1.1100e-003**	**1.0000e-005**	**1.1200e-003**	**3.0000e-004**	**1.0000e-005**	**3.0000e-004**	**0.0000**	**0.9882**	**0.9882**	**3.0000e-005**	**4.0000e-005**	**1.0028**

Appendix C

Wetland Delineation

Wetland Delineation

Manila Drainage Project

Manila Community Services District

November 16, 2022

Wetland Delineation
Manila Drainage Project

This document has been prepared for:

Manila Community Services District

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November 16, 2022

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1. Introduction

GHD prepared this wetland delineation report of wetlands and Other Waters of the U.S. and/or State and accompanying appendices on behalf of the Manila Community Services District (MCSD or District), in support of the proposed Manila Flood Reduction and Drainage Enhancement Project (Project) to improve drainage and reduce flooding in Manila, California (**Appendix A; Figure 1**). This report supports the Project's environmental documentation and permitting. The proposed Project Area includes several locations in the unincorporated community of Manila (**Appendix A; Figure 2**). This report is subject to, and must be read in conjunction with, the limitations set out in Section 5, Special Terms and Conditions, and the assumptions and qualifications contained throughout the report.

1.1 Project Description

The MCSD proposes to make drainage improvements (hereafter Project) throughout the community of Manila, California (**Appendix A; Figure 1**). The Project will apply a community-wide approach to address persistent flooding and drainage problems caused by undersized, disconnected, and failing infrastructure. Simple solutions, consisting of vegetated bioswales, rain gardens, replacement of undersized and failing culverts, and new culverts in select locations are proposed. The Project, led by the MCSD, will incorporate multi-objective, multi-benefit project components that address flood reduction, ecosystem services, and resiliency to sea level rise and climate change. Existing bioswales will be restored to historical grades by removal of accumulated debris and sediment, new bioswales will be graded and planted with native species to connect existing drainage paths. Existing undersized and or failing culverts will be replaced with new, larger capacity culverts ranging from 12 to 36 inches in diameter. New culverts will be installed in select locations, ranging from 18 to 24 inches in diameter. Rain gardens will be implemented along roadsides as well at the Manila Community Center to replace a concrete courtyard.

To assist with preparation of the Project's California Environmental Quality Act (CEQA) document and the Project permitting, GHD delineated wetlands within the Project's Study Boundary (PSB); (**Appendix A; Figure 2**). The purpose of this report is to document the results of the July 21-22 and August 23, 2022 delineations and to provide information to support the Project's CEQA document.

1.2 Summary

GHD conducted the wetland delineation fieldwork on July 21-22 and August 23, 2022. The delineation was conducted within the Project Area (or Project Study Boundary [PSB]), as shown in **Appendix A; Figures 2 and 3**. Two private property parcels (APNs: 400-031-012 and 400-031-013) near the center of the PSB were delineated separately by O'Brien Biological Consultants on July 4, 2022 (OBC 2022). The results of that delineation have been included in this report.

The Project is in the Coastal Zone within the State jurisdiction of the California Coastal Commission (CCC), and within the Appeal and Local Jurisdiction, which is regulated by the Humboldt County Local Coastal Program under the Humboldt Bay Area Plan. The wetland delineation included the delineation of both United States Army Corps of Engineers (USACE) three-parameter wetlands and Coastal Act one-parameter wetlands based on the presence of wetland indicative vegetation, hydric soils, and/or wetland hydrology (either one of those parameters, or all three).

The wetland delineation identified four types of three-parameter wetlands with hydric soil, hydrophytic vegetation, and hydrology, and one-parameter wetlands throughout the PSB. Wetlands were mapped as shown in **Appendix A; Figure 3**. The total area of one-parameter wetland (Wetland 1) within the Project Area is 128,550 ft^2 (2.95 acres), and three-parameter wetlands (Wetlands 2-5) total 44,900 ft^2 (1.03 acre) (**Appendix A; Figure 3**).

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1.3 Regulatory Background

1.3.1 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 means:

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

Wetlands 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), based on Cowardin et al. (1979), states that wetlands must have 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).

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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 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, 2021).

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*

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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).

1.3.3 Coastal Zone – Local Coastal Program

The Project Area is within the County Jurisdiction of the Coastal Zone, which is regulated by Humboldt County under the Humboldt Bay Area Plan (HBAP) of the Humboldt County Local Coastal Program (HCPD 2022). The County will rely on the HBAP for issuance of a coastal development permit.

The HBAP (certified in 1982) uses the Coastal Act definition of wetlands (Ch.3, p.48), and states "No land use or development shall be permitted in areas adjacent to coastal wetlands, called Wetland Buffer Areas, which degrade the wetland or detract from the natural resource value. Wetland Buffer Areas shall be defined as:

(1) The area between a wetland and the nearest paved road, or the 40 foot contour line (as determined from the 7.5' USGS contour maps), whichever is the shortest distance, or,

(2) 250 feet from the wetland, where the nearest paved road or 40 foot contour exceed this distance, or

(3) Transitional Agricultural lands designated Agriculture Exclusive shall be excluded from the wetland buffer."

The HBAP provides specific examples of ESHA within the Humboldt Bay Area coastal zone (Ch.3, p.44):

1) Identification of Environmentally Sensitive Habitats

   a) Environmentally sensitive habitats within the Humboldt Bay Planning Area include:

      (1) Wetlands and estuaries, including Humboldt Bay and the mouth of the Mad River.

      (2) Vegetated dunes along the North Spit to the Mad River and along the South Spit.

      (3) Rivers, creeks, gulches, sloughs and associated riparian habitats, including Mad River Slough, Ryan Slough, Eureka Slough, Freshwater Slough, Liscom Slough, Fay Slough, Elk River, Salmon Creek, and other streams.

      (4) Critical habitats for rare and endangered species listed on state or federal lists.

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2. Methodology

2.1 Wetland Delineation Approach

GHD environmental scientists conducted the wetland delineation on July 21-22 and August 23, 2022. To define a wetland, the USACE requires that vegetation, soil, and hydrology (three-parameters) all show wetland attributes (USACE 1987; USACE 2010). The CCC requires only one parameter of the three (hydric soils, wetlands vegetation or wetlands hydrology) to be present in order to define the site as a wetland (14 CCR 13577; CCC 2011). The wetland delineation used USACE criteria from the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys and Coast Region (USACE 2010). The current standard field forms provided by the USACE (2010) were used to collect vegetation, soils, and hydrology data (**Appendix B**).

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

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

Due to the complexity of the PSB and the separation of survey teams, wetlands as identified in this report were not numbered in the field. Data sheet numbers were used to differentiate survey locations as follows: transects were labelled with a W#, transect number, and paired wetland and upland designations (e.g., W1-T1-W and W1-T1-U). When mapping a three-parameter wetland within a one-parameter wetland, the paired transect points would be labelled W#-T#-**W3** and W#-T#-**W1** to indicate the boundary from three-parameter (**W3**) to one-parameter wetlands (**W1**), in lieu of the upland/wetland boundary. Data sheets were not recorded for areas that were upland or one-parameter wetland with no transition to three-parameter wetlands. Appendix B contains all datasheets recorded during the delineation.

Two private property parcels (APNs: 400-031-012 and 400-031-013) near the center of the PSB were delineated separately by O'Brien Biological Consultants on July 4, 2022 (OBC 2022). The results of that delineation have been included in this report.

2.2 Vegetation

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-walked to federal standard nomenclature to identify the indicator status. The species' wetland indicator status for the Western Mountains, Valleys, and Coast Region was noted in the respective column, using the standard reference: National USACE 2020 Wetland Plant List (USACE 2020a). 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)

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Species that do not appear on the list are considered to be in the upland category (Lichvar et al. 2012). 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). A complete list of plants documented at the site with respective wetland indicator status is included as **Appendix C**. photographs have been included as **Appendix D**. The separate Biological Resources Report prepared by GHD will contain the location and extent of mapped vegetation alliances and Sensitive Natural Communities within the Project Area.

2.3 Soils

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 14 inches. Data on soil color, texture, and redoximorphic features were recorded. Any observed redoximorphic features (iron concentrations) were noted along with their percentage within the soil matrix, and care was taken to distinguish chromas of 1 and 2 indicative of an iron-depleted soil within 12 inches of the soil surface (USACE 2010; USDA/NRCS 2016).

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

Urban land-Anthraltic Xerorthents association, 0 to 2 percent slopes

The Urban land-Anthraltic Xerorthents association, 0 to 2 percent slopes map unit composition contains: 80% urban land, industrial, and 20% Anthraltic Xerorthents and similar soils. This soil type comprises 98% (**Appendix A; Figure 4 and Appendix E**).

The Urban land-Anthraltic Xerorthents association can be found on fluviomarine terraces and the parent material is coarse-loamy fluviomarine deposits and/or coarse-loamy dredge spoils. Urban land-Anthraltic Xerorthents association consists of slightly gravelly loamy fine sand in the top horizon above sandy loam to 31 inches, with gravelly sand and sand in the deepest horizons. Urban land-Anthraltic Xerorthents association has a Land Capability Classification (LCC) of 8 without irrigation (with irrigation is unspecified), and is not rated as a hydric soil. Urban land does not have a drainage class, but the depth to water table is about 24 inches. The Anthraltic Xerorthents is moderately well drained and the depth to water table is 0-6 inches.

Lanphere, 2 to 75 percent slopes

The Lanphere, 2 to 75 percent slopes map unit composition contains: 85% Lanphere and similar soils, and 15% minor components (consisting of 10% Clambeach and 5% Samoa). This soil type comprises 1.9% of the PSB (**Appendix A; Figure 4** and **Appendix E**).

Lanphere soils can be found on longitudinal coastal dunes and the parent material is mixed eolian sands. Lanphere consists of slightly decomposed plant material in the top horizon above sand on all other horizons. Lanphere has a LCC of 7e without irrigation (with irrigation is unspecified), and is not rated as a hydric soil. Lanphere is somewhat excessively drained and the depth to water table is more than 80 inches.

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Hydraquents-Wassents mucky silt loam, strongly saline, 0-3 percent slopes, very frequently flooded

The Hydraquents-Wassents mucky silt loam, strongly saline, 0-3 percent slopes map unit composition contains: 50% low tidal Hydraquents and similar soils, 40% Wassents and similar soils, and 10% minor components (consisting of marine water and high tidal Hydraquents). This soil type is on the shore of Humboldt Bay and comprises 0.01% of the PSB (**Appendix A; Figure 4 and Appendix E**).

Hydraquents-Wassents mucky silt loam can be found on tidal flats and the parent material is mucky, silty, and clayey estuarine deposits. This soil type consists of mucky silty clay loam on all horizons. Hydraquents-Wassents has an LCC of 8 without irrigation (with irrigation is unspecified), and is rated as a hydric soil. Hydraquents-Wassents is very poorly drained and the depth to water table is 0 inches.

2.4 Hydrology

GHD delineated wetlands within the PSB on July 21-22 and August 16, 2022. Rainfall for the entire 2022 Water Year was below normal totaling 25.66 inches at the end of July 2022. Precipitation in July was also below normal: 0.76 inch. A WETS table showing climate data for the Arcata Eureka Airport in McKinleyville, California is provided in **Appendix F**. Aerial photography and the National Wetland Inventory Mapper were referenced before conducting fieldwork (**Appendix A; Figure 5**) (NWI 2022). The flood hazard map is also included in **Appendix A; Figure 6** (FEMA 2022). Wetland hydrology indicators, such as drainage patterns, material deposits, soil saturation, high water table, or surface water presence, were recorded in the field.

3. Results

The PSB broadly contains four types of three-parameter wetlands, and one-parameter wetland (Wetland 1) consisting of stands of willow trees, wax myrtles, alders, and hydrophytic herbs. All wetlands in the PSB are within the jurisdiction of the CCC (**Table 1**). All three-parameter wetlands are jurisdictional to the USACE either through direct surficial connection to Humboldt Bay and ocean, or by sub-surface connection through the porous substrate and close proximity to the Bay. Additionally, all three-parameter wetlands meet the definition of Waters of the State and therefore are also under the jurisdiction of the North Coast Regional Water Quality Control Board (NCRWQCB). **Appendix A; Figure 3** show the results of the wetland delineations, and summaries of each wetland are presented in **Table 1** below.

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Table 1 Wetlands within the Delineated Area and Potential Jurisdiction

Aquatic Resource Name	Wetland Type	Location	Aquatic Resource Size (ft^2)	Jurisdiction		
				USACE	NCRWQCB	CCC
Wetland 1	1-parameter	Scattered stands of willows, wax myrtle, red alder and hydrophytic herbs throughout Manila	**128,550 ft^2 (2.95 acres)**	No	No	Yes
Wetland 2	3-par Palustrine emergent ditches	Along Peninsula Road	**14,885 ft^2 (0.34 acre)**	Yes	Yes	Yes
Wetland 3	3-par Palustrine emergent wetlands	Between Victor Blvd. and shore, between Young Lane and shore.	**15,050 ft^2 (0.34 acre)**	Yes	Yes	Yes
Wetland 4	3-par Freshwater forested shrub wetland	Gully	**7,170 ft^2 (0.16 acre)**	Yes	Yes	Yes
Wetland 5	3-par Estuarine and marine wetland	Shore of Humboldt Bay	**7,795 ft^2 (0.18 acre)**	Yes	Yes	Yes
		Total Wetlands in Project Area	**173,450 ft^2 (3.98 acres)**			

3.1 One-parameter Wetlands

The majority of wetlands in the PSB were identified as one-parameter wetlands based on the presence of hydrophytic vegetation. Due to the lack of wetlands hydrology and hydric soils, these were determined to be one-parameter wetlands.

3.1.1 Wetland 1 (“W1”)

One-parameter wetlands are scattered throughout the community of Manila around and juxtaposed next to palustrine emergent ditches, railroad tracks, drainage gullies, and natural habitat. These scattered and separate stands are all designated as Wetland 1 for quantification and mitigation purposes. The hydrophytic vegetation in these wetlands is generally characterized by Hooker’s willow (*Salix hookeriana*), wax myrtle (*Morella californica*), and red alder (*Alnus rubra*) with various hydrophytic herbs in the understory and blackberry vines (*Rubus spp.*) in the vine layer. Wetland 1 comprises 128,550 ft^2 (2.95 acres) of the PSB. See **Table 2** below and attached data sheets in **Appendix B** for additional details.

Table 2 Summary of one-parameter wetland datasheets

Datasheet	Lat/Long	Dominant Tree/Shrub	Dominant Herbs	Dominant Vines
W2-T1-W1	40.850465, -124.161917	Hooker’s willow (FACW)	Great horsetail (FACW), creeping buttercup (FAC)	N/A
W2-T3-W1	40.850815, -124.162653	Hooker’s willow (FACW)	Great horsetail (FACW), bird’s-foot trefoil (FAC)	N/A
W2-T4-W1	40.850030, -124.161096	Hooker’s willow (FACW)	Hedge bindweed (FAC)	Himalayan blackberry (FAC)
W3-T1-W1	40.852930, -124.160454	Red alder (FAC), wax myrtle (FACW)	Hedge bindweed (FAC)	Himalayan blackberry (FAC)

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Datasheet	Lat/Long	Dominant Tree/Shrub	Dominant Herbs	Dominant Vines
W4-T1-W1a	40.847115, -124.165926	Hooker's willow (FACW)	Slough sedge (OBL), great horsetail (FACW)	California blackberry (FACU), Himalayan blackberry (FAC)
W4-T1-W1b	40.847202, -124.166012	none	Velvet grass (FAC), ribwort plantain (FACU), bird's-foot trefoil (FAC)	Himalayan blackberry (FAC)
W4-T2-W1	40.851598, -124.162892	Hooker's willow (FACW)	Velvet grass (FAC), vernal sweet grass (FACU), rye grass (FAC), white clover (FAC)	California blackberry (FACU), Himalayan blackberry (FAC)
W5-T1-W1	40.853930, -124.161869	Hooker's willow (FACW)	Smallfruit bulrush (OBL)	California blackberry (FACU)
W5-T2-W1	40.853974, -124.161686	Sitka spruce (FAC)	California figwort (FAC)	California blackberry (FACU)

3.2 Three-parameter Wetlands

Four types of wetlands in the PSB met the criteria for three-parameter wetlands: palustrine emergent ditches, palustrine emergent wetlands, freshwater forested shrub wetland, and estuarine and marine wetland. Summaries of each three-parameter wetland are provided below, and area is provided in **Table 1**. Please see the USACE Data Forms in **Appendix B** for more details. The PSB contains a total of 44,900 ft^2 (1.03 acres) of three-parameter wetlands.

3.2.1 Wetland 2 ("W2")

Wetland 2 is a loosely connected series of three-parameter wetlands classified according to the Cowardin system as palustrine emergent ditches (FGDC 2013) alongside Peninsula Drive and the railroad tracks that run northeast/southwest through the community of Manila (**Appendix A; Figure 3)**. The surficial connection of these ditches to Humboldt Bay was not observed, but they are likely hydrologically linked to Humboldt Bay either surficially or subsurface through the porous substrate and proximity to the Bay. Wetland 2 occupies 14,885 ft^2 (0.34 acre) of the PSB.

Five plots were dug in ditches and wetlands collectively identified as Wetland 2. In general the tree or shrub stratum was dominated by Hooker's willow (FACW), the vine stratum was dominated by Himalayan blackberry (*Rubus armeniacus*, FAC) and/or California blackberry (*Rubus ursinus*, FACU), and the herb stratum was dominated by various hydrophytes including silverweed (*Argentina anserina*, OBL), slough sedge (*Carex obnupta*, OBL), water parsley (*Oenanthe sarmentosa*, OBL), and hedge bindweed (*Calystegia sepium*, FAC). Hydric soil indicators included hydrogen sulfide (A4), sandy redox (S5), and sandy gleyed matrix (S4). Wetland/hydrology indicators included high water table (A2), saturation (A3), water stained leaves (B9), drainage patterns (B10), and presence of reduced iron (C4). Please see **Table 3** below and attached data sheets in **Appendix B** for additional details.

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Table 3 Data summary for soil pits in Wetland 2.

Datasheet	Lat/Long	Dominant Vegetation		Hydric Soil	Hydrology	Notes
W2-T4-W3	40.850022, -124.161046	Tree	Hooker's willow (FACW)	Depleted matrix	High water table, saturation	Soil wet to the touch, redox present. Organic matter decomposition also present independent of redox.
		Herb	Creeping buttercup (FAC)			
		Vine	N/A			
W4-T1-W3	40.847186, -124.165987	Shrub	Hooker's willow (FACW)	Hydrogen sulfide, Sandy gleyed matrix	High water table, water stained leaves, present of reduced iron	Thin layer of muck on top.
		Herb	Slough sedge (OBL)			
		Vine	N/A			
W4-T2-W3	40.851594, -124.162881	Shrub	Hooker's willow (FACW)	Hydrogen sulfide, Sandy redox	Presence of reduced iron	
		Herb	Slough sedge (OBL)			
		Vine	Him. blackberry (FAC)			
W5-T1-W3	40.853966, -124.161862	Tree	Hooker's willow (FACW)	Hydrogen sulfide	High water table, saturation	Strong sulphur odor, bright grey lower horizon.
		Herb	Water parsley (OBL)			
		Vine	Cal. blackberry (FACU)			
W5-T2-W3	40.853997, -124.161687	Tree	Sitka spruce (FAC)	Hydrogen sulfide	High water table, saturation	Soil predominantly sandy with gray coloring, some sulphur smell.
		Herb	Hedge bindweed (FAC)			
		Vine	Cal. blackberry (FACU)			

The surficial connection of the ditches in Wetland 2 to Humboldt Bay was not directly observed, but likely exists. If there is not direct surficial connection, three-parameter wetlands in sandy areas along the coast are typically considered to be jurisdictional by the USACE with the reasoning that the porous substrate enables subsurface hydrological connection with the ocean. Additionally, Wetland 2 meets the definition of Waters of the State and therefore is also under the jurisdiction of the NCRWQCB. Wetland 2 is within the jurisdiction of the CCC because it is within the Coastal Zone (**Table 1**).

3.2.2 Wetland 3 ("W3")

Wetland 3 includes two areas classified according to the Cowardin system as palustrine emergent wetlands that are adjacent to the wetlands on the shore of Humboldt Bay (FGDC 2013). Only one plot (investigating vegetation, soils and hydrology) was conducted in Wetland 3, in the coastal wetland off of Victor boulevard. At this location (W2-T4-W3) the tree stratum was dominated by Hooker's willow (FACW), and the herb stratum was dominated by creeping buttercup (*Ranunculus repens*, FAC). Hydric soil indicators included depleted matrix (F3), Wetland/hydrology indicators included high water table (A2), and saturation (A3). Wetland 3 occupies 15,050 ft^2 (0.34 acre) of the PSB. Please see **Table 4** below and attached data sheets in **Appendix B** for additional details.

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No wetland transects were placed in the northern palustrine emergent wetland off of Young Lane at the north end of Manila. The vegetation in this wetland is dominated by hard-stem tule (*Schoenoplectus acutus*, OBL), and water parsley (OBL) with Hooker's willow (FACW) at the edges. The wetland areas on either side of Young Lane contain human-dug ditches, but these wetlands were likely present before the construction of the road and ditches and are not themselves artificial.

Table 4 ***Data summary for Wetland 3 transect.***

Datasheet	Lat/Long	Dominant Vegetation		Hydric Soil	Hydrology	Notes
W2-T4-W3	40.850022, -124.161046	Tree	Hooker's willow (FACW)	Depleted matrix	High water table, saturation	Soil wet to the touch, redox present. Organic matter decomposition also present independent of redox.
		Herb	Creeping buttercup (FAC)			
		Vine	N/A			

Both areas in Wetland 3 are surficially hydrologically connected to Humboldt Bay and are jurisdictional to the USACE, the NCRWQCB, and the CCC (**Table 1**).

3.2.3 Wetland 4 ("W4")

Wetland 4 is a forested gully between the Manila Community Park and Mill Street that flows into Humboldt Bay. This wetland is classified according to the Cowardin classification system as a freshwater forested shrub wetland until it reaches Wetland 5 on the shore of Humboldt Bay (FGDC 2013). One plot labelled W3-T1-W3 was conducted at the northwest end of the gully and is summarized below. Wetland 4 occupies 7,170 ft^2 (0.16 acre) of the PSB. This total area includes the 1,290 ft^2 that was delineated by O'Brien Biological Consultants on July 4, 2022. Please see attached data sheets in **Appendix B** for additional details.

Table 5 ***Data summary for Wetland 4 transect.***

Datasheet	Lat/Long	Vegetation		Hydric Soil	Hydrology	Notes
W3-T1-W3	40.852910, -124.160424	Tree	Red alder (FAC)	Redox dark surface	Water stained leaves, presence of reduced iron, drainage patterns, geomorphic position	Lower horizon mucky and wet.
		Herbs	Hedge bindweed (FAC)			
		Vines	Himalayan blackberry (FAC)			

Wetland 4 is surficially hydrologically connected to Humboldt Bay and is jurisdictional to the USACE, the NCRWQCB, and the CCC (**Table 1**).

3.2.4 Wetland 5 ("W5")

Wetland 5 includes four disjunct areas of the PSB that are located on the shore of Humboldt Bay. All wetlands within the PSB grouped in Wetland 5 are below the High Tide Line of 9.3 feet (NAVD 88). No transects or soil pits were placed in Wetland 5. Shoreline locations in Wetland 5 are classified according to the Cowardin classification system as estuarine and marine wetlands (FGDC 2013). Wetland 5 includes two culverts on the shore of the Bay south of Manila, one culvert on the shore of the Bay near Young Lane north of Manila, and the shoreline portions of the PSB off of Victor Boulevard and Peerless Avenue. Wetland 5 occupies 7,795 ft^2 (0.18 acre) of the PSB.

Vegetation in Wetland 5 generally included Lyngbye's sedge (*Carex lyngbyei*, OBL), salt grass (*Distichlis spicata*, FACW), hard-stem tule (*Schoenoplectus acutus*, OBL), and pickleweed (*Salicornia pacifica*, OBL). All areas in Wetland 5 are within Humboldt Bay and are jurisdictional to the USACE, the NCRWQCB, and the CCC (**Table 1**).

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4. Conclusions

The wetland delineation for the Manila Flood Reduction and Drainage Enhancement Project, completed on July 21-22 and August 23, 2022, determined the extent of wetlands within the Project Area based on hydrophytic vegetation, hydric soils, and wetland hydrology using methods and indicators outlined in the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys and Coast Region (USACE 2010). A total of 1.03 acres of three-parameter wetlands (Wetlands 2-5) are jurisdictional by the USACE either through direct surficial connection to Humboldt Bay and the ocean, or by sub-surface connection through the porous substrate and close proximity to the Bay. Additionally, all three-parameter wetlands meet the definition of Waters of the State and therefore are also under the jurisdiction of the North Coast Regional Water Quality Control Board (NCRWQCB). All wetlands in the PSB (6.93 acres) are within the Coastal Zone and within the jurisdiction of the CCC. (**Appendix A; Figures 4, 5**). Data forms are attached showing sample plot data collected in transects across wetland boundaries (**Appendix B**).

5. Special Terms and Conditions

5.1 Purpose of this Report

GHD prepared this report for the Manila Community Services District (District), and the District may only use and rely on this report for the purpose agreed upon between GHD and the District, 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 District arising in connection with this report. GHD also excludes implied warranties and conditions, to the extent legally permissible.

5.2 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, 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 June 15 and 16, 2022. 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.

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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.

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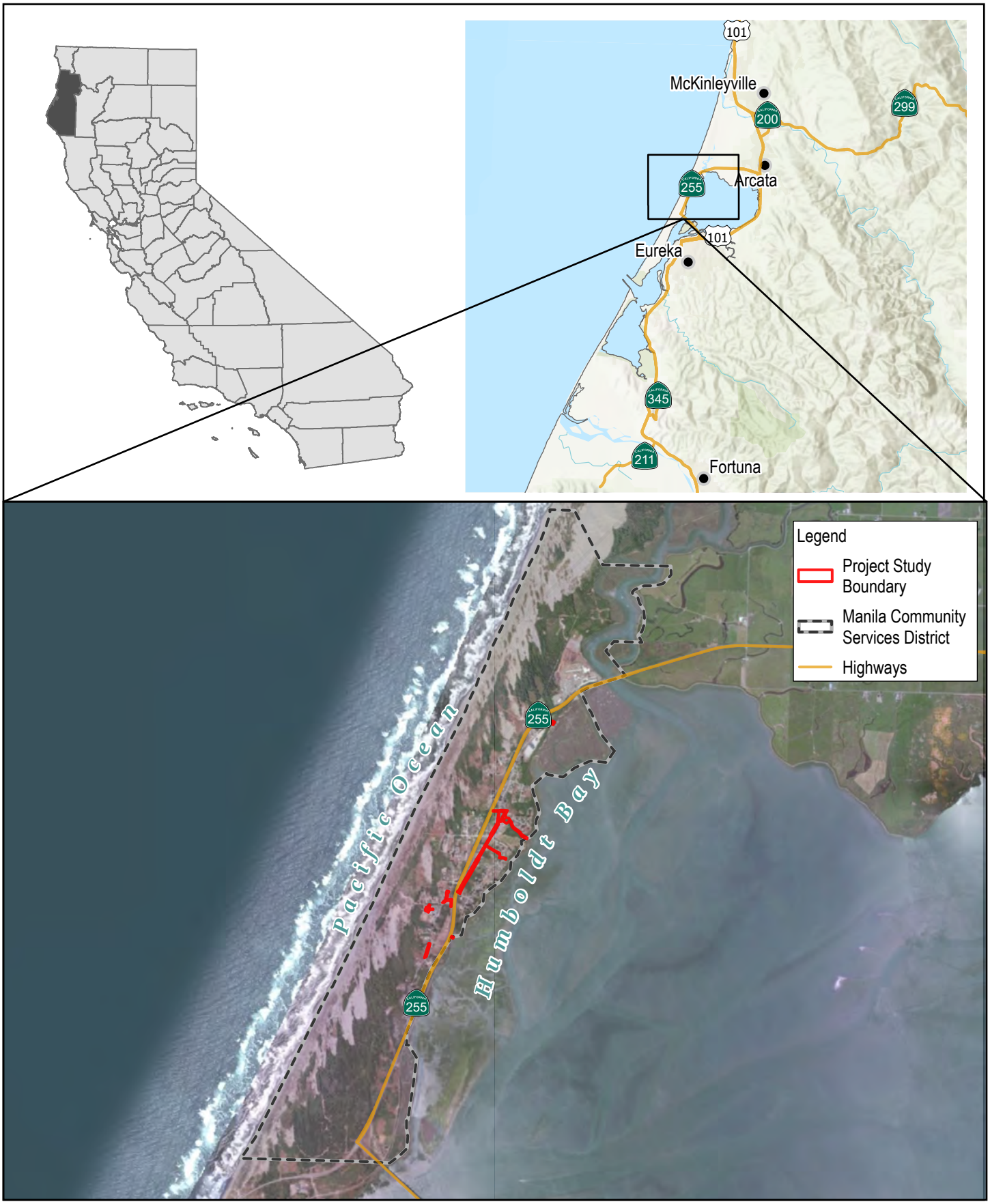
Appendices

Appendix A

Figures



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Vicinity Map

FIGURE 1

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Feet

Map Projection: Lambert Conformal Conic
Horizontal Datum: North American 1983
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Project Study Boundary

FIGURE 2

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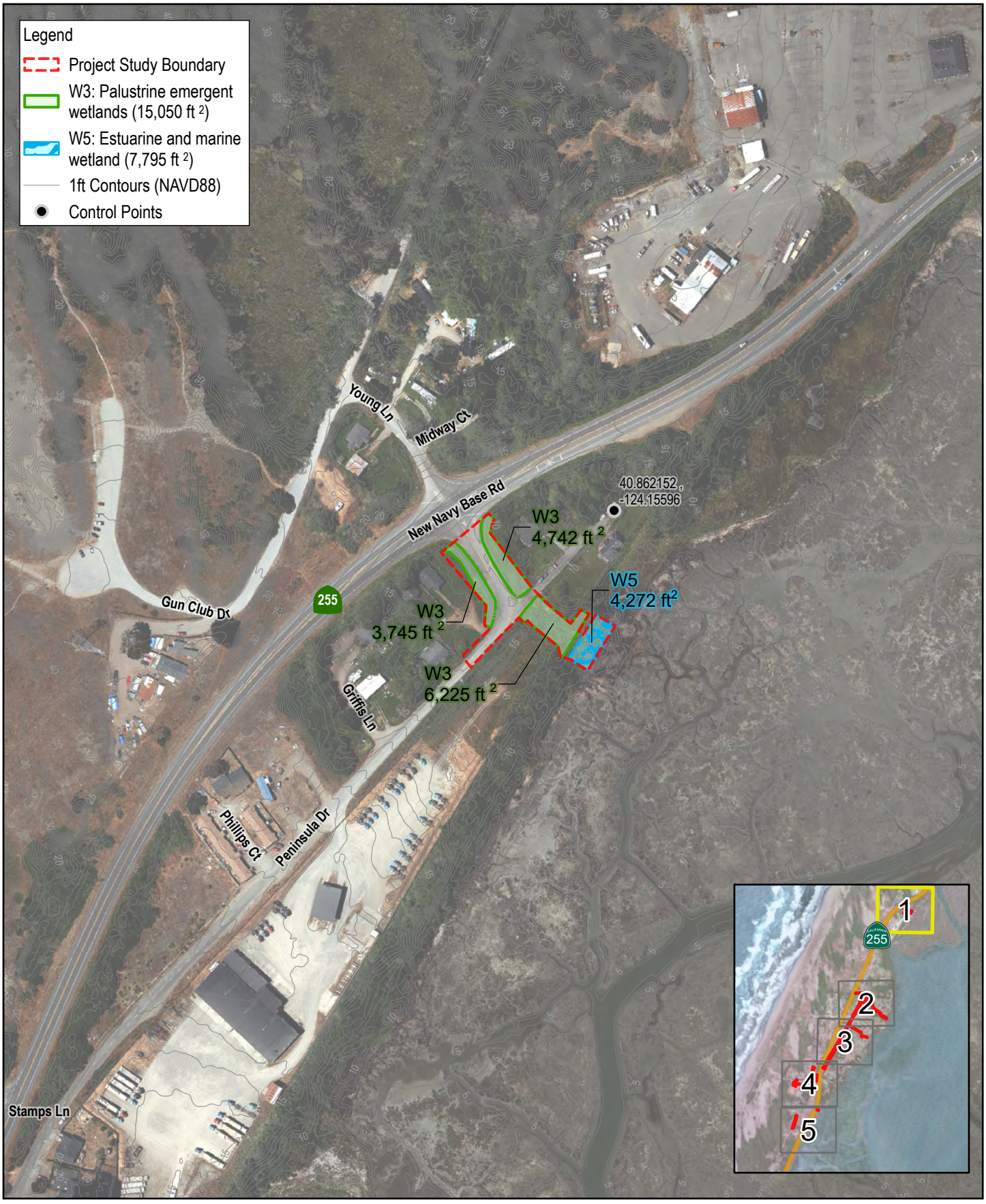

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Map Projection: Lambert Conformal Conic
Horizontal Datum: North American 1983
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Wetland Delineation

FIGURE 3-1

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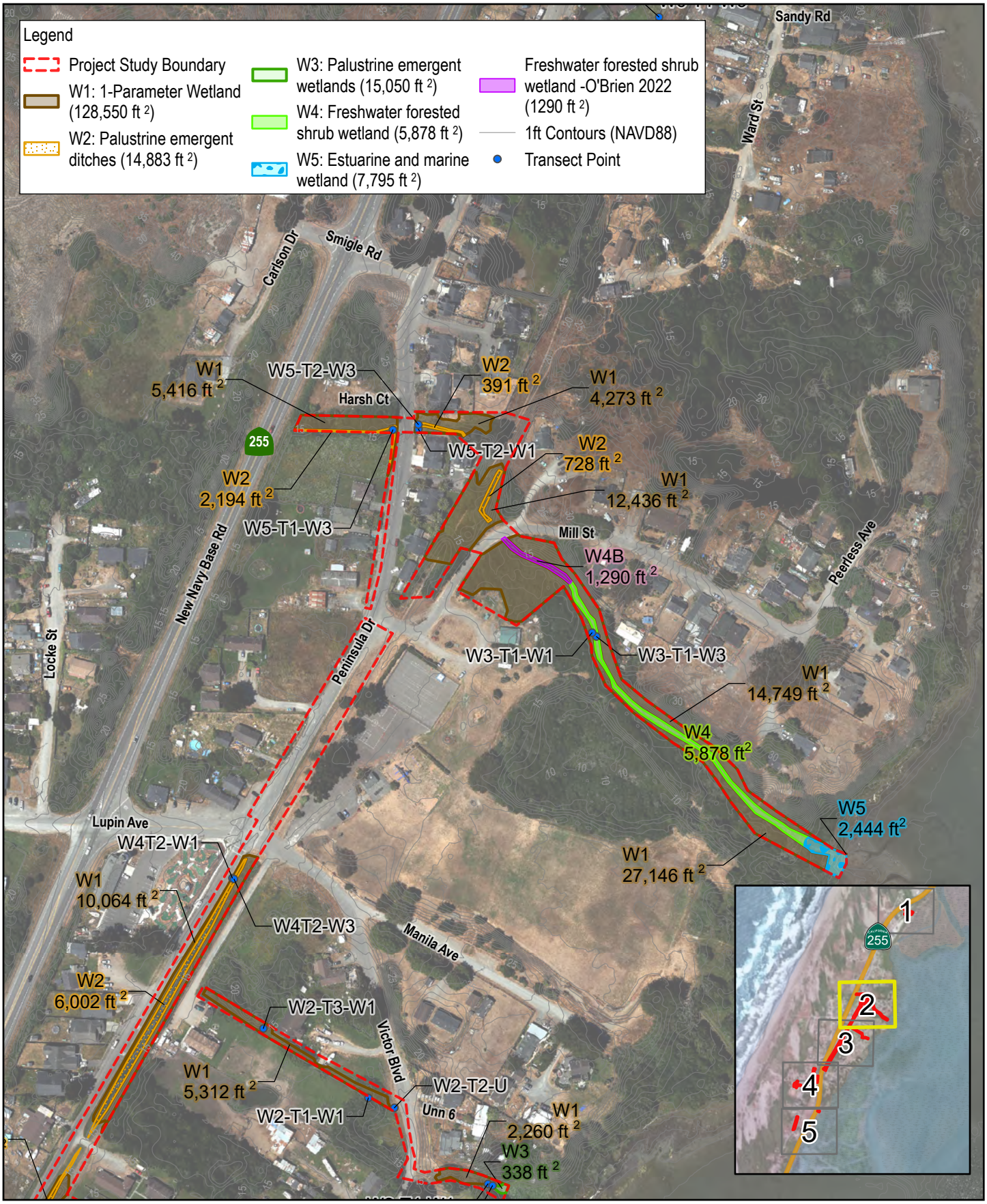

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Map Projection: Lambert Conformal Conic
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Wetland Delineation

FIGURE 3-2

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Map Projection: Lambert Conformal Conic
Horizontal Datum: North American 1983
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Wetland Delineation

FIGURE 3-3

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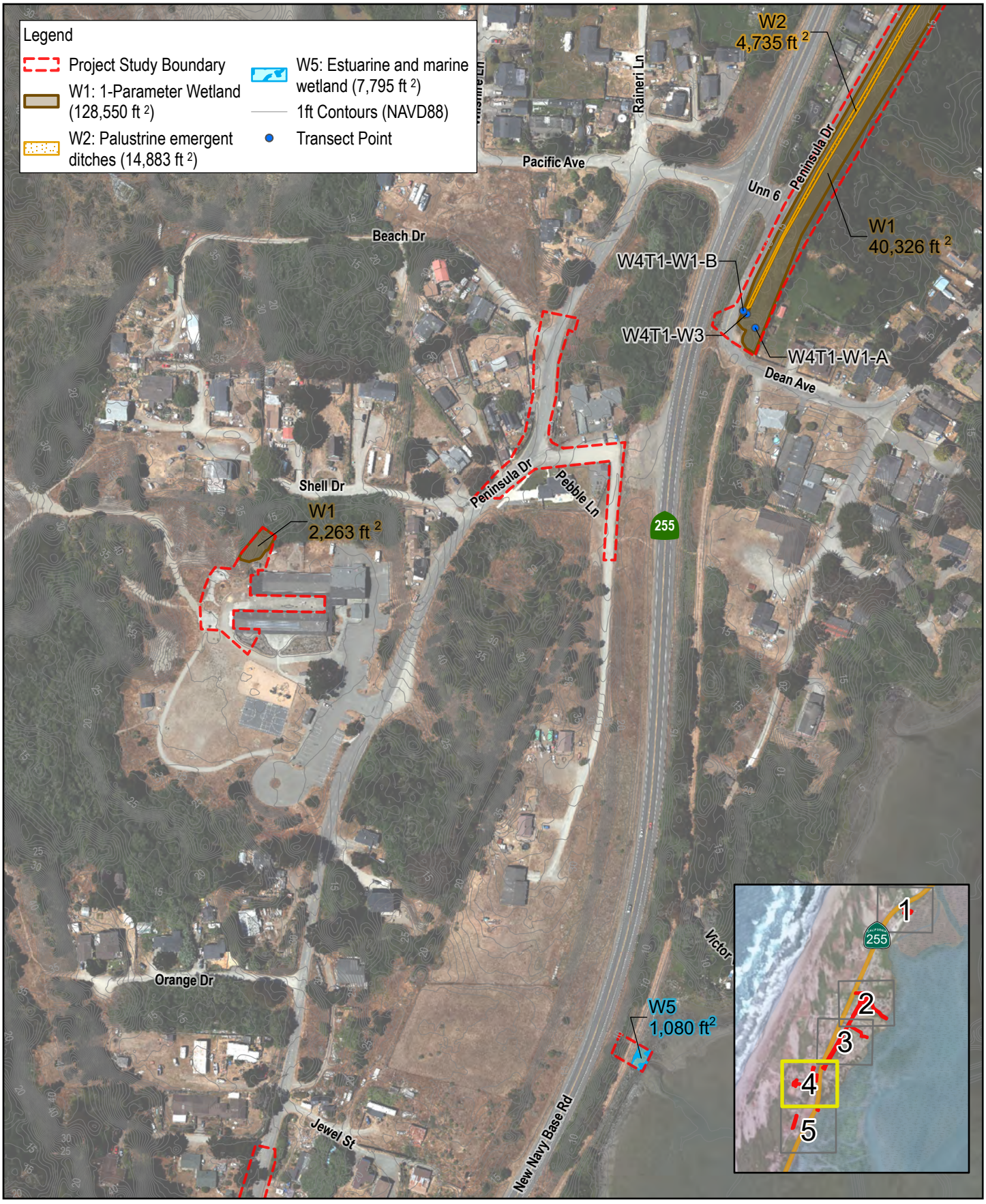

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Map Projection: Lambert Conformal Conic
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Wetland Delineation

FIGURE 3-4

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Map Projection: Lambert Conformal Conic
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Wetland Delineation

FIGURE 3-5

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Map Projection: Lambert Conformal Conic
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NRCS Soils

FIGURE 4

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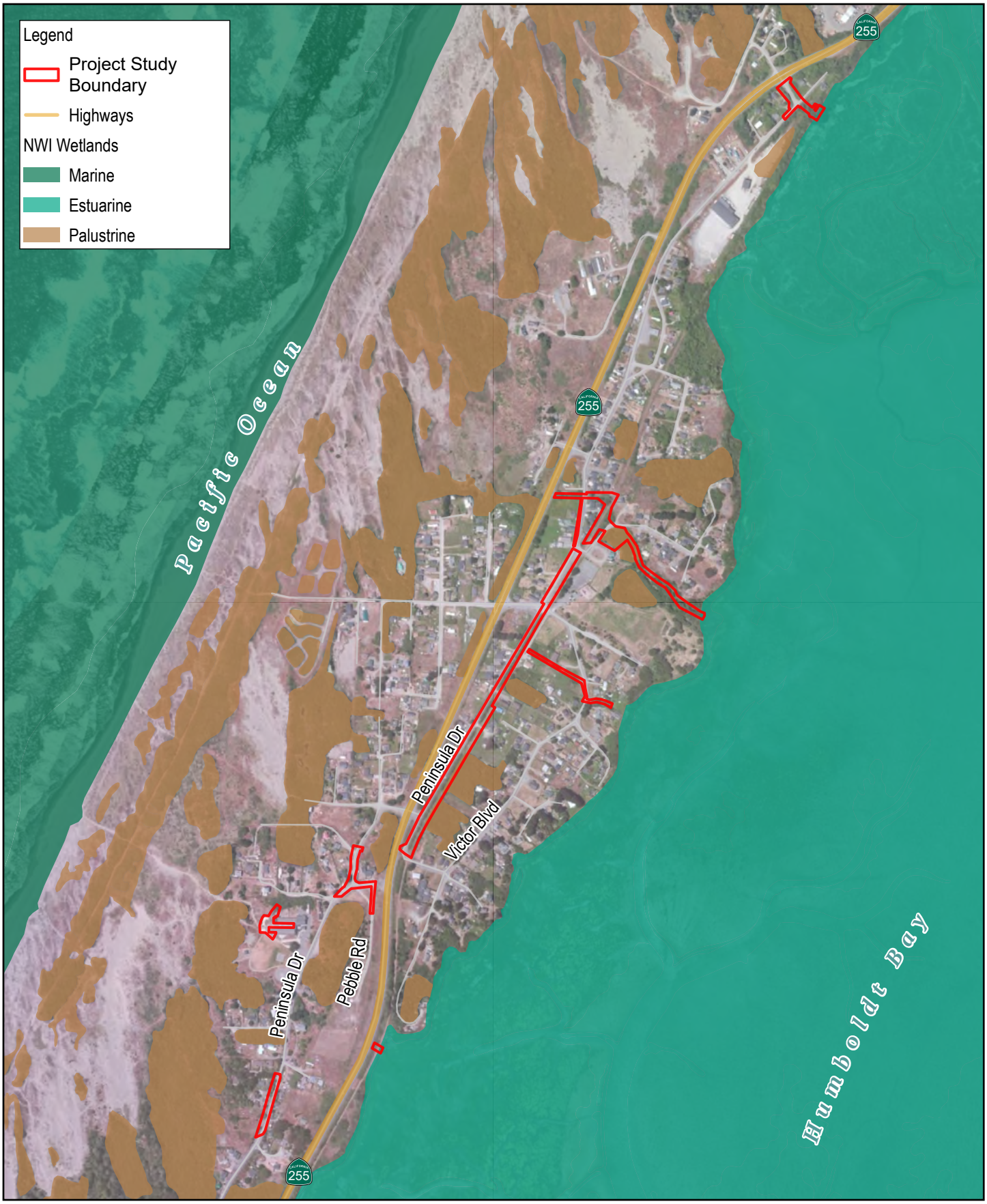

Paper Size ANSI A

0 250 500 750 1,000

Feet

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

N

GHD

Manila Community Services District
Manila Flood Reduction &
Drainage Enhancement Project

Project No. **12572691**
Revision No. **-**
Date **Nov 2022**

National Wetland Inventory

FIGURE 5

\\ghdnet\ghd\US\Eureka\Projects\561\12572691\GIS\Maps\Deliverables\12572691_Wetland_Delineation\12572691_Wetland_Delineation.aprx , 12572691_005_NWI
Print date: 16 Nov 2022 - 14:50

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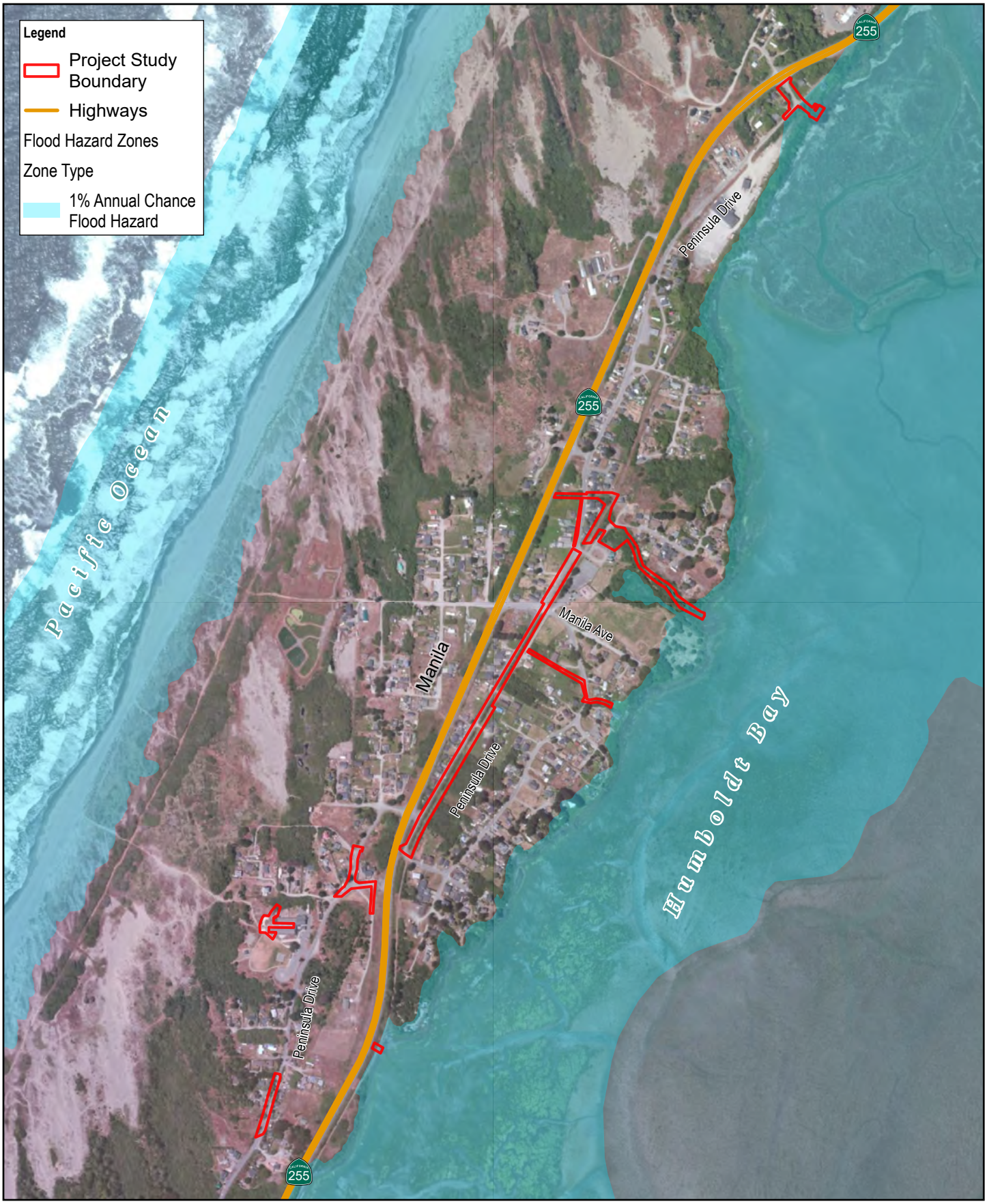

Paper Size ANSI A

0 250 500 750 1,000

Feet

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

N

GHD

Manila Community Services District
Manila Flood Reduction &
Drainage Enhancement Project

Project No. **12572691**
Revision No. **-**
Date **Nov 2022**

FEMA Flood Hazard Map

FIGURE 6

\\ghdnet\ghd\US\Eureka\Projects\561\12572691\GIS\Maps\Deliverables\12572691_Wetland_Delineation\12572691_Wetland_Delineation.aprx , 12572691_006_FEMA
Print date: 16 Nov 2022 - 14:51

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Appendix B

Data Sheets

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

Project/Site: Manila Drainage City/County: Manila / Humboldt Sampling Date: 7/20/22
Applicant/Owner: Humboldt County State: CA Sampling Point: W2-T1-W1
Investigator(s): J. Cipra / K. McNamee Section, Township, Range:
Landform (hillslope, terrace, etc.): Local relief (concave, convex, none): Slope (%):
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:
2-par wetland

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 ft r.)	Absolute % Cover	Dominant Species?	Indicator Status
1. Salix hookeriana	30	yes	FACW
2.			
3.			
4.			
	= Total Cover		

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

Herb Stratum (Plot size 1 m)			
1. Iris pseudacorus	2		OBL
2. Equisetum telmateia	4	yes	FACW
3. Lotus corniculatus	3		FAC
4. Ranunculus repens	5	yes	FAC
5. Holcus lanatus	2		FAC
6. Juncus bufonius	<1		FACW
7. Festuca perennis	<1		FAC
8.			
9.			
10.			
11.			
	18 = Total Cover		

Woody Vine Stratum (Plot size 1 m)			
1. Rubus ursinus	40	yes	FACU
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:

SOIL

Sampling Point: W2-T1-W

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-11	10YR 2/1	99%	—	—	—	—	Silt loam	1% sand; O.M/roots present
11-17	5Y 2.5/1	100%	—	—	—	—	sandy clay loam	sandy, wet, grayish

[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:

Lower horizon - had color that looked like redox, however appears to be orange due to OM decomposition.

lower passed alpha alpha test - lower horizon felt wet

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)
- X Presence of Reduced Iron (C4) - alpha
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) **(LRR A)**
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- X Drainage Patterns (B10)
- ___ 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 ____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes X No ____ Depth (inches): 17"

Wetland Hydrology Present? Yes X No ____

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

Remarks:

passed alpha alpha test. Lower horizon felt wet

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

Project/Site: Manila Drainage City/County: Humboldt County Sampling Date: 7/20/22

Applicant/Owner: Humboldt County State: CA Sampling Point: W2-T2-U

Investigator(s): Section, Township, Range:

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

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:
Upland due to dominance of Anthoxanthum

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. Holcus lanatus	20	yes	FAC
2. Anthoxanthum odoratum	70	yes	FACU
3. Hypochaeris radicata	1		FAC
4. Juncus lescurii	2		FACW
5. Plantago lanceolata	1		FACU
6.			
7.			
8.			
9.			
10.			
11.			
	94 = Total Cover		
Woody Vine Stratum (Plot size: 1 m)			
1. Rubus ursinus	1		FACU
2.			
	1 = Total Cover		
% Bare Ground in Herb Stratum ____			

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

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

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

Hydrophytic Vegetation Present? Yes ____ No ✓

Remarks:

SOIL

Sampling Point: W2-T2-U (1 of 2)

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-14	2.5Y 3/2	100					Sand	Sand w/ cobbles

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) **(LRR A)**
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

Field Observations:

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

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

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

Wetland Hydrology Present? Yes _____ No X

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

Remarks:

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

Project/Site: Manila Drainage City/County: Humboldt County Sampling Date: 7/20/22

Applicant/Owner: Humboldt County State: CA Sampling Point: W2-T3-W1

Investigator(s): J. Cipra, K. McNamee Section, Township, Range: _____

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

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:
1- par wetland

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size 30 ft R)	Absolute % Cover	Dominant Species?	Indicator Status
1. Salix hookeriana	70	yes	FACW
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size _____)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size 1 m)			
1. Equisetum telmateia	20	yes	FACW
2. Lotus corniculatus	40	yes	FAC
3. Juncus effusus	10		FACW
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	= Total Cover		
Woody Vine Stratum (Plot size 1 m)			
1. Rubus ursinus	65	yes	FACU
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

SOIL

Sampling Point: W2-T3-W1

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
0-1	2.5Y 2.5/1	100%					Sandy loam	top layer of soil
1-18	2.5Y 4/1	99.5	2.5Y 6/8	0.5%			Sand	very little redox.

[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:

On decomposition looks like redox; however faint specks of redox visible. (very small amount)

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: Manila Drainage City/County: Humboldt Co. Sampling Date: 7/20/22

Applicant/Owner: Humboldt Co State: CA Sampling Point: W2-T4-W1

Investigator(s): J. Cipra, K. McNamee Section, Township, Range: _____

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

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.

1-par wetland

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size 30 ft r)	Absolute % Cover	Dominant Species?	Indicator Status
1. Salix lasiolepis	60	yes	FACW
2.			
3.			
4.			
	60 = Total Cover		
Sapling/Shrub Stratum (Plot size _____)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size 1 m)			
1. Calystegia sepium	5	yes	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	5 = Total Cover		
Woody Vine Stratum (Plot size 1 m)			
1. Rubus armeniacus	30	yes	FAC
2.			
	30 = 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
- ✓ 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: W2-T4-W1

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	2.5Y 2.5/1						Clay loam	dark + wet
8-18	5Y 3/1	95%	2.5Y 5/6	5%	C	M	Silty/sam OM + redox present	

[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:

Cobbles + boulder at 18" on bottom

Not hydric soil (F3) b/c not deep enough (needs 6" thickness) depth 10"

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)
- X Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) **(LRR A)**
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- X Drainage Patterns (B10)
- ___ 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 ____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes X No ____ Depth (inches): 8" slightly into horizon

Wetland Hydrology Present? Yes X No ____

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

Remarks:

ditch immediately north of spot. Redox present in ditch

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

Project/Site: Manila Drainage City/County: Humboldt CO. Sampling Date: 7/20/22

Applicant/Owner: Humboldt Co State: CA Sampling Point: W2-T4-W3

Investigator(s): J. Cipra, K. McNamee Section, Township, Range: _____

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

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:

3-par wetland

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 ft r)	Absolute % Cover	Dominant Species?	Indicator Status
1. Salix hookeriana	40	yes	FACW
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: 1 M)			
1. Ranunculus repens	95	yes	FAC
2. Conium maculatum	2		FAC
3.			
4.			
5.			
6.			
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
- ✓ 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: W2-T4-W3

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
0-2	5Y 2.5/1	100%					silty clay loam	wet to the touch
2-18	5Y 4/1	90	2.5Y 5/6	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)
- X 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:

Soil wet to the touch the entire pit. Redox present. OM decomposition also present independent of redox. (photo)

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 ____ Depth (inches): _____

Water Table Present? Yes X No ____ Depth (inches): 16"

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:

Water table visible
Soil saturated through entire pit

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

Project/Site: Manila Drainage City/County: Humboldt CO Sampling Date: 7/20/22
Applicant/Owner: Humboldt Co. State: CA Sampling Point W3-T1-W1
Investigator(s): J. Cipra, K. McNamee Section, Township, Range:
Landform (hillslope, terrace, etc.): slope above ditch Local relief (concave, convex, none): Slope (%):
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: 1-par wetland

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 ft r)	Absolute % Cover	Dominant Species?	Indicator Status
1. Alnus rubra	60	yes	FAC
2. Morella californica	30	yes	FACW
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: 1 m)			
1. Crocosmia	15		FAC
2. Calystegia sepium	25	yes	FAC
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	40 = Total Cover		
Woody Vine Stratum (Plot size 1 m)			
1. Rubus armeniacus	30	yes	FAC
2.			
	= Total Cover		

% Bare Ground in Herb Stratum ____

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)
Total Number of Dominant Species Across All Strata: 4 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = ____

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

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

Hydrophytic Vegetation Present? Yes ✓ No ____

Remarks

SOIL

Sampling Point: W3-TW1

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-6	10YR 2/1	100%					loam	friable
6-16	2.5Y 4/4	100%					sand	sandy mix of colored grains

[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: Manila Drainage City/County: Humboldt Co Sampling Date: 7/20/22

Applicant/Owner: Humboldt Co State: CA Sampling Point: W3-T1-W3

Investigator(s): J Cipra, K McNamee Section, Township, Range: _____

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

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:

3 - par wetland

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30ft r)	Absolute % Cover	Dominant Species?	Indicator Status
1. Alnus rubra	60	yes	FAC
2. Morella californica	10		FACW
3.			
4.			
	70 = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size 1 m)			
1. Oenanthe sarmentosa	20	yes	OBL
2. Crocosmia	25	yes	FAC
3. Calystegia sepium	2		FAC
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	47 = Total Cover		
Woody Vine Stratum (Plot size 1 m)			
1. Rubus armeniacus	5	yes	FAC
2.			
	5 = Total Cover		

% Bare Ground in Herb Stratum _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

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

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

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks

SOIL

Sampling Point: W3-T1-W3

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	7.5YR2.5/1	100%					silt loam	full of O.M nodules
4-14	2.5Y3/1	85%	7.5YR5/10	15%	C	M/PL	sandy loam	sandy fill of OM
14-18	Gley1 4/N	98%	7.5YR5/10	2%	C	M	Silt loam	mucky

[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)
- X 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) @ 14-18"
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) **(LRR A)**
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- X Drainage Patterns (B10)
- ___ 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 ___ No X Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes X No ___ Depth (inches): 14-18

Wetland Hydrology Present? Yes X No ___

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

Remarks: Lower horizon mucky and wet.

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

Project/Site: Manila Drainage City/County: Manila/Arcata/HumCo Sampling Date: 7/22/22

Applicant/Owner: MCSD State: CA Sampling Point: W4T1-W3

Investigator(s): K. Lundgren Section, Township, Range: 3, 5N, 1W

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

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

Soil Map Unit Name: Quaternary sand deposits NWI classification: freshwater shrub

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: 4' x 8')			
1. Salix hookeriana	20	Y	FACW
2.			
3.			
4.			
5.			
	20 = Total Cover		
Herb Stratum (Plot size: 1 m²)			
1. Carex obnupta	25	Y	OBL
2. Juncus balticus	1		FACW
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	26 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

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

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

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks:

1-7 10YR 7/2 60%
4- 2.5Y 2.5/1

SOIL

Sampling Point: WHT1-W3

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	—	—	—	—	—	—	sandy clay loam	organic matter (muck)
4-12	GLY 3/N	100	—	—	—	—	sandy	no redox

[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[3] (F3) O
- ___ Redox Dark Surface (F6) O
- ___ 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:

thin layer of muck atop

alpha di pyr positive

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): 2"

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: Manila Drainage City/County: Arcata/Humco Sampling Date: 7/22/22

Applicant/Owner: MCSD State: CA Sampling Point: W4-T1-W1 A?

Investigator(s): K. Lundgren Section, Township, Range: 3, 5N, 1W

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

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

Soil Map Unit Name: Quaternary sand deposits NWI classification: freshwater shrub

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:

CCC 1-par wetland

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: NA)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 10x10')			
1. Salix hookeriana	35	Y	FACW
2.			
3.			
4.			
5.			
	35 = Total Cover		
Herb Stratum (Plot size: 1m²)			
1. Carex obnupta	5	Y	OBL
2. Equisetum telmateia	15	Y	FACW
3. Anthoxanthum odoratum	1		FACU
4. Briza maxima	1		FAC
5. Vicia sativa	1		UPL
6.			
7.			
8.			
9.			
10.			
11.			
	28 = Total Cover		
Woody Vine Stratum (Plot size: r=10')			
1. Rubus armeniacus	20	Y	FAC
2. Rubus ursinus	10	Y	FACU
	30 = Total Cover		

% Bare Ground in Herb Stratum 15

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: 4/5 = 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
- ✓ 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 Y No ____

Remarks:

SOIL

Sampling Point: W4-T1-W1-A

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
0-2	10YR 2/1	90					loam	10% O.M + roots
2-16	2.5Y 3/2	100%					Sandy loam - mostly sand	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ___ No X

Remarks:

Upper horizon has some soil formation; lower horizon entirely sand

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:

No hydrology present although lower in elevation compared to adjacent RR track.

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

Project/Site: Manila Drainage City/County: Arcata / Humco Sampling Date: 7/22/22
Applicant/Owner: MCSD State: CA Sampling Point: W4T1-W1B
Investigator(s): K. Lundgren Section, Township, Range: 3, 5N, 1W
Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): none Slope (%): 1
Subregion (LRR): A Lat: _____ Long: _____ Datum: _____
Soil Map Unit Name: Quaternary sand deposits NWI classification: freshwater shrub
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:
CCC 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: _____)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: 1 m²)			
1. Anthoxanthum odoratum	10		FACU
2. Holcus lanatus	35	Y	FAC
3. Plantago lanceolata	15	Y	FACU
4. Equisetum telmateia	5		FACW
5. Lotus corniculatus	25	Y	FAC
6. Vicia sativa	1		
7. Trifolium repens	9		FAC
8.			
9.			
10.			
11.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: 1 m²)			
1. Rubus armeniacus	20	Y	FAC
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: 3/4 = 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:

SOIL

Sampling Point: WATI_WI-B

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
1-12"	2.5Y 4/2	100	NA				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:

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

Project/Site: Manila Drainage City/County: Arcata/HumCo Sampling Date: 7/22/22

Applicant/Owner: McSD State: CA Sampling Point: W4T2-W3

Investigator(s): K. Lundgren, M. Schwarz Section, Township, Range: 3, 5N, 1W

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

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

Soil Map Unit Name: Quaternary sand deposits NWI classification: freshwater shrub

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: 3-par

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: 10'x10')			
1. Salix hookeriana	10	Y	FACW
2.			
3.			
4.			
5.			
	10 = Total Cover		
Herb Stratum (Plot size: 1m²)			
1. Carex obnupta	44	Y	OBL
2. Anthoxanthum odoratum	2		FACU
3. Juncus balticus	10	Y	FACW
4. Holcus lanatus	3	Y	FAC
5. Ranunculus repens	1		FAC
6.			
7.			
8.			
9.			
10.			
11.			
	60 = Total Cover		
Woody Vine Stratum (Plot size: 1m²)			
1. Rubus armeniacus	25	Y	FAC
2. Rubus ursinus	10	Y	FACU
	35 = 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: 5/6 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

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

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

Hydrophytic Vegetation Present? Yes ✓ No ____

Remarks:

SOIL

Sampling Point: W4T2-W3

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	2.5Y 3/2	100	—	—	—	—	sandy loam	
6-10	2.5Y 3/2	95%	10YR 3/6	5%			sand	
10-13	2.5Y 3/2	80%	10YR 3/6	20%			sand	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✓ No ___

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: geomorphic position

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

Project/Site: Manila Drainage City/County: Arcata/HumCo Sampling Date: 7/22/22

Applicant/Owner: MCSD State: CA Sampling Point: WHT2_W1

Investigator(s): K Lundgren, M. Schwartz Section, Township, Range: 3, 5N, 1W

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

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

Soil Map Unit Name: Quaternary sand deposits NWI classification: Freshwater Forested shrub wetland

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 ✓	Is the Sampled Area within a Wetland? Yes No ✓
Wetland Hydrology Present?	Yes	No ✓	

Remarks: Qualifies as 1-par wetland per CCC

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: 10' x 10')			
1. Salix hookeriana	8	Y	FACW
2.			
3.			
4.			
5.			
	8 = Total Cover		
Herb Stratum (Plot size: 1m²)			
1. Holcus lanatus	45	Y	FAC
2. Anthoxanthum odoratum	5	Y	FACU
3. Festuca perenne	20	Y	FAC
4. Trifolium repens	2	Y	FAC
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	72 = Total Cover		
Woody Vine Stratum (Plot size: 1m²)			
1. Rubus ursinus	2	Y	FACU
2. Rubus armeniacus	5	Y	FAC
	7 = Total Cover		

% Bare Ground in Herb Stratum

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: 7 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 5/7 = 71% (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

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

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

Hydrophytic Vegetation Present? Yes ✓ No

Remarks:

SOIL

Sampling Point: W4T2-W1

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-7	2.5Y 3/2	100%	—	—	—	—	sandy loam	
7-13	2.5Y 3/2	100%	—	—	—	—	Gravelly Sandy loam	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✓

Remarks:

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: Manila Drainage City/County: Humboldt Co Sampling Date: 7/21/22

Applicant/Owner: Humboldt Co. State: CA Sampling Point: WS-T1-W1

Investigator(s): J. Cipra, K. McNamee Section, Township, Range: _____

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

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:

2 - par wetland

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 ft r)	Absolute % Cover	Dominant Species?	Indicator Status
1. Salix hookeriana	20	yes	FACW
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: 1 m)			
1. Scirpus microcarpus	15	yes	OBL
2. Ranunculus rosacea	2		
3. Lotus corniculatus	2		
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	= Total Cover		
Woody Vine Stratum (Plot size: 1 m)			
1. Rubus ursinus	10	yes	FACU
2.			
	= Total Cover		

% Bare Ground in Herb Stratum: _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 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:

SOIL

Sampling Point: WS-T1-W1

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	7.5YR 2.5/1	100					Silt loam	soil w/some OM.
4-18	Gley1 3/10Y	75%	7.5YR 4/6	25%	C	M	Sandy loam	Sandy soil w/a lot of redox

[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)
- X Depleted Matrix (F3) – doesn't appear to meet value/chroma
- ___ 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:

Clear sandy lower horizon w/a lot of redox.

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:

Located upslope of drainage ditch.

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

Project/Site: Manila Drainage City/County: Humboldt Co Sampling Date: 7/21/21
Applicant/Owner: Humboldt Co. State: CA Sampling Point: W5-T1-W3
Investigator(s): J. Cipra, K. McNamee Section, Township, Range:
Landform (hillslope terrace etc.): Local relief (concave convex none): Slope (%):
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: Ditch w/ standing water

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 ft)	Absolute % Cover	Dominant Species?	Indicator Status
1. Salix hookeriana	25	yes	FACW
2.			
3.			
4.			
	25 = Total Cover		
Sapling/Shrub Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
	____ = Total Cover		
Herb Stratum (Plot size: 1 m)			
1. Scirpus microcarpus	15		OBL
2. Oenanthe sarmentosa	25	yes	OBL
3. Lotus corniculatus	1		
4. Anthoxanthum odoratum	1		
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	42 = Total Cover		
Woody Vine Stratum (Plot size: 1 m)			
1. Rubus ursinus	3	yes	FACU
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	x 1 =	
FACW species	x 2 =	
FAC species	x 3 =	
FACU species	x 4 =	
UPL species	x 5 =	
Column Totals (A)		(B)

Prevalence Index = B/A =

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

Hydrophytic Vegetation Present? Yes ✓ No ____

Remarks

SOIL

Sampling Point: WS-T1-W3

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	2.5Y 2.5/1	100%					Silt loam	very wet
5-14	Gley 1 3.5/N	101%					Sandy loam	Sulfur smelling, sandy, grey

[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)
- X 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 X No ___

Remarks:

Strong sulfur odor; bright grey lower horizon

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 ___ Depth (inches): _____

Water Table Present? Yes X No ___ Depth (inches): 8

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

Wetland Hydrology Present? Yes X No ___

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

Remarks:

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

Project/Site: Manila Drainage City/County: Humboldt Co. Sampling Date: 7/21/22

Applicant/Owner: Humboldt Co. State: _____ Sampling Point: WS-T2-W3

Investigator(s): J. Cinva, K. McNamee Section, Township, Range: _____

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

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:

3 - pair wetland

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 ft R)	Absolute % Cover	Dominant Species?	Indicator Status
1. Picea sitchensis	15	yes	FAC
2. Morella californica	10		FACW
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: 1 M)			
1. Calystegia sepium	25	yes	FAC
2. Deschampsia cespitosa	8		OBL
3. Scirpus microcarpus	2		OBL
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	= Total Cover		
Woody Vine Stratum (Plot size: 1 M)			
1. Rubus ursinus	8	yes	FACU
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 _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

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

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

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks:

SOIL

Sampling Point: WS-T2-W3

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
0-2	7.5YR 2.5/1	100					silty loam	OM intermixed
2-16	Gley 1 3/10Y	100					sandy loam	grey, wet, no odor

[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)
- X 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 X No ___

Remarks:

Soil predominantly Sandy w/grey coloring (not as bright as in other locations) w/some silfor smell.

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): 16

Saturation Present? (includes capillary fringe) Yes X No ___ Depth (inches): 8

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: Manila drainage City/County: Humboldt Co Sampling Date: 7/21/22

Applicant/Owner: Humboldt Co State: CA Sampling Point: WS-T2-W1

Investigator(s): J. Cipra, K. McNamee Section, Township, Range: _____

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

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:

1 – per wetland

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 ft R)	Absolute % Cover	Dominant Species?	Indicator Status
1. Morella californica	12		FACW
2. Picea sitchensis	25	Yes	FAC
3.			
4.			
	= Total Cover		

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

Herb Stratum (Plot size: 1 m)			
1. Scrophularia californica	6	Yes	FACW
2. Oenanthe sarmentosa	1	No	OBL
3. Equisetum telmateia	2		FACW
4. Stachys rigida	5		FACW
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	14 = Total Cover		

Woody Vine Stratum (Plot size: 1 m)			
1. Rubus ursinus	85	Yes	FACU
2.			
	85 = 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 _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

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

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

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks:

SOIL

Sampling Point: WS-T2-W1

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
0-1	OM - Duff							
1-12	2.5Y 3.5/2	100%					Sand	Sand grains

[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:

Sandy fill material. Color is average of sand grain colors

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:

Appendix C

On-site Plant list

Scientific Name	Common Name	Status	Family	Status
Agave sp.	agave	Non-native	Agavaceae	
Carprobrotus chilensis	sea fig	Non-native	Aizoaceae	
Alisma triviale	Northern water plantain	Native	Alismataceae	OBL
Atriplex prostrata	spear-leaved orache	Non-native	Amaranthaceae	FAC
Salicornia pacifica	pickleweed	Native	Amaranthaceae	OBL
Allium triquetrum	three-cornered leek	Non-native	Amaryllidaceae	
Allium unifolium	ornamental onion	Non-native	Amaryllidaceae	
Amarillis belladona	naked ladies	Non-native	Amaryllidaceae	
Daucus carota	wild carrot	Native	Apiaceae	FACU
Hydrocotyl ranunculoides	floating pennywort	Non-native	Apiaceae	OBL
Oenanthe sarmentosa	water parsley	Native	Apiaceae	OBL
Vinca major	periwinkle	Non-native	Apocynaceae	FACU
Ilex aquifolium	English holly	Non-native	Aquifoliaceae	FACU
Lemna sp.	duckweed	Native	Araceae	OBL
Lysichiton americanus	skunk cabbage	Native	Araceae	OBL
Zantedescia aethiopica	calla lily	Non-native	Araceae	
Hedera helix	English ivy	Non-native	Araliaceae	FACU
Cordyline australis	New Zealand cabbage tree	Non-native	Asparagaceae	
Arctotheca calendula	Cape weed	Non-native	Asteraceae	
Baccharis pilularis	coyote brush	Native	Asteraceae	
Bellis perennis	daisy	Non-native	Asteraceae	
Chamomilla swaveolus	chamomile	Non-native	Asteraceae	
Cirsium vulgare	bull thistle	Non-native	Asteraceae	FACU
Conyza canadensis	horseweed	Non-native	Asteraceae	
Corethrogyne filaginifolia	sandaster	Native	Asteraceae	
Delairea odorata	cape/German ivy	Non-native	Asteraceae	FAC
Gamochaeta ustulata	featherweed	Native	Asteraceae	
Gnaphalium palustre	cudweed	Native	Asteraceae	FACW
Helminthotheca echioides	prickly oxtongue	Non-native	Asteraceae	FAC
Hypochaeris radicata	cat's ear	Non-native	Asteraceae	FACU
Jaumea carnosa	marsh jaumea	Native	Asteraceae	OBL
Leucanthemum vulgare	oxe eye daisy	Non-native	Asteraceae	FACU
Matricaria discoidea	pineapple weed	Native	Asteraceae	FACU
Solidago spathulata	goldenrod	Native	Asteraceae	FACU
Soliva sessilis	field burweed	Non-native	Asteraceae	FAC
Sonchus oleraceus	prickly lettuce	Non-native	Asteraceae	UPL

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Scientific Name	Common Name	Status	Family	Status
Symphyotrichum chilense var. chilense	common California aster	Native	Asteraceae	FAC
Taraxacum officinale	dandelion	Non-native	Asteraceae	FACU
Athyrium filix-femina	lady fern	Native	Athyriaceae	
Alnus rubra	red alder	Native	Betulacaea	FAC
Echium candicans	tower of jewels	Non-native	Boranginaceae	
Symphytum officianalis	comfrey	Non-native	Boranginaceae	
Brassica rapa	common mustard	Non-native	Brassicaceae	FACU
Cardamine hirsuta	hairy bittercress	Native	Brassicaceae	FACU
Raphanus raphinastrum	wild radish	Non-native	Brassicaceae	
Lonicera involucrata	twinberry	Native	Caprifoliacea	FAC
Lonicera japonica	Japanese honesuckle	Non-native	Caprifoliacea	FAC
Cardionema ramosissimum	sand mat	Native	Caryophyllaceae	
Limonium californicum	sea lavender	Native	Caryophyllaceae	OBL
Polycarpa tetraphyllum	fourleaf allseed	Non-native	Caryophyllaceae	
Silene gallica	common catchfly	Non-native	Caryophyllaceae	
Spergula arvensis	spurry	Non-native	Caryophyllaceae	
Spergularia rubra	red sandspurry	Non-native	Caryophyllaceae	FAC
Stellaria media	chickweed	Non-native	Caryophyllaceae	FACU
Calystegia sepium	morning glory	Non-native	Convolvulaceae	FAC
Crassula connata	pigmy weed	Native	Crassulaceae	FAC
Hesperocyparis macrocarpa	Monterey cypress	Non-native	Cupressaceae	
Sequoia sempervirens	redwood	Native	Cupressaceae	
Carex lyngbyei (2B.2)	Lyngbye's sedge	Native	Cyperaceae	OBL
Carex obnupta	slough sedge	Native	Cyperaceae	OBL
Cyperus eragrostis	tall flatsedge	Native	Cyperaceae	FACW
Eleocharis sp.	spikesedge	Native	Cyperaceae	
Isolepis cernua	low bulrush	Native	Cyperaceae	OBL
Schoenoplectus californicus	California bulrush	Native	Cyperaceae	OBL
Scirpus microcarpus	small fruit bulrush	Native	Cyperaceae	OBL
Pteridium aquilinum	brackenfern	Native	Dennstaedtiaceae	FACU
Dryopteris arguta	wood fern	Native	Dryopteridaceae	
Polystichum munitum	Western sword fern	Native	Dryopteridaceae	FACU
Equisetum laevigatum	smooth horsetail	Native	Equisetaceae	FACW
Equisetum telmateia	great horsetail	Native	Equisetaceae	FACW
Acacia dealbata	silver wattle	Non-native	Fabaceae	
Acacia melanoxylon	Australian blackwood	Non-native	Fabaceae	

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Scientific Name	Common Name	Status	Family	Status
Acmispon parviflorus	small-flowered lotus	Native	Fabaceae	
Cytisus scoparius	Scotch broom	Non-native	Fabaceae	
Fumaria capreolata	white-ramping fumitory	Non-native	Fabaceae	
Lathyrus latifolius	sweet pea	Non-native	Fabaceae	
Lathyrus tingitanus	tangier pea	Non-native	Fabaceae	
Lotus corniculatus	big trefoil	Non-native	Fabaceae	FAC
Lupinus arboreus	yellow bush lupine	Non-native	Fabaceae	
Lupinus bicolor	miniature lupine	Native	Fabaceae	
Medicago arabica	spotted medic	Non-native	Fabaceae	
Medicago polymorpha	burr clover	Non-native	Fabaceae	FACU
Trifolium arvense	hare's foot clover	Non-native	Fabaceae	
Trifolium dubium	lesser trefoil	Non-native	Fabaceae	FACU
Trifolium pratense	red clover	Non-native	Fabaceae	FACU
Trifolium repens	white clover	Non-native	Fabaceae	FAC
Trifolium subterraneum	subterranean clover	Non-native	Fabaceae	
Trifolium wormskioldii	cows clover	Non-native	Fabaceae	FACW
Vicia behnghalense	purple vetch	Non-native	Fabaceae	
Vicia hirsuta	hairy vetch	Non-native	Fabaceae	
Vicia nigricans	giant vicia	Non-native	Fabaceae	FACU
Vicia sativa	common vetch	Non-native	Fabaceae	UPL
Erodium cicutarium	redstem filaree	Non-native	Geraniaceae	
Erodium moschatum	whitestem filaree	Non-native	Geraniaceae	
Geranium dissectum	cutleaf geranium	Non-native	Geraniaceae	
Geranium molle	dove's foot geranium	Non-native	Geraniaceae	
Geranium robertianum	herb robert	Non-native	Geraniaceae	FACU
Malva neglecta	cheeseweed	Non-native	Geraniaceae	
Escallonia rubra	red claws	Non-native	Grossulariaceae	
Crocosmia sp.	crocosmia	Non-native	Iridacaea	FAC
Iris douglasiana	Douglas iris	Native	Iridacaea	
Iris pseudacorus	bearded iris	Non-native	Iridacaea	OBL
Juncus balticus	wire rush	Native	Juncaceae	FACW
Juncus bolanderi	Bolander's rush	Native	Juncaceae	OBL
Juncus breweri	Brewer's rush	Native	Juncaceae	FACW
Juncus bufonius	toad rush	Native	Juncaceae	FACW
Juncus effusus	common rush	Native	Juncaceae	FACW
Juncus hesperius	bog rush	Native	Juncaceae	FACW

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Scientific Name	Common Name	Status	Family	Status
Juncus lescurii	dune rush	Native	Juncaceae	FACW
Triglochin maritima	saltmarsh arrowgrass	Native	Juncaginaceae	OBL
Mentha pulegium	pennyroyal	Non-native	Lamiaceae	OBL
Mentha spicata	spearmint	Non-native	Lamiaceae	FACW
Prunella vulgaris	common self-heal	Non-native	Lamiaceae	FACU
Stachys chamissonis	coastal hedgenettle	Native	Lamiaceae	FACW
Stachys rigida	rough hedgenettle	Native	Lamiaceae	FACW
Linum bienne	blue flax	Non-native	Linaceae	
Malva arborea	tree mallow	Non-native	Malvaceae	
Melianthus major	honey flower	Non-native	Melianthaceae	
Claytonia perfoliata	niner's lettuce	Native	Montiaceae	FAC
Morella californica	California wax myrtle	Native	Myricaceae	FACW
Eucalyptus globulus	blue gum	Non-native	Myrtaceae	
Fuchsia sp.	fuchsia	Non-native	Myrtales	
Epilobium ciliatum	northern willow herb	Native	Onagraceae	FACW
Oxalis articulata	pink oxalis	Non-native	Oxalidaceae	
Escscholzia californica	California poppy	Native	Papaveraceae	
Escscholzia californica ssp. maritima	seaside California poppy	Native	Papaveraceae	
Erythranthe guttata	yellow monkey flower	Native	Phrymaceae	OBL
Picea sitchensis	Sitka spruce	Native	Pinaceae	FAC
Pinus contorta	beach pine	Native	Pinaceae	FAC
Pinus radiata	Monterey pine	Non-native	Pinaceae	
Plantago coronopus	cutleaf plantago	Non-native	Plantaginaceae	FAC
Plantago lanceolata	ribwort plantain	Non-native	Plantaginaceae	FACU
Plantago major	broadleaf plantain	Non-native	Plantaginaceae	FAC
Triphysaria pusilla	dwarf owl's clover	Native	Plantaginaceae	
Veronica anagallis-aquatica	water speedwell	Non-native	Plantaginaceae	OBL
Veronica arvensis	wall speedwell	Non-native	Plantaginaceae	FACU
Agrostis stolonifera	creeping bentgrass	Non-native	Poaceae	FAC
Aira caryophyllea	silver hairgrass	Non-native	Poaceae	FACU
Alopecurus saccatus	Pacific foxtail	Native	Poaceae	FACW
Anthoxanthum odoratum	vernal sweet grass	Non-native	Poaceae	FACU
Avena barbata	slender wild oat	Non-native	Poaceae	
Avena sativa	oats	Non-native	Poaceae	UPL
Briza maxima	rattlesnake grass	Non-native	Poaceae	
Bromus carinatus	California brome	Native	Poaceae	

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Scientific Name	Common Name	Status	Family	Status
Bromus catharticus	rescue grass	Non-native	Poaceae	
Bromus diandrus	ripgut brome	Non-native	Poaceae	
Bromus hordaceus	hairy brome	Non-native	Poaceae	FACU
Cortaderia jubata	pampas grass	Non-native	Poaceae	FACU
Dactylis glomerata	orchard grass	Non-native	Poaceae	FACU
Distichlis spicata	salt grass	Native	Poaceae	FACW
Festuca arundinacea	reed fescue	Non-native	Poaceae	FAC
Festuca bromoides	fescue	Non-native	Poaceae	
Festuca perenne	Italian rye grass	Non-native	Poaceae	FAC
Glyceria declinata	small sweet grass	Non-native	Poaceae	FACW
Hainardia cylindrica	hard grass	Non-native	Poaceae	FACW
Holcus lanatus	soft chess	Non-native	Poaceae	FAC
Hordeum sp.	barley	Non-native	Poaceae	
Phleum pratense	timothy grass	Non-native	Poaceae	FAC
Phyllostachys sp.	bamboo	Non-native	Poaceae	
Poa annua	annual bluegrass	Non-native	Poaceae	FAC
Poa confinis	coastline bluegrass	Native	Poaceae	
Poa macrantha	seashore bluegrass	Native	Poaceae	FACU
Poa pratensis	Kentucky bluegrass	Non-native	Poaceae	FAC
Spartina densiflora	dense cordgrass	Non-native	Poaceae	OBL
Eriogonum latifolium	beach buckwheat	Native	Polygonaceae	
Muehlenbeckia sp.	wire vine	Non-native	Polygonaceae	
Polygonum paronychia	beach knotweed	Native	Polygonaceae	
Rumex acetosella	sheep sorrel	Non-native	Polygonaceae	FACU
Rumex crispus	curly dock	Non-native	Polygonaceae	FAC
Rumex occidentalis	western dock	Native	Polygonaceae	FACW
Polypodium calirhiza	California polypody	Native	Polypodiaceae	
Lysimachia arvensis	scarlet pimpernel	Non-native	Primulaceae	FAC
Lysimachia arvensis	scarlet pimpernel	Non-native	Primulaceae	FAC
Ranunculus repens	buttercup	Non-native	Ranunculaceae	FAC
Frangula purshiana	cascara sagrada	Native	Rhamnaceae	FAC
Cotoneaster sp.	cotoneaster	Non-native	Rosaceae	
Crataegus monogyna	common hawthorn	Non-native	Rosaceae	FAC
Fragaria chiloensis	beach strawberry	Native	Rosaceae	FACU
Potentilla anserina	silverweed	Native	Rosaceae	OBL
Prunus sp.	apple?	Non-native	Rosaceae	

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Scientific Name	Common Name	Status	Family	Status
Rosa sp.	ornamental rose	Non-native	Rosaceae	
Rubus armeniacus	Himalayan blackberry	Non-native	Rosaceae	FAC
Rubus ursinus	California blackberry	Native	Rosaceae	FACU
Galium aparine	cleavers	Non-native	Rubiaceae	FACU
Salix hookeriana	Hooker's willow	Native	Salicaceae	FACW
Salix lasiandra	shining willow	Native	Salicaceae	FACW
Salix lasiolepis	arroyo willow	Native	Salicaceae	FACW
Myriophyllum aquaticum	parrot feather	Non-native	Saxifragaceae	OBL
Tolmiea menziesii	piggyback plant	Native	Saxifragaceae	FAC
Buddleja davidii	butterfly bush	Non-native	Scrophulariaceae	FACU
Scrophularia californica	California figwort	Native	Scrophulariaceae	FAC
Tropaeolum majus	garden nasturtium	Non-native	Tropaeolaceae	UPL
Typha latifolia	broadleaved cattail	Native	Typhaceae	OBL
Soleirolia soleirolii	baby's tears	Non-native	Urticaceae	

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Appendix D

Site Photographs

Photo 1. View one-parameter wetland surrounding railroad tracks parallel to Peninsula Drive, May 16, 2022.

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Photo 2. View of three-parameter Wetland 2 ditch (below yellow arrow) at plot W5-T2-W3, July 21, 2022.

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Photo 3. Plot location for W5-T1-W3 for three-parameter Wetland 2 ditch, July 22, 2022.

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Photo 4. Plot location of W2-T1-W1: one-parameter Wetland 1, July 21, 2022.

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Photo 5. Plot location for W2-T4-W3 in Wetland 3: three-parameter palustrine emergent wetland July 21, 2022.

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Photo 6. View of Wetland 4, three-parameter freshwater forested shrub wetland near plot W3-T1-W3, May 24, 2022.

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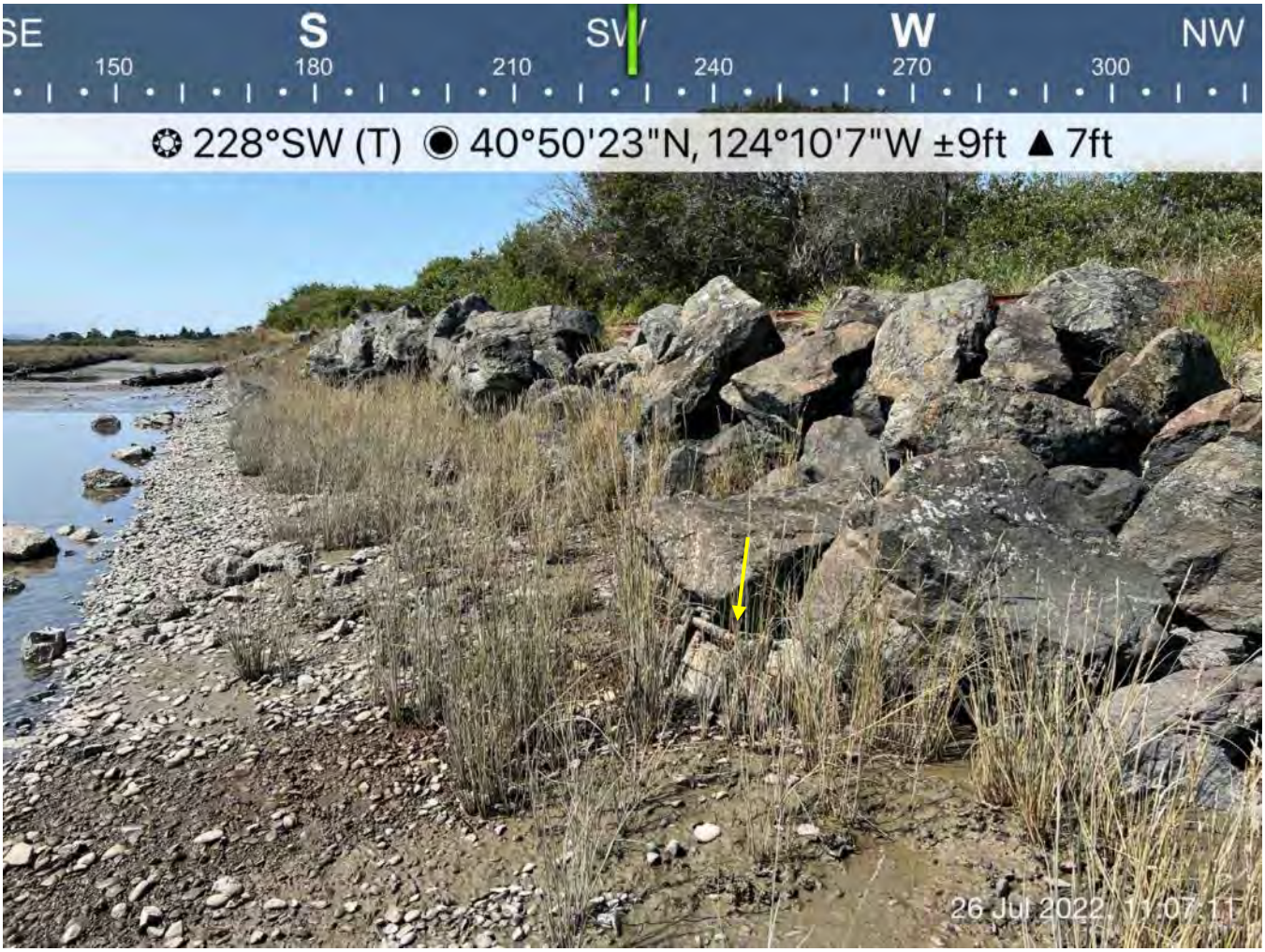

Photo 7. Southernmost culvert (below yellow arrow) on the shore of Humboldt Bay in estuarine marine wetland, July 26, 2022.

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Photo 8. Estuarine marine wetland on shore of Humboldt Bay northeast of the Manila Community Park, May 4, 2022.

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Photo 9. View of the three-parameter palustrine emergent Wetland 3 on either side of Young Lane at the north end of Manila, August 23, 2022.

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Photo 10. View east of three-parameter palustrine emergent Wetland 3 at Young Lane, August 23, 2022.

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Appendix E

NRCS Custom Soil Resource 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

12572691 Soil Report V2

November 14, 2022

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.

Custom Soil Resource Report
Soil Map

Map Scale: 1:13,400 if printed on A portrait (8.5" x 11") sheet.

N

Meters
0 150 300 600 900

Feet
0 500 1000 2000 3000

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.

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
156	Lanphere, 2 to 75 percent slopes	0.2	1.9%
1009	Hydraquents-Wassents mucky silt loam, strongly saline, 0-3 percent slopes, very frequently flooded	0.0	0.0%
1014	Urban land-Anthraltic Xerorthents association, 0 to 2 percent slopes	8.2	98.0%
Totals for Area of Interest		**8.4**	**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

156—Lanphere, 2 to 75 percent slopes

Map Unit Setting

National map unit symbol: 221w7
Elevation: 0 to 80 feet
Mean annual precipitation: 35 to 80 inches
Mean annual air temperature: 50 to 55 degrees F
Frost-free period: 275 to 330 days
Farmland classification: Not prime farmland

Map Unit Composition

Lanphere and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Lanphere

Setting

Landform: Dunes, longitudinal dunes
Landform position (two-dimensional): Summit, backslope, shoulder
Landform position (three-dimensional): Crest, side slope
Down-slope shape: Convex, linear
Across-slope shape: Convex, linear
Parent material: Mixed eolian sands

Typical profile

Oi - 0 to 4 inches: slightly decomposed plant material
A - 4 to 11 inches: sand
AC - 11 to 26 inches: sand
C - 26 to 63 inches: sand

Properties and qualities

Slope: 5 to 75 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat excessively drained
Capacity of the most limiting layer to transmit water (Ksat): High to very high (5.95 to 19.98 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: Low (about 5.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: A
Ecological site: F004BX116CA - Sitka spruce-shore pine/California huckleberry, foredunes, mixed eolian sands, sand
Hydric soil rating: No

Minor Components

Clambeach

Percent of map unit: 10 percent
Landform: Deflation basins
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Concave, linear
Across-slope shape: Concave, linear
Hydric soil rating: Yes

Samoa

Percent of map unit: 5 percent
Landform: Dunes
Landform position (two-dimensional): Shoulder, backslope, summit
Landform position (three-dimensional): Tread
Down-slope shape: Convex, linear
Across-slope shape: Linear, convex
Hydric soil rating: No

1009—Hydraquents-Wassents mucky silt loam, strongly saline, 0-3 percent slopes, very frequently flooded

Map Unit Setting

National map unit symbol: 2t150
Elevation: 0 to 10 feet
Mean annual precipitation: 35 to 80 inches
Mean annual air temperature: 50 to 55 degrees F
Frost-free period: 275 to 365 days
Farmland classification: Not prime farmland

Map Unit Composition

Hydraquents, low tidal, and similar soils: 50 percent
Wassents and similar soils: 40 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Hydraquents, Low Tidal

Setting

Landform: Tidal flats
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Mucky, silty, and clayey estuarine deposits

Typical profile

Czg1 - 0 to 9 inches: mucky silty clay loam
Cg2 - 9 to 16 inches: mucky silty clay loam
Cg3 - 16 to 26 inches: mucky silty clay loam

Cg4 - 26 to 39 inches: mucky silty clay loam
Cg5 - 39 to 59 inches: mucky silty clay loam

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: 0 inches to salic; 20 to 79 inches to sulfuric
Drainage class: Very poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Low to moderately low (0.01 to 0.06 in/hr)
Depth to water table: About 0 inches
Frequency of flooding: Very frequent
Frequency of ponding: None
Maximum salinity: Strongly saline (30.0 to 80.0 mmhos/cm)
Sodium adsorption ratio, maximum: 75.0
Available water supply, 0 to 60 inches: Very low (about 0.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8
Hydrologic Soil Group: D
Ecological site: R004BA205CA - Marshlands
Hydric soil rating: Yes

Description of Wassents

Setting

Landform: Tidal flats
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Mucky, silty, and clayey estuarine deposits

Typical profile

Asez - 0 to 6 inches: mucky silt loam
Cg1 - 6 to 14 inches: mucky silty clay loam
Cg2 - 14 to 31 inches: mucky silty clay loam
Cg3 - 31 to 59 inches: mucky silty clay loam

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: 0 inches to salic; 0 inches to sulfuric
Drainage class: Subaqueous
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.20 to 2.00 in/hr)
Depth to water table: About 0 inches
Frequency of flooding: Very frequent
Frequency of ponding: Frequent
Maximum salinity: Strongly saline (30.0 to 80.0 mmhos/cm)
Sodium adsorption ratio, maximum: 75.0
Available water supply, 0 to 60 inches: Very low (about 0.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8
Hydrologic Soil Group: D
Ecological site: R004BA205CA - Marshlands
Hydric soil rating: Yes

Minor Components

Hydraquents, high tidal
Percent of map unit: 5 percent
Landform: Tidal marshes
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: Yes

Water, marine
Percent of map unit: 5 percent
Landform: Channels

1014—Urban land-Anthraltic Xerorthents association, 0 to 2 percent slopes

Map Unit Setting
National map unit symbol: 2w91f
Elevation: 0 to 10 feet
Mean annual precipitation: 41 to 43 inches
Mean annual air temperature: 50 to 55 degrees F
Frost-free period: 275 to 330 days
Farmland classification: Farmland of statewide importance

Map Unit Composition
Urban land, industrial: 80 percent
Anthraltic xerorthents and similar soils: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Urban Land, Industrial

Setting
Landform: Fluviomarine terraces

Properties and qualities
Slope: 0 to 2 percent
Depth to water table: About 24 inches
Frequency of ponding: Frequent

Interpretive groups
Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8
Hydric soil rating: No

Description of Anthraltic Xerorthents

Setting
Landform: Fluviomarine terraces

Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Coarse-loamy fluviomarine deposits and/or coarse-loamy dredge spoils

Typical profile

A - 0 to 6 inches: gravelly loamy fine sand
^C1 - 6 to 13 inches: sandy loam
^C2 - 13 to 19 inches: sandy loam
^C3 - 19 to 24 inches: sandy loam
^C4 - 24 to 31 inches: sandy loam
^C5 - 31 to 43 inches: gravelly sand
C6 - 43 to 65 inches: 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): High (2.00 to 6.00 in/hr)
Depth to water table: About 0 to 6 inches
Frequency of flooding: None
Frequency of ponding: Frequent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Low (about 5.7 inches)

Interpretive groups

Land capability classification (irrigated): 3s
Land capability classification (nonirrigated): 3s
Hydrologic Soil Group: A/D
Hydric soil rating: No

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Appendix F

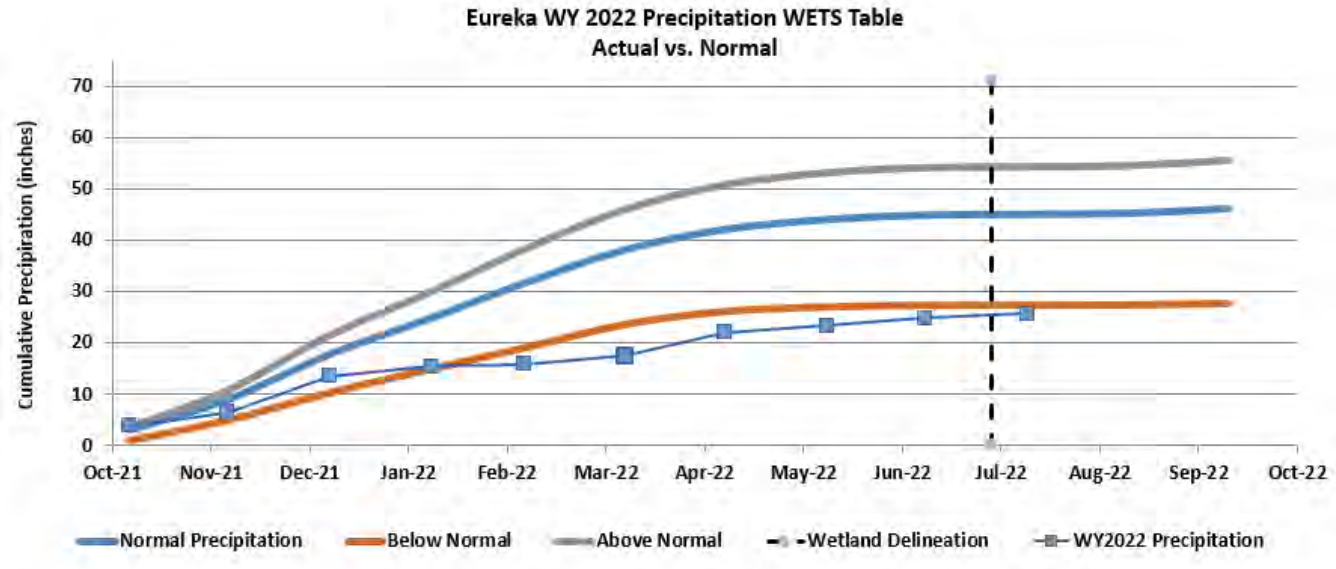
Record of Climatological Observations and WETS Table

McKinleyville WETS Table

Name ARCATA EUREKA AIRPORT, CA US Loc. (Lat/Lon): 40.97806°, -124.10861°

	Monthly Precipitation (All values in inches)				Cumulative Precipitation (All values in inches)			
Month	Normal[1]	Below Normal[1]	Above Normal[1]	Actual WY 2022[2]	Normal[1]	Below Normal[1]	Above Normal[1]	Actual WY 2022[2]
31-Oct	2.99	1.09	3.60	3.88	2.99	1.09	3.60	3.88
30-Nov	5.96	3.94	7.15	2.62	8.95	5.03	10.75	6.50
31-Dec	8.86	5.28	10.75	7.04	17.81	10.31	21.50	13.54
31-Jan	7.11	4.65	8.54	1.90	24.92	14.96	30.04	15.44
28-Feb	6.75	4.00	8.20	0.51	31.67	18.96	38.24	15.95
31-Mar	6.58	4.58	7.82	1.49	38.25	23.54	46.06	17.44
30-Apr	3.92	2.47	4.73	4.57	42.17	26.01	50.79	22.01
31-May	1.94	0.88	2.36	1.36	44.11	26.89	53.15	23.37
30-Jun	0.87	0.29	1.00	1.53	44.98	27.18	54.15	24.90
31-Jul	0.16	0.04	0.16	0.76	45.14	27.22	54.31	25.66
31-Aug	0.20	0.06	0.23		45.34	27.28	54.54	
30-Sep	0.91	0.27	1.02		46.25	27.55	55.56	

1. From WETS Tables - ARCATA EUREKA AIRPORT, CA US - http://agacis.rcc-acis.org/
2. From NOAA Gage Data - ARCATA EUREKA AIRPORT, CA US - https://www.ncdc.noaa.gov/cdo-web/search



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Appendix D

Botanical and Sensitive Natural Community Assessment Memorandum

Technical Memorandum

12 September 2022

To	The Manila Community Services District	**Tel**	
Copy to	Brett Vivyan, GHD	**Email**	Jane.Cipra@ghd.com, Andrea.Hilton@ghd.com
From	Jane Cipra, GHD Botanist	**Ref. No.**	12572691
Subject	Manila Drainage Project – Botanical and Sensitive Natural Community Assessment Memorandum		

1. Introduction/Purpose

The Manila Community Services District (Manila CSD) proposes to make drainage improvements throughout the community of Manila, California (**Appendix A, Figures 1 and 2**). The Project will apply a community-wide approach to address persistent flooding and drainage problems caused by undersized, disconnected, and failing infrastructure. Simple solutions, consisting of vegetated bioswales, rain gardens, replacement of undersized and failing culverts, and new culverts in select locations are proposed. The Project, led by the Manila CSD, will incorporate multi-objective, multi-benefit project components that address flood reduction, ecosystem services, and resiliency to sea level rise and climate change. Bioswales will be graded and planted with native species along existing and new drainage paths. Existing undersized and or failing culverts will be replaced with new, larger capacity culverts ranging from 12 to 36 inches in diameter. New culverts will be installed in select locations, ranging from 18 to 24 inches in diameter. Rain gardens will be implemented along roadsides as well at the Manila Community Center to replace a concrete courtyard.

To assist with preparation of the Project's California Environmental Quality Act (CEQA) document and required environmental permits, GHD evaluated the potential for rare plants (federally- or state-listed or state special status plant species), Sensitive Natural Communities (SNCs), and Environmentally Sensitive Habitat Areas (ESHA) to occur within the Project's Study Boundary (PSB); (**Appendix A, Figure 2**). In addition, potential Project impacts to these resources (if any), were evaluated. Common species or resources without special protections are not considered. Potential impacts to special status wildlife and wetlands are evaluated in separate reports. The purpose of this technical memorandum is to document the results of the May 3-4 and July 26, 2022 seasonally appropriate floristic surveys. Rare plants observed in the protocol level survey are shown in **Appendix A, Figure 3**.

2. Survey Methods

2.1 Database Searches (CNDDB, CNPS, and IPaC)

Database searches for special status plant records in the Project vicinity (seven-quad search area) were conducted by GHD on March 21, 2022. The seven-quad search area was centered on the Project Study Boundary (PSB) U.S. Geological Survey 7.5-minute quadrangle (Eureka) and the surrounding six quadrangles (Tyee City, Arcata North, Arcata South, McWhinney Creek, Field's Landing, Cannibal Island). Database searches included:

– The California Natural Diversity Database (CNDDB; wildlife records were excluded; CDFW 2022a, **Appendix B**).
– The California Native Plant Society Rare Plant Inventory
– A resources list was obtained from the U.S. Fish and Wildlife Service (USFWS) Information for Planning and Consultation (IPaC; USFWS 2022) for the PSB on June 6, 2022.

2.2 Field Surveys

GHD botanists Jane Cipra and Christian Hernandez conducted spring and summer floristic surveys for special status plants according to *Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities* by the California Natural Resources Agency, Department of Fish and Wildlife (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 PSB and identifying all plant species encountered to the lowest taxonomic level necessary for rare plant identification. Nomenclature follows *The Jepson Manual* (Baldwin et al. 2012).

GHD Botanist Jane Cipra has an M.A. in Biology from Humboldt State University, with over fifteen years of experience conducting special status plant surveys. GHD Botanist Christian Hernandez has a degree in Plant Ecology from Humboldt State University and two years of experience conducting biological and botanical surveys.

Jane Cipra and Christian Hernandez conducted seasonally appropriate botanical surveys on May 3rd and 4th and July 26th, 2022. During the spring survey, the weather was overcast to sunny and approximately 60 degrees Fahrenheit. During the summer survey the weather was sunny and approximately 65 degrees Fahrenheit. A list of species observed within the PSB is provided in **Appendix C**.

The total spring survey effort was 32 person-hours, and the total summer survey effort was 12 person-hours. The summer survey did not cover as much area as the as spring survey, as the PSB reduced between the two surveys. All potentially suitable habitat for rare species was resurveyed during the July 2022 survey. Habitats and special status plants were photo-documented onsite (**Appendix D**). Special status plants were mapped using points and polygons collected in the field with an Eos Arrow 100 Submeter Global Positioning System (GPS) Receiver with Global Navigation Satellite System (GNSS) and an iPad running ArcGIS Collector software in the WGS84 datum.

1.1.1 Sensitive Natural Communities and Environmentally Sensitive Habitat Areas

Vegetation communities onsite were evaluated for potential inclusion as Sensitive Natural Communities (SNCs) and Environmentally Sensitive Habitat Areas (ESHA). All potential SNCs and ESHA in the PSB are also within one-parameter or three-parameter wetlands and were there not evaluated further. Aside from one-parameter and three-parameter SNCs, no additional SNCs were observed.

3. Results

3.1 Summary of General Biological Resources

During the protocol level botanical survey, 194 species of vascular plants were observed in the PSB. Of all plants observed, 74 species were native to the local area and 120 were non-native species, equalling 61% non-native species.

Based on occurrence records, field surveys, site visits, and habitat availability, four special status plant species have a high potential to occur in the PSB, and one California Native Plant Society (CNPS) ranked plant is present in the PSB: Lyngbye's sedge (*Carex lyngbyei*) ranked as 2B.2 (2B = Plants rare, threatened, or endangered in California, but more common elsewhere; .2 = Moderately threatened in California.) Field surveys also yielded the observation and

delineation of wetlands within the PSB. See the separate Aquatic Resources Delineation Report for further information about these wetlands.

3.2 Special Status Plants

Table 1 summarizes the potential for special status plants documented in the surrounding 7-quad area to occur within the PSB. See the Species Descriptions section for a discussion of special status plants observed on-site as well as those with a High or Moderate Potential to occur.

Table 1 *Potential for Special Status Plants to Occur in the PSB*

Scientific Name	Common Name	Status, CRPR[2]	Global Rank[2]	State Rank[2]	Habitat Requirements[1]	Potential to Occur in the PSB
Abronia umbellata var. *breviflora*	pink sand-verbena	1B.1	G4G5 T2	S2	Coastal dunes	**Low potential.** Marginally suitable habitat is present.
Angelica lucida	sea-watch	4.2	G5	S3	Coastal bluff scrub, Coastal dunes, Coastal scrub, Marshes and swamps	**Low potential.** Marginally suitable habitat is present.
Astragalus pycnostachyus var. *pycnostachyus*	coastal marsh milk-vetch	1B.2	G2T2	S2	Coastal dunes, Coastal scrub, Marshes and swamps	**Low potential.** This plant has not been observed on the Samoa peninsula since 1925.
Carex leptalea	bristle-stalked sedge	2B.2	G5	S1	Bogs and fens, Marshes and swamps, Meadows and seeps	**Low potential.** The nearest non-historic occurrence (from 2011) is 15.5 miles north of the PSB.
Carex lyngbyei	Lyngbye's sedge	2B.2	G5	S3	Marshes and swamps	**Present.** This species was observed in two areas within the PSB.
Carex praticola	northern meadow sedge	2B.2	G5	S2	Meadows and seeps	**Low potential.** This species has not been observed in the Humboldt Bay Area since 1915.
Castilleja ambigua var. *humboldtiensis*	Humboldt Bay owl's-clover	1B.2	G4T2	S2	Marshes and swamps	**High potential.** The southern-most portion of the PSB is located within a CNDDB occurrence of this species (from 1978). Suitable habitat is present in the eastern edges of the PSB.
Chloropyron maritimum ssp. *palustre*	Point Reyes salty bird's-beak	1B.2	G4?T2	S2	Marshes and swamps	**High potential.** The eastern end of the PSB near Mill street is located within a CNDDB occurrence of this species (from 1987). Suitable habitat is present in the eastern edges of the PSB.
Chrysosplenium glechomifolium	Pacific golden saxifrage	4.3	G5?	S3	North Coast coniferous forest, Riparian forest	**No potential.** The PSB is outside of the elevational range for this species (35-720 ft).
Collinsia corymbosa	round-headed Chinese-houses	1B.2	G1	S1	Coastal dunes	**No potential.** There are no confirmed observations of this species in the Humboldt Bay Area.
Eleocharis parvula	small spikerush	4.3	G5	S3	Marshes and swamps	**Low potential.** Suitable habitat is present but this species is not known to occur in the Manila area.
Erysimum menziesii	Menzies' wallflower	FE, SE, 1B.1	G1	S1	Coastal dunes	**Low potential.** Very marginal habitat is present in the PSB.

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Scientific Name	Common Name	Status, CRPR[2]	Global Rank[2]	State Rank[2]	Habitat Requirements[1]	Potential to Occur in the PSB
Erythronium revolutum	coast fawn lily	2B.2	G4G5	S3	Bogs and fens, Broadleafed upland forest, North Coast coniferous forest	**Low potential.** The nearest occurrence (from 2018) is 9.5 miles southeast of the PSB.
Fissidens pauperculus	minute pocket moss	1B.2	G3?	S2	North Coast coniferous forest	**No potential.** The PSB is outside of the elevational range for this species (35-3,360 ft).
Gilia capitata ssp. *pacifica*	Pacific gilia	1B.2	G5T3	S2	Chaparral, Coastal bluff scrub, Coastal prairie, Valley and foothill grassland	**Low potential.** This species has not been observed in the Humboldt Bay Area since 1905.
Gilia millefoliata	dark-eyed gilia	1B.2	G2	S2	Coastal dunes	**Low potential.** Very marginal habitat is present in the PSB.
Glehnia littoralis ssp. *leiocarpa*	American glehnia	4.2	G5T5	S2S3	Coastal dunes	**Low potential.** Very marginal habitat is present in the PSB.
Hesperevax sparsiflora var. *brevifolia*	short-leaved evax	1B.2	G4T3	S3	Coastal bluff scrub, Coastal dunes, Coastal prairie	**Low potential.** The nearest confirmed occurrence (from 2018) is 4.3 miles southwest of the PSB. Very marginal habitat is present in the PSB.
Hosackia gracilis	harlequin lotus	4.2	G3G4	S3	Broadleafed upland forest, Cismontane woodland, Closed-cone/North Coast coniferous forest, Coastal bluff scrub.prairie/scrub, Marshes, swamps, meadows, and seeps, grassland	**Low potential.** This species is not mapped in CNDDB. Marginally suitable habitat is present.
Lasthenia californica ssp. *macrantha*	perennial goldfields	1B.2	G3T2	S2	Coastal bluff scrub, Coastal dunes, Coastal scrub	**No potential.** There are no confirmed observations of this species in the Humboldt Bay Area.
Lathyrus japonicus	seaside pea	2B.1	G5	S2	Coastal dunes	**Low potential.** This species has not been observed in the Humboldt Bay Area since 1925.
Lathyrus palustris	marsh pea	2B.2	G5	S2	Bogs and fens, Coastal prairie/scrub, Lower montane/North Coast coniferous forest, Marshes and swamps	**Low potential.** The only known occurrence of this species in the Humboldt Bay Area is an observation (from 2003) in the Samoa area.
Layia carnosa	beach layia	FT, SE, 1B.1	G2	S2	Coastal dunes, Coastal scrub	**Low potential.** Marginally suitable habitat is present in the PSB.
Lilium kelloggii	Kellogg's lily	4.3	G3	S3	Lower montane coniferous forest, North Coast coniferous forest	**No potential.** No suitable habitat is present in the PSB.
Lilium occidentale	western lily	FE, SE, 1B.1	G1	S1	Bogs and fens, Coastal bluff scrub, Coastal prairie, Coastal scrub, Marshes and swamps, North Coast coniferous forest	**No potential**. This conspicuous species is not known to occur on the Samoa peninsula.
Listera cordata	heart-leaved twayblade	4.2	G5	S4	Bogs and fens, Lower montane coniferous forest, North Coast coniferous forest	**No potential.** No suitable habitat is present in the PSB.

Scientific Name	Common Name	Status, CRPR[2]	Global Rank[2]	State Rank[2]	Habitat Requirements[1]	Potential to Occur in the PSB
Mitellastra caulescens	leafy-stemmed mitrewort	4.2	G5	S4	Broadleafed upland forest, Lower montane coniferous forest, Meadows and seeps, North Coast coniferous forest	**No potential.** No suitable habitat is present in the PSB.
Monotropa uniflora	ghost-pipe	2B.2	G5	S2	Broadleafed upland forest, North Coast coniferous forest	**No potential.** The PSB is outside of the elevational range for this species (35-1,805 ft).
Montia howellii	Howell's montia	2B.2	G3G4	S2	Meadows and seeps, North Coast coniferous forest, Vernal pools	**Low potential.** The nearest occurrence (from 2019) is 3.5 miles east of the PSB. Marginally suitable habitat is present.
Oenothera wolfii	Wolf's evening-primrose	1B.1	G2	S1	Coastal bluff scrub, Coastal dunes, Coastal prairie, Lower montane coniferous forest	**Low potential.** A CNDDB occurrence (from 2001) is 0.2 mile south of the PSB; however, this occurrence is likely an escaped garden variety (DeWoody 2008).
Pleuropogon refractus	nodding semaphore grass	4.2	G4	S4	Lower montane/North Coast coniferous forest, Meadows and seeps, Riparian forest	**Low potential.** This species is not mapped in CNDDB. Marginally suitable habitat is present.
Puccinellia pumila	dwarf alkali grass	2B.2	G4?	SH	Marshes and swamps	**No potential.** This species was last observed at the mouth of the Eel River in 1938.
Ribes laxiflorum	trailing black currant	4.3	G5?	S3	North Coast coniferous forest	**No potential.** No suitable habitat is present in the PSB.
Sidalcea malachroides	maple-leaved checkerbloom	4.2	G3	S3	Broadleafed upland forest, Coastal prairie/scrub, North Coast coniferous forest, Riparian woodland	**Low potential**. The nearest occurrence of this species (from 1999) is 2.5 miles south of the PSB.
Sidalcea oregana ssp. *eximia*	coast checkerbloom	1B.2	G5T1	S1	Lower montane/North Coast coniferous forest, Meadows and seeps	**Low potential.** The nearest extant occurrence (from 2001) is 7.0 miles northeast of the PSB.
Silene scouleri ssp. *scouleri*	Scouler's catchfly	2B.2	G5T4T5	S2S3	Coastal bluff scrub/prairie, Valley and foothill grassland	**Low potential.** This species is not mapped in CNDDB. Marginally suitable habitat is present in the PSB.
Spergularia canadensis var. *occidentalis*	western sand-spurrey	2B.1	G5T4	S1	Marshes and swamps	**High potential.** There are two uncertain observations in CNDDB located 1.2 miles southwest of the PSB. Suitable habitat is present in the PSB.
Sulcaria spiralifera	twisted horsehair lichen	1B.2	G3G4	S2	Coastal dunes, North Coast coniferous forest	**Low potential.** Marginally suitable habitat is present in the PSB.
Viola palustris	alpine marsh violet	2B.2	G5	S1S2	Bogs and fens, Coastal scrub	**Low potential.** This species has not been observed in the Humboldt Bay Area since 1923.

Footnotes:
1 General habitat, and microhabitat column information, reprinted from CNDDB (March 2022).
2 Rankings from CNDDB (October 2021).

Status Abbreviations:
FE Federal Endangered; FT = Federal Threatened; FC = Federal Candidate; FD = Federally Delisted
SE State Endangered; SD = State Delisted; ST = State Threatened.

CRPR: CNPS rankings for rare plants (CNPS 2022) - 1A = Plants presumed extinct in California; 1B = Plants rare, threatened or endangered in California and elsewhere; 2B = 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)" (CDFW 2022b).

GRank: Global Rank from NatureServe's Heritage Methodology (NatureServe 2022 (ranking according to degree of global imperilment - G1 = Critically Imperilled—At very high risk of extinction due to extreme rarity (often 5 or fewer populations), very steep declines, or other factors; G2 = Imperilled—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 2022b); ? = " Denotes inexact numeric rank" (NatureServe 2022; Q = " Questionable taxonomy that may reduce conservation priority" (NatureServe 2022)

SRank: State Rank from NatureServe's Heritage Methodology (NatureServe 2022) (ranking according to degree of imperilment in the state (California) - S1 = Critically Imperilled—Critically imperilled 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 = Imperilled—Imperilled 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.

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 in the PSB

Present: Detected or documented on-site.

3.2.1 Species Descriptions

Species described below have a high potential to occur within the PSB (**Table 1**). No species were determined to have moderate potential. All rare plant species that are present or have a high probability of occurring in the PSB are salt marsh species that are found along the shore of Humboldt Bay. No rare plants were expected or observed in the upland or freshwater habitats of in the PSB.

Humboldt Bay owl's-clover (*Castilleja ambigua* var. *humboldtiensis*) CRPR 1B.2

Humboldt Bay owl's-clover has no state or federal listing status but is ranked 1B.2 on the CRPR list, as it is threatened by coastal development and non-native plants (CNPS 2022). This annual hemiparasitic herb that blooms April through August is found in coastal salt marshes and swamps between 0 and 10 feet in elevation. A small population of approximately 1,000 plants was observed approximately 50 feet outside of the PSB on the shore of Humboldt Bay between Mill Street and Manila Avenue (**Appendix A, Figure 3**). There is also a historic CNDDB occurrence (from 1978) overlapping the southern-most portions of the PSB. This species was not observed within the PSB.

Lyngbye's sedge (*Carex lyngbyei*) CRPR 2B.2

Lyngbye's sedge has no state or federal listing status but is ranked 2B.2 on the CRPR list, as it is threatened by grazing, non-native plants, and habitat disturbance (CNPS 2022). This perennial rhizomatous herb that blooms April through August is found in marshes and on the banks of tidal sloughs between 0 and 35 feet in elevation. A dense stand of approximately 320 square feet was observed inside the PSB on the shore of Humboldt Bay between Mill Street and Manila Avenue, and another stand of approximately 180 square feet was observed within the PSB on the shore of Humboldt Bay off of Victor Boulevard (**Appendix A, Figure 3**). Both stands extended outside of the PSB totalling approximately 1,820 square feet.

Point Reyes salty bird's-beak (*Chloropyron maritimum* ssp. *palustre*) 1B.2

Point Reyes salty bird's-beak has no state or federal listing status but is ranked 1B.2 on the CRPR list, as it is threatened by development, foot traffic, non-native plants, hydrological alterations, and cattle grazing (CNPS 2022). This annual hemiparasitic herb that blooms June through October is found in coastal salt marshes and swamps between 0 and 10 feet in elevation. There is a historic CNDDB occurrence (from 1987) overlapping the eastern-most portion of the PSB near Mill Street. This CNDDB occurrence was confirmed within 10 feet of the PSB on July 26, 2022, but this species was not observed within the PSB (**Appendix A, Figure 3**).

Western sand-spurrey (*Spergularia canadensis* var. *occidentalis*) 2B.1

Western sand spurrey has no state or federal listing status but is ranked 2B.1 on the CRPR list, as it is threatened by coastal development (CNPS 2022). This annual herb that blooms June through August is found in coastal salt marshes and swamps between 0 and 10 feet in elevation. There is a CNDDB occurrence from an unknown date attributed to a vague location in the area of Samoa, California, approximately 1.5 miles southwest of the PSB. This species was not observed in the PSB or nearby.

3.3 Critical Habitat

The PSB does not overlap any United States Fish and Wildlife Service (USFWS)-designated critical habitat.

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3.4 SNCs and ESHA

The PSB contains several vegetation communities which are considered SNCs and may also be considered ESHA (Table 2). However, all SNCs and potential ESHA present are also considered one- or three-parameter wetlands in the Coastal Zone and so were not further evaluated or mapped for mitigation purposes. SNCs present are briefly summarized below. No upland SNCs or ESHA were identified in the PSB.

Table 2 Sensitive Natural Communities present in the PSB

Habitat Type	Global Rank[1]	State Rank[1]	Characteristic species[1]
Lyngbye's sedge swathes	GNR	S1	*Carex lyngbyei*
Pickleweed mats	G4	S3	*Sarcocornia pacifica (Salicornia depressa)*
Hardstem and California bulrush marshes	G4	S3	*Schoenoplectus californicus*
Coastal dune willow thickets	G4	S3	*Salix hookeriana* is dominant in the low tree canopy with *Baccharis pilularis, Morella californica, Rubus* spp., and *Salix lasiolepis*
Salmonberry – Wax myrtle scrub	G5	S3	*Morella californica* is dominant in the shrub canopy with *Rubus ursinus* in the understory. No *Rubus spectabilis* is present in the PSB.
Salal-berry brambles: *Rubus ursinus* association		Sensitive	*R. ursinus* dominant in the shrub canopy

Footnotes:

[1] Characteristic species and rankings from A Manual of California Vegetation (Sawyer et al. 2009).

Column Header Categories and Abbreviations:

GRank: 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. (NatureServe 2022)

State Rank: State Rank from NatureServe's Heritage Methodology (NatureServe 2022) (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.

4. Potential Impacts to Special Status Plants and SNCs and Proposed Avoidance and Minimization Measures

4.1.1 Special Status Plants

Lyngbye's sedge is present in the PSB and Humboldt Bay owl's-clover and Point Reyes salty bird's-beak are within 10 feet of the PSB. To protect these special status plants, the following measure is recommended for inclusion into environmental documentation to reduce potential impacts.

Measure BIO-1: Protect Special Status Plants

Avoidance and minimization measures for special status plant species are addressed collectively for all species. The following measures are recommended:

- The locations of any special status plant populations mapped herein shall be clearly identified in the contract documents (plans and specifications).
- If special status plant populations are detected where construction would have unavoidable impacts, seed will be collected prior to construction and redistributed following construction during the appropriate season. On-site seed collection from the impacted species will be prioritized. If on-site seed collection is infeasible due to blooming period conflicts with the planned construction season, off-site seed collection will occur from a suitable nearby area.

5. Conclusion

Based on occurrence records and habitat availability, four special status plants have a high probability of occurring in the PSB. One special status species was observed in the PSB: Lyngbye's sedge. Two additional special status species were observed immediately outside the PSB: Humboldt Bay owl's-clover and Point Reyes salty bird's-beak. With implementation of the proposed avoidance and minimization measures (specifically, Measure BIO-1), impacts will be avoided or reduced.

All potential SNCs and ESHA in the PSB are also within one- or three-parameter wetlands and were mapped and classified as wetlands. Please see the separate Aquatic Resources Delineation for more information on these wetlands.

6. Literature Cited

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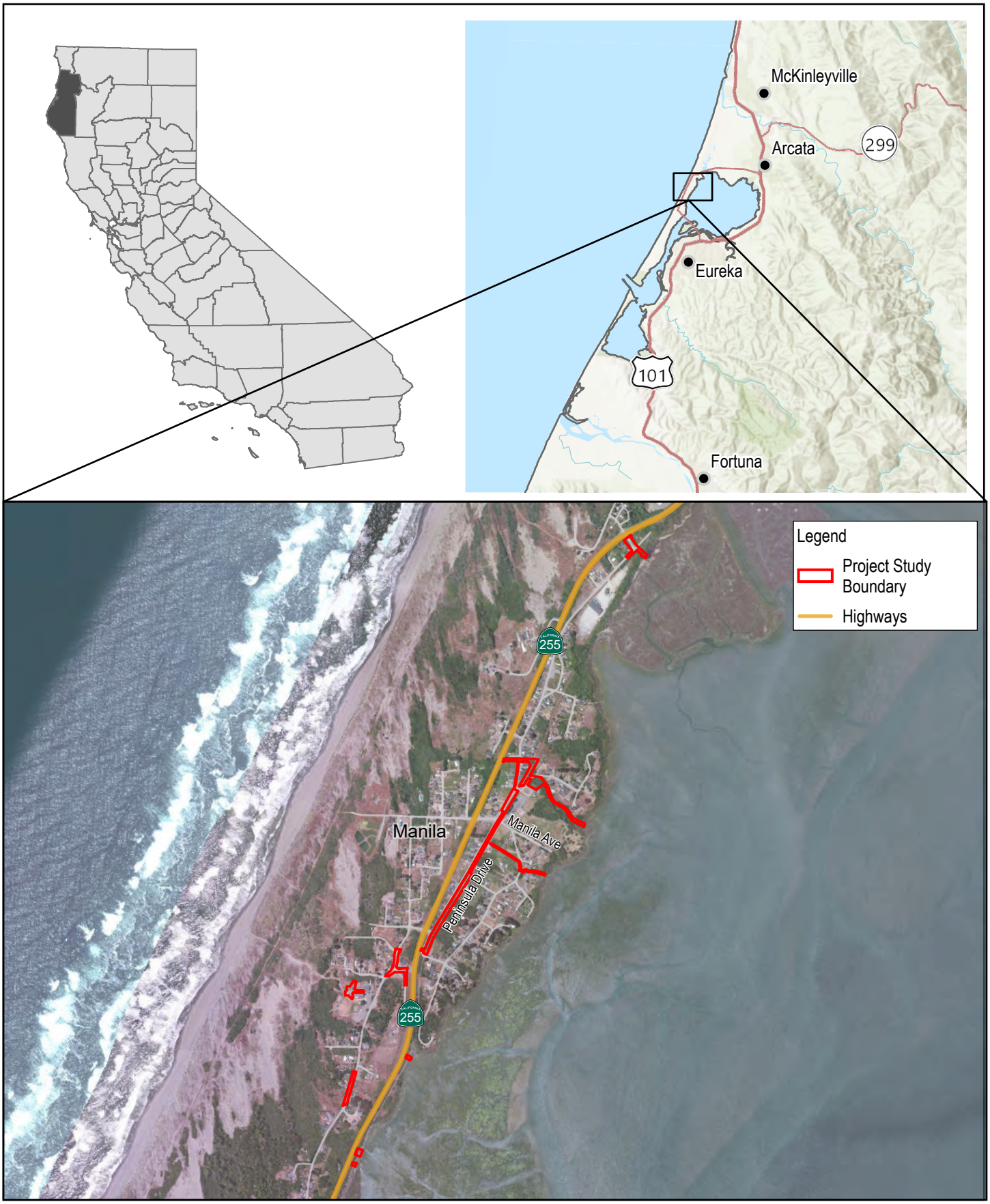
Appendices

Appendix A

Figures



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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

GHD

Manila Community Services District
Manila Flood Reduction &
Drainage Enhancement Project

Project No. **12572691**
Revision No. **-**
Date **Aug 2022**

Vicinity Map

FIGURE 1

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Data source: World Imagery (Clarity): This work is licensed under the Esri Master License Agreement.View Summary | View Terms of UseExport: This layer is not intended to be used to export tiles for offline. Data Collection and Editing: This layer may be used in various ArcGIS apps to support data collection and editing, with the results used internally or shared with others, as described for these use cases.; World Topographic Map - labelless: California State Parks, Esri, HERE, Garmin, SafeGraph, FAO, METI/NASA, USGS, Bureau of Land Management, EPA, NPS; transportation: USGS The National Map: National Transportation Dataset; U.S. Census Bureau – TIGER/Line; U.S. Forest Service. Data Refreshed July, 2022.; World Hillshade: Esri, CGIAR, 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

Manila Community Services District
Manila Flood Reduction &
Drainage Enhancement Project

Project No. **1257269**
Revision No. **-**
Date **Aug 2022**

Project Study Boundary

FIGURE 2

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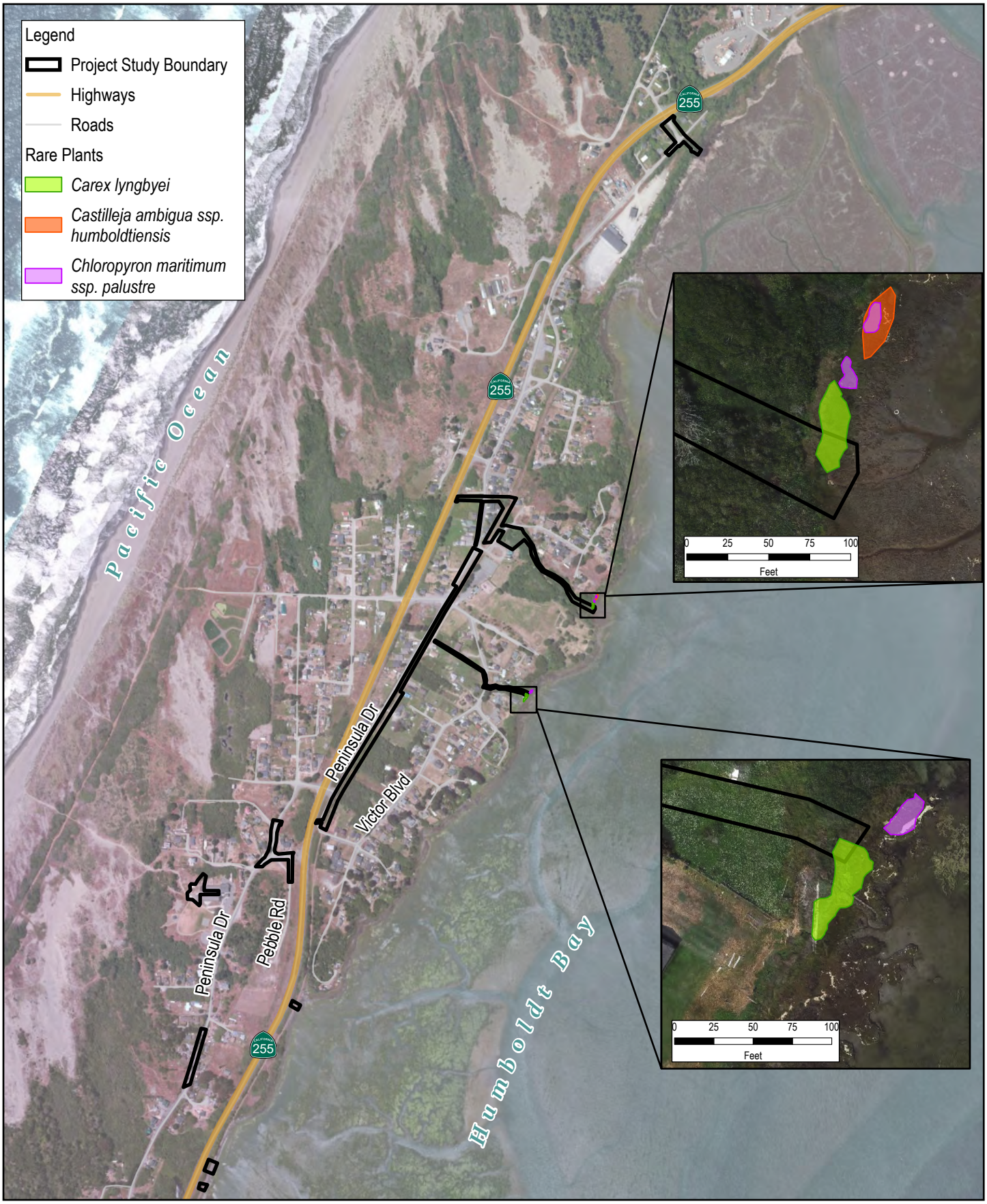
Print date: 12 Aug 2022 - 15:50

Data source: World Imagery (Clarity): This work is licensed under the Esri Master License Agreement.View Summary | View Terms of UseExport: This layer is not intended to be used to export tiles for offline. Data Collection and Editing: This layer may be used in various ArcGIS apps to support data collection and editing, with the results used internally or shared with others, as described for these use cases.. 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

N

GHD

Manila Community Services District
Manila Flood Reduction &
Drainage Enhancement Project

Project No. **1257269**
Revision No. **-**
Date **Aug 2022**

Rare Plants

FIGURE 3

\\ghdnet\ghd\US\Eureka\Projects\561\12572691\GIS\Maps\Deliverables\12572691_Botanical\12572691_Botanical_memo.aprx , 12572691_003_Rare Plants
Print date: 18 Aug 2022 - 10:49

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AirPhoto_2019_MapService: . Created by: jlopez4

Appendix B

Database Searches (CNDDB, CNPS, IPaC)

Summary Table Report

California Department of Fish and Wildlife

California Natural Diversity Database

Query Criteria: Quad IS (Eureka (4012472) OR Arcata North (4012481) OR Arcata South (4012471) OR Tyee City (4012482) OR McWhinney Creek (4012461) OR Fields Landing (4012462) OR Cannibal Island (4012463))

Name (Scientific/Common)	CNDDB Ranks	Listing Status (Fed/State)	Other Lists	Elev. Range (ft.)	Total EO's	Element Occ. Ranks						Population Status		Presence		
						A	B	C	D	X	U	Historic > 20 yr	Recent <= 20 yr	Extant	Poss. Extirp.	Extirp.
Abronia umbellata var. breviflora pink sand-verbena	G4G5T2 S2	None None	Rare Plant Rank - 1B.1 BLM_S-Sensitive SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden	5 236	61 S:16	0	9	2	1	1	3	7	9	15	1	0
Accipiter striatus sharp-shinned hawk	G5 S4	None None	CDFW_WL-Watch List IUCN_LC-Least Concern	200 580	22 S:2	0	0	2	0	0	0	0	2	2	0	0
Acipenser medirostris pop. 1 green sturgeon - southern DPS	G2T1 S1	Threatened None	AFS_VU-Vulnerable IUCN_NT-Near Threatened	0 0	14 S:1	0	1	0	0	0	0	0	1	1	0	0
Anodonta californiensis California floater	G3Q S2?	None None	USFS_S-Sensitive	41 41	6 S:1	0	0	0	0	0	1	1	0	1	0	0
Aplodontia rufa humboldtiana Humboldt mountain beaver	G5TNR SNR	None None		50 1,700	28 S:16	0	0	0	0	0	16	14	2	16	0	0
Arborimus albipes white-footed vole	G3G4 S2	None None	CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern	15 15	3 S:1	0	0	0	0	0	1	1	0	1	0	0
Arborimus pomo Sonoma tree vole	G3 S3	None None	CDFW_SSC-Species of Special Concern IUCN_NT-Near Threatened	40 1,600	222 S:7	0	0	0	0	0	7	7	0	7	0	0
Ardea alba great egret	G5 S4	None None	CDF_S-Sensitive IUCN_LC-Least Concern	4 194	43 S:6	1	0	0	0	0	5	4	2	6	0	0
Ardea herodias great blue heron	G5 S4	None None	CDF_S-Sensitive IUCN_LC-Least Concern	4 450	156 S:13	6	0	0	0	0	7	7	6	13	0	0
Ascaphus truei Pacific tailed frog	G4 S3S4	None None	CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern	100 1,027	491 S:8	0	0	0	0	0	8	5	3	8	0	0

Summary Table Report

California Department of Fish and Wildlife

California Natural Diversity Database

Name (Scientific/Common)	CNDDB Ranks	Listing Status (Fed/State)	Other Lists	Elev. Range (ft.)	Total EO's	Element Occ. Ranks						Population Status		Presence		
						A	B	C	D	X	U	Historic > 20 yr	Recent <= 20 yr	Extant	Poss. Extirp.	Extirp.
Astragalus pycnostachyus var. pycnostachyus coastal marsh milk-vetch	G2T2 S2	None None	Rare Plant Rank - 1B.2 BLM_S-Sensitive SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden SB_SBBG-Santa Barbara Botanic Garden SB_UCBG-UC Botanical Garden at Berkeley		24 S:1	0	0	0	0	0	1	1	0	1	0	0
Bombus caliginosus obscure bumble bee	G2G3 S1S2	None None	IUCN_VU-Vulnerable	0 2,100	181 S:8	0	0	0	0	0	8	8	0	8	0	0
Bombus crotchii Crotch bumble bee	G2 S1S2	None None		10 10	437 S:1	0	0	0	0	0	1	1	0	1	0	0
Bombus occidentalis western bumble bee	G2G3 S1	None None	USFS_S-Sensitive	10 2,100	306 S:9	0	0	0	0	0	9	9	0	9	0	0
Brachyramphus marmoratus marbled murrelet	G3 S2	Threatened Endangered	CDF_S-Sensitive IUCN_EN-Endangered NABCI_RWL-Red Watch List	1,200 1,800	110 S:4	0	2	0	0	0	2	4	0	4	0	0
Cardamine angulata seaside bittercress	G4G5 S3	None None	Rare Plant Rank - 2B.1	310 310	38 S:1	0	0	0	0	0	1	1	0	1	0	0
Carex arcta northern clustered sedge	G5 S1	None None	Rare Plant Rank - 2B.2 IUCN_LC-Least Concern	200 500	13 S:2	0	0	0	0	0	2	2	0	2	0	0
Carex leptalea bristle-stalked sedge	G5 S1	None None	Rare Plant Rank - 2B.2 IUCN_LC-Least Concern	300 300	8 S:1	0	0	0	0	0	1	1	0	1	0	0
Carex lyngbyei Lyngbye's sedge	G5 S3	None None	Rare Plant Rank - 2B.2 IUCN_LC-Least Concern	0 20	37 S:22	2	3	9	0	0	8	7	15	22	0	0
Carex praticola northern meadow sedge	G5 S2	None None	Rare Plant Rank - 2B.2		14 S:1	0	0	0	0	0	1	1	0	1	0	0
Castilleja ambigua var. humboldtiensis Humboldt Bay owl's-clover	G4T2 S2	None None	Rare Plant Rank - 1B.2 BLM_S-Sensitive	5 65	31 S:21	2	8	2	0	0	9	10	11	21	0	0

Summary Table Report

California Department of Fish and Wildlife

California Natural Diversity Database

Name (Scientific/Common)	CNDDB Ranks	Listing Status (Fed/State)	Other Lists	Elev. Range (ft.)	Total EO's	Element Occ. Ranks						Population Status		Presence		
						A	B	C	D	X	U	Historic > 20 yr	Recent <= 20 yr	Extant	Poss. Extirp.	Extirp.
Castilleja litoralis Oregon coast paintbrush	G3 S3	None None	Rare Plant Rank - 2B.2	50 500	44 S:3	0	0	0	0	0	3	2	1	3	0	0
Charadrius montanus mountain plover	G3 S2S3	None None	BLM_S-Sensitive CDFW_SSC-Species of Special Concern IUCN_NT-Near Threatened NABCI_RWL-Red Watch List USFWS_BCC-Birds of Conservation Concern	4 7	90 S:2	0	0	0	0	0	2	0	2	2	0	0
Charadrius nivosus nivosus western snowy plover	G3T3 S2	Threatened None	CDFW_SSC-Species of Special Concern NABCI_RWL-Red Watch List	10 23	138 S:5	0	1	0	0	0	4	3	2	5	0	0
Chloropyron maritimum ssp. palustre Point Reyes salty bird's-beak	G4?T2 S2	None None	Rare Plant Rank - 1B.2 BLM_S-Sensitive	5 10	80 S:17	2	6	1	1	0	7	10	7	17	0	0
Cicindela hirticollis gravida sandy beach tiger beetle	G5T2 S2	None None		10 10	34 S:1	0	0	0	0	1	0	1	0	0	0	1
Circus hudsonius northern harrier	G5 S3	None None	CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern USFWS_BCC-Birds of Conservation Concern	6 6	54 S:1	0	0	1	0	0	0	0	1	1	0	0
Coastal Terrace Prairie Coastal Terrace Prairie	G2 S2.1	None None		160 160	8 S:1	0	1	0	0	0	0	1	0	1	0	0
Collinsia corymbosa round-headed Chinese-houses	G1 S1	None None	Rare Plant Rank - 1B.2		13 S:1	0	0	0	0	0	1	1	0	1	0	0
Corynorhinus townsendii Townsend's big-eared bat	G4 S2	None None	BLM_S-Sensitive CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern USFS_S-Sensitive WBWG_H-High Priority	30 250	635 S:3	0	0	0	0	0	3	3	0	3	0	0

Summary Table Report

California Department of Fish and Wildlife

California Natural Diversity Database

Name (Scientific/Common)	CNDDB Ranks	Listing Status (Fed/State)	Other Lists	Elev. Range (ft.)	Total EO's	Element Occ. Ranks						Population Status		Presence		
						A	B	C	D	X	U	Historic > 20 yr	Recent <= 20 yr	Extant	Poss. Extirp.	Extirp.
Coturnicops noveboracensis yellow rail	G4 S1S2	None None	CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern NABCI_RWL-Red Watch List USFS_S-Sensitive USFWS_BCC-Birds of Conservation Concern	4 24	45 S:4	0	0	0	0	0	4	3	1	4	0	0
Egretta thula snowy egret	G5 S4	None None	IUCN_LC-Least Concern	4 47	20 S:3	1	0	0	0	0	2	1	2	3	0	0
Elanus leucurus white-tailed kite	G5 S3S4	None None	BLM_S-Sensitive CDFW_FP-Fully Protected IUCN_LC-Least Concern	23 60	184 S:3	0	1	0	0	0	2	0	3	3	0	0
Emys marmorata western pond turtle	G3G4 S3	None None	BLM_S-Sensitive CDFW_SSC-Species of Special Concern IUCN_VU-Vulnerable USFS_S-Sensitive	3 400	1404 S:9	1	3	1	0	0	4	2	7	9	0	0
Entosphenus tridentatus Pacific lamprey	G4 S3	None None	AFS_VU-Vulnerable BLM_S-Sensitive CDFW_SSC-Species of Special Concern USFS_S-Sensitive	14 43	9 S:5	0	0	0	0	0	5	1	4	5	0	0
Erethizon dorsatum North American porcupine	G5 S3	None None	IUCN_LC-Least Concern	13 817	523 S:9	0	0	0	0	0	9	4	5	9	0	0
Erysimum menziesii Menzies' wallflower	G1 S1	Endangered Endangered	Rare Plant Rank - 1B.1 SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden SB_UCBG-UC Botanical Garden at Berkeley	5 30	19 S:6	2	2	1	1	0	0	0	6	6	0	0
Erythronium revolutum coast fawn lily	G4G5 S3	None None	Rare Plant Rank - 2B.2		172 S:1	0	0	0	0	0	1	1	0	1	0	0
Eucyclogobius newberryi tidewater goby	G3 S3	Endangered None	AFS_EN-Endangered IUCN_VU-Vulnerable	0 12	127 S:10	1	1	0	1	0	7	1	9	10	0	0

Summary Table Report

California Department of Fish and Wildlife

California Natural Diversity Database

Name (Scientific/Common)	CNDDB Ranks	Listing Status (Fed/State)	Other Lists	Elev. Range (ft.)	Total EO's	Element Occ. Ranks						Population Status		Presence		
						A	B	C	D	X	U	Historic > 20 yr	Recent <= 20 yr	Extant	Poss. Extirp.	Extirp.
Falco peregrinus anatum American peregrine falcon	G4T4 S3S4	Delisted Delisted	CDF_S-Sensitive CDFW_FP-Fully Protected	40 902	73 S:8	0	5	0	0	0	3	1	7	8	0	0
Fissidens pauperculus minute pocket moss	G3? S2	None None	Rare Plant Rank - 1B.2 USFS_S-Sensitive	100 650	22 S:3	0	0	0	0	0	3	3	0	3	0	0
Gilia capitata ssp. pacifica Pacific gilia	G5T3 S2	None None	Rare Plant Rank - 1B.2	250 250	91 S:1	0	0	0	0	0	1	1	0	1	0	0
Gilia millefoliata dark-eyed gilia	G2 S2	None None	Rare Plant Rank - 1B.2 BLM_S-Sensitive	5 50	54 S:11	1	4	1	0	0	5	6	5	11	0	0
Haliaeetus leucocephalus bald eagle	G5 S3	Delisted Endangered	BLM_S-Sensitive CDF_S-Sensitive CDFW_FP-Fully Protected IUCN_LC-Least Concern USFS_S-Sensitive	29 580	332 S:3	1	1	0	0	0	1	0	3	3	0	0
Hesperevax sparsiflora var. brevifolia short-leaved evax	G4T3 S3	None None	Rare Plant Rank - 1B.2 BLM_S-Sensitive	10 15	72 S:6	0	1	1	0	0	4	2	4	6	0	0
Lampetra richardsoni western brook lamprey	G4G5 S3S4	None None	CDFW_SSC-Species of Special Concern USFS_S-Sensitive	35 350	4 S:4	0	0	0	0	0	4	1	3	4	0	0
Lasthenia californica ssp. macrantha perennial goldfields	G3T2 S2	None None	Rare Plant Rank - 1B.2 BLM_S-Sensitive		59 S:1	0	0	0	0	0	1	1	0	1	0	0
Lathyrus japonicus seaside pea	G5 S2	None None	Rare Plant Rank - 2B.1 IUCN_LC-Least Concern	5 200	24 S:3	0	0	0	0	0	3	3	0	3	0	0
Lathyrus palustris marsh pea	G5 S2	None None	Rare Plant Rank - 2B.2	10 10	13 S:2	0	0	0	0	0	2	1	1	2	0	0
Layia carnosa beach layia	G2 S2	Threatened Endangered	Rare Plant Rank - 1B.1 SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden SB_SBBG-Santa Barbara Botanic Garden	10 40	25 S:6	0	3	1	0	0	2	1	5	6	0	0

Summary Table Report

California Department of Fish and Wildlife

California Natural Diversity Database

Name (Scientific/Common)	CNDDB Ranks	Listing Status (Fed/State)	Other Lists	Elev. Range (ft.)	Total EO's	Element Occ. Ranks						Population Status		Presence		
						A	B	C	D	X	U	Historic > 20 yr	Recent <= 20 yr	Extant	Poss. Extirp.	Extirp.
Lilium occidentale western lily	G1G2 S1	Endangered Endangered	Rare Plant Rank - 1B.1 SB_BerrySB-Berry Seed Bank	30 350	16 S:9	0	3	1	1	3	1	3	6	6	3	0
Lycopodium clavatum running-pine	G5 S3	None None	Rare Plant Rank - 4.1	160 1,860	120 S:35	2	10	13	3	0	7	34	1	35	0	0
Margaritifera falcata western pearlshell	G4G5 S1S2	None None		75 317	78 S:2	0	0	0	0	0	2	2	0	2	0	0
Martes caurina humboldtensis Humboldt marten	G4G5T1 S1	Threatened Endangered	CDFW_SSC-Species of Special Concern USFS_S-Sensitive	1,100 1,100	44 S:1	0	0	0	0	0	1	1	0	1	0	0
Mitellastra caulescens leafy-stemmed mitrewort	G5 S4	None None	Rare Plant Rank - 4.2	1,200 1,200	21 S:1	0	1	0	0	0	0	1	0	1	0	0
Monotropa uniflora ghost-pipe	G5 S2	None None	Rare Plant Rank - 2B.2	100 100	115 S:1	0	0	0	0	0	1	1	0	1	0	0
Montia howellii Howell's montia	G3G4 S2	None None	Rare Plant Rank - 2B.2	39 1,600	123 S:14	0	5	2	3	3	1	3	11	11	3	0
Myotis evotis long-eared myotis	G5 S3	None None	BLM_S-Sensitive IUCN_LC-Least Concern WBWG_M-Medium Priority	40 429	139 S:2	0	1	0	0	0	1	2	0	2	0	0
Nannopterum auritum double-crested cormorant	G5 S4	None None	CDFW_WL-Watch List IUCN_LC-Least Concern	10 10	39 S:1	0	0	0	0	0	1	1	0	1	0	0
Northern Coastal Salt Marsh Northern Coastal Salt Marsh	G3 S3.2	None None		0 0	53 S:11	1	0	0	0	0	10	11	0	11	0	0
Northern Foredune Grassland Northern Foredune Grassland	G1 S1.1	None None		50 50	1 S:1	0	0	0	0	0	1	1	0	1	0	0
Nycticorax nycticorax black-crowned night heron	G5 S4	None None	IUCN_LC-Least Concern	4 194	37 S:8	1	0	0	0	0	7	6	2	8	0	0
Oenothera wolfii Wolf's evening-primrose	G2 S1	None None	Rare Plant Rank - 1B.1 SB_BerrySB-Berry Seed Bank	10 25	29 S:2	0	0	0	0	0	2	2	0	2	0	0

Summary Table Report

California Department of Fish and Wildlife

California Natural Diversity Database

Name (Scientific/Common)	CNDDB Ranks	Listing Status (Fed/State)	Other Lists	Elev. Range (ft.)	Total EO's	Element Occ. Ranks						Population Status		Presence		
						A	B	C	D	X	U	Historic > 20 yr	Recent <= 20 yr	Extant	Poss. Extirp.	Extirp.
Oncorhynchus clarkii clarkii coast cutthroat trout	G5T4 S3	None None	AFS_VU-Vulnerable CDFW_SSC-Species of Special Concern USFS_S-Sensitive	5 317	45 S:16	0	0	1	0	0	15	10	6	16	0	0
Oncorhynchus kisutch pop. 2 coho salmon - southern Oregon / northern California ESU	G5T2Q S2	Threatened Threatened	AFS_TH-Threatened	35 117	10 S:6	0	0	2	0	0	4	1	5	6	0	0
Oncorhynchus mykiss irideus pop. 16 steelhead - northern California DPS	G5T2T3Q S2S3	Threatened None	AFS_TH-Threatened	35 117	12 S:4	0	1	1	0	0	2	0	4	4	0	0
Pandion haliaetus osprey	G5 S4	None None	CDF_S-Sensitive CDFW_WL-Watch List IUCN_LC-Least Concern	10 1,240	504 S:80	14	25	7	2	1	31	72	8	79	1	0
Pekania pennanti Fisher	G5 S2S3	None None	BLM_S-Sensitive CDFW_SSC-Species of Special Concern USFS_S-Sensitive	41 555	555 S:5	0	3	0	0	0	2	0	5	5	0	0
Puccinellia pumila dwarf alkali grass	G5 SH	None None	Rare Plant Rank - 2B.2	15 15	2 S:1	0	0	0	0	0	1	1	0	1	0	0
Rallus obsoletus obsoletus California Ridgway's rail	G3T1 S1	Endangered Endangered	CDFW_FP-Fully Protected NABCI_RWL-Red Watch List		99 S:2	0	0	0	0	2	0	2	0	0	0	2
Rana aurora northern red-legged frog	G4 S3	None None	CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern USFS_S-Sensitive	4 800	292 S:57	0	4	0	1	0	52	14	43	57	0	0
Rana boylii foothill yellow-legged frog	G3 S3	None Endangered	BLM_S-Sensitive CDFW_SSC-Species of Special Concern IUCN_NT-Near Threatened USFS_S-Sensitive	7 2,100	2478 S:11	2	1	0	0	0	8	3	8	11	0	0
Rhyacotriton variegatus southern torrent salamander	G3G4 S2S3	None None	CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern USFS_S-Sensitive	200 1,200	416 S:8	0	0	1	0	0	7	5	3	8	0	0
Riparia riparia bank swallow	G5 S2	None Threatened	BLM_S-Sensitive IUCN_LC-Least Concern	50 114	298 S:3	0	1	0	0	0	2	2	1	3	0	0

Summary Table Report

California Department of Fish and Wildlife

California Natural Diversity Database

Name (Scientific/Common)	CNDDB Ranks	Listing Status (Fed/State)	Other Lists	Elev. Range (ft.)	Total EO's	Element Occ. Ranks						Population Status		Presence		
						A	B	C	D	X	U	Historic > 20 yr	Recent <= 20 yr	Extant	Poss. Extirp.	Extirp.
Scaphinotus behrensi Behrens' snail-eating beetle	G2G4 S2S4	None None		400 400	4 S:1	0	0	0	0	0	1	1	0	1	0	0
Sidalcea malachroides maple-leaved checkerbloom	G3 S3	None None	Rare Plant Rank - 4.2	100 1,650	136 S:26	2	4	7	10	0	3	26	0	26	0	0
Sidalcea malviflora ssp. patula Siskiyou checkerbloom	G5T2 S2	None None	Rare Plant Rank - 1B.2	50 300	60 S:6	0	0	3	0	0	3	3	3	6	0	0
Sidalcea oregana ssp. eximia coast checkerbloom	G5T1 S1	None None	Rare Plant Rank - 1B.2	20 200	19 S:5	0	0	2	0	0	3	4	1	5	0	0
Silene scouleri ssp. scouleri Scouler's catchfly	G5T4T5 S2S3	None None	Rare Plant Rank - 2B.2		23 S:1	0	0	0	0	0	1	1	0	1	0	0
Sitka Spruce Forest Sitka Spruce Forest	G1 S1.1	None None		160 160	4 S:1	0	0	1	0	0	0	1	0	1	0	0
Spergularia canadensis var. occidentalis western sand-spurrey	G5T4 S1	None None	Rare Plant Rank - 2B.1	5 10	4 S:4	0	0	1	0	0	3	3	1	4	0	0
Spirinchus thaleichthys longfin smelt	G5 S1	Candidate Threatened		0 10	46 S:6	0	0	0	0	0	6	5	1	6	0	0
Sulcaria spiralifera twisted horsehair lichen	G3G4 S2	None None	Rare Plant Rank - 1B.2 BLM_S-Sensitive	30 43	18 S:3	0	0	0	0	0	3	1	2	3	0	0
Thaleichthys pacificus eulachon	G5 S2	Threatened None			10 S:2	0	0	0	0	1	1	2	0	1	1	0
Trichodon cylindricus cylindrical trichodon	G4G5 S2	None None	Rare Plant Rank - 2B.2		14 S:1	0	0	0	0	0	1	1	0	1	0	0
Usnea longissima Methuselah's beard lichen	G4 S4	None None	Rare Plant Rank - 4.2 BLM_S-Sensitive	520 2,100	206 S:16	0	3	1	6	0	6	15	1	16	0	0
Viola palustris alpine marsh violet	G5 S1S2	None None	Rare Plant Rank - 2B.2	100 100	10 S:2	0	0	0	0	0	2	2	0	2	0	0

California Native Plant Society

Search Results

49 matches found. Click on scientific name for details

Search Criteria: 9-Quad include [**4012472:4012471:4012481:4012482:4012462:4012463:4012461**]

▲ SCIENTIFIC NAME	COMMON NAME	FAMILY	LIFEFORM	BLOOMING PERIOD	FED LIST	STATE LIST	GLOBAL RANK	STATE RANK	CA RARE PLANT RANK
Abronia umbellata var. *breviflora*	pink sand-verbena	Nyctaginaceae	annual herb	Jun-Oct	None	None	G4G5T2	S2	1B.1
Angelica lucida	sea-watch	Apiaceae	perennial herb	Apr-Sep	None	None	G5	S3	4.2
Astragalus pycnostachyus var. *pycnostachyus*	coastal marsh milk-vetch	Fabaceae	perennial herb	(Apr)Jun-Oct	None	None	G2T2	S2	1B.2
Astragalus rattanii var. *rattanii*	Rattan's milk-vetch	Fabaceae	perennial herb	Apr-Jul	None	None	G4T4	S4	4.3
Cardamine angulata	seaside bittercress	Brassicaceae	perennial herb	(Jan)Mar-Jul	None	None	G4G5	S3	2B.2
Carex arcta	northern clustered sedge	Cyperaceae	perennial herb	Jun-Sep	None	None	G5	S1	2B.2
Carex leptalea	bristle-stalked sedge	Cyperaceae	perennial rhizomatous herb	Mar-Jul	None	None	G5	S1	2B.2
Carex lyngbyei	Lyngbye's sedge	Cyperaceae	perennial rhizomatous herb	Apr-Aug	None	None	G5	S3	2B.2
Carex praticola	northern meadow sedge	Cyperaceae	perennial herb	May-Jul	None	None	G5	S2	2B.2
Castilleja ambigua var. *humboldtiensis*	Humboldt Bay owl's-clover	Orobanchaceae	annual herb (hemiparasitic)	Apr-Aug	None	None	G4T2	S2	1B.2
Castilleja litoralis	Oregon coast paintbrush	Orobanchaceae	perennial herb (hemiparasitic)	Jun	None	None	G3	S3	2B.2
Chloropyron maritimum ssp. *palustre*	Point Reyes salty bird's-beak	Orobanchaceae	annual herb (hemiparasitic)	Jun-Oct	None	None	G4?T2	S2	1B.2
Chrysosplenium glechomifolium	Pacific golden saxifrage	Saxifragaceae	perennial herb	Feb-Jun	None	None	G5?	S3	4.3
Collinsia corymbosa	round-headed Chinese-houses	Plantaginaceae	annual herb	Apr-Jun	None	None	G1	S1	1B.2
Eleocharis parvula	small spikerush	Cyperaceae	perennial herb	(Apr)Jun-Aug(Sep)	None	None	G5	S3	4.3
Erysimum menziesii	Menzies' wallflower	Brassicaceae	perennial herb	Mar-Sep	FE	CE	G1	S1	1B.1
Erythronium revolutum	coast fawn lily	Liliaceae	perennial bulbiferous herb	Mar-Jul(Aug)	None	None	G4G5	S3	2B.2
Fissidens pauperculus	minute pocket moss	Fissidentaceae	moss		None	None	G3?	S2	1B.2

Gilia capitata ssp. *pacifica*	Pacific gilia	Polemoniaceae	annual herb	Apr-Aug	None	None	G5T3	S2	1B.2
Gilia millefoliata	dark-eyed gilia	Polemoniaceae	annual herb	Apr-Jul	None	None	G2	S2	1B.2
Glehnia littoralis ssp. *leiocarpa*	American glehnia	Apiaceae	perennial herb	May-Aug	None	None	G5T5	S2S3	4.2
Hesperevax sparsiflora var. *brevifolia*	short-leaved evax	Asteraceae	annual herb	Mar-Jun	None	None	G4T3	S3	1B.2
Hosackia gracilis	harlequin lotus	Fabaceae	perennial rhizomatous herb	Mar-Jul	None	None	G3G4	S3	4.2
Lasthenia californica ssp. *macrantha*	perennial goldfields	Asteraceae	perennial herb	Jan-Nov	None	None	G3T2	S2	1B.2
Lathyrus glandulosus	sticky pea	Fabaceae	perennial rhizomatous herb	Apr-Jun	None	None	G3	S3	4.3
Lathyrus japonicus	seaside pea	Fabaceae	perennial rhizomatous herb	May-Aug	None	None	G5	S2	2B.1
Lathyrus palustris	marsh pea	Fabaceae	perennial herb	Mar-Aug	None	None	G5	S2	2B.2
Layia carnosa	beach layia	Asteraceae	annual herb	Mar-Jul	FT	CE	G2	S2	1B.1
Lilium kelloggii	Kellogg's lily	Liliaceae	perennial bulbiferous herb	May-Aug	None	None	G3	S3	4.3
Lilium occidentale	western lily	Liliaceae	perennial bulbiferous herb	Jun-Jul	FE	CE	G1G2	S1	1B.1
Listera cordata	heart-leaved twayblade	Orchidaceae	perennial herb	Feb-Jul	None	None	G5	S4	4.2
Lycopodium clavatum	running-pine	Lycopodiaceae	perennial rhizomatous herb	Jun-Aug(Sep)	None	None	G5	S3	4.1
Mitellastra caulescens	leafy-stemmed mitrewort	Saxifragaceae	perennial rhizomatous herb	(Mar)Apr-Oct	None	None	G5	S4	4.2
Monotropa uniflora	ghost-pipe	Ericaceae	perennial herb (achlorophyllous)	Jun-Aug(Sep)	None	None	G5	S2	2B.2
Montia howellii	Howell's montia	Montiaceae	annual herb	(Feb)Mar-May	None	None	G3G4	S2	2B.2
Oenothera wolfii	Wolf's evening-primrose	Onagraceae	perennial herb	May-Oct	None	None	G2	S1	1B.1
Pityopus californicus	California pinefoot	Ericaceae	perennial herb (achlorophyllous)	(Mar-Apr)May-Aug	None	None	G4G5	S4	4.2
Pleuropogon refractus	nodding semaphore grass	Poaceae	perennial rhizomatous herb	(Mar)Apr-Aug	None	None	G4	S4	4.2
Puccinellia pumila	dwarf alkali grass	Poaceae	perennial herb	Jul	None	None	G5	SH	2B.2
Ribes laxiflorum	trailing black currant	Grossulariaceae	perennial deciduous shrub	Mar-Jul(Aug)	None	None	G5?	S3	4.3
Sidalcea malachroides	maple-leaved checkerbloom	Malvaceae	perennial herb	(Mar)Apr-Aug	None	None	G3	S3	4.2
Sidalcea malviflora ssp. *patula*	Siskiyou checkerbloom	Malvaceae	perennial rhizomatous herb	(Mar)May-Aug	None	None	G5T2	S2	1B.2
Sidalcea oregana ssp.	coast	Malvaceae	perennial herb	Jun-Aug	None	None	G5T1	S1	1B.2

eximia	checkerbloom								
Silene scouleri ssp. *scouleri*	Scouler's catchfly	Caryophyllaceae	perennial herb	(Mar-May)Jun-Aug(Sep)	None	None	G5T4T5	S2S3	2B.2
Spergularia canadensis var. *occidentalis*	western sand-spurrey	Caryophyllaceae	annual herb	Jun-Aug	None	None	G5T4	S1	2B.1
Sulcaria spiralifera	twisted horsehair lichen	Parmeliaceae	fruticose lichen (epiphytic)		None	None	G3G4	S2	1B.2
Trichodon cylindricus	cylindrical trichodon	Ditrichaceae	moss		None	None	G4G5	S2	2B.2
Usnea longissima	Methuselah's beard lichen	Parmeliaceae	fruticose lichen (epiphytic)		None	None	G4	S4	4.2
Viola palustris	alpine marsh violet	Violaceae	perennial rhizomatous herb	Mar-Aug	None	None	G5	S1S2	2B.2

Showing 1 to 49 of 49 entries

Suggested Citation:

California Native Plant Society, Rare Plant Program. 2022. Rare Plant Inventory (online edition, v9-01 1.5). Website https://www.rareplants.cnps.org [accessed 16 August 2022].

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Arcata Fish And Wildlife Office
1655 Heindon Road
Arcata, CA 95521-4573
Phone: (707) 822-7201 Fax: (707) 822-8411

In Reply Refer To:
Project Code: 2022-0060814
Project Name: Manila Drainage Project

July 06, 2022

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological

evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF

Migratory Birds: In addition to responsibilities to protect threatened and endangered species under the Endangered Species Act (ESA), there are additional responsibilities under the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA) to protect native birds from project-related impacts. Any activity, intentional or unintentional, resulting in take of migratory birds, including eagles, is prohibited unless otherwise permitted by the U.S. Fish and Wildlife Service (50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)). For more information regarding these Acts see https://www.fws.gov/birds/policies-and-regulations.php.

The MBTA has no provision for allowing take of migratory birds that may be unintentionally killed or injured by otherwise lawful activities. It is the responsibility of the project proponent to comply with these Acts by identifying potential impacts to migratory birds and eagles within applicable NEPA documents (when there is a federal nexus) or a Bird/Eagle Conservation Plan (when there is no federal nexus). Proponents should implement conservation measures to avoid or minimize the production of project-related stressors or minimize the exposure of birds and their resources to the project-related stressors. For more information on avian stressors and recommended conservation measures see https://www.fws.gov/birds/bird-enthusiasts/threats-to-birds.php.

In addition to MBTA and BGEPA, Executive Order 13186: *Responsibilities of Federal Agencies to Protect Migratory Birds*, obligates all Federal agencies that engage in or authorize activities that might affect migratory birds, to minimize those effects and encourage conservation measures that will improve bird populations. Executive Order 13186 provides for the protection of both migratory birds and migratory bird habitat. For information regarding the implementation of Executive Order 13186, please visit https://www.fws.gov/birds/policies-and-regulations/executive-orders/e0-13186.php.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Code in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List
- USFWS National Wildlife Refuges and Fish Hatcheries
- Migratory Birds
- Wetlands

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

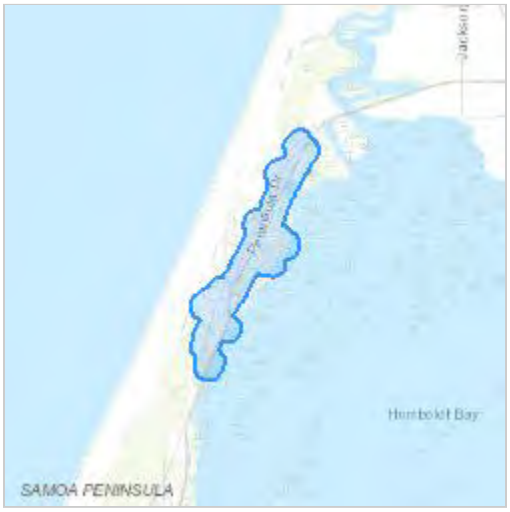
This species list is provided by:

Arcata Fish And Wildlife Office
1655 Heindon Road
Arcata, CA 95521-4573
(707) 822-7201

Project Summary

Project Code: 2022-0060814
Event Code: None
Project Name: Manila Drainage Project
Project Type: Drainage Project
Project Description: The Project, led by the Manila CSD, will incorporate multi-objective, multi-benefit project components that address flood reduction, ecosystem services, and resiliency to sea level rise and climate change.
Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@40.850741600000006,-124.16146390263467,14z



Counties: Humboldt County, California

Endangered Species Act Species

There is a total of 11 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

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1. 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.

Mammals

NAME	STATUS
Pacific Marten, Coastal Distinct Population Segment *Martes caurina* There is **proposed** critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/9081	Threatened

Birds

NAME	STATUS
Marbled Murrelet *Brachyramphus marmoratus* Population: U.S.A. (CA, OR, WA) There is **final** critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/4467	Threatened
Northern Spotted Owl *Strix occidentalis caurina* There is **final** critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/1123	Threatened
Western Snowy Plover *Charadrius nivosus nivosus* Population: Pacific Coast population DPS-U.S.A. (CA, OR, WA), Mexico (within 50 miles of Pacific coast) There is **final** critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/8035	Threatened
Yellow-billed Cuckoo *Coccyzus americanus* Population: Western U.S. DPS There is **final** critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/3911	Threatened

Reptiles

NAME	STATUS
Green Sea Turtle *Chelonia mydas* Population: East Pacific DPS No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/6199	Threatened

Fishes

NAME	STATUS
Tidewater Goby *Eucyclogobius newberryi* There is **final** critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/57	Endangered

Insects

NAME	STATUS
Monarch Butterfly *Danaus plexippus* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9743	Candidate

Flowering Plants

NAME	STATUS
Beach Layia *Layia carnosa* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/6728	Threatened
Menzies' Wallflower *Erysimum menziesii* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/2935	Endangered
Western Lily *Lilium occidentale* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/998	Endangered

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

USFWS National Wildlife Refuge Lands And Fish Hatcheries

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 OR FISH HATCHERIES WITHIN YOUR PROJECT AREA.

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.

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1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.
3. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

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* 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/1626	Breeds Jan 1 to Sep 30

NAME	BREEDING SEASON
Black Oystercatcher *Haematopus bachmani* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9591	Breeds Apr 15 to Oct 31
Black Swift *Cypseloides niger* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/8878	Breeds Jun 15 to Sep 10
Black Turnstone *Arenaria melanocephala* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds elsewhere
Cassin's Finch *Carpodacus cassinii* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9462	Breeds May 15 to Jul 15
Clark's Grebe *Aechmophorus clarkii* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Jun 1 to Aug 31
Evening Grosbeak *Coccothraustes vespertinus* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 15 to Aug 10
Golden Eagle *Aquila chrysaetos* 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	Breeds Jan 1 to Aug 31
Lesser Yellowlegs *Tringa flavipes* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9679	Breeds elsewhere
Marbled Godwit *Limosa fedoa* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9481	Breeds elsewhere
Olive-sided Flycatcher *Contopus cooperi* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/3914	Breeds May 20 to Aug 31

NAME	BREEDING SEASON
Rufous Hummingbird *selasphorus rufus* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/8002	Breeds Apr 15 to Jul 15
Short-billed Dowitcher *Limnodromus griseus* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9480	Breeds Jun 1 to Aug 10
Willet *Tringa semipalmata* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds elsewhere
Wrentit *Chamaea fasciata* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Mar 15 to Aug 10

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.

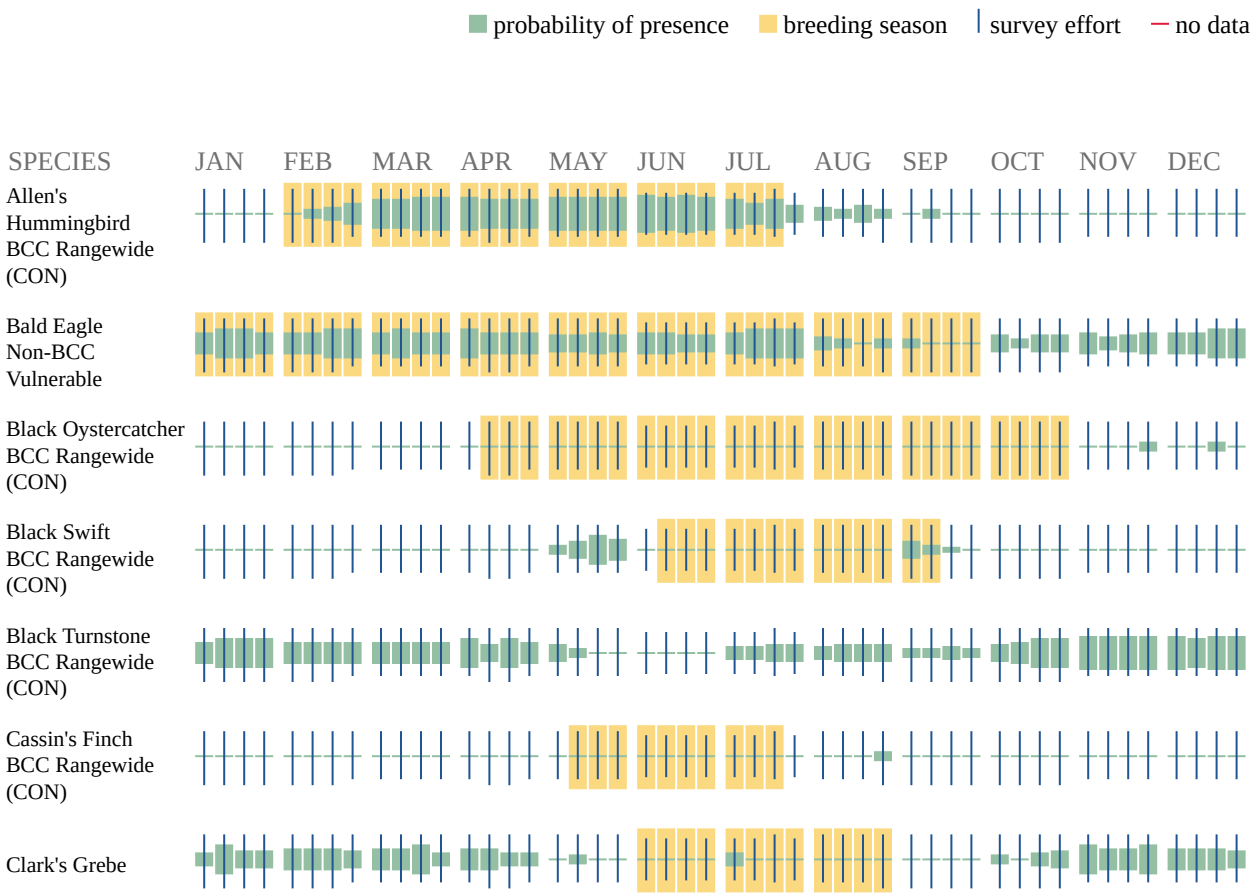
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

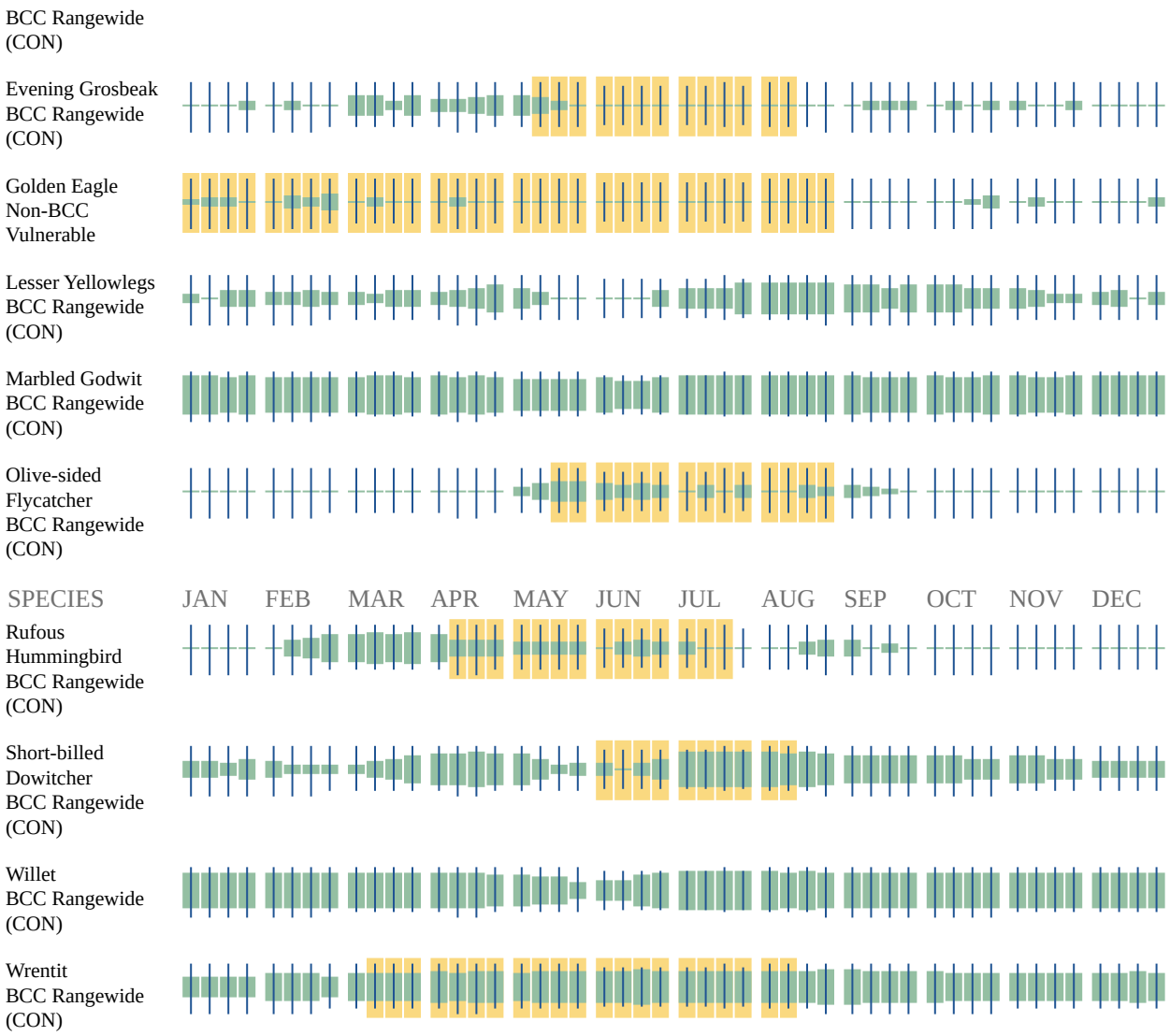
Breeding Season (■)
Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

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.

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.





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

Migratory Birds FAQ

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 migratory birds potentially occurring 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 AKN Phenology 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, migrating or present year-round in my project 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 refer to the following resources: The Cornell Lab of Ornithology All About Birds Bird Guide, or (if you are unsuccessful in locating the bird of interest there), the Cornell Lab of Ornithology Neotropical Birds guide. 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.

Wetlands

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.

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

WETLAND INFORMATION WAS NOT AVAILABLE WHEN THIS SPECIES LIST WAS GENERATED. PLEASE VISIT HTTPS://WWW.FWS.GOV/WETLANDS/DATA/MAPPER.HTML OR CONTACT THE FIELD OFFICE FOR FURTHER INFORMATION.

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Appendix C

List of Plant Species Observed on Site

Table C1 Plant species observed on-site, sorted by Family.

Scientific Name	Common Name	Native	Family
Agave sp.	agave	Non-native	Agavaceae
Carprobrotus chilensis	sea fig	Non-native	Aizoaceae
Alisma triviale	Northern water plantain	Native	Alismataceae
Atriplex prostrata	spear-leaved orache	Non-native	Amaranthaceae
Salicornia pacifica	pickleweed	Native	Amaranthaceae
Allium triquetrum	three-cornered leek	Non-native	Amaryllidaceae
Allium unifolium	ornamental onion	Non-native	Amaryllidaceae
Amarillis belladona	naked ladies	Non-native	Amaryllidaceae
Daucus carota	wild carrot	Native	Apiaceae
Hydrocotyl ranunculoides	floating pennywort	Non-native	Apiaceae
Oenanthe sarmentosa	water parsley	Native	Apiaceae
Vinca major	periwinkle	Non-native	Apocynaceae
Ilex aquifolium	English holly	Non-native	Aquifoliaceae
Lemna sp.	duckweed	Native	Araceae
Lysichiton americanus	skunk cabbage	Native	Araceae
Zantedescia aethiopica	calla lily	Non-native	Araceae
Hedera helix	English ivy	Non-native	Araliaceae
Cordyline australis	New Zealand cabbage tree	Non-native	Asparagaceae
Arctotheca calendula	Cape weed	Non-native	Asteraceae
Baccharis pilularis	coyote brush	Native	Asteraceae
Bellis perennis	daisy	Non-native	Asteraceae
Chamomilla swaveolus	chamomile	Non-native	Asteraceae
Cirsium vulgare	bull thistle	Non-native	Asteraceae
Conyza canadensis	horseweed	Non-native	Asteraceae
Corethrogyne filaginifolia	sandaster	Native	Asteraceae
Delairea odorata	cape/German ivy	Non-native	Asteraceae
Gamochaeta ustulata	featherweed	Native	Asteraceae
Gnaphalium palustre	cudweed	Native	Asteraceae
Helminthotheca echioides	prickly oxtongue	Non-native	Asteraceae
Hypochaeris radicata	cat's ear	Non-native	Asteraceae
Jaumea carnosa	marsh jaumea	Native	Asteraceae
Leucanthemum vulgare	oxe eye daisy	Non-native	Asteraceae
Matricaria discoidea	pineapple weed	Native	Asteraceae
Solidago spathulata	goldenrod	Native	Asteraceae
Soliva sessilis	field burweed	Non-native	Asteraceae
Sonchus oleraceus	prickly lettuce	Non-native	Asteraceae
Symphyotrichum chilense var. *chilense*	common California aster	Native	Asteraceae
Taraxacum officinale	dandelion	Non-native	Asteraceae
Athyrium filix-femina	lady fern	Native	Athyriaceae

Scientific Name	Common Name	Native	Family
Alnus rubra	red alder	Native	Betulacaea
Echium candicans	tower of jewels	Non-native	Boranginaceae
Symphytum officianalis	comfrey	Non-native	Boranginaceae
Brassica rapa	common mustard	Non-native	Brassicaceae
Cardamine hirsuta	hairy bittercress	Native	Brassicaceae
Raphanus raphinastrum	wild radish	Non-native	Brassicaceae
Lonicera involucrata	twinberry	Native	Caprifoliacea
Lonicera japonica	Japanese honesuckle	Non-native	Caprifoliacea
Cardionema ramosissimum	sand mat	Native	Caryophyllaceae
Limonium californicum	sea lavender	Native	Caryophyllaceae
Polycarpa tetraphyllum	fourleaf allseed	Non-native	Caryophyllaceae
Silene gallica	common catchfly	Non-native	Caryophyllaceae
Spergula arvensis	spurry	Non-native	Caryophyllaceae
Spergularia rubra	red sandspurry	Non-native	Caryophyllaceae
Stellaria media	chickweed	Non-native	Caryophyllaceae
Calystegia sepium	morning glory	Non-native	Convolvulaceae
Crassula connata	pigmy weed	Native	Crassulaceae
Hesperocyparis macrocarpa	Monterey cypress	Non-native	Cupressaceae
Sequoia sempervirens	redwood	Native	Cupressaceae
Carex lyngbyei (CRPR 2B.2)	Lyngbye's sedge	Native	Cyperaceae
Carex obnupta	slough sedge	Native	Cyperaceae
Cyperus eragrostis	tall flatsedge	Native	Cyperaceae
Eleocharis sp.	spikesedge	Native	Cyperaceae
Isolepis cernua	low bulrush	Native	Cyperaceae
Schoenoplectus californicus	California bulrush	Native	Cyperaceae
Scirpus microcarpus	small fruit bulrush	Native	Cyperaceae
Pteridium aquilinum	brackenfern	Native	Dennstaedtiaceae
Dryopteris arguta	wood fern	Native	Dryopteridaceae
Polystichum munitum	Western sword fern	Native	Dryopteridaceae
Equisetum laevigatum	smooth horsetail	Native	Equisetaceae
Equisetum telmateia	great horsetail	Native	Equisetaceae
Acacia dealbata	silver wattle	Non-native	Fabaceae
Acacia melanoxylon	Australian blackwood	Non-native	Fabaceae
Acmispon parviflorus	small-flowered lotus	Native	Fabaceae
Cytisus scoparius	Scotch broom	Non-native	Fabaceae
Fumaria capreolata	white-ramping fumitory	Non-native	Fabaceae
Lathyrus latifolius	sweet pea	Non-native	Fabaceae
Lathyrus tingitanus	tangier pea	Non-native	Fabaceae
Lotus corniculatus	big trefoil	Non-native	Fabaceae
Lupinus arboreus	yellow bush lupine	Non-native	Fabaceae

Scientific Name	Common Name	Native	Family
Lupinus bicolor	miniature lupine	Native	Fabaceae
Medicago arabica	spotted medic	Non-native	Fabaceae
Medicago polymorpha	burr clover	Non-native	Fabaceae
Trifolium arvense	hare's foot clover	Non-native	Fabaceae
Trifolium dubium	lesser trefoil	Non-native	Fabaceae
Trifolium pratense	red clover	Non-native	Fabaceae
Trifolium repens	white clover	Non-native	Fabaceae
Trifolium subterraneum	subterranean clover	Non-native	Fabaceae
Trifolium wormskioldii	cows clover	Non-native	Fabaceae
Vicia behnghalense	purple vetch	Non-native	Fabaceae
Vicia hirsuta	hairy vetch	Non-native	Fabaceae
Vicia nigricans	giant vicia	Non-native	Fabaceae
Vicia sativa	common vetch	Non-native	Fabaceae
Erodium cicutarium	redstem filaree	Non-native	Geraniaceae
Erodium moschatum	whitestem filaree	Non-native	Geraniaceae
Geranium dissectum	cutleaf geranium	Non-native	Geraniaceae
Geranium molle	dove's foot geranium	Non-native	Geraniaceae
Geranium robertianum	herb robert	Non-native	Geraniaceae
Malva neglecta	cheeseweed	Non-native	Geraniaceae
Escallonia rubra	red claws	Non-native	Grossulariaceae
Crocosmia sp.	crocosmia	Non-native	Iridacaea
Iris douglasiana	Douglas iris	Native	Iridacaea
Iris pseudacorus	bearded iris	Non-native	Iridacaea
Juncus balticus	wire rush	Native	Juncaceae
Juncus bolanderi	Bolander's rush	Native	Juncaceae
Juncus breweri	Brewer's rush	Native	Juncaceae
Juncus bufonius	toad rush	Native	Juncaceae
Juncus effusus	common rush	Native	Juncaceae
Juncus hesperius	bog rush	Native	Juncaceae
Juncus lescurii	dune rush	Native	Juncaceae
Triglochin maritima	saltmarsh arrowgrass	Native	Juncaginaceae
Mentha pulegium	pennyroyal	Non-native	Lamiaceae
Mentha spicata	spearmint	Non-native	Lamiaceae
Prunella vulgaris	common self-heal	Non-native	Lamiaceae
Stachys chamissonis	coastal hedgenettle	Native	Lamiaceae
Stachys rigida	rough hedgenettle	Native	Lamiaceae
Linum bienne	blue flax	Non-native	Linaceae
Malva arborea	tree mallow	Non-native	Malvaceae
Melianthus major	honey flower	Non-native	Melianthaceae
Claytonia perfoliata	niner's lettuce	Native	Montiaceae

Scientific Name	Common Name	Native	Family
Morella californica	California wax myrtle	Native	Myricaceae
Eucalyptus globulus	blue gum	Non-native	Myrtaceae
Fuchsia sp.	fuchsia	Non-native	Myrtales
Epilobium ciliatum	northern willow herb	Native	Onagraceae
Oxalis articulata	pink oxalis	Non-native	Oxalidaceae
Escscholzia californica	California poppy	Native	Papaveraceae
Escscholzia californica ssp. *maritima*	seaside California poppy	Native	Papaveraceae
Erythranthe guttata	yellow monkey flower	Native	Phrymaceae
Picea sitchensis	Sitka spruce	Native	Pinaceae
Pinus contorta	beach pine	Native	Pinaceae
Pinus radiata	Monterey pine	Non-native	Pinaceae
Plantago coronopus	cutleaf plantago	Non-native	Plantaginaceae
Plantago lanceolata	ribwort plantain	Non-native	Plantaginaceae
Plantago major	broadleaf plantain	Non-native	Plantaginaceae
Triphysaria pusilla	dwarf owl's clover	Native	Plantaginaceae
Veronica anagallis-aquatica	water speedwell	Non-native	Plantaginaceae
Veronica arvensis	wall speedwell	Non-native	Plantaginaceae
Agrostis stolonifera	creeping bentgrass	Non-native	Poaceae
Aira caryophyllea	silver hairgrass	Non-native	Poaceae
Alopecurus saccatus	Pacific foxtail	Native	Poaceae
Anthoxanthum odoratum	vernal sweet grass	Non-native	Poaceae
Avena barbata	slender wild oat	Non-native	Poaceae
Avena sativa	oats	Non-native	Poaceae
Briza maxima	rattlesnake grass	Non-native	Poaceae
Bromus carinatus	California brome	Native	Poaceae
Bromus catharticus	rescue grass	Non-native	Poaceae
Bromus diandrus	ripgut brome	Non-native	Poaceae
Bromus hordaceus	hairy brome	Non-native	Poaceae
Cortaderia jubata	pampas grass	Non-native	Poaceae
Dactylis glomerata	orchard grass	Non-native	Poaceae
Distichlis spicata	salt grass	Native	Poaceae
Festuca arundinacea	reed fescue	Non-native	Poaceae
Festuca bromoides	fescue	Non-native	Poaceae
Festuca perenne	Italian rye grass	Non-native	Poaceae
Glyceria declinata	small sweet grass	Non-native	Poaceae
Hainardia cylindrica	hard grass	Non-native	Poaceae
Holcus lanatus	soft chess	Non-native	Poaceae
Hordeum sp.	barley	Non-native	Poaceae
Phleum pratense	timothy grass	Non-native	Poaceae
Phyllostachys sp.	bamboo	Non-native	Poaceae

Scientific Name	Common Name	Native	Family
Poa annua	annual bluegrass	Non-native	Poaceae
Poa confinis	coastline bluegrass	Native	Poaceae
Poa macrantha	seashore bluegrass	Native	Poaceae
Poa pratensis	Kentucky bluegrass	Non-native	Poaceae
Spartina densiflora	dense cordgrass	Non-native	Poaceae
Eriogonum latifolium	beach buckwheat	Native	Polygonaceae
Muehlenbeckia sp.	wire vine	Non-native	Polygonaceae
Polygonum paronychia	beach knotweed	Native	Polygonaceae
Rumex acetosella	sheep sorrel	Non-native	Polygonaceae
Rumex crispus	curly dock	Non-native	Polygonaceae
Rumex occidentalis	western dock	Native	Polygonaceae
Polypodium calirhiza	California polypody	Native	Polypodiaceae
Lysimachia arvensis	scarlet pimpernel	Non-native	Primulaceae
Lysimachia arvensis	scarlet pimpernel	Non-native	Primulaceae
Ranunculus repens	buttercup	Non-native	Ranunculaceae
Frangula purshiana	cascara sagrada	Native	Rhamnaceae
Cotoneaster sp.	cotoneaster	Non-native	Rosaceae
Crataegus monogyna	common hawthorn	Non-native	Rosaceae
Fragaria chiloensis	beach strawberry	Native	Rosaceae
Potentilla anserina	silverweed	Native	Rosaceae
Prunus sp.	apple	Non-native	Rosaceae
Rosa sp.	ornamental rose	Non-native	Rosaceae
Rubus armeniacus	Himalayan blackberry	Non-native	Rosaceae
Rubus ursinus	California blackberry	Native	Rosaceae
Galium aparine	cleavers	Non-native	Rubiaceae
Salix hookeriana	Hooker's willow	Native	Salicaceae
Salix lasiandra	shining willow	Native	Salicaceae
Salix lasiolepis	arroyo willow	Native	Salicaceae
Myriophyllum aquaticum	parrot feather	Non-native	Saxifragaceae
Tolmiea menziesii	piggyback plant	Native	Saxifragaceae
Buddleja davidii	butterfly bush	Non-native	Scrophulariaceae
Scrophularia californica	California figwort	Native	Scrophulariaceae
Tropaeolum majus	garden nasturtium	Non-native	Tropaeolaceae
Typha latifolia	broadleaved cattail	Native	Typhaceae
Soleirolia soleirolii	baby's tears	Non-native	Urticaceae

Appendix D

Site Visit Photographs

Photo D-1. Lyngbye's sedge population on the shore of Humboldt Bay. View southeast from 40.851846°, -124.158772°.

Photo D-2. View north of Point Reyes salty bird's-beak population from 40.851922°, -124.158706°.

Photo D-3. View north of Humboldt Bay owl's-clover population from 40.851948°, -124.158651°.

Photo D-4. Close-up of Point Reyes salty bird’s-beak.

Photo D-5. View of a culvert on the shore of Humboldt Bay. No rare plants were observed at this location.

Photo D-6. View of second culvert on the shore of Humboldt Bay. No special status plants were observed at this location.

Photo D-7. Herbaceous plant community along railroad tracks in the PSB. No special status plants were observed along the railroad tracks.

Photo D-8. Herbaceous plant community and Hooker's willows along railroad tracks. No special status plant species were observed along the railroad tracks.

Photo D-9. Understory and canopy structure in a portion of the PSB, north of the Manila Community Park, facing east. No special status plant species were observed in wooded areas.

Appendix E

Wildlife Habitat Assessment Memorandum

Technical Memorandum

16 August 2022

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From	Sara Moriarty-Graves - GHD Wildlife Biologist	**Ref. No.**	12572691 Manila Drainage Project
Subject	Manila Drainage Project - Wildlife Habitat Assessment Technical Memorandum		

1. Introduction/Purpose

The Manila Community Services District (hereafter "Manila CSD") proposes to make drainage improvements (hereafter "Project") throughout the community of Manila, California (**Appendix A, Figure 1**). The Project will apply a community-wide approach to address persistent flooding and drainage problems caused by undersized, disconnected, and failing infrastructure. Simple solutions, consisting of vegetated bioswales, rain gardens, replacement of undersized and failing culverts, and new culverts in select locations are proposed. The Project, led by the Manila CSD, will incorporate multi-objective, multi-benefit project components that address flood reduction, ecosystem services, and resiliency to sea level rise and climate change. Bioswales will be graded and planted with native species along existing and new drainage paths. Existing undersized and or failing culverts will be replaced with new, larger capacity culverts ranging from 12 to 36 inches in diameter. New culverts will be installed in select locations, ranging from 18 to 24 inches in diameter. Rain gardens will be implemented along roadsides as well at the Manila Community Center to replace a concrete courtyard.

To assist with preparation of the Project's California Environmental Quality Act (CEQA) document and environmental permitting, GHD evaluated the potential for sensitive wildlife species (federally- or state-listed or special status wildlife) to occur within the Project Study Boundary (PSB; **Appendix A, Figure 2**). In addition, potential Project impacts to these resources (if any), were evaluated.

Special status species and resources are the primary focus of this evaluation. Common species or resources without special protections are not considered. Potential impacts to special status plants, sensitive natural communities, and wetlands are evaluated in separate reports.

2. Survey Methods

2.1 Database Searches (CNDDB, IPaC, and EFH)

Database searches for special status wildlife records in the Project vicinity (seven-quad search area) were conducted by GHD on May 23, 2022. A nine-quad search was not completed due to the adjacency of the Pacific Ocean. The seven-quad search area was centered on the Project U.S. Geological Survey 7.5-

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minute quadrangle (Eureka) and including the surrounding six quadrangles (Tyee City, Arcata North, Arcata South, McWhinney Creek, Field's Landing, Cannibal Island). Database searches (**Appendix B**) included:

– The California Natural Diversity Database (CNDDB; plant species and sensitive habitat records were excluded; CDFW 2022a). CNDDB results within a 3-mile radius are included in **Appendix A, Figure 3**.
– A resources list was obtained from the U.S. Fish and Wildlife Service (USFWS) Information for Planning and Consultation (IPaC; USFWS 2022a) for the PSB on July 6, 2022.
– An Essential Fish Habitat (EFH) Mapper Report was obtained from NOAA Fisheries (2022a) for the PSB on June 6, 2022.

The National Oceanic and Atmospheric Administration (NOAA) Fisheries West Coast Region California Species Tool is no longer publicly available. However, the potential for known federally-listed species managed by NMFS are included in **Table 1.**

2.2 Site Visit

A reconnaissance-level site visit was conducted by Sara Moriarty-Graves, GHD Wildlife Biologist (hereafter surveyor), on May 24, 2022, from 07:00 to 12:30. Weather during the survey included overcast to cloudy skies, about 50 degrees Fahrenheit, with light air to a gentle breeze (Beaufort scale 1-3).

The surveyor walked the entire PSB on Peninsula Drive (**Appendix A, Figure 2**). Due to property access constraints in residential areas, portions of the PSB were inaccessible. Inaccessible areas were assessed audibly by species' sounds and visually with binoculars.

Where property access and the habitat allowed the surveyor to walk without risk of damaging nests or dens and surrounding vegetation, the survey included a physical search of the area. This included inspecting the ground, shrubs, culverts, holes, and trees for the presence of any wildlife species. Additionally, the bark of vegetation and the ground layer under vegetation were inspected for evidence of wildlife species, such as feathers, pellets, whitewash, scat, tracks, etc. Where the habitat was dense or otherwise impenetrable or inaccessible, observations were made from fixed locations. This reconnaissance-level survey was conducted to identify general wildlife resources and habitat as well as wildlife activity in the PSB. No protocol-level surveys for special status wildlife were conducted at this time.

3. Results

3.1 Summary of General Biological Resources

The Project is located in the community of Manila, California, in residential areas, along roadways, railroad tracks, areas owned by Manila CSD (such as the Manila Community Park), and in undeveloped drainage areas. Residential homes are primarily located along Peninsula Drive, and the railroad tracks are mainly adjacent to the road. Adjacent land use includes residential private property, recreation in the Samoa and Manila Dunes, few private businesses, and the Redwood Coast Montessori school at the Manila Community Center.

Most of the vegetation on either side of the railroad tracks is composed of a dense shrub understory with native and non-native species, and deciduous trees, including willow (*Salix sp.*) and the occasional alder (*Alnus rubra*). Peninsula Drive is predominantly lined by herbaceous shrubs where houses were not present, landscaped vegetation on residential properties, and few mature conifer trees, including Monterey pines (*Pinus radiata*). Drainage ditches with stagnant water were present in portions of the PSB along Peninsula Drive on the east side of State Route 255. The Project area within the Manila Community Park includes undeveloped vegetated areas with minimal water present. Portions of the Project extend to Humboldt Bay shoreline, which is a tidally inundated marsh with bird species present. On the southern end of the Project west of State Route 255, adjacent areas more commonly contained shrubs, forbs, and coastal dune habitat.

3.2 Habitat Conservation Plans and Natural Community Conservation Plans

Habitat Conservation Plans (HCPs) and Natural Community Conservation Plans (NCCPs) are site-specific plans to address effects on sensitive species of plants and animals. The PSB does not overlap any existing active or proposed HCPs or NCCPs according to a current list from the USFWS (USFWS 2022b) and the CDFW list of Natural Community Conservation Plans (CDFW 2022b).

3.3 Critical Habitat and Essential Fish Habitat

The PSB does not overlap any federally designated critical habitat. Assuming ground disturbance does not require any in-water work in Humboldt Bay, Critical Habitat and Essential Fish Habitat would not be affected. However, if ground disturbance does extend into Humboldt Bay and in-water work is required, Essential Fish Habitat for Groundfish, Coho Salmon, Chinook Salmon, and coastal pelagic species would be disturbed.

The Magnuson-Stevens Fishery Conservation and Management Act (MSFCMA) requires that Essential Fish Habitat (EFH) be identified for all federally managed species including all species managed by the Pacific Fisheries Management Council (PFMC). EFH has been defined for the purposes of the MSFCMA as "those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity." NOAA Fisheries has further added the following interpretations to clarify this definition:

– "Waters" include aquatic areas and their associated physical, chemical, and biological properties that are used by fish, and may include areas historically used by fish where appropriate;

– "Substrate" includes sediment, hard bottom, structures underlying the waters, and associated biological communities;

– "Necessary" means the habitat required to support a sustainable fishery and the managed species' contribution to a healthy ecosystem; and

– "Spawning, breeding, feeding, or growth to maturity" covers the full life cycle of a species.

Adverse effect means any effect that reduces quality and/or quantity of EFH, and may include direct (e.g., contamination or physical disruption), indirect (e.g., loss of prey or reduction in species fecundity), or site-specific or habitat-wide effects, including individual, cumulative, or synergistic consequences of actions.

The PFMC is responsible for managing commercial fisheries resources along the coast of Washington, Oregon, and California. The PFMC is "guided by the principle that there should be no net loss of the productive capacity of marine, estuarine, and freshwater habitats that sustain commercial, recreational, and tribal salmon fisheries beneficial to the nation" (PFMC 2021). EFH applies to species within the PSB for the proposed Project. Under the MSFCMA, Humboldt Bay is designated as EFH within the Pacific Coast for Groundfish and coastal pelagic species. Humboldt Bay and land within the PSB are also designated EFH for Coho Salmon and Chinook Salmon.

3.4 Habitat Connectivity

Wildlife corridors refer to established migration routes commonly used by resident and migratory species for passage from one geographic location to another. Maintaining the continuity of established wildlife corridors is important to: (a) sustain species with specific foraging requirements, (b) preserve a species' distribution potential, and (c) retain genetic diversity among many wildlife populations. Therefore, resource agencies consider wildlife corridors to be a sensitive resource.

No Essential Connectivity Areas have been identified within the PSB, and the nearest is approximately 20 miles east (CDFW 2022c). However, based on the observation of the riparian habitat, dense understory, and deciduous tree canopy cover, the area within and adjacent to the Manila Community Park has the potential to function as a riparian corridor for bird species. Shrub cover along drainage areas, roads, and railroad tracks may facilitate the movement of songbird species, provide nesting habitat, and provide cover from predator species by acting as a hedgerow (Hinsley and Bellamy 2000). Although these features facilitate connectivity, this is a highly disturbed area by recreationalists in the Manila Community Park and vehicular traffic, which can negatively influence reproductive success (Holm and Laursen 2011). Residential roads and State Route 255 may also be barriers to certain species' movement.

The PSB is not located within or near a “natural landscape block” identified in the California Essential Habitat Connectivity Project. The nearest natural landscape block is located approximately 14 miles northeast of the PSB (CDFW 2022c). There is hydrologic connectivity between small portions of the PSB and the margins of Humboldt Bay. The Project does not include any elements that would impede migration of native resident or migratory fish. The Project also does not include any elements that would result in a new barriers to terrestrial wildlife movement. The Project would not interfere with the migration of birds, bats, or other species.

3.5 Special Status Wildlife

3.5.1 Wildlife Species Observed On-site

Various species (mainly birds) were observed within the PSB during the May 24, 2022, reconnaissance-level site visit. One special status bird species (Great Egret; California Department of Forestry and Fire Protection Sensitive) was observed flying over the study area. Additionally, one special status insect (Western Bumble Bee; United States Forest Service Sensitive) was observed.

Tables of all wildlife species detected during the site visit are presented in **Tables D1** and **D3 (Appendix D**). **Table D2** is a list of avian breeding codes, associated bird behaviour, and breeding status. **Tables D1** and **D3** are not intended to be comprehensive lists of all species that could occur within the PSB as no protocol level surveys have been conducted.

3.5.2 Federally-listed Wildlife Species

Twenty federally-listed or candidate wildlife species that are regulated by the USFWS and NOAA Fisheries under the federal Endangered Species Act (ESA) were identified during scoping in the Project vicinity (i.e., the seven-quad search area). Based on habitat evaluations during the reconnaissance survey, and a database and literature review, it was determined that the PSB does not provide suitable habitat for any of these species, and justification for exclusion from further consideration is detailed in **Table 1.** The Monarch butterfly (overwintering, pop. 1) is a federal candidate and has a low potential to occur in the area based on general habitat in the PSB and lack of milkweed (*Asclepias syriaca*) being present. The nearest known overwintering location is in northern Mendocino County (Western Monarch Count 2022).

3.5.3 State-Listed Wildlife Species

Ten state-listed wildlife species (seven of which are also federally-listed) that are regulated by the CDFW under the California Endangered Species Act (CESA) were identified during scoping in the Project vicinity (i.e., the seven-quad search area). Based on habitat evaluations during the reconnaissance survey, and a database and literature review, the PSB does not provide suitable habitat for eight of these species, and justification for exclusion from further consideration is detailed in **Table 1**. The Bald Eagle is a state endangered species and has a moderate potential to occur within or adjacent to the PSB. However, suitable nesting habitat is not available within the PSB, and the species would be more likely to fly over. The Bank Swallow is a state threatened species and has a moderate potential to occur based on known occurrences and the suitable habitat within and directly adjacent to the PSB.

3.5.4 Other Special Status Wildlife Species

Thirty-nine other special status wildlife species were identified during scoping in the Project vicinity (i.e., the seven-quad search area). These species are considered special status species based on a global or state rank, or special designations from various agencies (including CDF, USFS, and BLM; see **Table 1** for details on designations). Based on habitat evaluations during the reconnaissance survey, and a database and literature review, the PSB does not provide suitable habitat for 27 of these species, and justification for exclusion from further consideration is detailed in **Table 1.** Two mammals (Townsend’s Big-eared Bat and Long-Eared Myotis), eight bird species, and one amphibian (Northern Red-legged Frog) have a moderate to high potential to occur within the PSB during construction. One special status bird (Great Egret) and one insect (Western Bumble Bee) were observed during the reconnaissance site visit. Potential impacts are discussed in **Section 4**.

Based on occurrence records, habitat availability, and the reconnaissance site visit, 14 special status wildlife species (including two state-listed bird species; Bald Eagle and Bank Swallow) have a moderate or higher potential to occur within or nearby the PSB. Nonetheless, trees and shrubs on-site (especially within the northern portion of the PSB north of the Manila Community Park) may provide suitable nesting habitat for common avian species protected by the federal Migratory Bird Treaty Act (MBTA) and California Fish and Game Code (FGC). Representative photos of habitat in the PSB taken on May 24, 2022, are included in **Appendix C**.

Table 1 Special Status Wildlife Species Potential to Occur within the Project Study Boundary (PSB)

Scientific Name	Common Name	FESA	CESA	GRank[1]	SRank[1]	Other Status[1]	Habitat[2]	Potential to Occur
Mammals								
Aplodontia rufa humboldtiana	Humboldt Mountain Beaver	None	None	G5TNR	SNR		Coastal scrub; Redwood; Riparian forest. Coast Range in southwestern Del Norte County and northwestern Humboldt County. Variety of coastal habitats, including coastal scrub, riparian forests, typically with open canopy and thickly vegetated understory.	**Low potential**. The habitat structure and extent is marginally suitable for the species. No observations have been recorded nearby (iNaturalist 2022).
Arborimus albipes	White-footed Vole	None	None	G3G4	S2	CDFW_SSC-Species of Special Concern | IUCN_LC-Least Concern	North coast coniferous forest; Redwood; Riparian forest. Mature coastal forests in Humboldt and Del Norte counties. Prefers areas near small, clear streams with dense alder and shrubs. Occupies the habitat from the ground surface to the canopy. Feeds in all layers and nests on the ground under logs or rock.	**Low potential.** No suitable habitat of mature coastal forest stands is present within the PSB. However, the PSB is located near a stream with a dense understory.
Arborimus pomo	Sonoma Tree Vole	None	None	G3	S3	CDFW_SSC-Species of Special Concern | IUCN_NT-Near Threatened	North coast coniferous forest; Old growth; Redwood North coast fog belt from Oregon border to Somona County. In Douglas-fir, redwood and montane	**No potential.** No suitable habitat of old growth or Douglas fir stands is present within the PSB.

Scientific Name	Common Name	FESA	CESA	GRank[1]	SRank[1]	Other Status[1]	Habitat[2]	Potential to Occur
							hardwood-conifer forests. Feeds almost exclusively on Douglas-fir needles. Will occasionally take needles of grand fir, hemlock or spruce.	
Balaenoptera borealis	Sei Whale	FE	None			MMPA Protected	Marine.	**No potential.** There is no work in marine habitat proposed. If in-water work occurs along the Humboldt Bay shoreline, shallow depths and salt marsh habitat would not be suitable for this species.
Balaenoptera musculus	Blue Whale	FE	None	G3G4	N1	MMPA Protected	Marine.	**No potential.** There is no work in marine habitat proposed. If in-water work occurs along the Humboldt Bay shoreline, shallow depths and salt marsh habitat would not be suitable for this species.
Balaenoptera physalus	Fin Whale	FE	None	G3G4	N2	MMPA Protected	Marine.	**No potential.** There is no work in marine habitat proposed. If in-water work occurs along the Humboldt Bay shoreline, shallow depths and salt marsh habitat would not be suitable for this species.
Corynorhinus townsendii	Townsend's Big-eared Bat	None	None	G4	S2	BLM_S-Sensitive | CDFW_SSC-Species of	Broadleaved upland forest; Chaparral; Chenopod scrub;	**Moderate potential.** The species was detected in October

Scientific Name	Common Name	FESA	CESA	GRank[1]	SRank[1]	Other Status[1]	Habitat[2]	Potential to Occur
						Special Concern | IUCN_LC-Least Concern | USFS_S-Sensitive | WBWG_H-High Priority	Great Basin grassland; Great Basin scrub; Joshua tree woodland; Lower montane coniferous forest; Meadow & seep; Mojavean desert scrub; Riparian forest; Riparian woodland; Sonoran desert scrub; Sonoran thorn woodland; Upper montane coniferous forest; alley & foothill grassland. Throughout California in a wide variety of habitats. Most common in mesic sites. Roosts in the open, hanging from walls and ceilings. Roosting sites limiting. Extremely sensitive to human disturbance.	2021 directly adjacent to the PSB (BAMVT 2022). Marginally suitable roosting areas present within the PSB. This species is known to roost in buildings and alternatively larger trees, and forages around edge habitat and riparian corridors (Fellers and Pierson 2002). No work on buildings is being conducted and few large trees are present within the PSB. However, if tree removal is to occur, measures should be considered to reduce disturbance.
Erethizon dorsatum	North American Porcupine	None	None	G5	S3	IUCN_LC-Least Concern	Broadleaved upland forest; Cismontane woodland; Closed-cone coniferous forest; Lower montane coniferous forest; North coast coniferous forest; Upper montane coniferous forest. Forested habitats in the Sierra Nevada, Cascade, and Coast ranges, with scattered observations from forested areas in the Transverse Ranges. Wide variety of	**Low potential.** Habitat in the PSB is not preferred. However, an observation was recorded approximately 6 miles from the PSB on October 2, 2021 (iNaturalist 2022).

Scientific Name	Common Name	FESA	CESA	GRank[1]	SRank[1]	Other Status[1]	Habitat[2]	Potential to Occur
							coniferous and mixed woodland habitat.	
Eschrichtius robustus	Gray Whale	None	None	G4	N4	MMPA Protected	Marine	**No potential.** There is no work in marine habitat proposed. If in-water work occurs along the Humboldt Bay shoreline, shallow depths and salt marsh habitat would not be suitable for this species.
Eubalaena japonica	North Pacific Right Whale	FE	None	G1	N1	MMPA Protected	Marine.	**No potential.** There is no work in marine habitat proposed. If in-water work occurs along the Humboldt Bay shoreline, shallow depths and salt marsh habitat would not be suitable for this species.
Eumetopias jubatus	Steller Sea Lions	None	None	G3	S2	MMPA Protected	Marine and bay.	**No potential.** There is no work in marine habitat proposed and the sections that extend into the Humboldt Bay are unsuitable for the species to occur (no mudflat habitat).
Martes caurina humboldtensis	Humboldt Marten	Threatened	Endangered	G4G5T1	S1	CDFW_SSC-Species of Special Concern | USFS_S-Sensitive	North coast coniferous forest; Old growth; Redwood. Occurs only in the coastal redwood zone from the Oregon border south to Sonoma County. Associated with late-successional	**No potential.** There is no suitable old growth forest needed for foraging or denning within or nearby the PSB.

Scientific Name	Common Name	FESA	CESA	GRank[1]	SRank[1]	Other Status[1]	Habitat[2]	Potential to Occur
							coniferous forests, prefer forests with low, overhead cover.	
Megaptera novaeangliae	Humpback Whale	FE	None	G4	N3	MMPA Protected	Marine.	**No potential.** There is no work in marine habitat proposed. If in-water work occurs along the Humboldt Bay shoreline, shallow depths and salt marsh habitat would not be suitable for this species.
Myotis evotis	Long-eared Myotis	None	None	G5	S3	BLM_S-Sensitive | IUCN_LC-Least Concern | WBWG_M-Medium Priority	Found in all brush, woodland and forest habitats from sea level to about 9000 ft. Prefers coniferous woodlands and forests. Nursery colonies in buildings, crevices, spaces under bark, and snags. Caves used primarily as night roosts.	**Moderate potential.** The species was detected directly adjacent to the PSB one night in August 2021 (BAMVT 2022). The species is known to use conifer stumps and snags as day-roosts (Waldien et al. 2000). There is bark and snag habitat for nursery colonies within the PSB. If tree removal is to occur, measures should be considered to reduce disturbance.
Orcinus orca	Southern Resident Killer Whale	FE	None	G4G5T1	N1	MMPA Protected	Marine.	**No potential.** There is no work in marine habitat proposed. If in-water work occurs along the Humboldt Bay shoreline, shallow depths and salt marsh habitat would not be

Scientific Name	Common Name	FESA	CESA	GRank[1]	SRank[1]	Other Status[1]	Habitat[2]	Potential to Occur
								suitable for this species.
Orcinus orca	West Coast Transient Killer Whale	None	None	G4G5T3Q	NNR	MMPA Protected	Marine.	**No potential.** There is no work in marine habitat proposed. If in-water work occurs along the Humboldt Bay shoreline, shallow depths and salt marsh habitat would not be suitable for this species.
Pekania pennanti	Fisher	None	None	G5	S2S3	BLM_S-Sensitive | CDFW_SSC-Species of Special Concern | USFS_S-Sensitive	North coast coniferous forest; Old growth; Riparian forest. Intermediate to large-tree stages of coniferous forests and deciduous-riparian areas with high percent canopy closure. Uses cavities, snags, logs and rocky areas for cover and denning. Needs large areas of mature, dense forest.	**No potential.** There is no suitable old growth forest needed for foraging or denning within or nearby the PSB.
Phoca vitulina richardii	Pacific Harbor Seal	None	None	G5T5Q	N5	MMPA Protected	Marine and bay.	**No potential.** There is no work in marine habitat proposed and the sections that extend into the Humboldt Bay are unsuitable for the species to occur. Observed Harbor Seal haul outs in Humboldt Bay are limited to mudflats, which are not

Scientific Name	Common Name	FESA	CESA	GRank[1]	SRank[1]	Other Status[1]	Habitat[2]	Potential to Occur
								present in the PSB (CDFW 2012).
Phocoena phocoena	Harbor Porpoise	None	None	G4G5	N4N5	MMPA Protected	Marine and bay.	**Low potential.** There is no work in marine habitat proposed and the sections of the PSB that extend into the Humboldt Bay are shallow. Numerous observations of the species have been recorded within 8 miles from the PSB at the entrance channel into the Humboldt Bay, as recent as June 6, 2022 (iNaturalist 2022). If in-water work occurs along the Humboldt Bay shoreline, shallow depths and salt marsh habitat would not be suitable for this species.
Physeter macrocephalus	Sperm Whale	FE	None	G3G4	NU	MMPA Protected	Marine.	**No potential.** There is no work in marine habitat proposed. If in-water work occurs along the Humboldt Bay shoreline, shallow depths and salt marsh habitat would not be suitable for this species.
Zalophus californianus	California Sea Lion	None	None	G5	N4	MMPA Protected	Marine and bay.	**No potential.** There is no work in marine habitat proposed and the sections that extend into the Humboldt Bay are unsuitable for the

Scientific Name	Common Name	FESA	CESA	GRank[1]	SRank[1]	Other Status[1]	Habitat[2]	Potential to Occur
								species to occur. If in-water work occurs along the Humboldt Bay shoreline, shallow depths and salt marsh habitat would not be suitable for this species. Mudflats or docks are not present.
Birds								
Accipiter striatus	Sharp-shinned Hawk	None	None	G5	S4	CDFW_WL-Watch List | IUCN_LC-Least Concern	Cismontane woodland; Lower montane coniferous forest; Riparian forest; Riparian woodland. Ponderosa pine, black oak, riparian deciduous, mixed conifer, and Jeffrey pine habitats. Prefers riparian areas. North-facing slopes with plucking perches are critical requirements. Nests usually within 275 ft of water.	**Low potential.** Marginally suitable habitat is located nearby the PSB and on the portion of the PSB that is on the northeast corner of the Manila Community Park. An observation was recorded within 4 miles of the PSB on May 14, 2022.
Ardea alba	Great Egret	None	None	G5	S4	CDF_S-Sensitive | IUCN_LC-Least Concern	Brackish marsh; Estuary; Freshwater marsh; Marsh & swamp; Riparian forest; Wetland Colonial nester in large trees. Rookery sites located near marshes, tide-flats, irrigated pastures, and margins of rivers and lakes.	**Present.** Observed flying over the study area during the site visit. Additionally, observations were recorded recently within one mile from the PSB (eBird 2022). Marginally suitable habitat within and adjacent to the PSB. Suitable nesting habitat is available in the portion of the PSB on the northeast corner of

Scientific Name	Common Name	FESA	CESA	GRank[1]	SRank[1]	Other Status[1]	Habitat[2]	Potential to Occur
								the Manila Community Park.
Ardea herodias	Great Blue Heron	None	None	G5	S4	CDF_S-Sensitive | IUCN_LC-Least Concern	Brackish marsh; Estuary; Freshwater marsh; Marsh & swamp; Riparian forest; Wetland Colonial nester in tall trees, cliffsides, and sequestered spots on marshes. Rookery sites in close proximity to foraging areas: marshes, lake margins, tide-flats, rivers and streams, wet meadows.	**Moderate potential.** Observations were recorded recently within one mile from the PSB (eBird 2022). Marginally suitable habitat is present within and nearby the PSB. Suitable nesting habitat is available in the portion of the PSB on the northeast corner of the Manila Community Park.
Brachyramphus marmoratus	Marbled Murrelet	Threatened	Endangered	G3	S2	CDF_S-Sensitive | IUCN_EN-Endangered | NABCI_RWL-Red Watch List	Lower montane coniferous forest; Old growth; Redwood. Feeds near-shore; nests inland along coast from Eureka to Oregon border and from Half Moon Bay to Santa Cruz. Nests in old-growth redwood-dominated forests, up to six miles inland, often in Douglas-fir.	**No potential.** No suitable habitat of old growth stands is available within or nearby the PSB.
Charadrius montanus	Mountain Plover	None	None	G3	S2S3	BLM_S-Sensitive | CDFW_SSC-Species of Special Concern | IUCN_NT-Near Threatened | NABCI_RWL-Red Watch List | USFWS_BCC-Birds of	Chenopod scrub; valley & foothill grassland. Short grasslands, freshly plowed fields, newly sprouting grain fields, and sometimes sod farms. Short vegetation, bare ground, and flat topography. Prefers	**No potential.** No suitable habitat is present within the PSB. Species was recorded in an agricultural area within 5 miles from the PSB in 2012 (eBird 2022).

Scientific Name	Common Name	FESA	CESA	GRank[1]	SRank[1]	Other Status[1]	Habitat[2]	Potential to Occur
						Conservation Concern	grazed areas and areas with burrowing rodents.	
Charadrius nivosus nivosus	Western Snowy Plover	Threatened	None	G3T3	S2	CDFW_SSC-Species of Special Concern | NABCI_RWL-Red Watch List	Great Basin standing waters; Sand shore; Wetland Sandy beaches, salt pond levees and shores of large alkali lakes. Needs sandy, gravelly or friable soils for nesting.	**No potential.** No suitable habitat is present within the PSB.
Circus hudsonius	Northern Harrier	None	None	G5	S3	CDFW_SSC-Species of Special Concern | IUCN_LC-Least Concern | USFWS_BCC-Birds of Conservation Concern	Coastal scrub; Great Basin grassland; Marsh & swamp; Riparian scrub; Valley & foothill grassland; Wetland Coastal salt and freshwater marsh. Nest and forage in grasslands, from salt grass in desert sink to mountain cienagas. Nests on ground in shrubby vegetation, usually at marsh edge; nest built of a large mound of sticks in wet areas.	**Moderate potential.** Numerous recent sightings have been recorded within one mile of the PSB (eBird 2022). Marginally suitable habitat for nesting in limited areas of the PSB, such as in the portion of the PSB on the northeast corner of the Manila Community Park. However, it is more likely for the species to fly over.
Coccyzus americanus occidentalis	Western Yellow-billed Cuckoo	FT	SE	G5T2T3	S1		Riparian forest. Riparian forest nester, along the broad, lower flood-bottoms of larger river systems. Nests in riparian jungles of willow, often mixed with cottonwoods, with lower story of blackberry, nettles, or wild grape.	**No potential.** No suitable habitat is present in the study area.

Scientific Name	Common Name	FESA	CESA	GRank[1]	SRank[1]	Other Status[1]	Habitat[2]	Potential to Occur
Coturnicops noveboracensis	Yellow Rail	None	None	G4	S1S2	CDFW_SSC-Species of Special Concern | IUCN_LC-Least Concern | NABCI_RWL-Red Watch List | USFS_S-Sensitive | USFWS_BCC-Birds of Conservation Concern	Freshwater marsh; Meadow & seep. Summer resident in eastern Sierra Nevada in Mono County. Freshwater marshlands.	**No potential.** There is no suitable habitat within the area. One observation was recorded ~4 miles from the PSB in Eureka, California in 2013 (eBird 2022).
Egretta thula	Snowy Egret	None	None	G5	S4	IUCN_LC-Least Concern	Marsh & swamp; Meadow & seep; Riparian forest; Riparian woodland; Wetland. Colonial nester, with nest sites situated in protected beds of dense tules. Rookery sites situated close to foraging areas: marshes, tidal-flats, streams, wet meadows, and borders of lakes.	**Moderate potential.** Several sightings have been recorded before March 2021 within one mile of the PSB (eBird 2022).
Elanus leucurus	White-Tailed Kite	None	None	G5	S3S4	BLM_S-Sensitive | CDFW_FP-Fully Protected | IUCN_LC-Least Concern	Cismontane woodland; Marsh & swamp; Riparian woodland; Valley & foothill grassland; Wetland. Rolling foothills and valley margins with scattered oaks and river bottomlands or marshes next to deciduous woodland. Open grasslands, meadows, or marshes	**Moderate potential.** Several sightings have been recorded before April 2021 within one mile of the PSB (eBird 2022). Suitable nesting and perching habitat is directly adjacent to the PSB.

Scientific Name	Common Name	FESA	CESA	GRank[1]	SRank[1]	Other Status[1]	Habitat[2]	Potential to Occur
							for foraging close to isolated, dense-topped trees for nesting and perching.	
Haliaeetus leucocephalus	Bald Eagle	Delisted	Endangered	G5	S3	BLM_S-Sensitive | CDF_S-Sensitive | CDFW_FP-Fully Protected | IUCN_LC-Least Concern | USFS_S-Sensitive	Lower montane coniferous forest; Old growth. Ocean shore, lake margins, and rivers for both nesting and wintering. Most nests within 1 mile of water. Nests in large, old growth, or dominant live tree with open branches, especially ponderosa pine. Roosts communally in winter.	**Moderate potential.** The species has recently been observed in 2022 within one mile of the PSB (eBird 2022). However, suitable nesting habitat is not available within the PSB.
Nannopterum auritum	Double-Crested Cormorant	None	None	G5	S4	CDFW_WL-Watch List | IUCN_LC-Least Concern	Riparian forest; Riparian scrub; Riparian woodland. Colonial nester on coastal cliffs, offshore islands, and along lake margins in the interior of the state. Nests along coast on sequestered islets, usually on ground with sloping surface, or in tall trees along lake margins.	**Moderate Potential.** Numerous observations have been observed within one mile of the PSB (eBird 2022).
Nycticorax nycticorax	Black-Crowned Night Heron	None	None	G5	S4	IUCN_LC-Least Concern	Marsh & swamp; Riparian forest; Riparian woodland; Wetland. Colonial nester, usually in trees, occasionally in tule patches. Rookery sites located adjacent to foraging areas: lake	**Moderate potential.** Numerous observations have been observed within one mile of the PSB before 2019 (eBird 2022).

Scientific Name	Common Name	FESA	CESA	GRank[1]	SRank[1]	Other Status[1]	Habitat[2]	Potential to Occur
							margins, mud-bordered bays, marshy spots.	
Pandion haliaetus	Osprey	None	None	G5	S4	CDF_S-Sensitive | CDFW_WL-Watch List | IUCN_LC-Least Concern	Riparian forest. Ocean shore, bays, freshwater lakes, and larger streams. Large nests built in tree-tops within 15 miles of a good fish-producing body of water.	**Moderate potential.** Numerous recent observations (last observation in April 2022; eBird 2022). Suitable foraging habitat adjacent to the PSB in the Humboldt Bay.
Rallus obsoletus obsoletus	California Ridgway's Rail	Endangered	Endangered	G3T1	S1	CDFW_FP-Fully Protected | NABCI_RWL-Red Watch List	Brackish marsh; Marsh & swamp; Salt marsh; Wetland. Salt water and brackish marshes traversed by tidal sloughs in the vicinity of San Francisco Bay. Associated with abundant growths of pickleweed, but feeds away from cover on invertebrates from mud-bottomed sloughs.	**No potential.** Humboldt County is outside of the currently known range.
Riparia riparia	Bank Swallow	None	Threatened	G5	S2	BLM_S-Sensitive | IUCN_LC-Least Concern	Riparian scrub; Riparian woodland. Colonial nester; nests primarily in riparian and other lowland habitats west of the desert. Requires vertical banks/cliffs with fine-textured/sandy soils near streams, rivers, lakes, ocean to dig nesting hole.	**Moderate potential.** An observation was recorded within one mile of the PSB in August 2021 (eBird 2021). Suitable habitat is present within and nearby the PSB.

Scientific Name	Common Name	FESA	CESA	GRank[1]	SRank[1]	Other Status[1]	Habitat[2]	Potential to Occur
Strix occidentalis caurina	Northern Spotted Owl	FT	ST	G3T3	S2S3		North coast coniferous forest; Old growth; Redwood. Old-growth forests or mixed stands of old-growth and mature trees. Occasionally in younger forests with patches of big trees. High, multistory canopy dominated by big trees, many trees with cavities or broken tops, woody debris, and space under canopy.	**No potential.** There is no suitable nesting habitat within or immediately adjacent to the PSB.
Reptiles								
Chelonia mydas	Green Sea Turtle (Pacific Region; Region 1)	FT	None	G3	S4		Generally found in fairly shallow waters (except when migrating) inside reefs, bays, and inlets. The turtles are attracted to lagoons and shoals with an abundance of marine grass and algae. Open beaches with a sloping platform and minimal disturbance are required for nesting.	**No potential.** Although the species has been recorded on the Pacific coast, the species is more likely to occur in tropical waters south of California. The species was observed in Sonoma County, California (California Herps 2022). There is no suitable open beach or sloping platform for nesting within or nearby the PSB.
Chelonia mydas	Green Sea Turtle aka East Pacific Green Sea Turtle	FT	None	G3	S1	IUCN_EN-Endangered	Marine bay. Marine. Completely herbivorous; needs adequate supply of seagrasses and algae. Enters temperate waters in the summer.	**No potential.** Although the species has been recorded on the Pacific coast, the species is more likely to occur in tropical waters south of California. The species was observed in

Scientific Name	Common Name	FESA	CESA	GRank[1]	SRank[1]	Other Status[1]	Habitat[2]	Potential to Occur
								Sonoma County, California (California Herps 2022).
Dermochelys coriacea	Leatherback Sea Turtle	FE	None				Pelagic, living in the open ocean and occasionally entering the shallower water of bays and estuaries.	**No potential.** Although the Humboldt Bay encompasses the species range, observations and nesting locations have been recorded south of Sonoma County, California (California Herps 2022).
Emys marmorata	Western Pond Turtle	None	None	G3G4	S3	BLM_S-Sensitive | CDFW_SSC-Species of Special Concern | IUCN_VU-Vulnerable | USFS_S-Sensitive	A thoroughly aquatic turtle of ponds, marshes, rivers, streams and irrigation ditches, usually with aquatic vegetation, below 6000 ft elevation. Needs basking sites and suitable (sandy banks or grassy open fields) upland habitat up to 0.5 km from water for egg-laying.	**Low Potential.** Marginally suitable perennial aquatic or upland habitat is present within or nearby the PSB.
Lepidochelys olivacea	Olive Ridley Sea Turtle	FT	None				Marine. Found well out to sea and in protected, relatively shallow bays and lagoons and the shallow water between reefs and the shore.	**Low potential.** Humboldt County is considered a less common range for the species. However, the species was observed in Table Bluff, Humboldt County, California, in 2009 (California Herps 2022).
Amphibians								

Scientific Name	Common Name	FESA	CESA	GRank[1]	SRank[1]	Other Status[1]	Habitat[2]	Potential to Occur
Ascaphus truei	Pacific Tailed Frog	None	None	G4	S3S4	CDFW_SSC-Species of Special Concern | IUCN_LC-Least Concern	Aquatic; Klamath/North coast flowing waters; Lower montane coniferous forest; North coast coniferous forest; Redwood; Riparian forest. Occurs in montane hardwood-conifer, redwood, Douglas-fir and ponderosa pine habitats. Restricted to perennial montane streams. Tadpoles require water below 15 degrees C.	**No potential.** No suitable perennial montane streams or coniferous forest habitat present within or nearby the PSB.
Rana aurora	Northern Red-Legged Frog	None	None	G4	S3	CDFW_SSC-Species of Special Concern | IUCN_LC-Least Concern | USFS_S-Sensitive	Klamath/North coast flowing waters; Riparian forest; Riparian woodland. Humid forests, woodlands, grasslands, and streamsides in northwestern California, usually near dense riparian cover. Generally near permanent water, but can be found far from water, in damp woods and meadows, during non-breeding season.	**Moderate potential.** An observation was recorded in March 2020 within one mile of the PSB (iNaturalist 2022). Suitable habitat is present in limited areas of the PSB, including the portion of the PSB in the northeast corner of the Manila Community Park.
Rana boylii	Foothill Yellow-Legged Frog	None	Endangered	G3	S3	BLM_S-Sensitive | CDFW_SSC-Species of Special Concern | IUCN_NT-Near Threatened |	Aquatic; Chaparral; Cismontane woodland; Coastal scrub; Klamath/North coast flowing waters; Lower montane coniferous forest;	**No potential.** No suitable shallow streams or substrate for egg-laying present in the PSB.

Scientific Name	Common Name	FESA	CESA	GRank[1]	SRank[1]	Other Status[1]	Habitat[2]	Potential to Occur
						USFS_S-Sensitive	Meadow & seep; Riparian forest; Riparian woodland; Sacramento/San Joaquin flowing waters. Partly-shaded, shallow streams and riffles with a rocky substrate in a variety of habitats. Needs at least some cobble-sized substrate for egg-laying. Needs at least 15 weeks to attain metamorphosis.	
Rhyacotriton variegatus	Southern Torrent Salamander	None	None	G3G4	S2S3	CDFW_SSC-Species of Special Concern | IUCN_LC-Least Concern | USFS_S-Sensitive	Lower montane coniferous forest; Old growth; Redwood; Riparian forest. Coastal redwood, Douglas-fir, mixed conifer, montane riparian, and montane hardwood-conifer habitats. Old growth forest. Cold, well-shaded, permanent streams and seepages, or within splash zone or on moss-covered rocks within trickling water.	**Low potential.** No suitable permanent streams present within the PSB. An observation was recorded in March 2022 within one mile of the PSB (iNaturalist 2022).
Fish								
Acipenser medirostris	Green Sturgeon	None	None	G3	S1	AFS_VU-Vulnerable | CDFW_SSC-Species of Special Concern | IUCN_NT-Near Threatened	Aquatic; Klamath/North coast flowing waters; Sacramento/San Joaquin flowing waters. These are the most marine species of sturgeon.	**No potential.** No perennial aquatic habitat is present within the PSB. If in-water work occurs along the Humboldt Bay shoreline, shallow depths and salt marsh

Scientific Name	Common Name	FESA	CESA	GRank[1]	SRank[1]	Other Status[1]	Habitat[2]	Potential to Occur
							Abundance increases northward of Point Conception. Spawns in the Sacramento, Klamath, and Trinity Rivers. Spawns at temps between 8-14 C. Preferred spawning substrate is large cobble, but can range from clean sand to bedrock.	habitat would not be suitable for this species.
Acipenser medirostris pop. 1	Green Sturgeon - Southern DPS	FT	None	G3	S1	SSC	Coastal watersheds south of the Eel River with spawning confirmed in the Sacramento River system and present in Humboldt Bay. These are the most marine species of sturgeon. Spawns at temps between 8-14 C. Preferred spawning substrate is large cobble, but can range from clean sand to bedrock.	**Low potential.** The PSB extends to small portions of the Humboldt Bay. If in-water work occurs along the Humboldt Bay shoreline, shallow depths and salt marsh habitat would not be suitable for this species.
Entosphenus tridentatus	Pacific Lamprey	None	None	G4	S3	AFS_VU-Vulnerable | BLM_S-Sensitive | CDFW_SSC-Species of Special Concern | USFS_S-Sensitive	Aquatic; Klamath/North coast flowing waters; Sacramento/San Joaquin flowing waters; South coast flowing waters. Found in Pacific Coast streams north of San Luis Obispo County, however regular runs in Santa Clara River. Size of runs is	**No Potential.** No perennial aquatic habitat is present within or nearby the PSB. Anadromous habitat (freshwater tributary) is not present in or near the PSB.

Scientific Name	Common Name	FESA	CESA	GRank[1]	SRank[1]	Other Status[1]	Habitat[2]	Potential to Occur
							declining. Swift-current gravel-bottomed areas for spawning with water temps between 12-18 C. Ammocoetes need soft sand or mud.	
Eucyclogobius newberryi	Tidewater Goby	Endangered	None	G3	S3	AFS_EN-Endangered | IUCN_VU-Vulnerable	Aquatic; Klamath/North coast flowing waters; Sacramento/San Joaquin flowing waters; South coast flowing waters. Brackish water habitats along the California coast from Agua Hedionda Lagoon, San Diego County to the mouth of the Smith River. Found in shallow lagoons and lower stream reaches, they need fairly still but not stagnant water and high oxygen levels.	**Low Potential.** No suitable habitat is present within or nearby the PSB. If in-water work occurs along the Humboldt Bay shoreline, the potential to occur would increase to **Moderate.**
Lampetra richardsoni	Western Brook Lamprey	None	None	G4G5	S3S4	CDFW_SSC-Species of Special Concern | USFS_S-Sensitive	Found in the Sacramento River basin northward into British Columbia. Requires fine gravel beds for spawning. Larvae burrow in fine sediment.	**No Potential.** No perennial aquatic habitat is present within the PSB or within 0.5 miles. Anadromous habitat (freshwater tributary) is not present in or near the PSB.
Oncorhynchus clarkii clarkii	Coast Cutthroat Trout	None	None	G5T4	S3	AFS_VU-Vulnerable | CDFW_SSC-Species of Special Concern	Aquatic; Klamath/North coast flowing waters. Small coastal streams from the Eel River to the	**No Potential.** No perennial aquatic habitat is present within the PSB or within 0.5 miles. Anadromous

Scientific Name	Common Name	FESA	CESA	GRank[1]	SRank[1]	Other Status[1]	Habitat[2]	Potential to Occur
						| USFS_S-Sensitive	Oregon border. Small, low gradient coastal streams and estuaries. Needs shaded streams with water temperatures <18C, and small gravel for spawning.	habitat (freshwater tributary) is not present in or near the PSB.
Oncorhynchus tshawytscha	Chinook Salmon – California Coastal ESU	Threatened					Rivers and streams south of the Klamath River to the Russian River.	**No potential.** There is no suitable rivers or streams within or nearby the PSB. If in-water work occurs along the Humboldt Bay shoreline, the potential to occur would increase to **Moderate.**
Oncorhynchus kisutch pop. 2	Coho Salmon - Southern Oregon / Northern California ESU	Threatened	Threatened	G5T2Q	S2	AFS_TH-Threatened	Aquatic; Klamath/North coast flowing waters; Sacramento/San Joaquin flowing waters. Federal listing refers to populations between Cape Blanco, Oregon and Punta Gorda, Humboldt County, California. State listing refers to populations between the Oregon border and Punta Gorda, California.	**No Potential.** No perennial aquatic habitat is present within the PSB or within 0.5 miles. If in-water work occurs along the Humboldt Bay shoreline, the potential to occur would increase to **Moderate.**
Oncorhynchus mykiss irideus pop. 16	Steelhead - Northern California DPS	Threatened	None	G5T2T3Q	S2S3	AFS_TH-Threatened	Aquatic; Sacramento/San Joaquin flowing waters. Coastal basins from Redwood Creek south to the Gualala River,	**No Potential.** No perennial aquatic habitat is present within the PSB or within 0.5 miles. If in-water work occurs along the Humboldt Bay

Scientific Name	Common Name	FESA	CESA	GRank[1]	SRank[1]	Other Status[1]	Habitat[2]	Potential to Occur
							inclusive. Does not include summer-run steelhead.	shoreline, the potential to occur would increase to **Moderate.**
Spirinchus thaleichthys	Longfin Smelt	Candidate	Threatened	G5	S1		Aquatic; Estuary. Euryhaline, nektonic and anadromous. Found in open waters of estuaries, mostly in middle or bottom of water column. Prefer salinities of 15-30 ppt, but can be found in completely freshwater to almost pure seawater.	**No Potential.** No perennial aquatic habitat is present within the PSB or within 0.5 miles. If in-water work occurs along the Humboldt Bay shoreline, the potential to occur would increase to **Moderate.**
Thaleichthys pacificus	Eulachon	Threatened	None	G5	S2		Aquatic; Klamath/North coast flowing waters. Found in Klamath River, Mad River, Redwood Creek, and in small numbers in Smith River and Humboldt Bay tributaries. Spawn in lower reaches of coastal rivers with moderate water velocities and bottom of pea-sized gravel, sand, and woody debris.	**No Potential.** No perennial aquatic habitat is present within the PSB or within 0.5 miles.
Insects								
Bombus caliginosus	Obscure Bumble Bee	None	None	G2G3	S1S2	IUCN_VU-Vulnerable	Coastal areas from Santa Barbara County to north to Washington state. Food plant genera include Baccharis, Cirsium, Lupinus,	**Low Potential.** The PSB falls within the species current range, but the preferred shrubland and grassland habitat is not available (Hatfield et al. 2014).

Scientific Name	Common Name	FESA	CESA	GRank[1]	SRank[1]	Other Status[1]	Habitat[2]	Potential to Occur
							Lotus, Grindelia and Phacelia.	
Bombus crotchii	Crotch Bumble Bee	None	None	G2	S1S2		Coastal California east to the Sierra-Cascade crest and south into Mexico. Food plant genera include Antirrhinum, Phacelia, Clarkia, Dendromecon, Eschscholzia, and Eriogonum.	**No potential.** The PSB does not fall within the species current range. The preferred grassland and scrub habitat is not available (Hatfield et al. 2015a).
Bombus occidentalis	Western Bumble Bee	None	None	G2G3	S1	USFS_S-Sensitive	Once common and widespread, species has declined precipitously from central CA to southern B.C., perhaps from disease.	**Present.** Observed during the site visit at the railroad intersection with Sandy Road. The PSB falls within the species current range. Available habitat (open grassy areas and urban park) is available within the PSB (Hatfield et al. 2015b). Limited patches of nectar plants needed for foraging are present (Hatfield et al. 2015b).
Cicindela hirticollis gravida	Sandy Beach Tiger Beetle	None	None	G5T2	S2		Coastal dunes. Inhabits areas adjacent to non-brackish water along the coast of California from San Francisco Bay to northern Mexico. Clean, dry, light-colored sand in the upper zone. Subterranean larvae prefer moist sand not	**No potential.** No suitable sand habitat is available within the PSB.

Scientific Name	Common Name	FESA	CESA	GRank[1]	SRank[1]	Other Status[1]	Habitat[2]	Potential to Occur
							affected by wave action.	
Danaus plexippus	Monarch Butterfly – California overwintering, pop. 1	FC	None	G4T2T3	S2S3		Fields, roadside areas, open areas, wet areas or urban gardens. This species only lays eggs on milkweed. Overwintering tree habitat includes eucalyptus, Monterey pine, Monterey cypress, western sycamore, coast redwood, and coast live oak trees.	**Low potential.** General habitat is present within the PSB. An observation was recorded ~2.5 miles from the PSB in September 2021 (iNaturalist 2022). However, milkweed was not observed during the site visit.
Scaphinotus behrensi	Behrens' Snail-Eating Beetle	None	None	G2G4	S2S4		North coast coniferous forest. Found in extreme NW CA along the coast.	**No potential.** No suitable coniferous forest habitat is available within the PSB.
Mollusks								
Anodonta californiensis	California Floater	None	None	G3Q	S2?	USFS_S-Sensitive	Aquatic. Freshwater lakes and slow-moving streams and rivers. Taxonomy under review by specialists. Generally in shallow water.	**No potential.** No suitable aquatic habitat or host fish available within the PSB.
Margaritifera falcata	Western Pearlshell	None	None	G4G5	S1S2		Aquatic. Prefers lower velocity waters.	**No potential.** No suitable aquatic habitat available within the PSB.

Footnotes:

[1] Rankings from CNDDB (January 2022).

[2] General habitat, and microhabitat column information, reprinted from CNDDB (January 2022).

Column Header Categories and Abbreviations:

Scientific Name	Common Name	FESA	CESA	GRank[1]	SRank[1]	Other Status[1]	Habitat[2]	Potential to Occur

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.

Global Rank: Global Rank from NatureServe's Heritage Methodology (NatureServe 2022) (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 2022d); ? = " Denotes inexact numeric rank" (NatureServe 2022); Q = " Questionable taxonomy that may reduce conservation priority" (NatureServe 2022)

State Rank: State Rank from NatureServe's Heritage Methodology (NatureServe 2022) (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.

Other Statuses (other federal or state listings may include):

AFS_TH (American Fisheries Society Threatened):"a taxon that is in imminent danger of becoming endangered throughout all or a significant portion of its range" (Jelks et al. 2008).

AFS_VU (American Fisheries Society Vulnerable): "a taxon that is in imminent danger of becoming threatened throughout all or a significant portion of its range" (Jelks et al. 2008).

BLM_S (Bureau of Land Management Sensitive): "(1) species listed or proposed for listing under the Endangered Species Act (ESA), and (2) species requiring special management consideration to promote their conservation and reduce the likelihood and need for future listing under the ESA, which are designated as Bureau sensitive by the State Director(s). All Federal candidate species, proposed species, and delisted species in the 5 years following delisting would be conserved as Bureau sensitive species." (CDFW 2022d);

CDF_S (California Department of Forestry and Fire Protection Sensitive): "those species that warrant special protection during timber operations" (CDFW 2022d);

CDFW_FP (CDFW Fully Protected Animal): "This classification was the State of California's initial effort to identify and provide additional protection to those animals that were rare or faced possible extinction. Lists were created for fish, amphibians and reptiles, birds and mammals. Most of the species on these lists have subsequently been listed under the state and/or federal endangered species acts." (CDFW 2022d);

CDFW_SSC (CDFW Species of Special Concern): "It is the goal and responsibility of the Department of Fish and Wildlife to maintain viable populations of all native species. To this end, the Department has designated certain vertebrate species as 'Species of Special Concern' because declining population levels, limited ranges, and/or continuing threats have made them vulnerable to extinction. The goal of designating species as 'Species of Special Concern' is to halt or reverse their decline by calling attention to their plight and addressing the issues of concern early enough to secure their long-term viability" (CDFW 2022d);

CDFW_WL (California Department of Fish and Wildlife Watch List): "The CDFW maintains a list consisting of taxa that were previously designated as "Species of Special Concern" but no longer merit that status, or which do not yet meet SSC criteria, but for which there is concern and a need for additional information to clarify status" (CDFW 2022d);

Scientific Name	Common Name	FESA	CESA	GRank[1]	SRank[1]	Other Status[1]	Habitat[2]	Potential to Occur

IUCN_LC (International Union for Conservation of Nature Least Concern): “when it has been evaluated against the criteria and does not qualify for Critically Endangered, Endangered, Vulnerable or Near Threatened” (IUCN 2012);

IUCN_NT (International Union for Conservation of Nature Near Threatened): “when it has been evaluated against the criteria but does not qualify for Critically Endangered, Endangered or Vulnerable now, but is close to qualifying for or is likely to qualify for a threatened category in the near future (IUCN 2012);

IUCN_VU (International Union for Conservation of Nature Vulnerable): “when the best available evidence indicates that it meets any of the criteria A to E for Vulnerable…, and it is therefore considered to be facing a high risk of extinction in the wild” (IUCN 2012);

IUCN_EN (International Union for Conservation of Nature Endangered): “when the best available evidence indicates that it meets any of the criteria A to E for Endangered…,and it is therefore considered to be facing a very high risk of extinction in the wild” (IUCN 2012);

MMC_SSC (Marine Mammal Commission Species of Special Concern): no definition available.

NABCI_RWL (North American Bird Conservation Initiative Red Watch List): “species with extremely high vulnerability” (CDFW 2022d);

NMFS_SC (National Marine Fisheries Service Species of Concern): “species about which NOAA's NMFS has some concerns regarding status and threats, but for which insufficient information is available to indicate a need to list the species under the Endangered Species Act” (CDFW 2022d);

USFS_S (U.S. Forest Service Sensitive): “plant and animal species identified by a Regional Forester for which population viability is a concern, as evidenced by significant current or predicted downward trends in population numbers or density and/or significant current or predicted downward trends in habitat capability that would reduce a species' existing distribution” (CDFW 2022d);

USFWS_BCC (U.S. Fish and Wildlife Service Birds of Conservation Concern): “The goal of the Birds of Conservation Concern 2008 report is to accurately identify the migratory and non-migratory bird species (beyond those already designated as Federally Threatened or Endangered) that represent our highest conservation priorities and draw attention to species in need of conservation action” (CDFW 2022d);

WBWG_H- (Western Bat Working Group High Priority): “those species considered the highest priority for funding, planning, and conservation actions. Information about status and threats to most species could result in effective conservation actions being implemented should a commitment to management exist. These species are imperiled or are at high risk of imperilment” (BCI 1998);

WBWG_LM- (Western Bat Working Group Low Priority): “most of the existing data support stable populations of the species, and that the potential for major changes in status in the near future is considered unlikely. While there may be localized concerns, the overall status of the species is believed to be secure” (BCI 1998);

WBWG_M- (Western Bat Working Group Medium Priority): “a level of concern that should warrant closer evaluation, more research, and conservation actions of both the species and possible threats” (BCI 1998);

XERCES_IM (Xerces Society Imperiled): species “at high risk of extinction because of highly restricted range, rare populations (often 20 or fewer), steep declines, or other factors” (NatureServe 2022).

Potential to Occur:

No Potential: Habitat in and adjacent to the Project Area 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 Project Area.

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 Project Area.

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 Project Area.

Present: Detected or documented on-site.

4. Potential Impacts to Special Status Wildlife and Proposed Avoidance and Minimization Measures

4.1.1 Special Status Mammals

Two special status mammals (Townsend's Big-eared Bat and Long-eared Myotis) have a moderate potential to occur within or directly adjacent to the PSB. Townsend's Big-eared Bat and Long-eared Myotis have been detected adjacent to the PSB (BAMVT 2022). To protect these special status mammals, the following measure is recommended for inclusion into environmental documentation to reduce potential impacts to special status mammals.

Measure BIO-1: Protect Special Status Bats

Removal of confirmed or presumed-occupied bat roost habitat would occur only during seasonal periods of bat activity (when bats are volant, i.e. able to leave roosts) between March 1 and April 15 or September 1 and October 15, when evening temps rise about 45 F, and when no rainfall greater than ½ inches has occurred in the last 24 hours.

If trees or structures cannot be removed during the volant period, i.e. Project activities occur during the bat maternity season which generally occur April 16th through August 30th, the City's qualified biologist shall conduct surveys within suitable habitat for special status bats. Survey methodology shall include visual examination with binoculars and may optionally utilize ultrasonic detectors to determine if special status bat species utilize the vicinity.

Surveys shall be conducted by a qualified biologist within seven days prior to construction in any areas where potential maternity roosts may be disturbed/removed. The preconstruction surveys for bats may coincide with pre-construction surveys for other animals. Surveys shall include a visual inspection of the impact area and any large trees/snags with cavities or loose bark or crevices within infrastructure. If the presence of a maternity roost is confirmed, an appropriate buffer distance would be established in consultation with CDFW to ensure that construction noise would remain below disturbance thresholds for bats. If no bat utilization or roosts are found, then no further study or action is required. If bats are found to utilize the PSB, or presence is assumed, a bat specialist should be engaged to advise the best method to prevent impact.

Project-related lighting shall be minimized if any construction occurs at night, either contained within structures or limited by appropriate reflectors or shrouds and focused on areas needed for safety, security or other essential requirements.

4.1.2 Special Status, Migratory, and Nesting Birds

Ten special status birds (including one state endangered and one state threatened) were found to have a moderate or high potential to occur within the PSB, either for foraging or nesting, or both. If special status and/or native migratory birds are nesting in the PSB, or within 500 feet during construction activities, these species may be impacted by removal of nesting habitat, elevated levels of noise, and anthropogenic disturbance. To protect nesting special status birds, as well as native migratory bird species that are nesting, the following measure is recommended for inclusion into environmental documentation to reduce potential impacts to special status, migratory, and nesting birds.

Measure BIO-2: Protect Special Status, Migratory and Nesting Birds

Ground disturbance and vegetation clearing would be conducted, if possible, during the fall and/or winter months and outside of the avian nesting season (which is generally assumed to occur between March 15 – August 15) to avoid any direct effects to special-status and protected birds. If ground disturbance or vegetation clearing cannot be confined to the fall and/or winter outside of the nesting season, a qualified biologist would conduct pre-construction surveys within the vicinity of the PSB, to check for nesting activity of native birds and to evaluate the site for presence of raptors and special status bird species. The biologist would conduct at minimum a one-day pre-construction survey within the seven-day period prior to

vegetation removal and ground-disturbing activities. If ground disturbance and vegetation removal work lapses for seven days or longer during the nesting season, a qualified biologist would conduct a supplemental avian pre-construction survey before Project work is reinitiated.

If active nests are detected within the construction footprint, or within 500 feet of construction activities, the biologist would flag a buffer around each nest. Construction activities would avoid nest sites until the biologist determines that the young have fledged or nesting activity has ceased. If nests are documented outside of the construction (disturbance) footprint, but within 500 feet of the construction area, buffers would be implemented as needed. In general, the buffer size for common species would be determined on a case-by-case basis in consultation with the CDFW and, if applicable, with USFWS. Buffer sizes would take into account factors such as (1) noise and human disturbance levels at the construction site at the time of the survey and the noise and disturbance expected during the construction activity; (2) distance and amount of vegetation or other screening between the construction site and the nest; and (3) sensitivity of individual nesting species and behaviors of the nesting birds.

If active nests are detected during the survey, the qualified biologist would monitor all nests at least once per week to determine whether birds are being disturbed. Activities that might, in the opinion of the qualified biologist, disturb nesting activities (e.g., excessive noise), would be prohibited within the buffer zone until such a determination is made. If signs of disturbance or distress are observed, the qualified biologist would immediately implement adaptive measures to reduce disturbance. These measures may include, but are not limited to, increasing buffer size, halting disruptive construction activities in the vicinity of the nest until fledging is confirmed or nesting activity has ceased, placement of visual screens or sound dampening structures between the nest and construction activity, reducing speed limits, replacing and updating noisy equipment, queuing trucks to distribute idling noise, locating vehicle access points and loading and shipping facilities away from noise-sensitive receptors, reducing the number of noisy construction activities occurring simultaneously, and/or reorienting and/or relocating construction equipment to minimize noise at noise-sensitive receptors.

4.1.3 Special Status Amphibians

One special status amphibian (Northern Red-Legged Frog) has a moderate potential to occur within the PSB given the habitat quality and available data. The following measure is recommended for inclusion into environmental documentation to reduce potential impacts to the Northern Red-Legged Frog.

Measure BIO-3: Protect Northern Red-legged Frog

The Manila CSD would retain a qualified biologist to perform a pre-construction survey for the Northern Red-legged Frog within seven days prior to commencement of ground disturbance. The survey would be limited to the Project footprint and within 50 feet of suitable habitat. The biologist would relocate any specimens that occur within the work-impact zone to nearby suitable habitat. In the event that a Northern Red-legged Frog is observed in an active construction zone, the contractor would halt construction activities in the area and the frog would be moved to a safe location in similar habitat outside of the construction zone. Construction within areas of standing water would be limited to the period of the year between July 1 and October 30 to avoid disturbance to breeding frogs. After July 1, a qualified biologist would inspect any work areas containing surface water (not including puddles resulting from rainfall) to ensure tadpoles or metamorphosing frogs are not present. If they are present, the qualified biologist would implement a rescue and relocation operation to move any tadpoles or metamorphosing frogs to a safe location in nearby suitable habitat. Mitigation Measure BIO-3 requires practicable avoidance and protection measures for Northern Red-legged Frogs during construction, thereby reducing any potential impacts.

4.1.4 Special Status Reptiles

No special status reptiles have a moderate or high potential to occur within the PSB given the lack of suitable habitat. Therefore, no measures are proposed at this time to offset potential impacts because special status reptiles would not be impacted by the Project.

4.1.5 Special Status Fish

No special status fish have a moderate or high potential to occur within the PSB given the lack of suitable perennial aquatic habitat. Therefore, no measures are proposed at this time to offset potential impacts

because these special status species are unlikely to be impacted by the Project. However, small portions of the PSB intersect with the Humboldt Bay, which is federally-designated Essential Fish Habitat for Groundfish, coastal pelagic species, Coho Salmon, and Chinook Salmon. More specifically, the portion of the PSB near the Manila Community Park is proposed to extend approximately 100 feet into the Humboldt Bay.

The PSB includes the shoreline margin of Humboldt Bay. This assessment assumes in-water work within Humboldt Bay would not occur, associated with planned culvert and drainage improvements near the shoreline. It is further assumed that fish relocation and dewatering would not be required. As a result, the potential for aquatic species to occur is avoided due to terrestrial habitat. The potential to impact and/or affect to special status aquatic species would be limited to indirect water quality impairments, which will be controlled with erosion control protocols during ground disturbance required under a Stormwater Pollution Prevention Plan (SWPPP). Additionally, temporary exclusion fencing should be installed along the shoreline near planned areas of ground disturbance to limit inadvertent disturbance near aquatic habitat. The temporary exclusion fencing should be shown in the final 100% construction planset. Equipment maintenance or refueling should not occur within 100 feet of the Humboldt Bay shoreline.

If it is determined that construction would require in-water work within the margins of Humboldt Bay, including the edge of the salt marsh shoreline, the potential for some aquatic species to occur would increase as noted in Table 1. Dewatering and fish relocation will be required to follow CDFW and NOAA Fisheries requirements, and consultation under Section 7 of the Endangered Species Act (ESA) and CESA would be required, in addition to environmental permits from jurisdictional resource agencies.

4.1.6 Special Status Insects

One special status insect (Western Bumble Bee) has a high potential to occur within the PSB based on an observation during the site visit. There are sparse areas foraging habitat (large areas of nectar plants) within the PSB. However, the Project will replace invasive vegetation with native vegetation within the bioswales along existing and proposed drainage paths, which would benefit the species (Xerces Society 2022). Typically, the species nests underground in abandoned rodent or other animal nests, but they have also been found aboveground among logs of railroad ties (Xerces Society 2022). If an occupied Western Bumble Bee nest is observed in an active construction zone, the contractor would halt construction activities surrounding the area. A biologist would observe the nest and a buffer would be established to protect the occupied nest.

5. Conclusion

Based on occurrence records, habitat availability, and the reconnaissance-level site visit, no federally-listed wildlife species are expected to occur within the PSB. One state-endangered (Bald Eagle) and one state-threatened (Bank Swallow) species have a moderate potential to occur within or nearby the PSB. Three special status mammals (Townsend's Big-eared Bat, Long-eared Myotis, Humboldt Mountain Beaver) have a moderate potential to occur. The Townsend's Big-eared Bat is considered sensitive by the Bureau of Land Management (BLM) and United States Forest Service (USFS), a species of special concern by CDFW, and a species of high priority by the Western Working Bat Group (WBWG). The Long-eared Myotis is considered sensitive by the BLM, and a species of medium priority by the WBWG. Eight special status birds, as well as native migratory birds, may forage or nest within the PSB or the surrounding 500 feet. This includes the Great Egret, which was observed during the site visit and is considered sensitive by the CDF. The Northern Red-legged Frog (a species of special concern by CDFW and sensitive by the USFS) and the Western Bumble Bee (sensitive by the USFS) have a moderate to high potential to occur. If work is to extend within the Humboldt Bay, the potential for special status fish species to be impacted will increase. With implementation of proposed avoidance and minimization measures, impacts would be avoided or reduced to less-than-significant levels.

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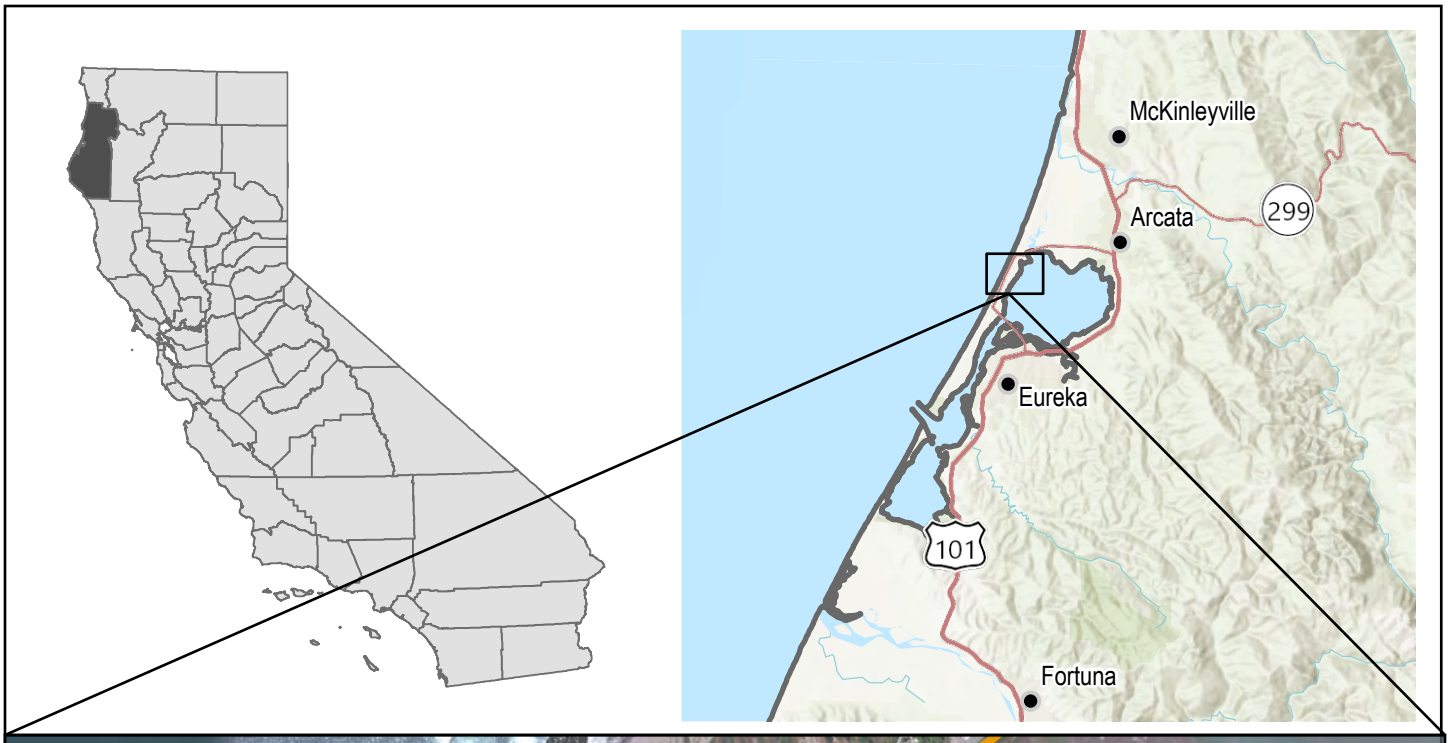
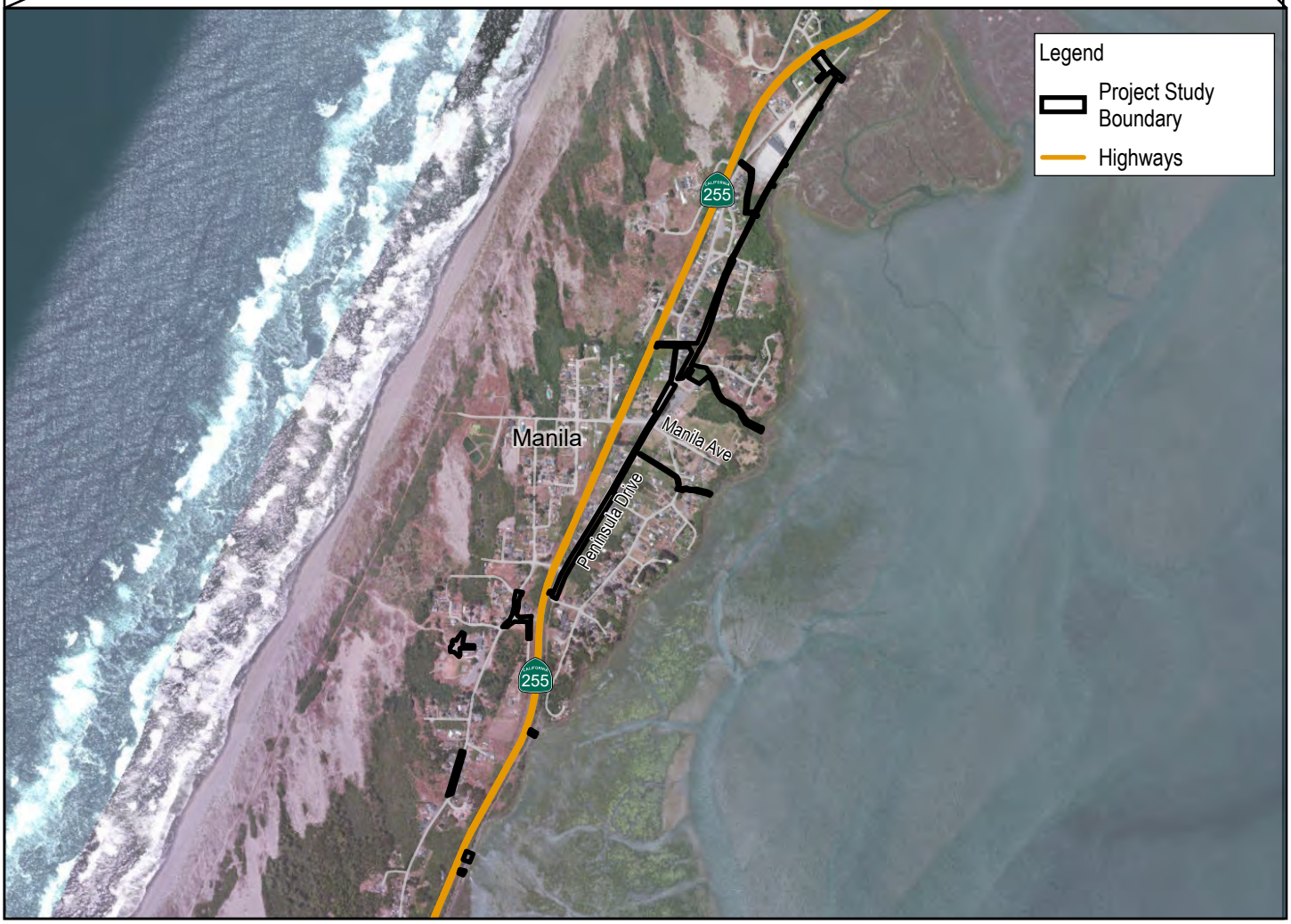
Appendices

Appendix A

Figures





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Manila Community Services District
Manila Flood Reduction &
Drainage Enhancement Project

Project No. **12572691**
Revision No. **-**
Date **Jun 2022**

Vicinity Map

FIGURE 1

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Manila Community Services District
Manila Flood Reduction & Drainage Enhancement Project

Project Study Boundary

Project No. **1257269**
Revision No. **-**
Date **Aug 2022**

FIGURE 2

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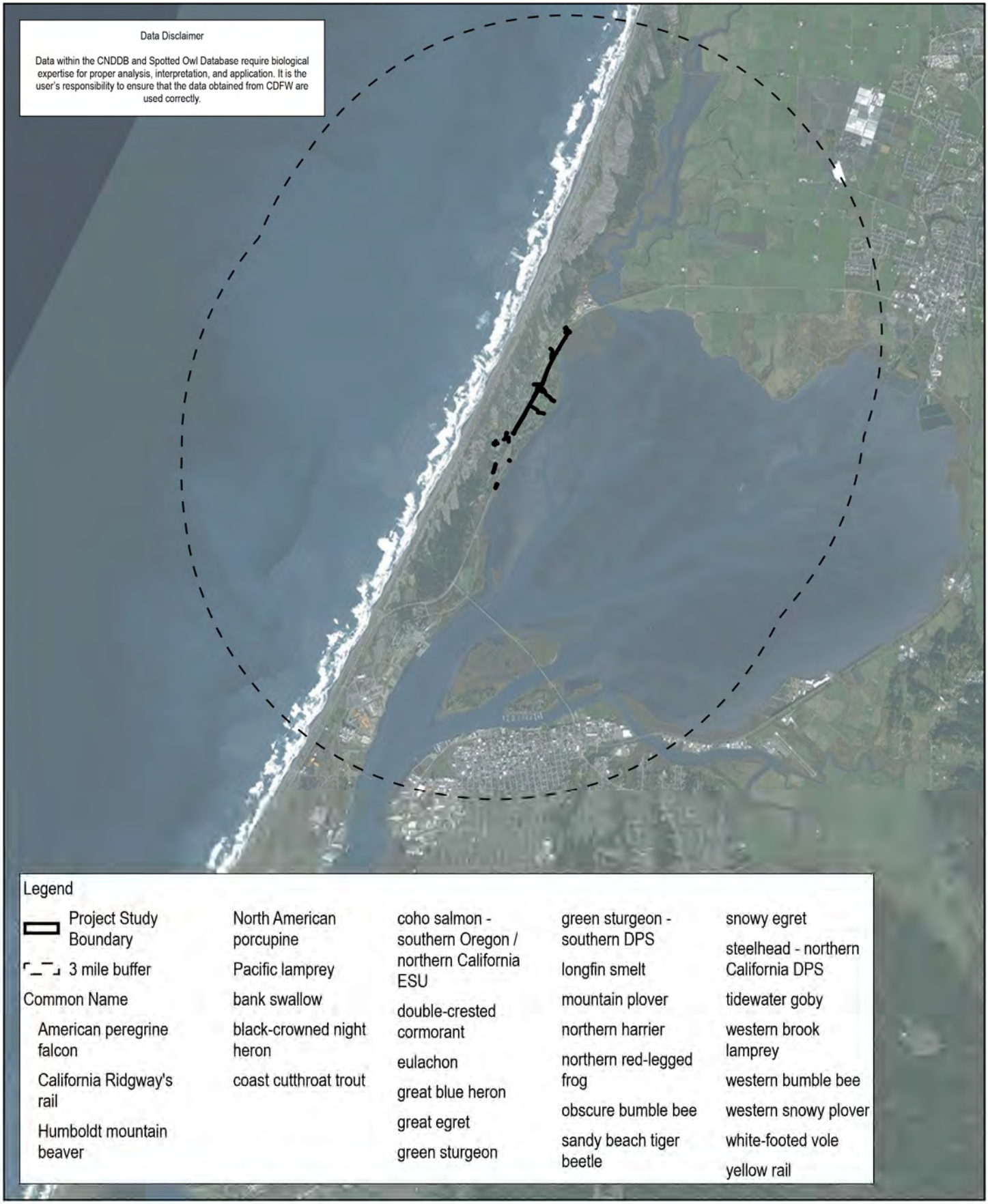

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Manila Community Services District
Manila Flood Reduction &
Drainage Enhancement Project

Project No. **1257269**
Revision No. **-**
Date **Jun 2022**

CNDDB Occurrences Within A 3 Mile Radius

FIGURE 3

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Appendix B

Database Searches (CNDDB, IPaC, EFH)

Scientific Name	Common Name	FESA	CESA	GRank	SRank	Other Status	Habitat	Taxon
Aplodontia rufa humboldtiana	Humboldt mountain beaver	None	None	G5TNR	SNR		Coastal scrub | Redwood | Riparian forestCoast Range in southwestern Del Norte County and northwestern Humboldt County.Variety of coastal habitats, including coastal scrub, riparian forests, typically with open canopy and thickly vegetated understory.	Mammals
Arborimus albipes	white-footed vole	None	None	G3G4	S2	CDFW_SSC-Species of Special Concern | IUCN_LC-Least Concern	North coast coniferous forest | Redwood | Riparian forestMature coastal forests in Humboldt and Del Norte counties. Prefers areas near small, clear streams with dense alder and shrubs.Occupies the habitat from the ground surface to the canopy. Feeds in all layers and nests on the ground under logs or rock.	Mammals
Arborimus pomo	Sonoma tree vole	None	None	G3	S3	CDFW_SSC-Species of Special Concern | IUCN_NT-Near Threatened	North coast coniferous forest | Oldgrowth | RedwoodNorth coast fog belt from Oregon border to Somona County. In Douglas-fir, redwood and montane hardwood-conifer forests.Feeds almost exclusively on Douglas-fir needles. Will occasionaly take needles of grand fir, hemlock or spruce.	Mammals
Corynorhinus townsendii	Townsend's big-eared bat	None	None	G4	S2	BLM_S-Sensitive | CDFW_SSC-Species of Special Concern | IUCN_LC-Least Concern | USFS_S-Sensitive | WBWG_H-High Priority	Broadleaved upland forest | Chaparral | Chenopod scrub | Great Basin grassland | Great Basin scrub | Joshua tree woodland | Lower montane coniferous forest | Meadow & seep | Mojavean desert scrub | Riparian forest | Riparian woodland | Sonoran desert scrub | Sonoran thorn woodland | Upper montane coniferous forest | Valley & foothill grasslandThroughout California in a wide variety of habitats. Most common in mesic sites.Roosts in the open, hanging from walls and ceilings. Roosting sites limiting. Extremely sensitive to human disturbance.	Mammals
Erethizon dorsatum	North American porcupine	None	None	G5	S3	IUCN_LC-Least Concern	Broadleaved upland forest | Cismontane woodland | Closed-cone coniferous forest | Lower montane coniferous forest | North coast coniferous forest | Upper montane coniferous forestForested habitats in the Sierra Nevada, Cascade, and Coast ranges, with scattered observations from forested areas in the Transverse Ranges.Wide variety of coniferous and mixed woodland habitat.	Mammals

Martes caurina humboldtensis	Humboldt marten	Threatened	Endangered	G4G5T1	S1	CDFW_SSC-Species of Special Concern | USFS_S-Sensitive	North coast coniferous forest | Oldgrowth | RedwoodOccurs only in the coastal redwood zone from the Oregon border south to Sonoma County.Associated with late-successional coniferous forests, prefer forests with low, overhead cover.	Mammals
Myotis evotis	long-eared myotis	None	None	G5	S3	BLM_S-Sensitive | IUCN_LC-Least Concern | WBWG_M-Medium Priority	Found in all brush, woodland and forest habitats from sea level to about 9000 ft. Prefers coniferous woodlands and forests.Nursery colonies in buildings, crevices, spaces under bark, and snags. Caves used primarily as night roosts.	Mammals
Pekania pennanti	Fisher	None	None	G5	S2S3	BLM_S-Sensitive | CDFW_SSC-Species of Special Concern | USFS_S-Sensitive	North coast coniferous forest | Oldgrowth | Riparian forestIntermediate to large-tree stages of coniferous forests and deciduous-riparian areas with high percent canopy closure.Uses cavities, snags, logs and rocky areas for cover and denning. Needs large areas of mature, dense forest.	Mammals
Accipiter striatus	sharp-shinned hawk	None	None	G5	S4	CDFW_WL-Watch List | IUCN_LC-Least Concern	Cismontane woodland | Lower montane coniferous forest | Riparian forest | Riparian woodlandPonderosa pine, black oak, riparian deciduous, mixed conifer, and Jeffrey pine habitats. Prefers riparian areas.North-facing slopes with plucking perches are critical requirements. Nests usually within 275 ft of water.	Birds
Ardea alba	great egret	None	None	G5	S4	CDF_S-Sensitive | IUCN_LC-Least Concern	Brackish marsh | Estuary | Freshwater marsh | Marsh & swamp | Riparian forest | WetlandColonial nester in large trees.Rookery sites located near marshes, tide-flats, irrigated pastures, and margins of rivers and lakes.	Birds
Ardea herodias	great blue heron	None	None	G5	S4	CDF_S-Sensitive | IUCN_LC-Least Concern	Brackish marsh | Estuary | Freshwater marsh | Marsh & swamp | Riparian forest | WetlandColonial nester in tall trees, cliffsides, and sequestered spots on marshes.Rookery sites in close proximity to foraging areas: marshes, lake margins, tide-flats, rivers and streams, wet meadows.	Birds

Brachyramphus marmoratus	marbled murrelet	Threatened	Endangered	G3	S2	CDF_S-Sensitive | IUCN_EN-Endangered | NABCI_RWL-Red Watch List	Lower montane coniferous forest | Oldgrowth | RedwoodFeeds near-shore; nests inland along coast from Eureka to Oregon border and from Half Moon Bay to Santa Cruz.Nests in old-growth redwood-dominated forests, up to six miles inland, often in Douglas-fir.	Birds
Charadrius montanus	mountain plover	None	None	G3	S2S3	BLM_S-Sensitive | CDFW_SSC-Species of Special Concern | IUCN_NT-Near Threatened | NABCI_RWL-Red Watch List | USFWS_BCC-Birds of Conservation Concern	Chenopod scrub | Valley & foothill grasslandShort grasslands, freshly plowed fields, newly sprouting grain fields, and sometimes sod farms.Short vegetation, bare ground, and flat topography. Prefers grazed areas and areas with burrowing rodents.	Birds
Charadrius nivosus nivosus	western snowy plover	Threatened	None	G3T3	S2	CDFW_SSC-Species of Special Concern | NABCI_RWL-Red Watch List	Great Basin standing waters | Sand shore | WetlandSandy beaches, salt pond levees and shores of large alkali lakes.Needs sandy, gravelly or friable soils for nesting.	Birds
Circus hudsonius	northern harrier	None	None	G5	S3	CDFW_SSC-Species of Special Concern | IUCN_LC-Least Concern | USFWS_BCC-Birds of Conservation Concern	Coastal scrub | Great Basin grassland | Marsh & swamp | Riparian scrub | Valley & foothill grassland | WetlandCoastal salt and freshwater marsh. Nest and forage in grasslands, from salt grass in desert sink to mountain cienagas.Nests on ground in shrubby vegetation, usually at marsh edge; nest built of a large mound of sticks in wet areas.	Birds

Coturnicops noveboracensis	yellow rail	None	None	G4	S1S2	CDFW_SSC-Species of Special Concern | IUCN_LC-Least Concern | NABCI_RWL-Red Watch List | USFS_S-Sensitive | USFWS_BCC-Birds of Conservation Concern	Freshwater marsh | Meadow & seepSummer resident in eastern Sierra Nevada in Mono County.Freshwater marshlands.	Birds
Egretta thula	snowy egret	None	None	G5	S4	IUCN_LC-Least Concern	Marsh & swamp | Meadow & seep | Riparian forest | Riparian woodland | WetlandColonial nester, with nest sites situated in protected beds of dense tules.Rookery sites situated close to foraging areas: marshes, tidal-flats, streams, wet meadows, and borders of lakes.	Birds
Elanus leucurus	white-tailed kite	None	None	G5	S3S4	BLM_S-Sensitive | CDFW_FP-Fully Protected | IUCN_LC-Least Concern	Cismontane woodland | Marsh & swamp | Riparian woodland | Valley & foothill grassland | WetlandRolling foothills and valley margins with scattered oaks and river bottomlands or marshes next to deciduous woodland.Open grasslands, meadows, or marshes for foraging close to isolated, dense-topped trees for nesting and perching.	Birds
Haliaeetus leucocephalus	bald eagle	Delisted	Endangered	G5	S3	BLM_S-Sensitive | CDF_S-Sensitive | CDFW_FP-Fully Protected | IUCN_LC-Least Concern | USFS_S-Sensitive	Lower montane coniferous forest | OldgrowthOcean shore, lake margins, and rivers for both nesting and wintering. Most nests within 1 mile of water.Nests in large, old-growth, or dominant live tree with open branches, especially ponderosa pine. Roosts communally in winter.	Birds
Nannopterum auritum	double-crested cormorant	None	None	G5	S4	CDFW_WL-Watch List | IUCN_LC-Least Concern	Riparian forest | Riparian scrub | Riparian woodlandColonial nester on coastal cliffs, offshore islands, and along lake margins in the interior of the state.Nests along coast on sequestered islets, usually on ground with sloping surface, or in tall trees along lake margins.	Birds

Nycticorax nycticorax	black-crowned night heron	None	None	G5	S4	IUCN_LC-Least Concern	Marsh & swamp | Riparian forest | Riparian woodland | WetlandColonial nester, usually in trees, occasionally in tule patches.Rookery sites located adjacent to foraging areas: lake margins, mud-bordered bays, marshy spots.	Birds
Pandion haliaetus	osprey	None	None	G5	S4	CDF_S-Sensitive | CDFW_WL-Watch List | IUCN_LC-Least Concern	Riparian forestOcean shore, bays, freshwater lakes, and larger streams.Large nests built in tree-tops within 15 miles of a good fish-producing body of water.	Birds
Rallus obsoletus obsoletus	California Ridgway's rail	Endangered	Endangered	G3T1	S1	CDFW_FP-Fully Protected | NABCI_RWL-Red Watch List	Brackish marsh | Marsh & swamp | Salt marsh | WetlandSalt water and brackish marshes traversed by tidal sloughs in the vicinity of San Francisco Bay.Associated with abundant growths of pickleweed, but feeds away from cover on invertebrates from mud-bottomed sloughs.	Birds
Riparia riparia	bank swallow	None	Threatened	G5	S2	BLM_S-Sensitive | IUCN_LC-Least Concern	Riparian scrub | Riparian woodlandColonial nester; nests primarily in riparian and other lowland habitats west of the desert.Requires vertical banks/cliffs with fine-textured/sandy soils near streams, rivers, lakes, ocean to dig nesting hole.	Birds
Emys marmorata	western pond turtle	None	None	G3G4	S3	BLM_S-Sensitive | CDFW_SSC-Species of Special Concern | IUCN_VU-Vulnerable | USFS_S-Sensitive	Aquatic | Artificial flowing waters | Klamath/North coast flowing waters | Klamath/North coast standing waters | Marsh & swamp | Sacramento/San Joaquin flowing waters | Sacramento/San Joaquin standing waters | South coast flowing waters | South coast standing waters | WetlandA thoroughly aquatic turtle of ponds, marshes, rivers, streams and irrigation ditches, usually with aquatic vegetation, below 6000 ft elevation.Needs basking sites and suitable (sandy banks or grassy open fields) upland habitat up to 0.5 km from water for egg-laying.	Reptiles
Ascaphus truei	Pacific tailed frog	None	None	G4	S3S4	CDFW_SSC-Species of Special Concern | IUCN_LC-Least Concern	Aquatic | Klamath/North coast flowing waters | Lower montane coniferous forest | North coast coniferous forest | Redwood | Riparian forestOccurs in montane hardwood-conifer, redwood, Douglas-fir and ponderosa pine habitats.Restricted to perennial montane streams. Tadpoles require water below 15 degrees C.	Amphibians

Rana aurora	northern red-legged frog	None	None	G4	S3	CDFW_SSC-Species of Special Concern | IUCN_LC-Least Concern | USFS_S-Sensitive	Klamath/North coast flowing waters | Riparian forest | Riparian woodlandHumid forests, woodlands, grasslands, and streamsides in northwestern California, usually near dense riparian cover.Generally near permanent water, but can be found far from water, in damp woods and meadows, during non-breeding season.	Amphibians
Rana boylii	foothill yellow-legged frog	None	Endangered	G3	S3	BLM_S-Sensitive | CDFW_SSC-Species of Special Concern | IUCN_NT-Near Threatened | USFS_S-Sensitive	Aquatic | Chaparral | Cismontane woodland | Coastal scrub | Klamath/North coast flowing waters | Lower montane coniferous forest | Meadow & seep | Riparian forest | Riparian woodland | Sacramento/San Joaquin flowing watersPartly-shaded, shallow streams and riffles with a rocky substrate in a variety of habitats.Needs at least some cobble-sized substrate for egg-laying. Needs at least 15 weeks to attain metamorphosis.	Amphibians
Rhyacotriton variegatus	southern torrent salamander	None	None	G3G4	S2S3	CDFW_SSC-Species of Special Concern | IUCN_LC-Least Concern | USFS_S-Sensitive	Lower montane coniferous forest | Oldgrowth | Redwood | Riparian forestCoastal redwood, Douglas-fir, mixed conifer, montane riparian, and montane hardwood-conifer habitats. Old growth forest.Cold, well-shaded, permanent streams and seepages, or within splash zone or on moss-covered rocks within trickling water.	Amphibians
Acipenser medirostris	green sturgeon	None	None	G3	S1	AFS_VU-Vulnerable | CDFW_SSC-Species of Special Concern | IUCN_NT-Near Threatened	Aquatic | Klamath/North coast flowing waters | Sacramento/San Joaquin flowing watersThese are the most marine species of sturgeon. Abundance increases northward of Point Conception. Spawns in the Sacramento, Klamath, and Trinity Rivers.Spawns at temps between 8-14 C. Preferred spawning substrate is large cobble, but can range from clean sand to bedrock.	Fish
Entosphenus tridentatus	Pacific lamprey	None	None	G4	S3	AFS_VU-Vulnerable | BLM_S-Sensitive | CDFW_SSC-Species of Special Concern | USFS_S-Sensitive	Aquatic | Klamath/North coast flowing waters | Sacramento/San Joaquin flowing waters | South coast flowing watersFound in Pacific Coast streams north of San Luis Obispo County, however regular runs in Santa Clara River. Size of runs is declining.Swift-current gravel-bottomed areas for spawning with water temps between 12-18 C. Ammocoetes need soft sand or mud.	Fish

Eucyclogobius newberryi	tidewater goby	Endangered	None	G3	S3	AFS_EN-Endangered | IUCN_VU-Vulnerable	Aquatic | Klamath/North coast flowing waters | Sacramento/San Joaquin flowing waters | South coast flowing watersBrackish water habitats along the California coast from Agua Hedionda Lagoon, San Diego County to the mouth of the Smith River.Found in shallow lagoons and lower stream reaches, they need fairly still but not stagnant water and high oxygen levels.	Fish
Lampetra richardsoni	western brook lamprey	None	None	G4G5	S3S4	CDFW_SSC-Species of Special Concern | USFS_S-Sensitive		Fish
Oncorhynchus clarkii clarkii	coast cutthroat trout	None	None	G5T4	S3	AFS_VU-Vulnerable | CDFW_SSC-Species of Special Concern | USFS_S-Sensitive	Aquatic | Klamath/North coast flowing watersSmall coastal streams from the Eel River to the Oregon border.Small, low gradient coastal streams and estuaries. Needs shaded streams with water temperatures <18C, and small gravel for spawning.	Fish
Oncorhynchus kisutch pop. 2	coho salmon - southern Oregon / northern California ESU	Threatened	Threatened	G5T2Q	S2	AFS_TH-Threatened	Aquatic | Klamath/North coast flowing waters | Sacramento/San Joaquin flowing watersFederal listing refers to populations between Cape Blanco, Oregon and Punta Gorda, Humboldt County, California.State listing refers to populations between the Oregon border and Punta Gorda, California.	Fish
Oncorhynchus mykiss irideus pop. 16	steelhead - northern California DPS	Threatened	None	G5T2T3Q	S2S3	AFS_TH-Threatened	Aquatic | Sacramento/San Joaquin flowing watersCoastal basins from Redwood Creek south to the Gualala River, inclusive. Does not include summer-run steelhead.	Fish
Spirinchus thaleichthys	longfin smelt	Candidate	Threatened	G5	S1		Aquatic | EstuaryEuryhaline, nektonic and anadromous. Found in open waters of estuaries, mostly in middle or bottom of water column.Prefer salinities of 15-30 ppt, but can be found in completely freshwater to almost pure seawater.	Fish
Thaleichthys pacificus	eulachon	Threatened	None	G5	S2		Aquatic | Klamath/North coast flowing watersFound in Klamath River, Mad River, Redwood Creek, and in small numbers in Smith River and Humboldt Bay tributaries.Spawn in lower reaches of coastal rivers with moderate water velocities and bottom of pea-sized gravel, sand, and woody debris.	Fish

Anodonta californiensis	California floater	None	None	G3Q	S2?	USFS_S-Sensitive	AquaticFreshwater lakes and slow-moving streams and rivers. Taxonomy under review by specialists.Generally in shallow water.	Mollusks
Margaritifera falcata	western pearlshell	None	None	G4G5	S1S2		AquaticAquatic.Prefers lower velocity waters.	Mollusks
Bombus caliginosus	obscure bumble bee	None	None	G2G3	S1S2	IUCN_VU-Vulnerable	Coastal areas from Santa Barbara County to north to Washington state.Food plant genera include Baccharis, Cirsium, Lupinus, Lotus, Grindelia and Phacelia.	Insects
Bombus crotchii	Crotch bumble bee	None	None	G2	S1S2		Coastal California east to the Sierra-Cascade crest and south into Mexico.Food plant genera include Antirrhinum, Phacelia, Clarkia, Dendromecon, Eschscholzia, and Eriogonum.	Insects
Bombus occidentalis	western bumble bee	None	None	G2G3	S1	USFS_S-Sensitive	Once common and widespread, species has declined precipitously from central CA to southern B.C., perhaps from disease.	Insects
Cicindela hirticollis gravida	sandy beach tiger beetle	None	None	G5T2	S2		Coastal dunesInhabits areas adjacent to non-brackish water along the coast of California from San Francisco Bay to northern Mexico.Clean, dry, light-colored sand in the upper zone. Subterranean larvae prefer moist sand not affected by wave action.	Insects
Scaphinotus behrensi	Behrens' snail-eating beetle	None	None	G2G4	S2S4		North coast coniferous forestFound in extreme NW CA along the coast.	Insects

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Arcata Fish And Wildlife Office
1655 Heindon Road
Arcata, CA 95521-4573
Phone: (707) 822-7201 Fax: (707) 822-8411

In Reply Refer To:
Project Code: 2022-0060814
Project Name: Manila Drainage Project

July 06, 2022

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological

evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF

Migratory Birds: In addition to responsibilities to protect threatened and endangered species under the Endangered Species Act (ESA), there are additional responsibilities under the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA) to protect native birds from project-related impacts. Any activity, intentional or unintentional, resulting in take of migratory birds, including eagles, is prohibited unless otherwise permitted by the U.S. Fish and Wildlife Service (50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)). For more information regarding these Acts see https://www.fws.gov/birds/policies-and-regulations.php.

The MBTA has no provision for allowing take of migratory birds that may be unintentionally killed or injured by otherwise lawful activities. It is the responsibility of the project proponent to comply with these Acts by identifying potential impacts to migratory birds and eagles within applicable NEPA documents (when there is a federal nexus) or a Bird/Eagle Conservation Plan (when there is no federal nexus). Proponents should implement conservation measures to avoid or minimize the production of project-related stressors or minimize the exposure of birds and their resources to the project-related stressors. For more information on avian stressors and recommended conservation measures see https://www.fws.gov/birds/bird-enthusiasts/threats-to-birds.php.

In addition to MBTA and BGEPA, Executive Order 13186: *Responsibilities of Federal Agencies to Protect Migratory Birds*, obligates all Federal agencies that engage in or authorize activities that might affect migratory birds, to minimize those effects and encourage conservation measures that will improve bird populations. Executive Order 13186 provides for the protection of both migratory birds and migratory bird habitat. For information regarding the implementation of Executive Order 13186, please visit https://www.fws.gov/birds/policies-and-regulations/executive-orders/e0-13186.php.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Code in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List
- USFWS National Wildlife Refuges and Fish Hatcheries
- Migratory Birds
- Wetlands

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

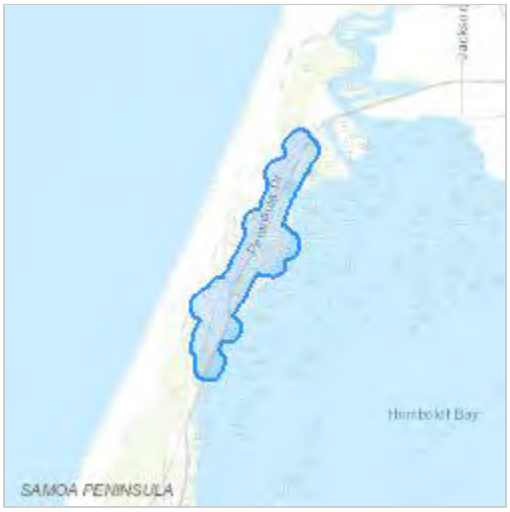
This species list is provided by:

Arcata Fish And Wildlife Office
1655 Heindon Road
Arcata, CA 95521-4573
(707) 822-7201

Project Summary

Project Code: 2022-0060814
Event Code: None
Project Name: Manila Drainage Project
Project Type: Drainage Project
Project Description: The Project, led by the Manila CSD, will incorporate multi-objective, multi-benefit project components that address flood reduction, ecosystem services, and resiliency to sea level rise and climate change.
Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@40.850741600000006,-124.16146390263467,14z



Counties: Humboldt County, California

Endangered Species Act Species

There is a total of 11 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

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1. 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.

Mammals

NAME	STATUS
Pacific Marten, Coastal Distinct Population Segment *Martes caurina* There is **proposed** critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/9081	Threatened

Birds

NAME	STATUS
Marbled Murrelet *Brachyramphus marmoratus* Population: U.S.A. (CA, OR, WA) There is **final** critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/4467	Threatened
Northern Spotted Owl *Strix occidentalis caurina* There is **final** critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/1123	Threatened
Western Snowy Plover *Charadrius nivosus nivosus* Population: Pacific Coast population DPS-U.S.A. (CA, OR, WA), Mexico (within 50 miles of Pacific coast) There is **final** critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/8035	Threatened
Yellow-billed Cuckoo *Coccyzus americanus* Population: Western U.S. DPS There is **final** critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/3911	Threatened

Reptiles

NAME	STATUS
Green Sea Turtle *Chelonia mydas* Population: East Pacific DPS No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/6199	Threatened

Fishes

NAME	STATUS
Tidewater Goby *Eucyclogobius newberryi* There is **final** critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/57	Endangered

Insects

NAME	STATUS
Monarch Butterfly *Danaus plexippus* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9743	Candidate

Flowering Plants

NAME	STATUS
Beach Layia *Layia carnosa* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/6728	Threatened
Menzies' Wallflower *Erysimum menziesii* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/2935	Endangered
Western Lily *Lilium occidentale* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/998	Endangered

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

USFWS National Wildlife Refuge Lands And Fish Hatcheries

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 OR FISH HATCHERIES WITHIN YOUR PROJECT AREA.

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.

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1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.
3. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

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* 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/1626	Breeds Jan 1 to Sep 30

NAME	BREEDING SEASON
Black Oystercatcher *Haematopus bachmani* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9591	Breeds Apr 15 to Oct 31
Black Swift *Cypseloides niger* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/8878	Breeds Jun 15 to Sep 10
Black Turnstone *Arenaria melanocephala* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds elsewhere
Cassin's Finch *Carpodacus cassinii* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9462	Breeds May 15 to Jul 15
Clark's Grebe *Aechmophorus clarkii* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Jun 1 to Aug 31
Evening Grosbeak *Coccothraustes vespertinus* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 15 to Aug 10
Golden Eagle *Aquila chrysaetos* 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	Breeds Jan 1 to Aug 31
Lesser Yellowlegs *Tringa flavipes* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9679	Breeds elsewhere
Marbled Godwit *Limosa fedoa* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9481	Breeds elsewhere
Olive-sided Flycatcher *Contopus cooperi* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/3914	Breeds May 20 to Aug 31

NAME	BREEDING SEASON
Rufous Hummingbird *selasphorus rufus* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/8002	Breeds Apr 15 to Jul 15
Short-billed Dowitcher *Limnodromus griseus* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9480	Breeds Jun 1 to Aug 10
Willet *Tringa semipalmata* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds elsewhere
Wrentit *Chamaea fasciata* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Mar 15 to Aug 10

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.

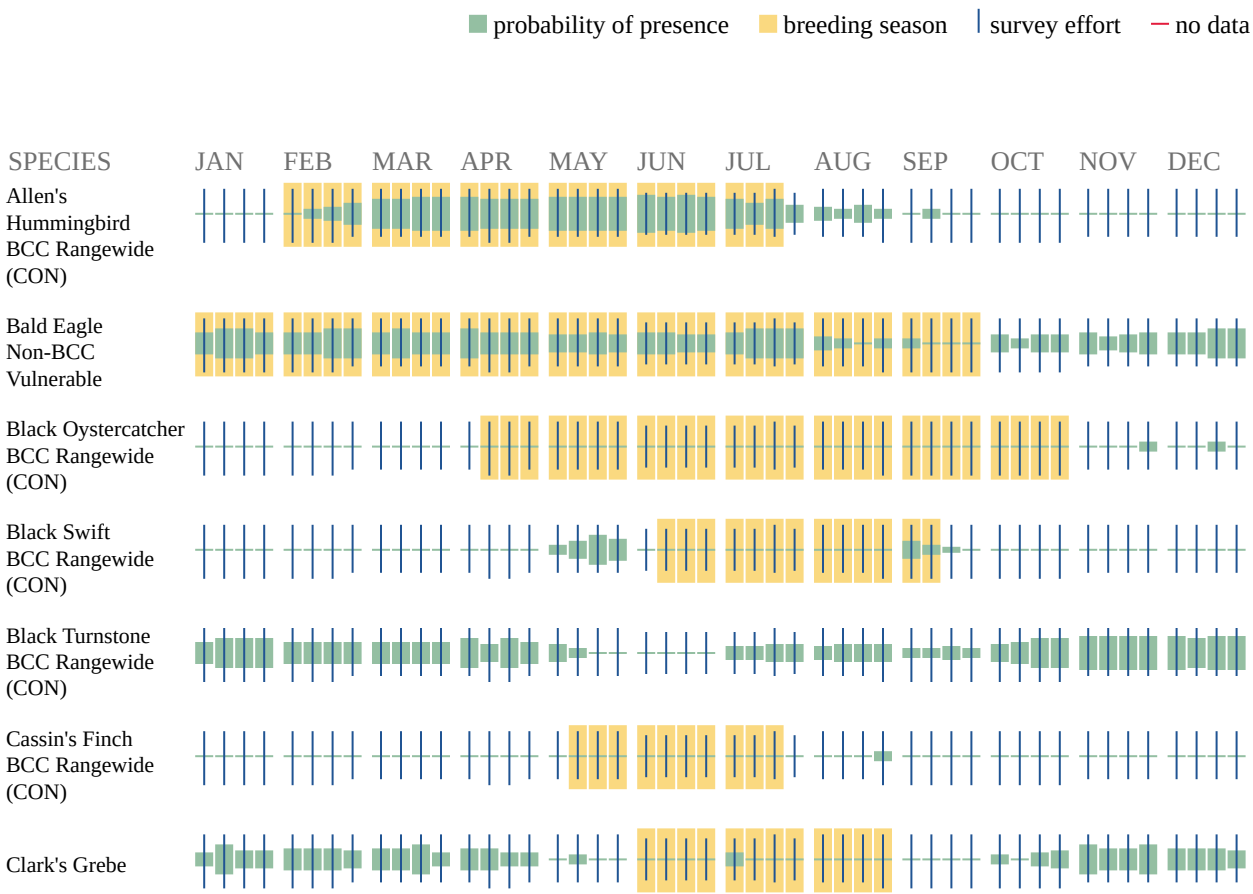
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

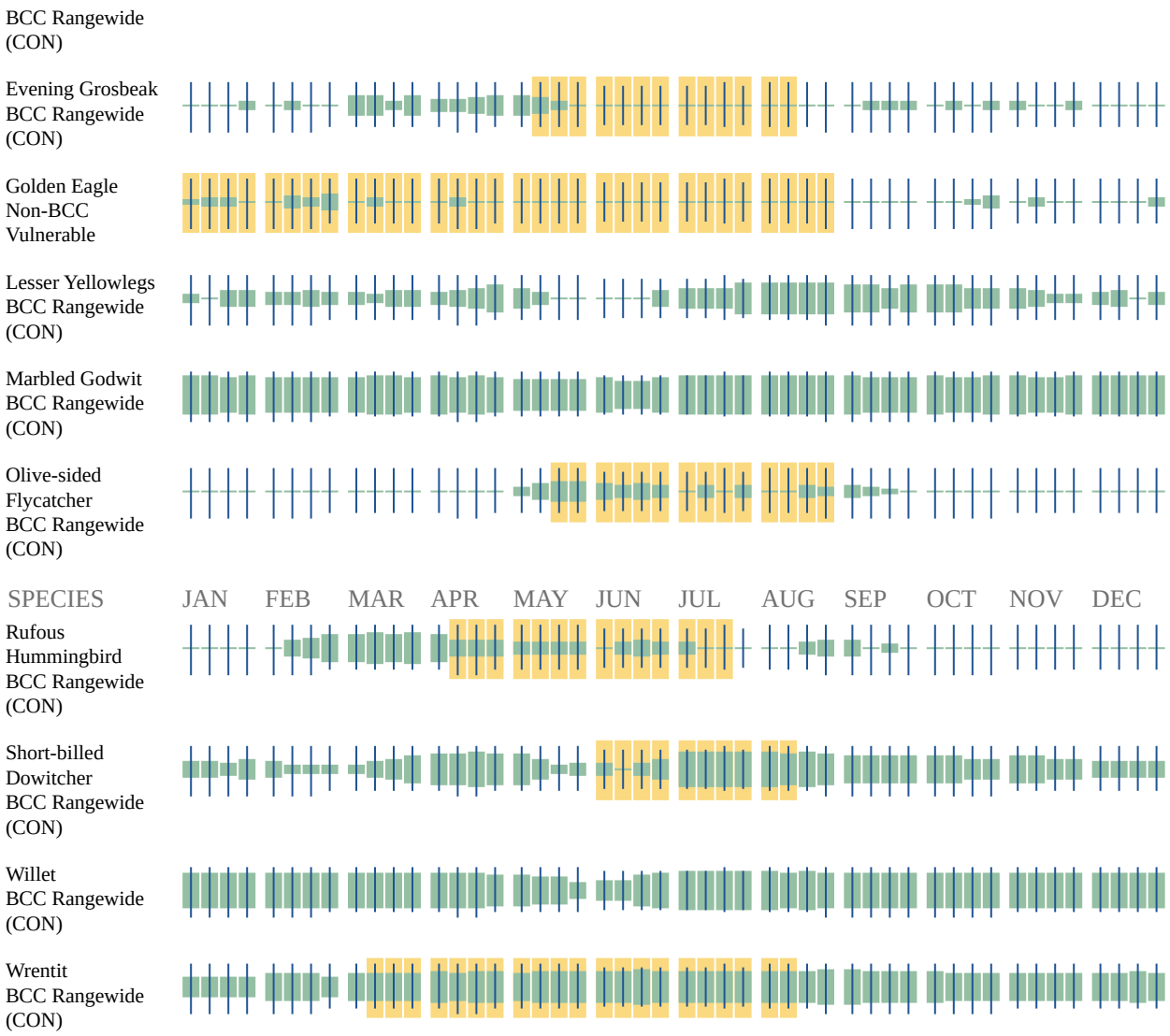
Breeding Season (■)
Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

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.

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.





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

Migratory Birds FAQ

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 migratory birds potentially occurring 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 AKN Phenology 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, migrating or present year-round in my project 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 refer to the following resources: The Cornell Lab of Ornithology All About Birds Bird Guide, or (if you are unsuccessful in locating the bird of interest there), the Cornell Lab of Ornithology Neotropical Birds guide. 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.

Wetlands

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.

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

WETLAND INFORMATION WAS NOT AVAILABLE WHEN THIS SPECIES LIST WAS GENERATED. PLEASE VISIT HTTPS://WWW.FWS.GOV/WETLANDS/DATA/MAPPER.HTML OR CONTACT THE FIELD OFFICE FOR FURTHER INFORMATION.

IPaC User Contact Information

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State: CA
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EFH Mapper Report

EFH Data Notice

Essential Fish Habitat (EFH) is defined by textual descriptions contained in the fishery management plans developed by the regional fishery management councils. In most cases mapping data can not fully represent the complexity of the habitats that make up EFH. This report should be used for general interest queries only and should not be interpreted as a definitive evaluation of EFH at this location. A location-specific evaluation of EFH for any official purposes must be performed by a regional expert. Please refer to the following links for the appropriate regional resources.

West Coast Regional Office
Alaska Regional Office

Query Results

Degrees, Minutes, Seconds: Latitude = 40º 51' 2" N, Longitude = 125º 50' 11" W
Decimal Degrees: Latitude = 40.851, Longitude = -124.164

The query location intersects with spatial data representing EFH and/or HAPCs for the following species/management units.

EFH

No Essential Fish Habitats (EFH) were identified at the report location.

Salmon EFH

Link	HUC Name	Species/Management Unit	Lifestage(s) Found at Location	Management Council	FMP
	Mad-Redwood - Below	Chinook Salmon, Coho Salmon	All	Pacific	Pacific Coast Salmon Plan

HAPCs

No Habitat Areas of Particular Concern (HAPC) were identified at the report location.

EFH Areas Protected from Fishing

No EFH Areas Protected from Fishing (EFHA) were identified at the report location.

Spatial data does not currently exist for all the managed species in this area. The following is a list of species or management units for which there is no spatial data.
****For links to all EFH text descriptions see the complete data inventory: open data inventory -->**

Spatial data does not currently exist for all the managed species in this area. The following is a list of species or management units for which there is no spatial data.
****For links to all EFH text descriptions see the complete data inventory: open data inventory -->**

Pacific Coastal Pelagic Species,
Jack Mackerel,
Pacific (Chub) Mackerel,
Pacific Sardine,
Northern Anchovy - Central Subpopulation,
Northern Anchovy - Northern Subpopulation,
Pacific Highly Migratory Species,
Bigeye Thresher Shark - North Pacific,
Bluefin Tuna - Pacific,
Dolphinfish (Dorado or Mahimahi) - Pacific,
Pelagic Thresher Shark - North Pacific,
Swordfish - North Pacific

Appendix C

Site Visit Photographs

Photo C-1. View of the vegetation around Humboldt Bay from the northernmost portion of the PSB on Peninsula Drive, facing south.

Photo C-2. View of existing tree and shrub vegetation at the intersection of the PSB with Sandy Road, facing east.

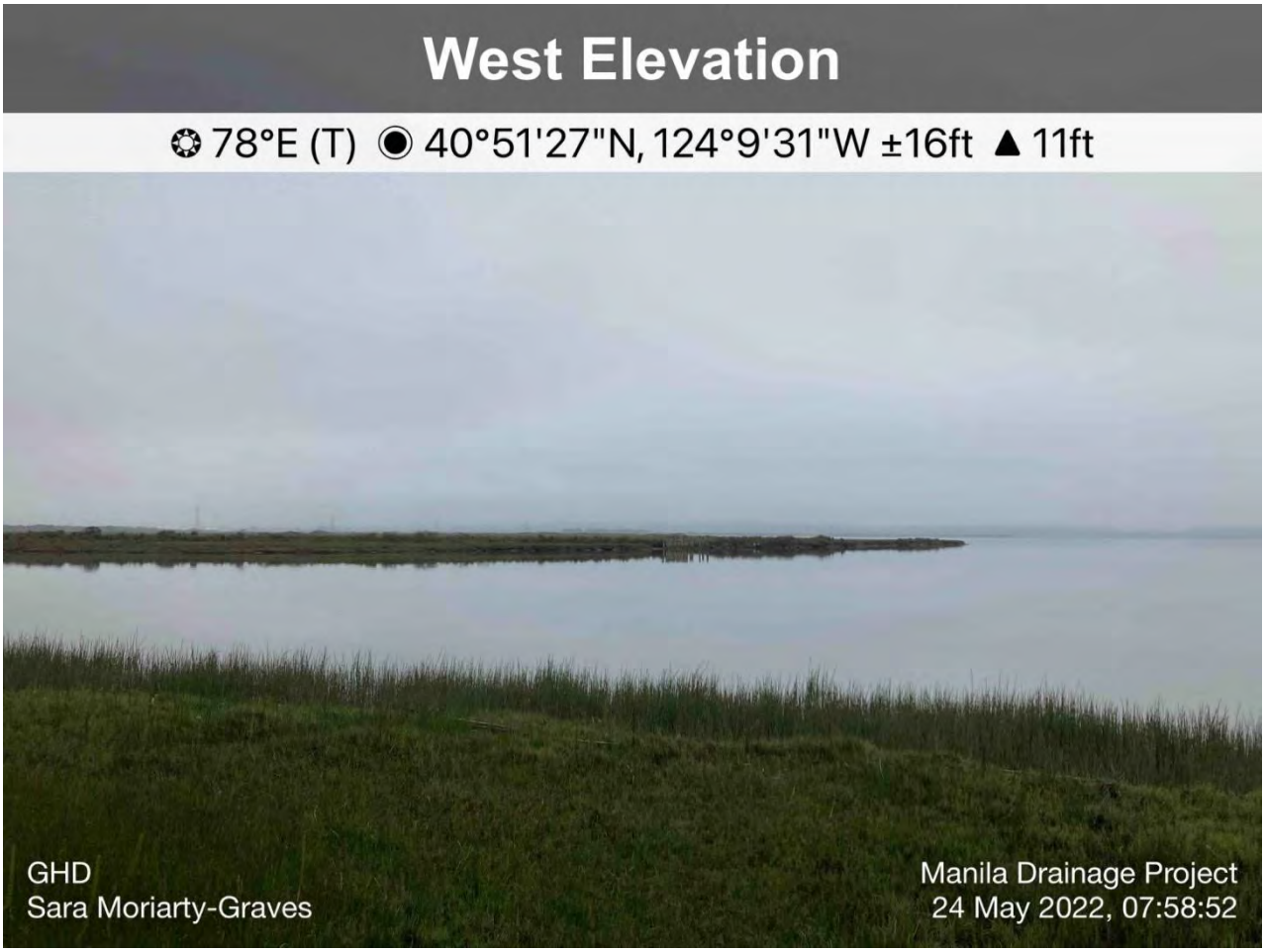

Photo C-3. View of Humboldt Bay from near the Northwestern Pacific railroad tracks in the northern section of the PSB, facing east.

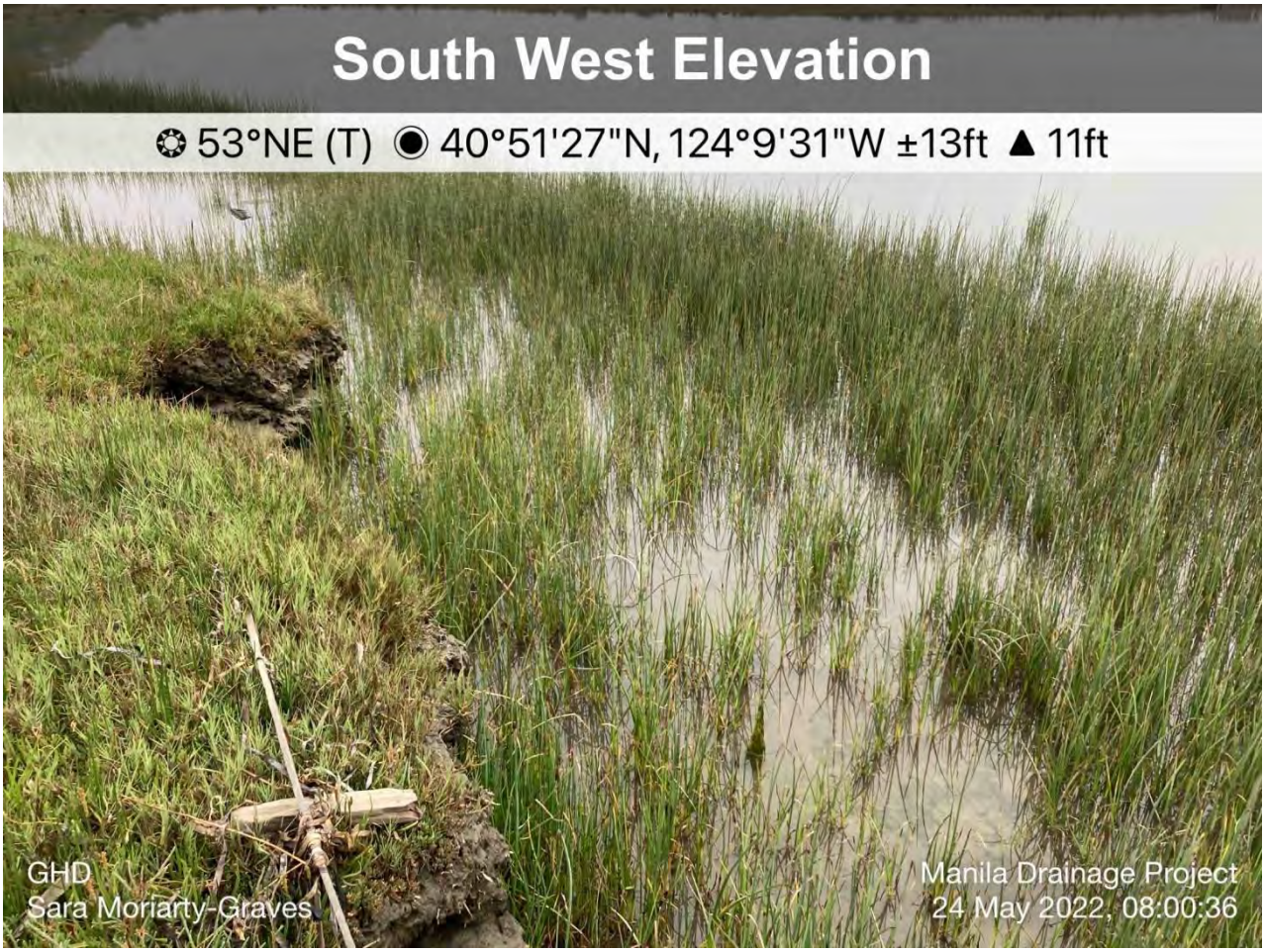

Photo C-4. Aquatic habitat in Humboldt Bay, directly adjacent to the Northwestern Pacific railroad tracks in the northern section of the PSB (within 100 feet), facing northeast.

Photo C-5. State Route 255, which intersects with portions of the PSB, facing north.

Photo C-6. View of roadside ditch with water and aquatic vegetation on Peninsula Drive, ~200 feet south of the intersection with Smigle Road.

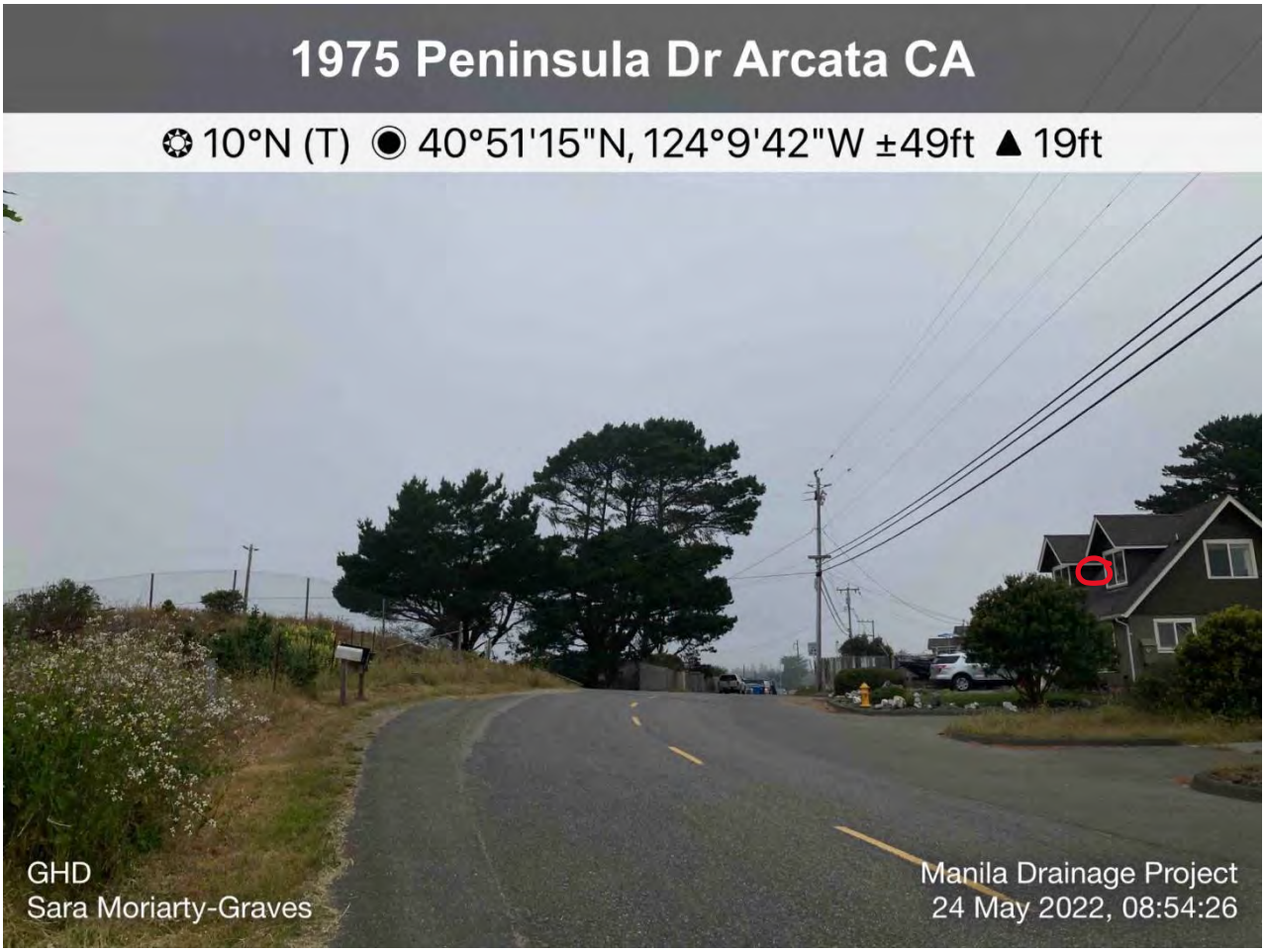

Photo C-7. View of house with active Violet-green Swallow nest (circled in red) on Peninsula Drive within 100 feet of the PSB, ~200 feet south of the intersection with Smigle Road, facing north.

Photo C-8. View of the roadside vegetation in the PSB on Mill Street, facing northeast.

Photo C-9. Understory and canopy structure in a portion of the PSB, north of the Manila Community Park, facing east.

Photo C-10. View of roadside water and vegetation within the PSB on Victor Boulevard.

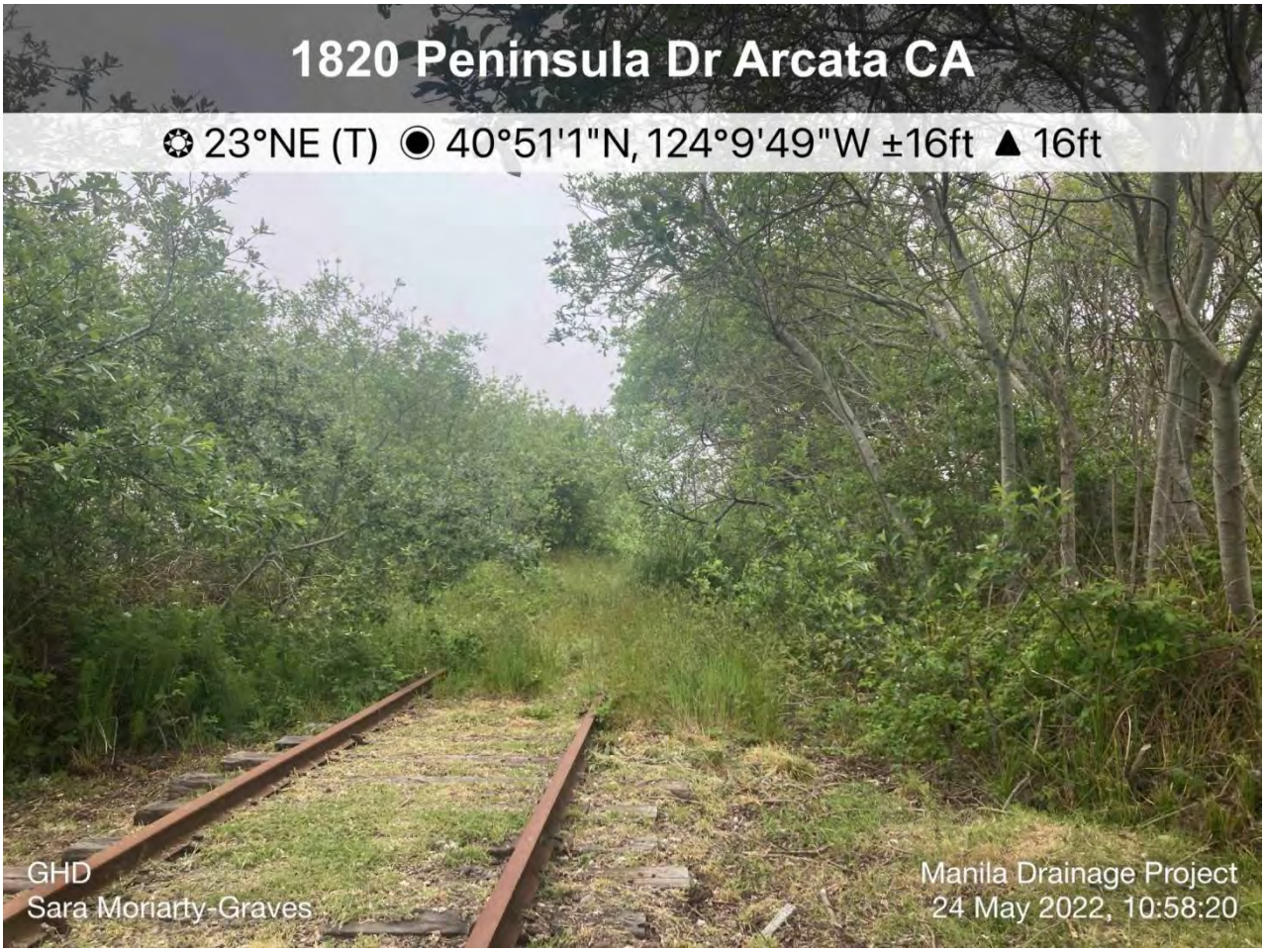

Photo C-11. View of commonly seen deciduous tree, shrub, and grass vegetation structure along the Northwestern Pacific railroad tracks adjacent to Peninsula Drive.

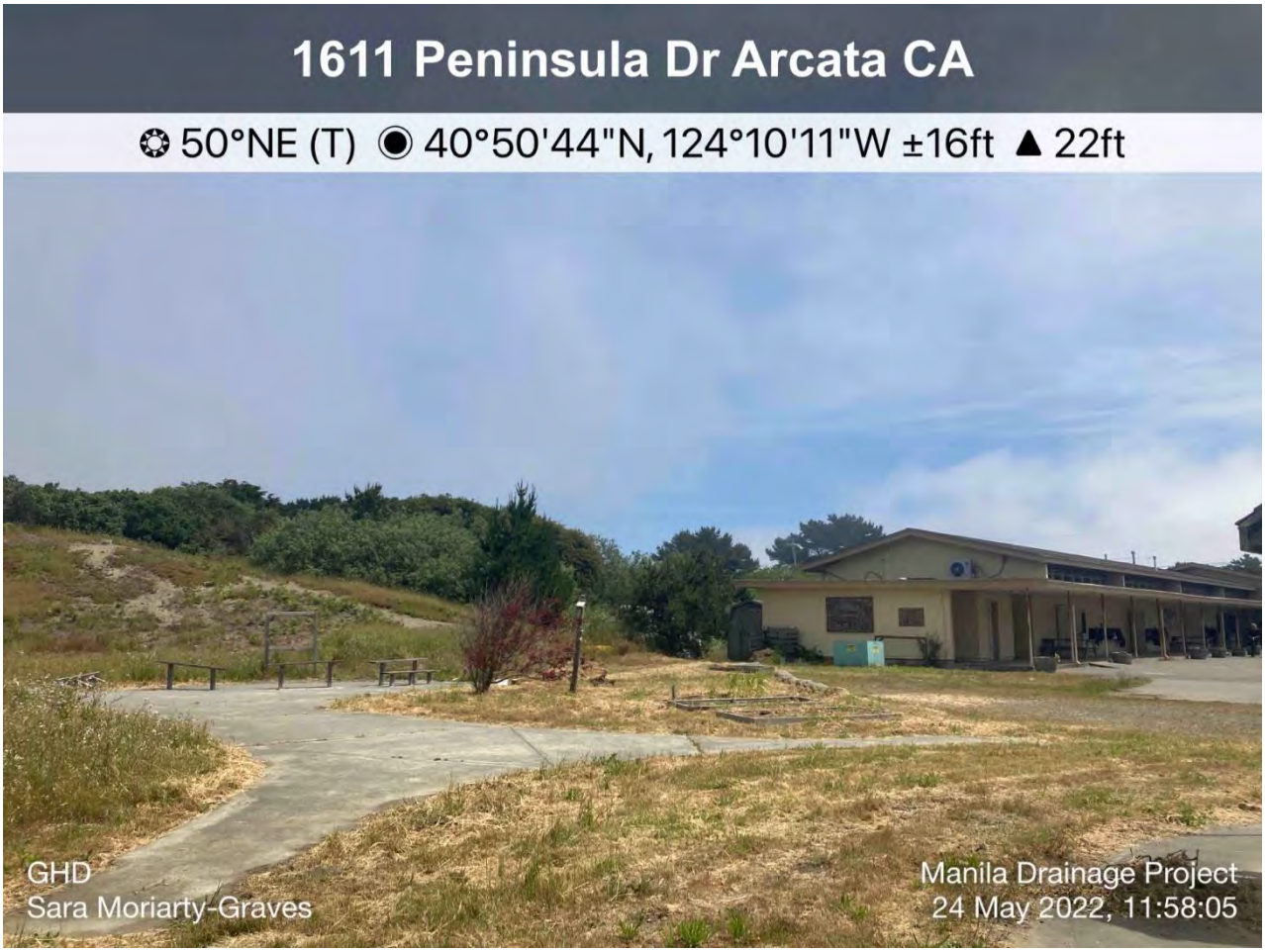

Photo C-12. View of the Redwood Coast Montessori school, a section of the PSB to the west of State Route 255 and Peninsula Drive, facing northeast.

Photo C-13. View of Pebble Lane, State Route 255, and mature trees adjacent to the roads, facing south.

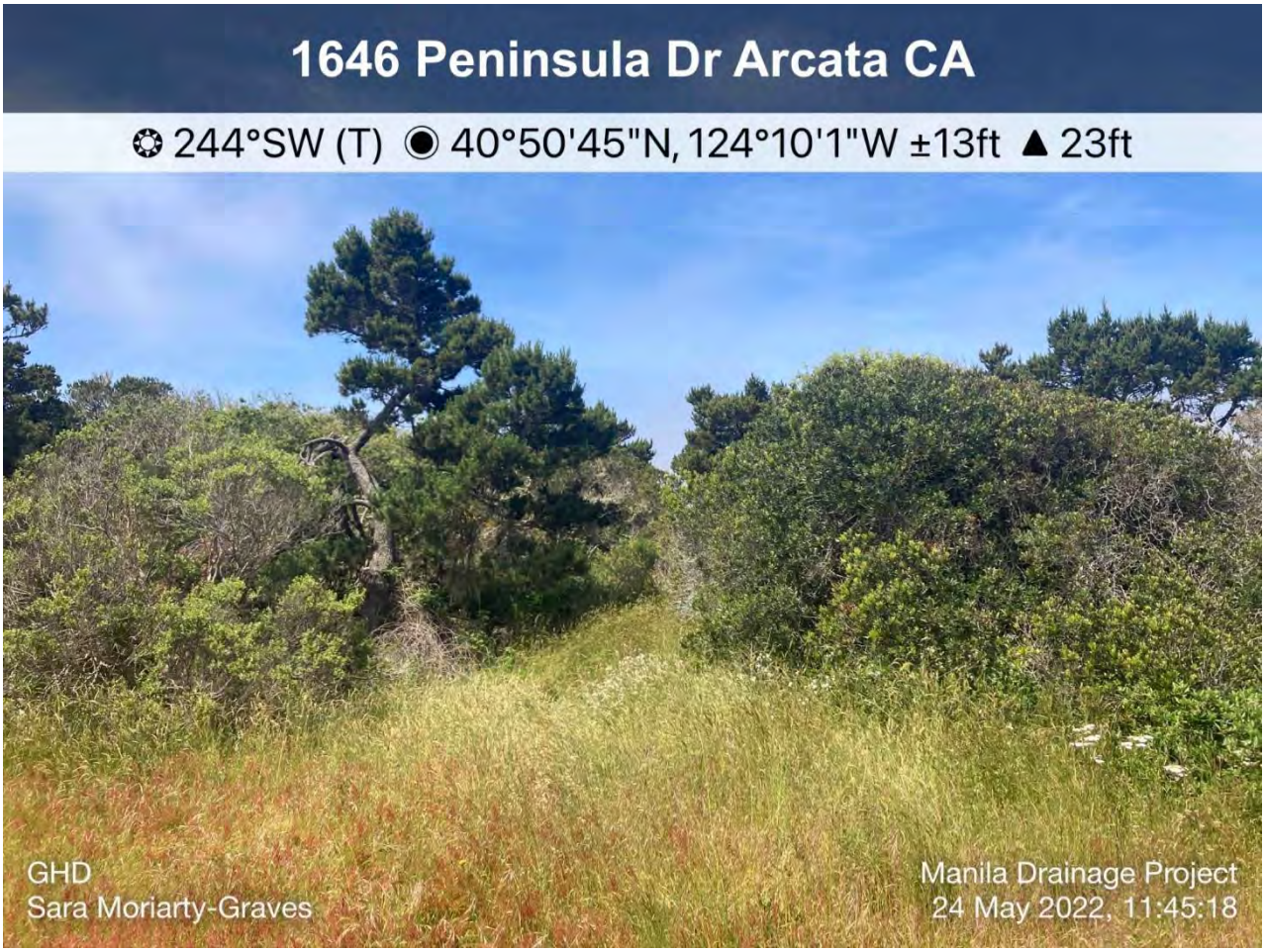

Photo C-14. View of grass, shrub, and tree vegetation near the intersection of Pebble Road and Peninsula Drive.

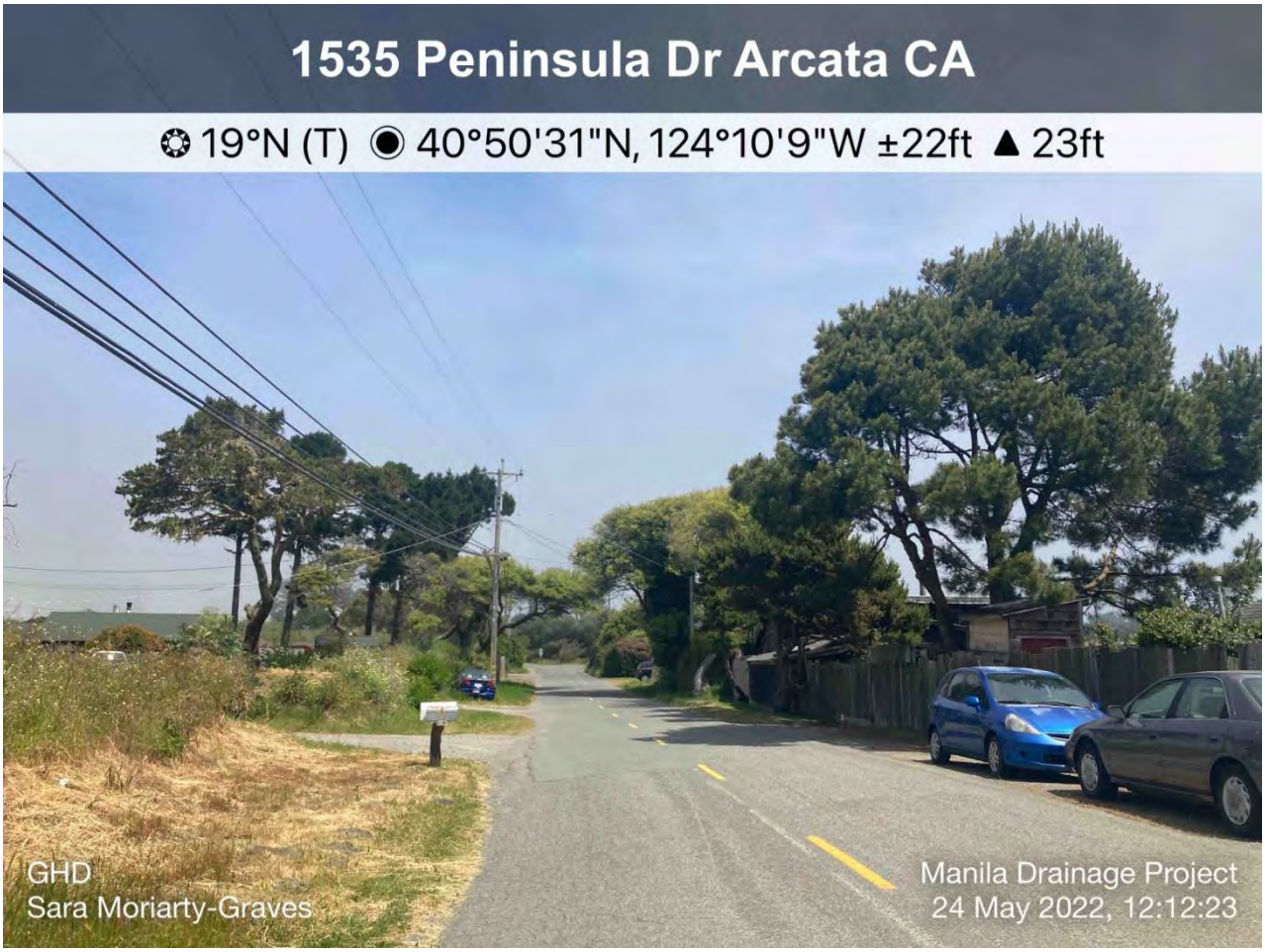

Photo C-15. View of mature pine trees along the southern end of Peninsula Drive in the PSB, facing north.

Photo C-16. View of one of the small subsections of the PSB off State Route 255, overlooking Humboldt Bay, facing southeast.

Photo C-17. View of one of the small subsections in the southernmost portion of the PSB, with Northwestern Pacific railroad tracks, Humboldt Bay shoreline habitat, facing northeast.

Appendix D

On-site Species Lists

Table D1 Terrestrial Wildlife Observed On-site

Scientific Name	Common Name	Observation Type	Special Status
Bombus occidentalis	Western Bumble Bee	Observed	USFS Sensitive
Felis cattus	Feral Cat	Observed	None; invasive

Table D2 List of avian breeding codes, associated bird behavior, and breeding status (the highest ranking code was recorded for each species during the survey)

Breeding Rank	Breeding Code	Description	Breeding Status
1	N	Active nest	Breeding
2	M	Carrying nesting material	Breeding
3	F	Carrying food or fecal sac	Breeding
4	D	Distraction display/feigning	Breeding
5	L	Local young fed by parents	Breeding
6	Y	Local young incapable of sustained flight	Breeding
7	C	Copulation or courtship observed	Breeding
8	T	Territorial behavior	Unconfirmed
9	S	Territorial song or drumming heard	Unconfirmed
10	E	Encountered in study area	Unconfirmed
11	O	Encountered flying over the study area	Unconfirmed

Table D3 Avian Species Detected On-site

Alpha Code	Common Name	Latin Name	Highest Breeding Status	Breeding Code	Special Status
MALL	Mallard	*Anas platyrhynchos*	Encountered in study area	E	FGC, MBTA
GREG	Great Egret	*Ardea alba*	Encountered flying over study area	O	CDF Sensitive, FGC, MTBA
ANHU	Anna's Hummingbird	*Calypte anna*	Encountered in study area	E	FGC, MTBA
WIWA	Wilson's Warbler	*Cardellina pusilla*	Encountered in the study area	E	FGC, MTBA
SWTH	Swainson's thrush	*Catharus ustulatus*	Territorial song or drumming heard	S	FGC, MTBA
WREN	Wrentit	*Chamaea fasciata*	Territorial song or drumming heard	S	FGC, MTBA
AMCR	American Crow	*Corvus brachyrhynchos*	Encountered in the study area	E	FGC, MTBA
CORA	Common Raven	*Corvus corax*	Encountered in study area	E	FGC, MTBA
PSFL	Pacific-slope Flycatcher	*Empidonax difficilis*	Territorial song or drumming heard	S	FGC, MTBA
HOFI	House Finch	*Haemorhous mexicanus*	Territorial behavior	T	FGC, MTBA

Alpha Code	Common Name	Latin Name	Highest Breeding Status	Breeding Code	Special Status
PUFI	Purple Finch	*Haemorhous purpureus*	Territorial behavior	T	FGC, MTBA
BARS	Barn Swallow	*Hirundo rustica*	Territorial behavior	T	FGC, MTBA
NA	Gull	*Larus sp.*	Encountered in study area	E	FGC, MTBA
SOSP	Song Sparrow	*Melospiza melodia*	Carrying nesting material	M	FGC, MTBA
BHCO	Brown-headed Cowbird	*Molothrus ater*	Encountered in study area	E	None; invasive
WHIM	Whimbrel	*Numenius phaeopus*	Encountered in the study area	S	FGC, MTBA
HOSP	House Sparrow	*Passer domesticus*	Carrying nesting material	M	None; invasive
DOWO	Downy Woodpecker	*Picoides pubescens*	Territorial song or drumming heard	S	FGC, MTBA
CBCH	Chestnut-backed Chickadee	*Poecile rufescens*	Territorial behavior	T	FGC, MTBA
BLPH	Black Phoebe	*Sayornis nigricans*	Territorial song or drumming heard	S	FGC, MTBA
AMGO	American Goldfinch	*Spinus tristis*	Territorial behavior	T	FGC, MTBA
EUCD	Eurasian Collared-Dove	*Streptopelia decaocto*	Territorial song or drumming heard	S	None; invasive
VGSW	Violet-green Swallow	*Tachycineta thalassina*	Active nest	N	FGC, MTBA
GRYE	Greater Yellowlegs	*Tringa melanoleuca*	Encountered in the study area	E	FGC, MTBA
AMRO	American Robin	*Turdus migratorius*	Territorial behavior	T	FGC, MTBA
GCSP	Golden-crowned Sparrow	*Zonotrichia atricapilla*	Encountered in study area	E	FGC, MTBA
WCSP	White-crowned Sparrow	*Zonotrichia leucophrys*	Encountered in study area	E	FGC, MTBA

Definitions:

FGC = protected by California Fish and Game Code

MBTA = protected by the federal Migratory Bird Treaty Act

Appendix F

Mitigation, Monitoring, and Reporting Program

Mitigation Monitoring and Reporting Program

Manila Community Services District - Manila Community Services District Flood Reduction and Drainage Enhancement Project

SCH No. To be assigned

Environmental Protections Actions (EPA) and Mitigation Measures (MM)	Monitoring Responsibility	Monitoring/Reporting Action & Schedule	Verification (Initials/Date)
EPA 1 – Stormwater Pollution Prevention Plan (SWPPP) The Project will obtain coverage under State Water Resources Control Board (Water Board) Order No. 2009-0009-DWQ, Waste Discharge Requirements for Discharges of Storm Water Runoff Associated with Construction and Land Disturbance Activities. The Project will submit permit registration documents (notice of intent, risk assessment, site maps, SWPPP, annual fee, and certifications) to the Water Board. The SWPPP will address pollutant sources, best management practices, and other requirements specified in the Order. The SWPPP will include erosion and sediment control measures, and dust control practices to prevent wind erosion, sediment tracking, and dust generation by construction equipment. A Qualified SWPPP Practitioner will oversee implementation of the Project SWPPP, including visual inspections, sampling, and analysis, and ensuring overall compliance.	Manila CSD's contractor, to be verified by a SWPPP practitioner	Performance criteria – North Coast Regional Water Quality Control Board and County standards Reporting actions – As required by the state permit Schedule - During project construction activities, including work and non-work times	
Air Quality			
MM AQ-1: BMPs to Reduce Air Pollution The contractor shall implement the following measures during construction: – All exposed surfaces (e.g., staging areas, soil piles, active graded areas, excavations, and unpaved access roads) shall be watered two times per day or as required by site conditions and current weather patterns. – All visible mud or dirt track-out onto adjacent public roads shall be removed using street sweepers at least once per day, or as needed to alleviate dust and debris on the roadway. – All vehicle speeds on unpaved roads shall be limited to 15 miles per hour, unless the unpaved road surface has been treated for dust suppression with water, rock, wood chip mulch, or other dust prevention measures. – All areas to be paved shall be completed as soon as possible. – Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to five minutes.	Manila CSD and Manila CSD's contractor	Performance criteria – North Coast Unified Air Quality Management District standards Reporting actions – Verify requirements are included in final plans and specifications Schedule – During construction, check jobsite compliance as necessary	

Environmental Protections Actions (EPA) and Mitigation Measures (MM)	Monitoring Responsibility	Monitoring/Reporting Action & Schedule	Verification (Initials/Date)
– All construction equipment shall be maintained and properly tuned in accordance with the manufacturer's specifications.			
Biological Resources			
MM BIO-1: Protect Special Status Plants Avoidance and minimization measures for special status plant species are addressed collectively for all species. The following measures are recommended: – The locations of any special status plant populations mapped herein shall be clearly identified in the contract documents (100% design plans and final specifications) if they occur within or adjacent to the grading boundary. – If special status plant populations are detected where construction will have unavoidable impacts, seed will be collected prior to construction by a qualified botanist and redistributed following construction during the appropriate season. On-site seed collection from the impacted species will be prioritized. If on-site seed collection is infeasible due to blooming period conflicts with the planned construction season, off-site seed collection will occur from a suitable nearby area.	Manila CSD and Manila CSD's biologist and contractor	Performance criteria – California Department of Fish and Wildlife (CDFW) standards	
MM BIO-2: Protect Special Status Bats Removal of confirmed or presumed-occupied bat roost habitat will occur only during seasonal periods of bat activity (when bats are volant, i.e., able to leave roosts) between March 1 and April 15 or September 1 and October 15, when evening temps rise above 45 F, and when no rainfall greater than ½ inches has occurred in the last 24 hours. If trees or structures cannot be removed during the volant period, i.e., Project activities occur during the bat maternity season which generally occur April 16th through August 30th, the Manila CSD's qualified biologist shall conduct surveys within suitable habitat for special status bats. Survey methodology shall include visual examination with binoculars and may optionally utilize ultrasonic detectors to determine if special status bat species utilize the vicinity. Surveys shall be conducted by a qualified biologist within seven days prior to construction in any areas where potential maternity roosts may be disturbed/removed. The preconstruction surveys for bats may coincide with pre-construction surveys for other animals. Surveys shall include a visual inspection of the impact area and any large trees/snags with cavities or loose bark or crevices within infrastructure. If the presence of a maternity roost is confirmed, an appropriate buffer distance will be established in consultation with CDFW to ensure that construction noise will remain below disturbance thresholds for bats. If no bat utilization or roosts are found, then no further study or action is required. If bats are	Manila CSD and Manila CSD's biologist and contractor	Performance criteria – California Department of Fish and Wildlife (CDFW) standards Reporting actions – Verify that protection and avoidance measures are in final specifications; verify completion and documentation of surveys, if necessary Schedule – Pre-construction and during construction; verify applicable disturbance buffers and protection measures are implemented	

Environmental Protections Actions (EPA) and Mitigation Measures (MM)	Monitoring Responsibility	Monitoring/Reporting Action & Schedule	Verification (Initials/Date)
found to utilize the BSA, or presence is assumed, a bat specialist should be engaged to advise the best method to prevent impact. Project-related lighting shall be minimized if any construction occurs at night, either contained within structures or limited by appropriate reflectors or shrouds and focused on areas needed for safety, security or other essential requirements.			
MM BIO-3: Protect Special Status, Migratory, and Nesting Birds Ground disturbance and vegetation clearing will be conducted, where feasible, during the fall and/or winter months and outside of the avian nesting season (which is generally assumed to occur between March 15 – August 15) to avoid any direct effects to special-status and protected birds. Ground disturbance and vegetation clearing that cannot be confined to the fall and/or winter outside of the nesting season, will require that a qualified biologist conduct pre-construction surveys within the vicinity of the BSA, to check for nesting activity of native birds and to evaluate the site for presence of raptors and special status bird species. The biologist will conduct at minimum a one-day pre-construction survey within the seven-day period prior to vegetation removal and ground-disturbing activities. If ground disturbance and vegetation removal work lapses for seven days or longer during the nesting season, a qualified biologist will conduct a supplemental avian pre-construction survey before Project work is reinitiated. If active nests are detected within the construction footprint, or within 500 feet of construction activities, the biologist will flag a buffer around each nest. Construction activities will avoid nest sites until the biologist determines that the young have fledged, or nesting activity has ceased. If nests are documented outside of the construction (disturbance) footprint, but within 500 feet of the construction area, buffers will be implemented as needed. In general, the buffer size for common species will be determined on a case-by-case basis in consultation with the CDFW and, if applicable, with USFWS. Buffer sizes will take into account factors such as (1) noise and human disturbance levels at the construction site at the time of the survey and the noise and disturbance expected during the construction activity; (2) distance and amount of vegetation or other screening between the construction site and the nest; and (3) sensitivity of individual nesting species and behaviors of the nesting birds. If active nests are detected during the survey, the qualified biologist will monitor all nests at least once per week to determine whether birds are being disturbed. Activities that might, in the opinion of the qualified biologist, disturb nesting activities (e.g., excessive noise), will be prohibited within the buffer zone until such a determination is made. If signs of disturbance or distress are observed, the qualified biologist will immediately implement adaptive measures to reduce disturbance. These measures may include, but are not limited to, increasing buffer size, halting	Manila CSD and Manila CSD's biologist and contractor	Performance criteria – California Department of Fish and Wildlife (CDFW) standards Reporting actions – Verify that protection and avoidance measures are in final specifications; verify completion and documentation of surveys, if necessary Schedule – Pre-construction and during construction; verify applicable disturbance buffers and protection measures are implemented	

Environmental Protections Actions (EPA) and Mitigation Measures (MM)	Monitoring Responsibility	Monitoring/Reporting Action & Schedule	Verification (Initials/Date)
disruptive construction activities in the vicinity of the nest until fledging is confirmed or nesting activity has ceased, placement of visual screens or sound dampening structures between the nest and construction activity, reducing speed limits, replacing and updating noisy equipment, queuing trucks to distribute idling noise, locating vehicle access points and loading and shipping facilities away from noise-sensitive receptors, reducing the number of noisy construction activities occurring simultaneously, and/or reorienting and/or relocating construction equipment to minimize noise at noise sensitive receptors.			
MM BIO-4: Protect Northern Red-legged Frogs The Manila CSD will retain a qualified biologist to perform a pre-construction survey for the Northern Red-legged Frog within seven days prior to commencement of ground disturbance. The survey will be limited to the Project footprint and within 50 feet of suitable habitat. The biologist will relocate any specimens that occur within the work-impact zone to nearby suitable habitat. If a Northern Red-legged Frog is observed in an active construction zone, the contractor will halt construction activities in the area and the frog will be moved to a safe location in similar habitat outside of the construction zone. Construction within areas of standing water will be limited to the period of the year between July 1 and October 30 to avoid disturbance to breeding frogs. After July 1, a qualified biologist will inspect any work areas containing surface water (not including puddles resulting from rainfall) to ensure tadpoles or metamorphosing frogs are not present. If they are present, the qualified biologist will implement a rescue and relocation operation to move any tadpoles or metamorphosing frogs to a safe location in nearby suitable habitat.	Manila CSD and Manila CSD's biologist and contractor	Performance criteria – County, state, and federal standards, consistent with the project's permits Reporting actions – Verify that protection and avoidance measures are in final specifications Schedule – Pre-construction and during construction	
MM BIO-5: Protect Special Status Fish The following shall be implemented by Manila CSD to protect special status fish: – Temporary exclusion fencing will be installed along the shoreline near planned areas of ground disturbance, if any, to limit inadvertent disturbance near aquatic habitat. The temporary exclusion fencing will be shown in the final 100% construction plan set. – Equipment maintenance or refueling will not occur within 100 feet of the Humboldt Bay shoreline. – Erosion control shall be installed for work in tidal drainages to avoid post-construction turbidity inputs into Humboldt Bay. Erosion control measures shall be shown on the final 100% design planset. – Dewatering of aquatic habitat shall not occur. – Fish relocation shall not occur.	Manila CSD and Manila CSD's contractor	Performance criteria – County, state, and federal standards, consistent with the project's permits Reporting actions – Verify requirements are in final specifications Schedule – Pre-construction, during construction; verify applicable measures are implemented; check jobsite compliance as necessary	

Environmental Protections Actions (EPA) and Mitigation Measures (MM)	Monitoring Responsibility	Monitoring/Reporting Action & Schedule	Verification (Initials/Date)
MM BIO-6: Protect Western Bumble Bee If an occupied Western Bumble Bee nest is observed in an active construction zone, the contractor will halt construction activities surrounding the area. A biologist will observe the nest and a buffer would be established to protect the occupied nest.	Manila CSD and Manila CSD's biologist and contractor	Performance criteria – County, state, and federal standards, consistent with the project's permits Reporting actions – Verify requirements are in final specifications Schedule – Pre-construction, during construction; verify applicable measures are implemented; check jobsite compliance as necessary	
MM BIO-7: Avoidance and Minimization Measures to Protect Adjacent Wetlands The Manila CSD shall implement the following avoidance and protection measures for Waters of the United States and Waters of the State adjacent to areas of planned disturbance that will not be impacted (filled or excavated) during Project construction: – The Manila CSD shall attempt to avoid or minimize impacts to wetlands/waters to the greatest extent feasible in the final design plans. – Adjacent wetlands shall be clearly identified in the final construction documents (100% design planset) – Suitable perimeter control measures, such as silt fences, or straw wattles shall be placed below all construction activities at the edge of surface water features to intercept sediment before it reaches the waterway. These measures shall be installed prior to any clearing or grading activities.	Manila CSD and Manila CSD's contractor	Performance criteria – County, state, and federal standards, consistent with the project's permits Reporting actions – Verify requirements are in final specifications Schedule – Pre-construction, during construction; verify applicable measures are implemented; check jobsite compliance as necessary	
MM BIO-8: Compensate for Loss of Wetlands The Project shall avoid fill and conversion of seasonal wetlands and waters, to the extent feasible. If fill cannot be avoided, the Project shall compensate for the loss of seasonal wetland habitat to ensure there is no net loss in wetlands. The Project shall compensate for impacts to identified wetlands through restoration, rehabilitation, and/or creation of wetland at a ratio of no less than 1:1 and to the satisfaction of jurisdictional agencies. A Habitat, Mitigation, and Monitoring Plan (HMMP) shall be prepared in coordination with the NCRWQB, the USACE, and the Coastal Commission. Onsite locations for three-parameter wetland mitigation shall occur along existing drainage ditches, at the locations where rain gardens would be installed, and the locations where drainage	Manila CSD and Manila CSD's biologist and contractor	Performance criteria – County, state, and federal standards, consistent with the project's permits Reporting actions – Verify requirements are in final specifications; verify completion of HMMP Schedule – Pre-construction, during construction, and post-	

Environmental Protections Actions (EPA) and Mitigation Measures (MM)	Monitoring Responsibility	Monitoring/Reporting Action & Schedule	Verification (Initials/Date)
ditch connection will be created. Onsite locations for one-parameter wetland mitigation shall be occur within the Manila Community Park area. The Plan shall be acceptable to the regulatory agencies with jurisdiction over wetlands and waters and include the following elements: mitigation ratios, description and size of the restoration or compensatory area, site preparation and design, plant species, planting design and techniques, maintenance activities, plant storage, irrigation requirements, success criteria, monitoring schedule, and remedial measures. The Plan shall be implemented by the Manila CSD. The Project shall also compensate for impacts to other waters by obtaining required permits from the USACE, the NCRWQCB, and Coastal Commission shall be received prior to the start of any on-site construction activity. The Manila CSD shall ensure any additional measures outlined in the permits are implemented.		construction; verify applicable compensatory mitigation is implemented; check jobsite compliance as necessary	
Cultural Resources			
MM CR-1: Cultural Monitoring and Inadvertent Archaeological Discoveries The Manila CSD will retain a qualified cultural resource monitor who is approved by the Wiyot Tribe, Bear River Band of the Rohnerville Rancheria, and the Blue Lake Rancheria to monitor ground disturbing activities related to this Project in areas the Tribes deem culturally sensitive, specifically: – Any ground disturbance within ~100 feet of a recorded site – Excavation meeting or exceeding 1 foot (below historical flow line) within existing drainage channels – In locations where new culverts will be placed and excavation meets or exceeds 1 foot below existing culvert flow line – In locations where grading is occurring to construct new drainage features regardless of the excavation depth – Any excavation where the construction inspector is not present to oversee that the excavation does not exceed the lines are grades on the final design construction plans The Manila CSD will contact the three Tribal Historic Preservation Officers or their functional equivalent to set up and implement a cultural monitoring contract when a construction schedule has been determined. Advanced coordination with the qualified cultural monitor is required. The Manila CSD shall provide the Harbor District with written verification for compliance with this Condition. If cultural or historic-era resources are encountered during construction activities, the contractor on site shall cease all work in the immediate area and within a 66-foot buffer of the discovery location. A qualified archaeologist, as well as the Tribal Historic Preservation Officers for the Bear River Band Rohnerville Rancheria, Blue Lake	Manila CSD and Manila CSD's archaeologist and contractor, Tribal Cultural Resource Monitor	Performance criteria – County, state, and federal standards Reporting actions – Verify requirements are in final plans and specifications; verify completion of DPR 513 forms, if necessary Schedule – Pre-construction and during construction; verify applicable protection measures are implemented	

Environmental Protections Actions (EPA) and Mitigation Measures (MM)	Monitoring Responsibility	Monitoring/Reporting Action & Schedule	Verification (Initials/Date)
Rancheria, and Wiyot Tribe shall be contacted to evaluate the discovery and, in consultation with the applicant and lead agency, develop a treatment plan in any instance where significant impacts cannot be avoided. Prehistoric materials may include obsidian or chert flakes, tools, locally darkened midden soils, groundstone artifacts, shellfish or faunal remains, and human burials.			
MM CR-2: Inadvertent Discovery of Human Remains If human remains are discovered during Project construction, work will stop at the discovery location, within 66 feet, and any nearby area reasonably suspected to overlie adjacent to human remains (PRC, Section 7050.5). The Humboldt County Coroner will be contacted to determine if the cause of death must be investigated. If the Coroner determines that the remains are of Native American origin, it is necessary to comply with State laws relating to the disposition of Native American burials, which fall within the jurisdiction of the Native American Heritage Commission (NAHC, PRC, Section 5097). The Coroner will contact the NAHC. The descendants or most likely descendants of the deceased will be contacted, and work will not resume until they have made a recommendation to the landowner or the person responsible for the excavation work for means of treatment and disposition, with appropriate dignity, of the human remains and any associated grave goods, as provided in PRC, Section 5097.98.	Manila CSD and Manila CSD's archaeologist and contractor	Performance criteria – County, state, and federal standards Reporting actions – Verify inclusion of language in final plans and specifications Schedule – During construction; verify completion of protection measures and notifications if inadvertent discovery	
Geology and Soils			
MM GEO-1: Inadvertent Discovery of Paleontological Resources In the event that fossils are encountered during construction (i.e., bones, teeth, or unusually abundant and well-preserved invertebrates or plants), construction activities shall be diverted away from the discovery within 50 feet of the find, and a professional paleontologist shall be notified to document the discovery as needed, to evaluate the potential resource, and to assess the nature and importance of the find. Based on the scientific value or uniqueness of the find, the paleontologist may record the find and allow work to continue, or recommend salvage and recovery of the material, if it is determined that the find cannot be avoided. The paleontologist shall make recommendations for any necessary treatment that is consistent with currently accepted scientific practices. Any fossils collected from the area shall then be deposited in an accredited and permanent scientific institution where they will be properly curated and preserved.	Manila CSD and Manila CSD's contractor	Performance criteria – County, state, and federal standards Reporting actions – Verify inclusion of language in final plans and specifications Schedule – During construction; verify completion of protection measures and notifications if inadvertent discovery	

Environmental Protections Actions (EPA) and Mitigation Measures (MM)	Monitoring Responsibility	Monitoring/Reporting Action & Schedule	Verification (Initials/Date)
Hazards and Hazardous Materials			
MM HAZ-1: Implement Corridor Study Report Recommendations All recommendations resulting from the Corridor Study Report shall be implemented by the Manila CSD prior to, during, and following construction, as appropriate. – If Soluble Threshold Limit Concentration (STLC) analysis exceeds regulatory levels, Soil and Groundwater Management Plan (SGMP) shall be prepared which identifies soil and groundwater handling options and protocols during construction. The SGMP will identify protocols to proactively manage potentially impacted soil and groundwater within the Project Area and reduce worker exposure. – If the Corridor Study Report indicates constituent of concern impacts above STLC levels to soil and/or groundwater, then construction workers involved in excavation activities will be Hazardous Waste Operations and Emergency Response (HAZWOPER) trained (Occupational Safety and Health Administration [OSHA] 1910.120)	Manila CSD and Manila CSD's contractor	Performance criteria – County and state standards Reporting actions – Verify requirements are in final specifications; verify completion of SAP; verify completion of SGMP and SESTP, if applicable Schedule – Pre- and during construction; verify requirements are implemented; check jobsite compliance as necessary	

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