

12th Street Interchange Modernization Project

**Public Circulation Initial Study & Proposed
Mitigated Negative Declaration**

City of Fortuna

February 13, 2025



12th Street Interchange Modernization Project

Prepared for:



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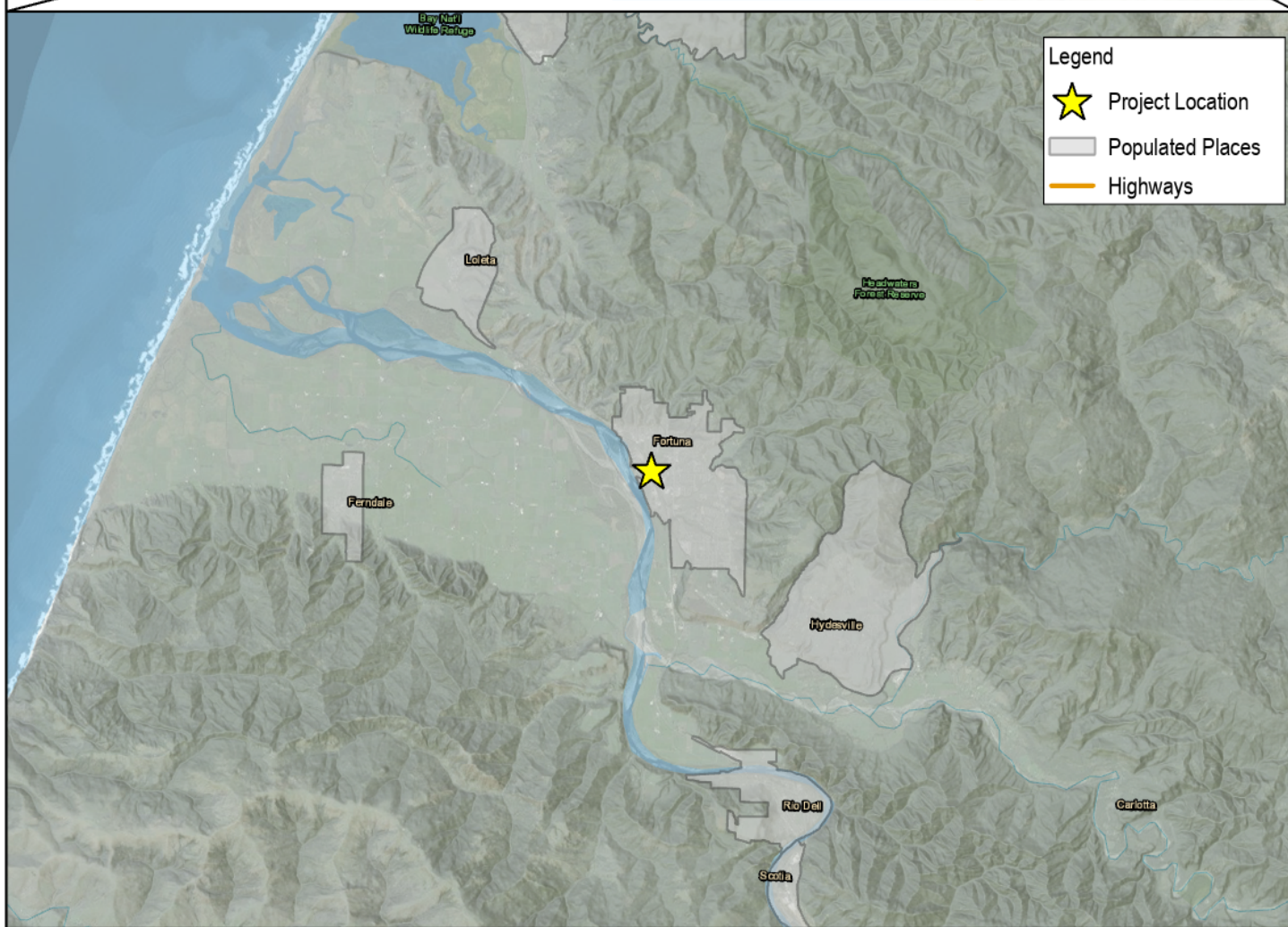
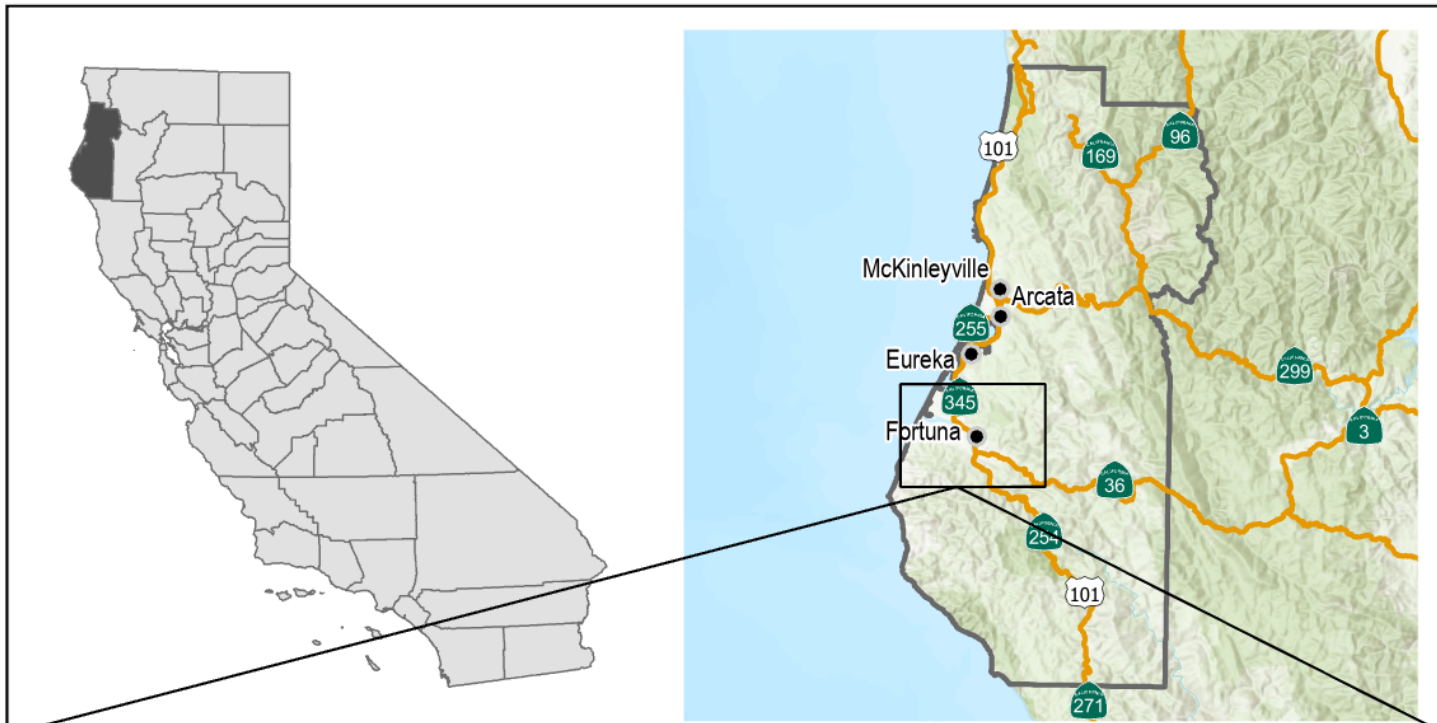
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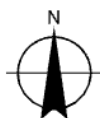
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Figure 2	Project Overview
Figure 3	Soils Map



Legend

- ★ Project Location
- Populated Places
- Highways

Paper Size ANSI A
 0 1 2 3
 Miles
 Map Projection: Mercator Auxiliary Sphere
 Horizontal Datum: WGS 1984
 Grid: WGS 1984 Web Mercator Auxiliary Sphere

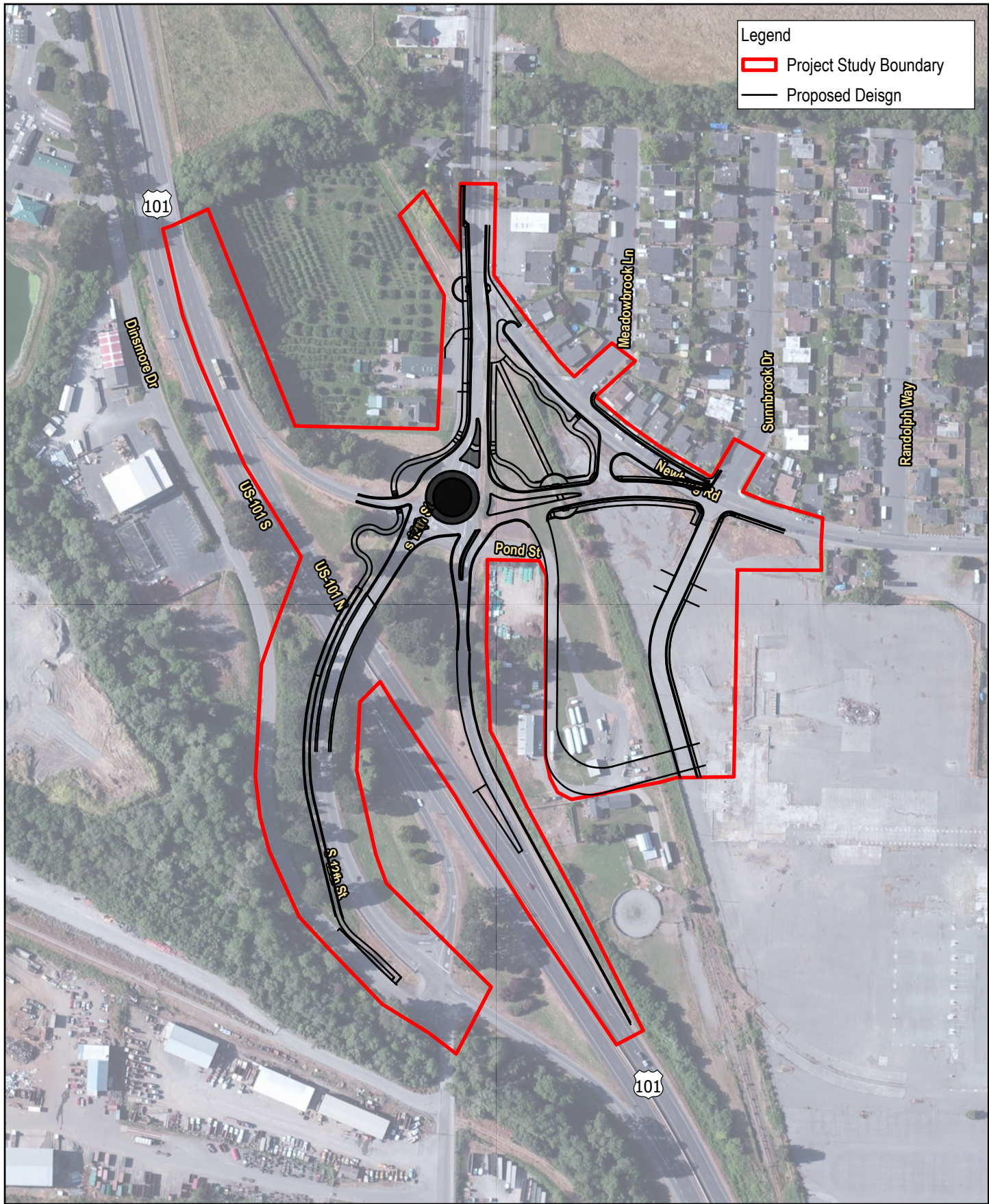


City of Fortuna
 US 101 & 12th St.
 Interchange

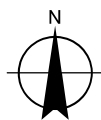
Project No. 12577017
 Revision No. -
 Date Apr 2024

Vicinity Map

FIGURE 1



Paper Size ANSI A
0 60 120 180 240 300
Feet



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

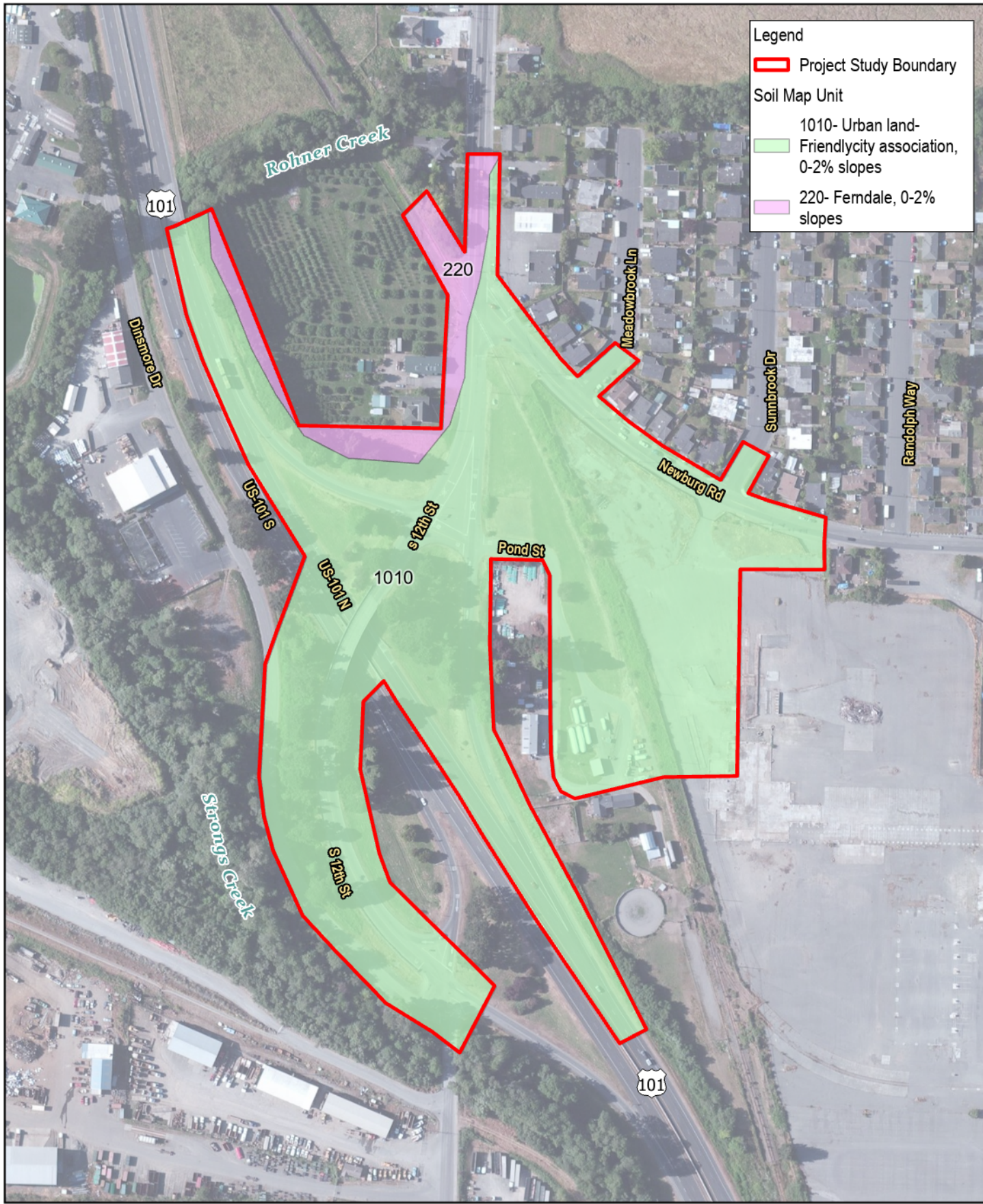


City of Fortuna
US 101 & 12th St.
Interchange

Project No. 12577017
Revision No. -
Date Jan 2025

Project Overview

FIGURE 2

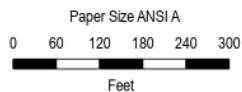


Legend

Project Study Boundary

Soil Map Unit

- 1010- Urban land-
- Friendlycity association, 0-2% slopes
- 220- Ferndale, 0-2% slopes



City of Fortuna
US 101 & 12th St.
Interchange

Project No. 12577017
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Map Projection: Lambert Conformal Conic
Horizontal Datum: North American 1983
Grid: NAD 1983 StatePlane California I FIPS 0401 Feet

NRCS Soils

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1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	12th Street Interchange Modernization Project
Construction Start Date	3/15/2026
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	2.90
Precipitation (days)	52.6
Location	40.58889871621082, -124.15459158866543
County	Humboldt
City	Fortuna
Air District	North Coast Unified APCD
Air Basin	North Coast
TAZ	115
EDFZ	2
Electric Utility	Pacific Gas & Electric Company
Gas Utility	Pacific Gas & Electric
App Version	2022.1.1.29

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description
Bridge/Overpass Construction	0.03	Mile	0.30	0.00	—	—	—	—
Road Widening	0.50	Mile	22.0	0.00	—	—	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

Sector	#	Measure Title
Construction	C-2*	Limit Heavy-Duty Diesel Vehicle Idling
Construction	C-9	Use Dust Suppressants
Construction	C-10-A	Water Exposed Surfaces
Construction	C-11	Limit Vehicle Speeds on Unpaved Roads
Construction	C-12	Sweep Paved Roads

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

2. Emissions Summary

2.1. Construction Emissions Compared Against Thresholds

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

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	11.8	9.96	81.0	98.4	0.20	3.54	10.7	14.2	3.25	1.24	4.49	—	21,806	21,806	0.90	0.21	2.95	21,893
Mit.	11.8	9.96	81.0	98.4	0.20	3.54	4.56	8.10	3.25	0.57	3.83	—	21,806	21,806	0.90	0.21	2.95	21,893
% Reduced	—	—	—	—	—	—	57%	43%	—	54%	15%	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	11.8	9.97	81.0	98.8	0.20	3.54	10.7	14.2	3.25	1.24	4.49	—	21,805	21,805	0.91	0.21	0.08	21,889
Mit.	11.8	9.97	81.0	98.8	0.20	3.54	4.56	8.10	3.25	0.57	3.83	—	21,805	21,805	0.91	0.21	0.08	21,889
% Reduced	—	—	—	—	—	—	57%	43%	—	54%	15%	—	—	—	—	—	—	—
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Unmit.	0.82	0.69	5.66	6.89	0.01	0.24	0.73	0.97	0.22	0.08	0.31	—	1,524	1,524	0.06	0.01	0.09	1,530
Mit.	0.82	0.69	5.66	6.89	0.01	0.24	0.31	0.55	0.22	0.04	0.26	—	1,524	1,524	0.06	0.01	0.09	1,530
% Reduced	—	—	—	—	—	—	57%	43%	—	53%	15%	—	—	—	—	—	—	—
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.15	0.13	1.03	1.26	< 0.005	0.04	0.13	0.18	0.04	0.02	0.06	—	252	252	0.01	< 0.005	0.02	253
Mit.	0.15	0.13	1.03	1.26	< 0.005	0.04	0.06	0.10	0.04	0.01	0.05	—	252	252	0.01	< 0.005	0.02	253
% Reduced	—	—	—	—	—	—	57%	43%	—	53%	15%	—	—	—	—	—	—	—

2.2. Construction Emissions by Year, Unmitigated

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

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2026	11.8	9.96	81.0	98.4	0.20	3.54	10.7	14.2	3.25	1.24	4.49	—	21,806	21,806	0.90	0.21	2.95	21,893
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2026	11.8	9.97	81.0	98.8	0.20	3.54	10.7	14.2	3.25	1.24	4.49	—	21,805	21,805	0.91	0.21	0.08	21,889
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2026	0.82	0.69	5.66	6.89	0.01	0.24	0.73	0.97	0.22	0.08	0.31	—	1,524	1,524	0.06	0.01	0.09	1,530
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2026	0.15	0.13	1.03	1.26	< 0.005	0.04	0.13	0.18	0.04	0.02	0.06	—	252	252	0.01	< 0.005	0.02	253

2.3. Construction Emissions by Year, Mitigated

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

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
------	-----	-----	-----	----	-----	-------	-------	-------	--------	--------	--------	------	-------	------	-----	-----	---	------

Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2026	11.8	9.96	81.0	98.4	0.20	3.54	4.56	8.10	3.25	0.57	3.83	—	21,806	21,806	0.90	0.21	2.95	21,893
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2026	11.8	9.97	81.0	98.8	0.20	3.54	4.56	8.10	3.25	0.57	3.83	—	21,805	21,805	0.91	0.21	0.08	21,889
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2026	0.82	0.69	5.66	6.89	0.01	0.24	0.31	0.55	0.22	0.04	0.26	—	1,524	1,524	0.06	0.01	0.09	1,530
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2026	0.15	0.13	1.03	1.26	< 0.005	0.04	0.06	0.10	0.04	0.01	0.05	—	252	252	0.01	< 0.005	0.02	253

3. Construction Emissions Details

3.1. Linear, Grubbing & Land Clearing (2026) - Unmitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.10	0.93	8.08	8.99	0.01	0.43	—	0.43	0.39	—	0.39	—	1,264	1,264	0.05	0.01	—	1,268
Dust From Material Movement	—	—	—	—	—	—	1.06	1.06	—	0.11	0.11	—	—	—	—	—	—	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.09	0.10	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	13.9	13.9	< 0.005	< 0.005	—	13.9
Dust From Material Movement	—	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	2.29	2.29	< 0.005	< 0.005	—	2.30
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.11	0.09	0.09	0.87	0.00	0.00	0.12	0.12	0.00	0.03	0.03	—	121	121	0.01	0.01	0.01	123
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.33	1.33	< 0.005	< 0.005	< 0.005	1.35
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.22	0.22	< 0.005	< 0.005	< 0.005	0.22
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.2. Linear, Grubbing & Land Clearing (2026) - Mitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.10	0.93	8.08	8.99	0.01	0.43	—	0.43	0.39	—	0.39	—	1,264	1,264	0.05	0.01	—	1,268
Dust From Material Movement	—	—	—	—	—	—	0.41	0.41	—	0.04	0.04	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road	0.01	0.01	0.09	0.10	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	13.9	13.9	< 0.005	< 0.005	—	13.9
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	2.29	2.29	< 0.005	< 0.005	—	2.30
Dust From Material Movement	—	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.11	0.09	0.09	0.87	0.00	0.00	0.12	0.12	0.00	0.03	0.03	—	121	121	0.01	0.01	0.01	123
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.33	1.33	< 0.005	< 0.005	< 0.005	1.35
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.22	0.22	< 0.005	< 0.005	< 0.005	0.22
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.3. Linear, Grading & Excavation (2026) - Unmitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	11.3	9.47	80.5	94.1	0.20	3.54	—	3.54	3.25	—	3.25	—	21,119	21,119	0.86	0.17	—	21,191
Dust From Material Movement	—	—	—	—	—	—	10.1	10.1	—	1.09	1.09	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	11.3	9.47	80.5	94.1	0.20	3.54	—	3.54	3.25	—	3.25	—	21,119	21,119	0.86	0.17	—	21,191
Dust From Material Movement	—	—	—	—	—	—	10.1	10.1	—	1.09	1.09	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.52	0.44	3.75	4.38	0.01	0.16	—	0.16	0.15	—	0.15	—	984	984	0.04	0.01	—	987
Dust From Material Movement	—	—	—	—	—	—	0.47	0.47	—	0.05	0.05	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.10	0.08	0.68	0.80	< 0.005	0.03	—	0.03	0.03	—	0.03	—	163	163	0.01	< 0.005	—	163
Dust From Material Movement	—	—	—	—	—	—	0.09	0.09	—	0.01	0.01	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.54	0.49	0.40	4.24	0.00	0.00	0.62	0.62	0.00	0.15	0.15	—	640	640	0.04	0.03	2.83	652
Vendor	< 0.005	< 0.005	0.07	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	46.0	46.0	< 0.005	0.01	0.12	48.1
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.56	0.50	0.48	4.62	0.00	0.00	0.62	0.62	0.00	0.15	0.15	—	639	639	0.05	0.03	0.07	649
Vendor	< 0.005	< 0.005	0.07	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	46.0	46.0	< 0.005	0.01	< 0.005	48.0

Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.02	0.02	0.21	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	29.9	29.9	< 0.005	< 0.005	0.06	30.3
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	2.14	2.14	< 0.005	< 0.005	< 0.005	2.24
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.04	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	4.94	4.94	< 0.005	< 0.005	0.01	5.02
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.35	0.35	< 0.005	< 0.005	< 0.005	0.37
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.4. Linear, Grading & Excavation (2026) - Mitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	11.3	9.47	80.5	94.1	0.20	3.54	—	3.54	3.25	—	3.25	—	21,119	21,119	0.86	0.17	—	21,191
Dust From Material Movement	—	—	—	—	—	—	3.93	3.93	—	0.42	0.42	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipm	11.3	9.47	80.5	94.1	0.20	3.54	—	3.54	3.25	—	3.25	—	21,119	21,119	0.86	0.17	—	21,191
Dust From Material Movement	—	—	—	—	—	—	3.93	3.93	—	0.42	0.42	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.52	0.44	3.75	4.38	0.01	0.16	—	0.16	0.15	—	0.15	—	984	984	0.04	0.01	—	987
Dust From Material Movement	—	—	—	—	—	—	0.18	0.18	—	0.02	0.02	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.10	0.08	0.68	0.80	< 0.005	0.03	—	0.03	0.03	—	0.03	—	163	163	0.01	< 0.005	—	163
Dust From Material Movement	—	—	—	—	—	—	0.03	0.03	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.54	0.49	0.40	4.24	0.00	0.00	0.62	0.62	0.00	0.15	0.15	—	640	640	0.04	0.03	2.83	652

Vendor	< 0.005	< 0.005	0.07	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	46.0	46.0	< 0.005	0.01	0.12	48.1
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.56	0.50	0.48	4.62	0.00	0.00	0.62	0.62	0.00	0.15	0.15	—	639	639	0.05	0.03	0.07	649
Vendor	< 0.005	< 0.005	0.07	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	46.0	46.0	< 0.005	0.01	< 0.005	48.0
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.02	0.02	0.21	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	29.9	29.9	< 0.005	< 0.005	0.06	30.3
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	2.14	2.14	< 0.005	< 0.005	< 0.005	2.24
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.04	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	4.94	4.94	< 0.005	< 0.005	0.01	5.02
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.35	0.35	< 0.005	< 0.005	< 0.005	0.37
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.5. Linear, Drainage, Utilities, & Sub-Grade (2026) - Unmitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	7.06	5.92	52.3	57.7	0.13	2.08	—	2.08	1.91	—	1.91	—	14,137	14,137	0.57	0.11	—	14,186

Dust From Material Movement	—	—	—	—	—	—	6.89	6.89	—	0.74	0.74	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.21	0.18	1.58	1.74	< 0.005	0.06	—	0.06	0.06	—	0.06	—	426	426	0.02	< 0.005	—	428
Dust From Material Movement	—	—	—	—	—	—	0.21	0.21	—	0.02	0.02	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.04	0.03	0.29	0.32	< 0.005	0.01	—	0.01	0.01	—	0.01	—	70.5	70.5	< 0.005	< 0.005	—	70.8
Dust From Material Movement	—	—	—	—	—	—	0.04	0.04	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.35	0.32	0.26	2.75	0.00	0.00	0.40	0.40	0.00	0.09	0.09	—	415	415	0.03	0.02	1.84	423

Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.09	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	12.5	12.5	< 0.005	< 0.005	0.02	12.7
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.02	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	2.07	2.07	< 0.005	< 0.005	< 0.005	2.11
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.6. Linear, Drainage, Utilities, & Sub-Grade (2026) - Mitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	7.06	5.92	52.3	57.7	0.13	2.08	—	2.08	1.91	—	1.91	—	14,137	14,137	0.57	0.11	—	14,186
Dust From Material Movement	—	—	—	—	—	—	2.69	2.69	—	0.29	0.29	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.21	0.18	1.58	1.74	< 0.005	0.06	—	0.06	0.06	—	0.06	—	426	426	0.02	< 0.005	—	428
Dust From Material Movement	—	—	—	—	—	—	0.08	0.08	—	0.01	0.01	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.04	0.03	0.29	0.32	< 0.005	0.01	—	0.01	0.01	—	0.01	—	70.5	70.5	< 0.005	< 0.005	—	70.8
Dust From Material Movement	—	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.35	0.32	0.26	2.75	0.00	0.00	0.40	0.40	0.00	0.09	0.09	—	415	415	0.03	0.02	1.84	423
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.09	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	12.5	12.5	< 0.005	< 0.005	0.02	12.7
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.02	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	2.07	2.07	< 0.005	< 0.005	< 0.005	2.11
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.7. Linear, Paving (2026) - Unmitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.66	1.40	13.2	20.5	0.03	0.53	—	0.53	0.49	—	0.49	—	3,104	3,104	0.13	0.03	—	3,115
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.03	0.02	0.22	0.34	< 0.005	0.01	—	0.01	0.01	—	0.01	—	51.0	51.0	< 0.005	< 0.005	—	51.2

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.04	0.06	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	8.45	8.45	< 0.005	< 0.005	—	8.48
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.19	0.17	0.14	1.49	0.00	0.00	0.22	0.22	0.00	0.05	0.05	—	225	225	0.02	0.01	1.00	229
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.03	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	3.70	3.70	< 0.005	< 0.005	0.01	3.76
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.61	0.61	< 0.005	< 0.005	< 0.005	0.62
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.8. Linear, Paving (2026) - Mitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
----------	-----	-----	-----	----	-----	-------	-------	-------	--------	--------	--------	------	-------	------	-----	-----	---	------

Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.66	1.40	13.2	20.5	0.03	0.53	—	0.53	0.49	—	0.49	—	3,104	3,104	0.13	0.03	—	3,115
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.03	0.02	0.22	0.34	< 0.005	0.01	—	0.01	0.01	—	0.01	—	51.0	51.0	< 0.005	< 0.005	—	51.2
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.04	0.06	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	8.45	8.45	< 0.005	< 0.005	—	8.48
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.19	0.17	0.14	1.49	0.00	0.00	0.22	0.22	0.00	0.05	0.05	—	225	225	0.02	0.01	1.00	229
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.03	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	3.70	3.70	< 0.005	< 0.005	0.01	3.76
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.61	0.61	< 0.005	< 0.005	< 0.005	0.62
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

4. Operations Emissions Details

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

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

Vegetation	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

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

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

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

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

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.4. Soil Carbon Accumulation By Vegetation Type - Mitigated

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

Vegetation	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

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

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

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.6. Avoided and Sequestered Emissions by Species - Mitigated

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

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

5. Activity Data

5.1. Construction Schedule

Phase Name	Phase Type	Start Date	End Date	Days Per Week	Work Days per Phase	Phase Description
Linear, Grubbing & Land Clearing	Linear, Grubbing & Land Clearing	3/15/2026	3/20/2026	5.00	4.00	—
Linear, Grading & Excavation	Linear, Grading & Excavation	3/21/2026	4/13/2026	5.00	17.0	—
Linear, Drainage, Utilities, & Sub-Grade	Linear, Drainage, Utilities, & Sub-Grade	4/14/2026	4/29/2026	5.00	11.0	—
Linear, Paving	Linear, Paving	4/30/2026	5/8/2026	5.00	6.00	—

5.2. Off-Road Equipment

5.2.1. Unmitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Linear, Grubbing & Land Clearing	Crawler Tractors	Diesel	Average	2.00	8.00	87.0	0.43
Linear, Grubbing & Land Clearing	Excavators	Diesel	Average	4.00	8.00	36.0	0.38
Linear, Grubbing & Land Clearing	Signal Boards	Electric	Average	1.00	8.00	6.00	0.82
Linear, Grading & Excavation	Cranes	Diesel	Average	1.00	8.00	367	0.29
Linear, Grading & Excavation	Crawler Tractors	Diesel	Average	3.00	8.00	87.0	0.43
Linear, Grading & Excavation	Excavators	Diesel	Average	7.00	8.00	36.0	0.38
Linear, Grading & Excavation	Graders	Diesel	Average	4.00	8.00	148	0.41
Linear, Grading & Excavation	Rollers	Diesel	Average	5.00	8.00	36.0	0.38
Linear, Grading & Excavation	Rubber Tired Loaders	Diesel	Average	4.00	8.00	150	0.36

Linear, Grading & Excavation	Scrapers	Diesel	Average	6.00	8.00	423	0.48
Linear, Grading & Excavation	Signal Boards	Electric	Average	1.00	8.00	6.00	0.82
Linear, Grading & Excavation	Tractors/Loaders/Back hoes	Diesel	Average	6.00	8.00	84.0	0.37
Linear, Drainage, Utilities, & Sub-Grade	Air Compressors	Diesel	Average	2.00	8.00	37.0	0.48
Linear, Drainage, Utilities, & Sub-Grade	Generator Sets	Diesel	Average	2.00	8.00	14.0	0.74
Linear, Drainage, Utilities, & Sub-Grade	Graders	Diesel	Average	3.00	8.00	148	0.41
Linear, Drainage, Utilities, & Sub-Grade	Plate Compactors	Diesel	Average	2.00	8.00	8.00	0.43
Linear, Drainage, Utilities, & Sub-Grade	Pumps	Diesel	Average	2.00	8.00	11.0	0.74
Linear, Drainage, Utilities, & Sub-Grade	Rough Terrain Forklifts	Diesel	Average	2.00	8.00	96.0	0.40
Linear, Drainage, Utilities, & Sub-Grade	Scrapers	Diesel	Average	5.00	8.00	423	0.48
Linear, Drainage, Utilities, & Sub-Grade	Signal Boards	Electric	Average	1.00	8.00	6.00	0.82
Linear, Drainage, Utilities, & Sub-Grade	Tractors/Loaders/Back hoes	Diesel	Average	5.00	8.00	84.0	0.37
Linear, Paving	Pavers	Diesel	Average	2.00	8.00	81.0	0.42
Linear, Paving	Paving Equipment	Diesel	Average	2.00	8.00	89.0	0.36
Linear, Paving	Rollers	Diesel	Average	3.00	8.00	36.0	0.38
Linear, Paving	Signal Boards	Electric	Average	1.00	8.00	6.00	0.82
Linear, Paving	Tractors/Loaders/Back hoes	Diesel	Average	5.00	8.00	84.0	0.37

5.2.2. Mitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
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Linear, Grubbing & Land Clearing	Crawler Tractors	Diesel	Average	2.00	8.00	87.0	0.43
Linear, Grubbing & Land Clearing	Excavators	Diesel	Average	4.00	8.00	36.0	0.38
Linear, Grubbing & Land Clearing	Signal Boards	Electric	Average	1.00	8.00	6.00	0.82
Linear, Grading & Excavation	Cranes	Diesel	Average	1.00	8.00	367	0.29
Linear, Grading & Excavation	Crawler Tractors	Diesel	Average	3.00	8.00	87.0	0.43
Linear, Grading & Excavation	Excavators	Diesel	Average	7.00	8.00	36.0	0.38
Linear, Grading & Excavation	Graders	Diesel	Average	4.00	8.00	148	0.41
Linear, Grading & Excavation	Rollers	Diesel	Average	5.00	8.00	36.0	0.38
Linear, Grading & Excavation	Rubber Tired Loaders	Diesel	Average	4.00	8.00	150	0.36
Linear, Grading & Excavation	Scrapers	Diesel	Average	6.00	8.00	423	0.48
Linear, Grading & Excavation	Signal Boards	Electric	Average	1.00	8.00	6.00	0.82
Linear, Grading & Excavation	Tractors/Loaders/Back hoes	Diesel	Average	6.00	8.00	84.0	0.37
Linear, Drainage, Utilities, & Sub-Grade	Air Compressors	Diesel	Average	2.00	8.00	37.0	0.48
Linear, Drainage, Utilities, & Sub-Grade	Generator Sets	Diesel	Average	2.00	8.00	14.0	0.74
Linear, Drainage, Utilities, & Sub-Grade	Graders	Diesel	Average	3.00	8.00	148	0.41
Linear, Drainage, Utilities, & Sub-Grade	Plate Compactors	Diesel	Average	2.00	8.00	8.00	0.43
Linear, Drainage, Utilities, & Sub-Grade	Pumps	Diesel	Average	2.00	8.00	11.0	0.74

Linear, Drainage, Utilities, & Sub-Grade	Rough Terrain Forklifts	Diesel	Average	2.00	8.00	96.0	0.40
Linear, Drainage, Utilities, & Sub-Grade	Scrapers	Diesel	Average	5.00	8.00	423	0.48
Linear, Drainage, Utilities, & Sub-Grade	Signal Boards	Electric	Average	1.00	8.00	6.00	0.82
Linear, Drainage, Utilities, & Sub-Grade	Tractors/Loaders/Back hoes	Diesel	Average	5.00	8.00	84.0	0.37
Linear, Paving	Pavers	Diesel	Average	2.00	8.00	81.0	0.42
Linear, Paving	Paving Equipment	Diesel	Average	2.00	8.00	89.0	0.36
Linear, Paving	Rollers	Diesel	Average	3.00	8.00	36.0	0.38
Linear, Paving	Signal Boards	Electric	Average	1.00	8.00	6.00	0.82
Linear, Paving	Tractors/Loaders/Back hoes	Diesel	Average	5.00	8.00	84.0	0.37

5.3. Construction Vehicles

5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Linear, Grubbing & Land Clearing	—	—	—	—
Linear, Grubbing & Land Clearing	Worker	17.5	9.53	LDA,LDT1,LDT2
Linear, Grubbing & Land Clearing	Vendor	0.00	7.16	HHDT,MHDT
Linear, Grubbing & Land Clearing	Hauling	0.00	20.0	HHDT
Linear, Grubbing & Land Clearing	Onsite truck	—	—	HHDT
Linear, Grading & Excavation	—	—	—	—
Linear, Grading & Excavation	Worker	92.5	9.53	LDA,LDT1,LDT2
Linear, Grading & Excavation	Vendor	2.00	7.16	HHDT,MHDT
Linear, Grading & Excavation	Hauling	0.00	20.0	HHDT
Linear, Grading & Excavation	Onsite truck	—	—	HHDT

Linear, Drainage, Utilities, & Sub-Grade	—	—	—	—
Linear, Drainage, Utilities, & Sub-Grade	Worker	60.0	9.53	LDA,LDT1,LDT2
Linear, Drainage, Utilities, & Sub-Grade	Vendor	0.00	7.16	HHDT,MHDT
Linear, Drainage, Utilities, & Sub-Grade	Hauling	0.00	20.0	HHDT
Linear, Drainage, Utilities, & Sub-Grade	Onsite truck	—	—	HHDT
Linear, Paving	—	—	—	—
Linear, Paving	Worker	32.5	9.53	LDA,LDT1,LDT2
Linear, Paving	Vendor	0.00	7.16	HHDT,MHDT
Linear, Paving	Hauling	0.00	20.0	HHDT
Linear, Paving	Onsite truck	—	—	HHDT

5.3.2. Mitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Linear, Grubbing & Land Clearing	—	—	—	—
Linear, Grubbing & Land Clearing	Worker	17.5	9.53	LDA,LDT1,LDT2
Linear, Grubbing & Land Clearing	Vendor	0.00	7.16	HHDT,MHDT
Linear, Grubbing & Land Clearing	Hauling	0.00	20.0	HHDT
Linear, Grubbing & Land Clearing	Onsite truck	—	—	HHDT
Linear, Grading & Excavation	—	—	—	—
Linear, Grading & Excavation	Worker	92.5	9.53	LDA,LDT1,LDT2
Linear, Grading & Excavation	Vendor	2.00	7.16	HHDT,MHDT
Linear, Grading & Excavation	Hauling	0.00	20.0	HHDT
Linear, Grading & Excavation	Onsite truck	—	—	HHDT
Linear, Drainage, Utilities, & Sub-Grade	—	—	—	—

Linear, Drainage, Utilities, & Sub-Grade	Worker	60.0	9.53	LDA,LDT1,LDT2
Linear, Drainage, Utilities, & Sub-Grade	Vendor	0.00	7.16	HHDT,MHDT
Linear, Drainage, Utilities, & Sub-Grade	Hauling	0.00	20.0	HHDT
Linear, Drainage, Utilities, & Sub-Grade	Onsite truck	—	—	HHDT
Linear, Paving	—	—	—	—
Linear, Paving	Worker	32.5	9.53	LDA,LDT1,LDT2
Linear, Paving	Vendor	0.00	7.16	HHDT,MHDT
Linear, Paving	Hauling	0.00	20.0	HHDT
Linear, Paving	Onsite truck	—	—	HHDT

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

Non-applicable. No control strategies activated by user.

5.5. Architectural Coatings

Phase Name	Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
------------	--	--	--	--	-----------------------------

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

Phase Name	Material Imported (cy)	Material Exported (cy)	Acres Graded (acres)	Material Demolished (sq. ft.)	Acres Paved (acres)
Linear, Grubbing & Land Clearing	—	—	22.3	0.00	—
Linear, Grading & Excavation	—	—	22.3	0.00	—

Linear, Drainage, Utilities, & Sub-Grade	—	—	22.3	0.00	—
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5.6.2. Construction Earthmoving Control Strategies

Non-applicable. No control strategies activated by user.

5.7. Construction Paving

Land Use	Area Paved (acres)	% Asphalt
Bridge/Overpass Construction	0.30	100%
Road Widening	22.0	100%

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2026	117	204	0.03	< 0.005

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres
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5.18.1.2. Mitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres
--------------------------	----------------------	---------------	-------------

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres
--------------------	---------------	-------------

5.18.1.2. Mitigated

Biomass Cover Type	Initial Acres	Final Acres
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5.18.2. Sequestration

5.18.2.1. Unmitigated

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

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

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

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

Climate Hazard	Result for Project Location	Unit
Temperature and Extreme Heat	16.9	annual days of extreme heat
Extreme Precipitation	17.2	annual days with precipitation above 20 mm
Sea Level Rise	—	meters of inundation depth
Wildfire	14.9	annual hectares burned

Temperature and Extreme Heat data are for grid cell in which your project are located. The projection is based on the 98th historical percentile of daily maximum/minimum temperatures from observed historical data (32 climate model ensemble from Cal-Adapt, 2040–2059 average under RCP 8.5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi. Extreme Precipitation data are for the grid cell in which your project are located. The threshold of 20 mm is equivalent to about ¾ an inch of rain, which would be light to moderate rainfall if received over a full day or heavy rain if received over a period of 2 to 4 hours. Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

Sea Level Rise data are for the grid cell in which your project are located. The projections are from Radke et al. (2017), as reported in Cal-Adapt (Radke et al., 2017, CEC-500-2017-008), and consider inundation location and depth for the San Francisco Bay, the Sacramento-San Joaquin River Delta and California coast resulting different increments of sea level rise coupled with extreme storm events. Users may select from four scenarios to view the range in potential inundation depth for the grid cell. The four scenarios are: No rise, 0.5 meter, 1.0 meter, 1.41 meters. Wildfire data are for the grid cell in which your project are located. The projections are from UC Davis, as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider historical data of climate, vegetation, population density, and large (> 400 ha) fire history. Users may select from four model simulations to view the range in potential wildfire probabilities for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

6.2. Initial Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	N/A	N/A	N/A	N/A
Extreme Precipitation	2	2	4	1
Sea Level Rise	N/A	N/A	N/A	N/A
Wildfire	1	2	2	2
Flooding	5	2	4	2
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	N/A	N/A	N/A	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.

The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.

The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores do not include implementation of climate risk reduction measures.

6.3. Adjusted Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	N/A	N/A	N/A	N/A
Extreme Precipitation	2	2	4	1
Sea Level Rise	N/A	N/A	N/A	N/A
Wildfire	1	2	2	2
Flooding	5	2	4	2
Drought	N/A	N/A	N/A	N/A

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

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.

The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.

The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores include implementation of climate risk reduction measures.

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

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

Indicator	Result for Project Census Tract
Exposure Indicators	—
AQ-Ozone	3.91
AQ-PM	3.91
AQ-DPM	8.10
Drinking Water	25.9
Lead Risk Housing	71.7
Pesticides	35.8
Toxic Releases	12.6
Traffic	16.8
Effect Indicators	—
CleanUp Sites	0.00
Groundwater	86.6
Haz Waste Facilities/Generators	37.7
Impaired Water Bodies	66.7
Solid Waste	98.1

Sensitive Population	—
Asthma	88.5
Cardio-vascular	95.2
Low Birth Weights	19.0
Socioeconomic Factor Indicators	—
Education	31.7
Housing	28.7
Linguistic	18.9
Poverty	82.4
Unemployment	66.6

7.2. Healthy Places Index Scores

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

Indicator	Result for Project Census Tract
Economic	—
Above Poverty	40.03592968
Employed	9.713845759
Median HI	28.37161555
Education	—
Bachelor's or higher	44.23200308
High school enrollment	100
Preschool enrollment	45.01475683
Transportation	—
Auto Access	51.48209932
Active commuting	66.18760426
Social	—
2-parent households	66.34158861
Voting	53.86885667

Neighborhood	—
Alcohol availability	45.90016682
Park access	22.3662261
Retail density	9.033748236
Supermarket access	47.33735404
Tree canopy	95.52162197
Housing	—
Homeownership	54.3308097
Housing habitability	47.49133838
Low-inc homeowner severe housing cost burden	15.82189144
Low-inc renter severe housing cost burden	66.44424484
Uncrowded housing	41.84524573
Health Outcomes	—
Insured adults	26.49813936
Arthritis	0.0
Asthma ER Admissions	7.1
High Blood Pressure	0.0
Cancer (excluding skin)	0.0
Asthma	0.0
Coronary Heart Disease	0.0
Chronic Obstructive Pulmonary Disease	0.0
Diagnosed Diabetes	0.0
Life Expectancy at Birth	14.1
Cognitively Disabled	16.7
Physically Disabled	9.6
Heart Attack ER Admissions	11.4
Mental Health Not Good	0.0
Chronic Kidney Disease	0.0

Obesity	0.0
Pedestrian Injuries	50.2
Physical Health Not Good	0.0
Stroke	0.0
Health Risk Behaviors	—
Binge Drinking	0.0
Current Smoker	0.0
No Leisure Time for Physical Activity	0.0
Climate Change Exposures	—
Wildfire Risk	0.0
SLR Inundation Area	53.6
Children	55.0
Elderly	38.0
English Speaking	74.0
Foreign-born	7.1
Outdoor Workers	14.7
Climate Change Adaptive Capacity	—
Impervious Surface Cover	85.5
Traffic Density	9.1
Traffic Access	0.0
Other Indices	—
Hardship	60.3
Other Decision Support	—
2016 Voting	48.8

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	48.0

Healthy Places Index Score for Project Location (b)	42.0
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	No
Project Located in a Low-Income Community (Assembly Bill 1550)	Yes
Project Located in a Community Air Protection Program Community (Assembly Bill 617)	No

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

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

7.4. Health & Equity Measures

No Health & Equity Measures selected.

7.5. Evaluation Scorecard

Health & Equity Evaluation Scorecard not completed.

7.6. Health & Equity Custom Measures

No Health & Equity Custom Measures created.

8. User Changes to Default Data

Appendix C

Botanical Survey Report



Botanical Survey Report

12th Street Interchange Modernization Project

City of Fortuna

July 10, 2023



Botanical Survey Report City of Fortuna 12th Street Interchange Modernization Project

This document has been prepared for:



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July 10, 2023

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Acronyms and Abbreviations

BSR	Botanical Survey Report
CDFG	California Department of Fish and Game
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CNDDDB	California Natural Diversity Database
CNPS	California Native Plant Society
CRPR	California Rare Plant Ranking
ECOS	Environmental Conservation Online System
ESA	Endangered Species Act
ESHA	Environmentally Sensitive Habitat Area
FGC	Fish and Game Code
FE	Federally Endangered
FR	Federal Register
FT	Federally Threatened
GHD	Gutteridge, Haskins, and Davey, Inc.
HCP	Habitat Conservation Plan
IPaC	Information for Planning and Conservation
NCCP	Natural Community Conservation Planning
NEPA	National Environmental Policy Act
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
NPPA	Native Plant Protection Act
PSB	Project Study Boundary
SC	State Candidate
SE	State Endangered
SNC	Sensitive Natural Community
SR	State Rare
ST	State Threatened
USACE	United States Army Corps of Engineers
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
VegCAMP	Vegetation Classification and Mapping Program

1. Introduction

The purpose of this Botanical Survey Report (BSR) is to identify sensitive botanical resources, including sensitive plant species and habitats, that may occur in the footprint of the City of Fortuna 12th Street Interchange Modernization Project (hereafter Project, described below). Sensitive Natural Communities (SNCs), species listed as endangered or threatened under the federal or state Endangered Species Act (ESA and California ESA respectively) or their designated critical habitat, as well as California special-status species and habitats, are the focus of this BSR. Common species without special protections are not considered in this BSR. The purpose of the BSR is to inform California Environmental Quality Act (CEQA) and National Environmental Policy Act (NEPA) analysis and future Project permit applications.

1.1 Project Summary

The City of Fortuna (City) is bisected by US 101, which parallels the Eel River, and separates the Eel River and the Riverwalk Area from the majority of the City. The existing intersection controls, roadway geometry, and the high volumes of local and regional traffic on 12th Street result in poor traffic operations in and around the interchange. Proposed Project components include a 5-leg roundabout on 12th Street at the northbound US 101 ramps, modifications to the northbound US 101 on- and off-ramps, the realignment of Newburg Road, and widening the highway overcrossing bridge or a new standalone structure to accommodate non-motorized vehicles.

The Project would simplify and improve navigation and traffic operations while reducing congestion and minimizing conflicts on 12th Street between Newburg Road and Riverwalk Drive, including the 12th Street/US 101 interchange; The Project would also create a gateway into central Fortuna that incorporates bicycle and pedestrian facilities, landscaping, and wayfinding.

1.2 Project Location

The Project is located in the City of Fortuna in Humboldt County, California, on the Fortuna USGS quadrangle (**Appendix A, Figure 1**). The Project is not within the Coastal Zone.

The Project Area spans both the north-bound and south-bound 12th Street-Highway 101 entrances and exits. The Project Area also includes approximately 870 feet of Newburg Road from the 12th Street intersection.

The Project Study Boundary (PSB) is considered the area of ground disturbance necessary to implement the Project and is approximately 18.6 acres (**Appendix A, Figure 2**). Only habitats and plant species within the PSB were evaluated.

2. Regulatory Background

The following is an overview of agencies that have potential oversight of the proposed Project related to biological resources. The regulatory setting is divided into sections on federal, state, and local jurisdiction.

2.1 Federal Jurisdiction

National Environmental Policy Act

The National Environmental Policy Act (NEPA) of 1969 requires federal agencies to prepare environmental documentation that discloses to decision-makers and the interested public a clear, accurate description of potential environmental effects resulting from proposed federal actions and reasonable alternatives to those actions. Through NEPA, the U.S. Congress directed federal agencies to integrate environmental factors in their planning and decision-making processes and encourage and facilitate public involvement in decisions that affect the quality of the human environment. Federal agencies are required to consider the environmental effects of a Proposed Action, alternatives to the Proposed Action, and a No Action alternative (assessing the potential environmental effects of not undertaking the Proposed Action).

Endangered Species Act

Section 9 of the federal ESA of 1973 prohibits acts of disturbance that result in the “take” of threatened or endangered species. As defined by the federal ESA, “endangered” refers to any species that is in danger of extinction throughout all or a significant portion of its current range. The term “threatened” is applied to any species likely to become endangered within the foreseeable future throughout all or a significant portion of its current range. Take is defined as “harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to engage in any such conduct.”

Critical habitat is defined by the ESA as a specific geographic area containing features essential for the conservation of an endangered or threatened species. Under Section 7 of the ESA, critical habitat should be evaluated if designated for federally listed species that may be present in the Project’s Action Area (federally designated term for a “Project Study Boundary”).

2.2 State Jurisdiction

California Environmental Quality Act (CEQA)

CEQA applies to certain activities of state and local public agencies. A public agency must comply with CEQA when it undertakes an activity defined by CEQA as a “project.” A project is an activity undertaken by a public agency or a private activity which must receive some discretionary approval. Under CEQA, a variety of technical studies including biological, cultural, traffic, and air quality studies as well as research and professional knowledge are considered to determine whether the project may have an “adverse effect” on the environment. Lead agencies are charged with evaluating the best available data when determining what specifically should be considered an “adverse effect” to the environment.

California Endangered Species Act

The CESA includes provisions for the protection and management of species listed by the State of California as endangered, threatened, or designated as candidates for such listing (California Fish and Game Code (FGC) Sections 2050 through 2085). The CESA generally parallels the main provisions of the ESA and is administered by the CDFW, who maintains a list of state threatened and endangered species as well as candidate species. The CESA prohibits the “take” of any species listed as threatened or endangered unless authorized by the CDFW in the form of an Incidental Take Permit. Under FGC, “take” is defined as to “hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill.”

Sensitive Natural Communities

Natural vegetation communities listed as Sensitive in the California Natural Diversity Database (CNDDDB) and on the SNC List (CDFW 2023b) are to be addressed within the CEQA review process. Vegetation communities are primarily classified according to A Manual of California Vegetation (Sawyer et al. 2009) as alliances and associations. Alliances are repeating patterns of plant assemblages across a landscape that can be further subdivided into associations. The mapping and classification of California vegetation communities is an ongoing process. Legacy SNCs classified by the older Holland classification system (Holland 1986) are mapped and listed in CNDDDB and may be used when a current alliance-level classification does not exist (CDFW 2023b).

In general, CDFW considers alliances with a NatureServe State Rank of S1 to S3 to be SNCs; however, associations, may be considered sensitive by CDFW even if State ranks have not yet been determined. Some alliances that are not considered sensitive may have sensitive associations within them. Associations considered sensitive by CDFW are indicated with a “Y” in the Sensitive column of the state Natural Communities List (CDFW 2023b).

The application of ranking for determination of SNCs is summarized as follows in **Table 1** (NatureServe 2023):

Table 1 NatureServe Conservation Status Ranks for Sensitive Natural Communities (SNCs)

Name	Calculated Status Rank	Status Description
Score ≤ 1.5	G1 (Global), S1 (State)	Critically Imperiled
1.5 ≤ Score ≤ 2.5	G2, S2	Imperiled
2.5 ≤ Score ≤ 3.5	G3, S3	Vulnerable
3.5 ≤ Score ≤ 4.5	G4, S4	Apparently Secure
Score > 4.5	G5, S5	Secure

California Fish and Game Code

Natural Community Conservation Planning Act

The Natural Community Conservation Act (Sections 2800-2835 of the FGC, as amended) is administered by the CDFW through their NCCP program. The program involves broad-based conservation planning for regions (multispecies and multihabitat coverage that serve as an alternative to project-by-project mitigation), while allowing for compatible economic activity and development. The Act’s conservation requirements are more stringent than existing state and federal requirements for mitigation, as it requires that plan preparers actively participate in the recovery of sensitive species and habitats (while conserving ecosystem function, biological diversity, and ecological integrity of habitats). NCCPs are developed in coordination with landowners, regulatory agencies (including the USFWS and National Marine Fisheries Service [NMFS], as appropriate), and environmental organizations. The purpose of NCCPs is to provide a clear framework for project proponents to avoid, minimize, and mitigate impacts to sensitive resources within the coverage area of the NCCP and allow for an adaptive management approach to conservation. NCCPs and HCPs are often combined into one planning document for particular geographic regions of California.

Natural Community Conservation Plans that Overlap the PSB

The PSB does not overlap any existing NCCPs (CDFW 2023a).

Native Plant Protection Act

The CDFW administers the Native Plant Protection Act (Sections 1900–1913 of the FGC). These sections allow the California Fish and Game Commission to designate endangered and rare plant species and to notify landowners of the presence of such species. Plant species on California Native Plant Society's (CNPS) California Rare Plant Ranking (CRPR) Lists 1 and 2 are considered eligible for state listing as Endangered or Threatened pursuant to the California FGC and CDFW has oversight of these special status plant species as a trustee agency. As part of the CEQA process, such species should be considered as they meet the definition of Threatened or Endangered under Sections 2062 and 2067 of the California FGC. CRPR List 3 and 4 plants may warrant protection under CEQA Guidelines 15380 only in special circumstances. CDFW publishes and periodically updates lists of special status species which include, for the most part, the above categories. Additionally, there are a total of 64 plant species designated as "rare" in California, which is a special designation created before plants were rolled into CESA in the 1980s. The CESA and the Native Plant Protection Act (NPPA) required a project to have a "Scientific, Educational, or Management Permit" from CDFW for activities that would result in "take," possession, import, or export of state-listed plant species including research, seed banking, reintroduction efforts, habitat restoration, and other activities relating to any plant designated SE (State endangered), ST (State threatened), SR (State rare), or SC (State candidate for listing).

2.3 Local Jurisdiction

The PSB is entirely in the jurisdiction of the City of Fortuna General Plan 2030, adopted 2010 (CoF 2010).

City of Fortuna General Plan 2030

NCR-2.6 Biological/Ecological Review.

When considering building permit applications, planning applications or development applications, the City shall undertake the three stage process outlined below:

- (1) Upon receipt of building permits applications, planning applications or development applications, City staff shall perform an initial screening to determine whether the application would have the potential to impact special status species as defined by CEQA Guidelines §15380. For ministerial projects, the initial screening shall be performed in the context of the application checklist. For discretionary projects, the initial screening shall be performed in the context of Initial Study preparation required under CEQA. For purposes of this screening, the application would have the potential to impact special status species if development or other activities would occur in ESHA areas, wetlands or riparian areas, forested areas, areas within 50 feet of any blue line stream as shown on USGS maps, or any undeveloped rural parcel of greater than one acre in size.
- (2) If the initial screening indicates the potential for impacts to special status species, the applicant shall have a records search performed in the California Natural Diversity Database (CNDDDB) and the City's ESHA inventory to determine whether any sensitive species have been documented on or within the vicinity of the subject parcel.
- (3) If the CNDDDB or ESHA inventory indicates that sensitive species have been documented on or within the vicinity of the subject parcel, or if the proposed activities would occur within wetland, riparian vegetation, or forested areas, within 50 feet of any blue line stream, or would disturb more than 10 acres, or at the discretion of City staff, a biological study shall be performed for the proposal by a qualified biological consultant, the application shall be referred to the appropriate responsible and trustee agencies (CDFG, USFWS, etc.), and any mitigation measures identified by the biologist and the

responsible and trustee agencies incorporated into the project. Mitigation may include, but may not be limited to restoration, off-site replacement for no net loss, or project design/operation modification.

NCR-2.7 Endangered Species.

The City, as lead agency, shall require that all projects comply with the requirements of the federal Endangered Species Act, California Endangered Species Act, Clean Water Act, CDFG code, and CEQA.

NCR-2.8 Native Vegetation.

The City shall coordinate with resource agencies to require the preservation of native vegetation, while managing areas with high concentrations of invasive species and/or noxious weeds and preventing their encroachment into new areas.

NCR-2.10 Wetland Identification and Protection.

In considering new development projects, the City shall conduct an initial screening, as described in Policy NCR-2.6 in order to determine whether the proposal would have the potential to impact wetlands. If the initial screening indicates the potential presence of wetlands, a wetland assessment/ delineation shall be prepared to determine the presence of jurisdictional wetlands. The assessment/delineation, with proposed mitigation, shall be submitted to the City, and appropriate state (CDFG) and federal (USACE) agencies for concurrence prior to permitting. Mitigation may include, but may not be limited to, avoidance, minimization of impacts, restoration, off-site replacement, and/or the use of buffers.

3. Environmental Baseline Conditions

3.1 Habitat Elements

The PSB is largely developed with landscaped and ruderal habitat around a US Highway 101 interchange (**Appendix A, Figure 2**). Approximately 12 large redwood (*Sequoia sempervirens*) and 20 large knobcone x monterey pine (*Pinus attenuata* x *P. radiata*) hybrid trees are present in and around the interchange that were likely planted at the time of freeway construction.

3.2 Topography and Soils

The PSB is predominantly low gradient at an elevation between approximately 45 to 50 feet in elevation above sea level. Soils include Urban land-Friendlcity association, 0 to 2 percent slopes (93.5% of the PSB), and Ferndale, 0 to 2 percent slopes (6.5% of the PSB), (GHD 2023, USDA 2023). All soils in the PSB are well drained or moderately well drained, and none are rated as hydric soils. The depth to the water table is generally between 20 and 60 inches (USDA 2023).

3.3 Hydrology

No aquatic resources are present in the PSB based on the wetland delineation conducted on January 27, 2023 (GHD 2023). There are no streams or previously mapped aquatic resources within the PSB. Average annual precipitation in the Project Area is 48 inches (NOAA RCC 2023). Rainfall for the 2023 water year at the Scotia, California weather station totaled 38.4 inches at the time of the May survey and 55.1 inches at the time of the June survey which was well above normal (28.0 inches in May and 47.0 inches in June) for the area (NOAA RCC 2023).

4. Methods

4.1 Preliminary Investigation

Database Searches (CNDDDB, CNPS, IPaC, Critical Habitat)

Database searches for sensitive plant species that may occur in the Project vicinity were conducted by GHD in January 2023 (**Appendix B**). Database searches included the CNDDDB Quick View (CDFW 2023c), CNPS Inventory of Rare and Endangered Vascular Plants (CNPS 2023), and the USFWS Information for Planning and Conservation (IPaC; USFWS 2023). The IPaC query was renewed in July 2023. The searches encompassed eight U.S. Geological Survey (USGS) quadrangles (quads) centered on the Project Area quad (Fortuna) and the surrounding eight quads: Cannibal Island, Fields Landing, McWhinney Creek, Ferndale, Hydesville, Capetown, Taylor Peak, and Scotia.

Plant species on the CNPS California Rare Plant Ranking (CRPR) Lists 1 and 2 are considered eligible for state listing as endangered or threatened pursuant to the California Fish and Game Code. The CDFW has oversight of these special status plant species as a trustee agency. As part of the CEQA process, such species should be considered as they meet the definition of threatened or endangered under Sections 2062 and 2067 of the California Fish and Game Code.

CRPR List 3 and 4 plants may warrant protection under CEQA Guidelines 15380 only in special circumstances. CDFW publishes and periodically updates lists of special status species which include, for the most part, the above categories. Additionally, there are a total of 64 plant species designated as “rare” in California, which is a special designation created before plants were rolled into CESA in the 1980s. The CESA and the NPPA required a project to have a “Scientific, Educational, or Management Permit” from CDFW for activities that would result in “take,” possession, import, or export of state-listed plant species including research, seed banking, reintroduction efforts, habitat restoration, and other activities relating to any plant designated SE (State Endangered), ST (State Threatened), SR (State Rare), or SC (State Candidate for listing).

Scoping for special status plant species included any state or federally listed plants as well as plant species on CNPS CRPR Lists 1-4.

4.2 Field Surveys

Special Status Plants and SNCs

All special status plant species identified by database scoping were evaluated by for potential to occur in the PSB (**Table 1**). GHD botanist Jane Cipra conducted two protocol level surveys May 9 and June 29, 2023, which is within the blooming season for all of the special status plant species with potential to occur in the Project Area. The survey followed CDFW (2018) and USFWS (2002) protocols and guidelines. Nomenclature follows The Jepson Manual (Baldwin et al. 2012).

Natural Communities and SNCs were identified using the Manual of California Vegetation, Second Edition (Sawyer et al. 2009). SNCs are vegetation Alliances or Associations with a state rarity rank of S1-S3 and/or are on the List of California SNCs (CDFW 2023b).

Habitats were photo-documented onsite (**Appendix C**). Vegetation was mapped using points 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.

5. Results

5.1 Summary of General Biological Resources

Based on occurrence records, field surveys, site visits, and habitat availability, seven special status plant species have a moderate potential, and 11 have a low potential to occur in the PSB. Due to the developed and disturbed nature of the PSB, no special status plants have a high potential to occur. No special status plant species were observed in either botanical survey of the PSB.

One SNC was observed in four locations in the PSB: Salal - berry brambles – California blackberry association (**Appendix A, Figure 3**). Recommendations to protect and/or minimize impacts to SNCs are provided in **Section 6**.

5.2 Special Status Plants

Special Status Plants and Sensitive Habitats

Table 1 summarizes the potential for special status plant species documented in the surrounding 9-quadrant area to occur within the PSB. No rare plants were observed in the surveys of the PSB.

Table 2 Potential for Special Status Plants to Occur in the PSB.

Scientific Name	Common Name	Status	Habitat Requirements ¹	Potential to Occur in the PSB
<i>Abronia umbellata</i> var. <i>breviflora</i>	Pink sand-verbena	1B.1	Coastal dunes	No potential. The PSB is outside of the elevational range for this species (0 - 35 feet).
<i>Angelica lucida</i>	Sea-watch	4.2	Coastal bluff scrub, Coastal dunes, Coastal scrub, Marshes and swamps (coastal salt)	No potential. No suitable habitat is present in the PSB.
<i>Anomobryum julaceum</i>	Slender silver moss	4.2	Broadleafed upland forest, Lower montane coniferous forest, North Coast coniferous forest, damp rock and soil on outcrops, usually on roadcuts, Roadsides (usually)	No potential. The PSB is outside of the elevational range for this species (330 - 3280 feet).
<i>Astragalus pycnostachyus</i> var. <i>pycnostachyus</i>	Coastal marsh milk-vetch	1B.2	Coastal dunes (mesic), Coastal scrub, Marshes and swamps (coastal salt, streambanks)	No potential. No suitable habitat is present in the PSB.
<i>Astragalus rattanii</i> var. <i>rattanii</i>	Rattan's milk-vetch	4.3	Chaparral, Cismontane woodland, Lower montane coniferous forest, Gravelly, Streambanks	No potential. The PSB is outside of the elevational range for this species (100 - 2705 feet).
<i>Cardamine angulata</i>	Seaside bittercress	2B.2	Lower montane coniferous forest, North Coast coniferous forest, wet areas, streambanks	Low potential. Marginally suitable habitat is present in the PSB.
<i>Carex leptalea</i>	Bristle-stalked sedge	2B.2	Bogs and fens, Marshes and swamps, Meadows and seeps (mesic)	Low potential. Marginally suitable habitat is present in the PSB.
<i>Carex lyngbyei</i>	Lyngbye's sedge	2B.2	Marshes and swamps (brackish, freshwater)	No potential. The PSB is outside of the elevational range for this species (0 - 35 feet).
<i>Castilleja ambigua</i> var. <i>humboldtiensis</i>	Humboldt Bay owl's-clover	1B.2	Marshes and swamps (coastal salt)	No potential. The PSB is outside of the elevational range for this species (0 - 10 feet).
<i>Castilleja litoralis</i>	Oregon coast paintbrush	2B.2	Coastal bluff scrub, Coastal dunes, Coastal scrub, Sandy	No potential. No suitable habitat is present in the PSB.
<i>Chloropyron maritimum</i> ssp. <i>palustre</i>	Point Reyes salty bird's-beak	1B.2	Marshes and swamps (coastal salt)	No potential. The PSB is outside of the elevational range for this species (0 - 35 feet).
<i>Chrysosplenium glechomifolium</i>	Pacific golden saxifrage	4.3	North Coast coniferous forest, Riparian forest, Roadsides (sometimes), Seeps (sometimes), Streambanks	Moderate potential. Suitable habitat is present in the PSB.
<i>Clarkia amoena</i> ssp. <i>whitneyi</i>	Whitney's farewell-to-spring	1B.1	Coastal bluff scrub, Coastal scrub	No potential. No suitable habitat is present in the PSB.
<i>Collomia tracyi</i>	Tracy's collomia	4.3	Broadleafed upland forest, Lower montane coniferous forest, Rocky, Serpentinite (sometimes)	No potential. The PSB is outside of the elevational range for this species (985 - 6890 feet).

Scientific Name	Common Name	Status	Habitat Requirements ¹	Potential to Occur in the PSB
<i>Downingia willamettensis</i>	Cascade downingia	2B.2	Cismontane woodland (lake margins), Valley and foothill grassland (lake margins), Vernal pools	No potential. No suitable habitat is present in the PSB.
<i>Erysimum menziesii</i>	Menzies' wallflower	FE, SE, 1B.1	Coastal dunes	No potential. No suitable habitat is present in the PSB.
<i>Erythronium oregonum</i>	Giant fawn lily	2B.2	Cismontane woodland, Meadows and seeps, Openings, Rocky, Serpentine (sometimes)	No potential. The PSB is outside of the elevational range for this species (330 - 3775 feet).
<i>Erythronium revolutum</i>	Coast fawn lily	2B.2	Bogs and fens, Broadleafed upland forest, North Coast coniferous forest, Mesic, Streambanks	Low potential. Marginally suitable habitat is present in the PSB.
<i>Fissidens pauperculus</i>	Minute pocket moss	1B.2	North Coast coniferous forest (damp coastal soil)	Low potential. Marginally suitable habitat is present in the PSB.
<i>Gilia capitata</i> ssp. <i>pacifica</i>	Pacific gilia	1B.2	Chaparral (openings), Coastal bluff scrub, Coastal prairie, Valley and foothill grassland	Low potential. Marginally suitable habitat is present in the PSB.
<i>Gilia millefoliata</i>	Dark-eyed gilia	1B.2	Coastal dunes	No potential. No suitable habitat is present in the PSB.
<i>Glehnia littoralis</i> ssp. <i>leiocarpa</i>	American glehnia	4.2	Coastal dunes	No potential. No suitable habitat is present in the PSB.
<i>Hemizonia congesta</i> ssp. <i>tracyi</i>	Tracy's tarplant	4.3	Coastal prairie, Lower montane coniferous forest, North Coast coniferous forest, Openings, Serpentine (sometimes)	No potential. The PSB is outside of the elevational range for this species (395 - 3935 feet).
<i>Hesperervax sparsiflora</i> var. <i>brevifolia</i>	Short-leaved evax	1B.2	Coastal bluff scrub (sandy), Coastal dunes, Coastal prairie	No potential. No suitable habitat is present in the PSB.
<i>Hosackia gracilis</i>	Harlequin lotus	4.2	Broadleafed upland forest, Cismontane woodland, Closed-cone coniferous forest, Coastal bluff scrub, Coastal prairie, Coastal scrub, Marshes and swamps, Meadows and seeps, North Coast coniferous forest, Valley and foothill grassland, wetlands, roadsides	Moderate potential. Suitable habitat is present in the PSB.
<i>Lathyrus glandulosus</i>	Sticky pea	4.3	Cismontane woodland	No potential. The PSB is outside of the elevational range for this species (985 - 2625 feet).
<i>Layia carnosa</i>	Beach layia	FT, SE, 1B.1	Coastal dunes, Coastal scrub (sandy)	No potential. No suitable habitat is present in the PSB.
<i>Lilium kelloggii</i>	Kellogg's lily	4.3	Lower montane coniferous forest, North Coast coniferous forest, Openings, Roadsides	Moderate potential. Suitable habitat is present in the PSB.
<i>Lilium occidentale</i>	Western lily	FE, SE, 1B.1	Bogs and fens, Coastal bluff scrub, Coastal prairie, Coastal scrub, Marshes and swamps	Low potential. Marginally suitable habitat is present in the PSB.

Scientific Name	Common Name	Status	Habitat Requirements ¹	Potential to Occur in the PSB
			(freshwater), North Coast coniferous forest (openings)	
<i>Lilium rubescens</i>	Redwood lily	4.2	Broadleaved upland forest, Chaparral, Lower montane coniferous forest, North Coast coniferous forest, Upper montane coniferous forest, Roadsides (sometimes), Serpentinite (sometimes)	No potential. The PSB is outside of the elevational range for this species (100 - 6265 feet).
<i>Listera cordata</i>	Heart-leaved twayblade	4.2	Bogs and fens, Lower montane coniferous forest, North Coast coniferous forest	No potential. No suitable habitat is present in the PSB.
<i>Lycopodium clavatum</i>	Running-pine	4.1	Lower montane coniferous forest (mesic), Marshes and swamps, North Coast coniferous forest (mesic), Edges (often), Openings, Roadsides	No potential. The PSB is outside of the elevational range for this species (150 - 4020 feet).
<i>Mitellastrum caulescens</i>	Leafy-stemmed mitrewort	4.2	Broadleaved upland forest, Lower montane coniferous forest, Meadows and seeps, North Coast coniferous forest, Mesic, Roadsides (sometimes)	Moderate potential. Suitable habitat is present in the PSB.
<i>Montia howellii</i>	Howell's montia	2B.2	Meadows and seeps, North Coast coniferous forest, Vernal pools, Roadsides (sometimes), Vernal Mesic	Low potential. Marginally suitable habitat is present in the PSB.
<i>Oenothera wolffii</i>	Wolf's evening-primrose	1B.1	Coastal bluff scrub, Coastal dunes, Coastal prairie, Lower montane coniferous forest, Mesic (usually), Sandy	No potential. No suitable habitat is present in the PSB.
<i>Packera bolanderi</i> var. <i>bolanderi</i>	Seacoast ragwort	2B.2	Coastal scrub, North Coast coniferous forest, Roadsides (sometimes)	No potential. The PSB is outside of the elevational range for this species (100 - 2135 feet).
<i>Piperia candida</i>	White-flowered rein orchid	1B.2	Broadleaved upland forest, Lower montane coniferous forest, North Coast coniferous forest, Serpentinite (sometimes)	No potential. The PSB is outside of the elevational range for this species (100 - 4300 feet).
<i>Pityopus californicus</i>	California pinefoot	4.2	Broadleaved upland forest, Lower montane coniferous forest, North Coast coniferous forest, Upper montane coniferous forest, Mesic	Low potential. Marginally suitable habitat is present in the PSB.
<i>Pleuropogon refractus</i>	Nodding semaphore grass	4.2	Lower montane coniferous forest, Meadows and seeps, North Coast coniferous forest, Riparian forest, Mesic	Low potential. Marginally suitable habitat is present in the PSB.
<i>Polemonium carneum</i>	Oregon polemonium	2B.2	Coastal prairie, Coastal scrub, Lower montane coniferous forest	Low potential. Marginally suitable habitat is present in the PSB.

Scientific Name	Common Name	Status	Habitat Requirements ¹	Potential to Occur in the PSB
<i>Puccinellia pumila</i>	Dwarf alkali grass	2B.2	Marshes and swamps (coastal salt)	No potential. The PSB is outside of the elevational range for this species (5 - 35 feet).
<i>Ribes laxiflorum</i>	Trailing black currant	4.3	North Coast coniferous forest, Roadsides (sometimes)	Moderate potential. Suitable habitat is present in the PSB.
<i>Ribes roezlii</i> var. <i>amictum</i>	Hoary gooseberry	4.3	Broadleafed upland forest, Cismontane woodland, Lower montane coniferous forest, Upper montane coniferous forest	No potential. The PSB is outside of the elevational range for this species (395 - 7545 feet).
<i>Sidalcea malachroides</i>	Maple-leaved checkerbloom	4.2	Broadleafed upland forest, Coastal prairie, Coastal scrub, North Coast coniferous forest, Riparian woodland, Disturbed areas (often)	Moderate potential. Suitable habitat is present in the PSB.
<i>Sidalcea malviflora</i> ssp. <i>patula</i>	Siskiyou checkerbloom	1B.2	Coastal bluff scrub, Coastal prairie, North Coast coniferous forest, often roadcuts and roadsides	Moderate potential. Suitable habitat is present in the PSB.
<i>Sidalcea oregana</i> ssp. <i>eximia</i>	Coast checkerbloom	1B.2	Lower montane coniferous forest, Meadows and seeps, North Coast coniferous forest	Low potential. Marginally suitable habitat is present in the PSB.
<i>Sisyrinchium hitchcockii</i>	Hitchcock's blue-eyed grass	1B.1	Cismontane woodland (openings), Valley and foothill grassland	No potential. The PSB is outside of the elevational range for this species (1000 - 1000 feet).
<i>Spergularia canadensis</i> var. <i>occidentalis</i>	Western sand-spurrey	2B.1	Marshes and swamps (coastal salt)	No potential. The PSB is outside of the elevational range for this species (0 - 10 feet).
<i>Tiarella trifoliata</i> var. <i>trifoliata</i>	Trifoliate laceflower	3.2	Lower montane coniferous forest, North Coast coniferous forest, wet areas, moist shady streambanks, edges	No potential. The PSB is outside of the elevational range for this species (560 - 4920 feet).
<i>Usnea longissima</i>	Methuselah's beard lichen	4.2	Broadleafed upland forest, North Coast coniferous forest, on tree branches; usually on old growth hardwoods and conifers	No potential. The PSB is outside of the elevational range for this species (165 - 4790 feet).

Footnotes:

¹ General habitat, and microhabitat column information, reprinted from CNDDB (2023c).

² Rankings from CNDDB (2023d).

Column Header Categories and Abbreviations:

FESA Listing status under the federal Endangered Species Act (ESA)

FE Federal Endangered; **FT** = Federal Threatened; **FC** = Federal Candidate; **FD** = Federally Delisted

CESA Listing status under the California state Endangered Species Act (CESA)

SE State Endangered; **SD** = State Delisted; **ST** = State Threatened.

GRank: Global Rank from NatureServe's Heritage Methodology (NatureServe 2023) (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 2023d); ? = "Denotes inexact numeric rank" (NatureServe 2023); Q = "Questionable taxonomy that may reduce conservation priority" (NatureServe 2023).

SRank: State Rank from NatureServe's Heritage Methodology (NatureServe 2023) (ranking according to degree of imperilment in the state (California) - S1 = Critically Imperiled—Critically imperiled in the state because of extreme rarity (often 5 or fewer populations) or because of factor(s) such as very steep declines making it especially vulnerable to extirpation from the state; S2 = Imperiled—Imperiled in the state because of rarity due to very restricted range, very few populations (often 20 or fewer), steep declines, or other factors making it very vulnerable to extirpation from the state; S3 = Vulnerable—Vulnerable in the state due to a restricted range, relatively few populations (often 80 or fewer), recent and widespread declines, or other factors making it vulnerable to extirpation from the state; S4 = Apparently Secure—Uncommon but not rare in the state; some cause for long-term concern due to declines or other factors; S5 = Secure—Common, widespread, and abundant in the state; SNR = State Not Ranked.

CRPR: CNPS rankings for rare plants (CNPS 2023) - 1A = Plants presumed extinct in California; 1B = Plants rare, threatened or endangered in California and elsewhere; 2 = Plants rare, threatened, or endangered in California, but more common elsewhere; 3 = Plants about which more information is needed (a review list); 4 = Plants of limited distribution (a watch list); n/a = not applicable; Threat Code extensions and their meanings: ".1 - Seriously threatened in California (over 80% of occurrences threatened / high degree and immediacy of threat); .2 – Moderately threatened in California (20-80% of occurrences threatened / moderate degree and immediacy of threat); .3 – Not very threatened in California (<20% of occurrences threatened / low degree and immediacy of threat or no current threats known)" (CDFW 2023d).

Potential to Occur:

No Potential	Habitat in and adjacent to the PSB is clearly unsuitable for the species requirements (cover, substrate, elevation, hydrology, plant community, site history, disturbance regime).
Low Potential:	Few of the habitat components meeting the species requirements are present, and/or the majority of habitat on and adjacent to the site is unsuitable or of very poor quality. The species is not likely to be found in the PSB.
Moderate Potential:	Some of the habitat components meeting the species requirements are present, and/or only some of the habitat on or adjacent to the site is unsuitable. The species has a moderate probability of being found in the PSB.
High Potential:	All of the habitat components meeting the species requirements are present and/or most of the habitat on or adjacent to the site is highly suitable. The species has a high probability of being found on in the PSB.
Present:	Detected or documented on-site.

5.2.1 Special Status Plants with Moderate Potential to Occur

Botanical species with a moderate potential to occur in the PSB are evaluated in further detail below.

Harlequin lotus (*Hosackia gracilis*) CRPR 4.2

This species is not mapped in CNDDDB, but is present in the Fortuna USGS quad according to the CNPS inventory of rare plants (CNPS 2023). Suitable habitat for this perennial rhizomatous herb includes broadleafed upland forest, cismontane woodland, closed-cone and North Coast coniferous forest, coastal bluff scrub, coastal prairie, coastal scrub, marshes, swamps, meadows, and seeps, valley and foothill grassland, and roadsides from sea level to 2,295 feet in elevation. Roadsides with broadleaf and coniferous trees are present in the PSB. This species could be encountered.

Maple-leaved checkerbloom (*Sidalcea malachroides*) CRPR 4.2

The nearest CNDDDB occurrence of this species is a historic observation (from 1893) mapped to the general vicinity of Hydesville, 3.5 miles southeast of the PSB. The nearest recent occurrence (from 2001) is mapped to a roadside in coniferous forest 4.7 miles northeast of the PSB. Suitable habitat for this perennial herb includes broadleafed upland forest, coastal prairie, coastal scrub, North Coast coniferous forest, riparian woodland, and disturbed areas (often) from sea level to 2,395 feet in elevation. Disturbed areas with broadleafed and coniferous trees are present in the PSB. This species could be encountered.

Siskiyou checkerbloom (*Sidalcea malviflora* ssp. *patula*) CRPR 1B.2

The nearest CNDDDB occurrence of this species (from 2020) is mapped the north side of Highway 36, 2.9 miles southeast of the PSB. Suitable habitat for this perennial rhizomatous herb includes coastal bluff scrub, coastal prairie, North Coast coniferous forest, and roadsides (often) from 50 to 4,035 feet in elevation. Roadsides are present in the PSB, and this species could be encountered.

Kellogg's lily (*Lilium kelloggii*) CRPR 4.3

This species is not mapped in CNDDDB, but this species is present in the McWhinney Creek and Hydesville USGS quads according to the CNPS inventory of rare plants (CNPS 2023). Suitable habitat for this perennial bulbiferous herb includes openings and roadsides in lower montane and North Coast coniferous forest from 10 to 4,265 feet in elevation. Roadsides with coniferous trees are present in the PSB. This species could be encountered.

Leafy stemmed mitrewort (*Mitellastra caulescens*) CRPR 4.2

This species is not mapped in CNDDDB, but this species is present in the Fields Landing, McWhinney Creek, Hydesville, and Scotia USGS quads according to the CNPS inventory of rare plants (CNPS 2023). Suitable habitat for this perennial rhizomatous herb includes broadleafed upland forest, lower montane and North Coast coniferous forest, meadows, seeps, and sometimes roadsides from 15 to 5,580 feet in elevation. Roadsides are present in the PSB, and this species could be encountered.

Pacific golden saxifrage (*Chrysosplenium glechomifolium*) CRPR 4.3

This species is not mapped in CNDDDB, but this species is present in the Fields Landing and McWhinney Creek USGS quads according to the CNPS inventory of rare plants (CNPS 2023). Suitable habitat for this perennial rhizomatous herb includes roadsides, seeps and streambanks in North Coast coniferous forest,

and riparian forest from 35 to 1,770 feet in elevation. Roadsides are present in the PSB, and this species could be encountered.

Trailing black currant (*Ribes laxiflorum*) CRPR 4.3

This species is not mapped in CNDDDB, but this species is present in the Fields Landing and McWhinney Creek USGS quads according to the CNPS inventory of rare plants (CNPS 2023). Suitable habitat for this perennial deciduous shrub includes roadsides in North Coast coniferous forest from 15 to 4,575 feet in elevation. Roadsides with coniferous trees are present in the PSB. This species could be encountered.

5.3 Sensitive Natural Communities

A database query of CNDDDB returned three terrestrial communities in the nine USGS quads surrounding the Project location: Coastal Terrace Prairie, Northern Coastal Salt Marsh, and Sitka Spruce Forest (**Table 3**). None of these communities are present in the PSB.

Aside from the communities listed in CNDDDB, there is one SNC present in the PSB: Salal – berry brambles – California blackberry association (*Gaultheria shallon* – *Rubus [ursinus]*) (**Appendix A, Figure 3, Appendix E**).

Table 3 Vegetation Alliances and Associations in the larger Project vicinity and the PSB.

Alliance/Type	Association	G Rank	S Rank	CDFW Sensitive	Present
Coastal Terrace Prairie		G2	S2.1	Yes	No
Northern Coastal Salt Marsh		G3	S3.2	Yes	No
Sitka Spruce Forest		G1	S1.1	Yes	No
Salal – berry brambles	California blackberry (<i>Rubus ursinus</i>)	GNR	S4	Yes	Yes

Salal – Berry Brambles

There are four stands of the Salal-berry brambles alliance with a California blackberry association present in the PSB (**Appendix A, Figure 3**). This alliance is characterized by having salal or California blackberry dominant in the shrub canopy. When California blackberry is the only dominant species, the association is considered sensitive by CDFW Vegetation Classification and Mapping Program (VegCAMP, CDFW 2023b).

Large stands of blackberries are present along the railroad tracks and along Highway 101 north of the interchange; however, these stands are dominated by the non-native Himalayan blackberry (*Rubus ursinus*) and are not considered SNCs.

6. Conclusion and Recommendations

Based on surveys, suitable habitat, and nearby occurrence records, seven special status plants have moderate potential to occur within the PSB, none of which are state or federally listed. No special status plants were observed during the two protocol level surveys that occurred in the PSB. No impacts to special status plants are expected and no avoidance or minimization measures are recommended.

The Salal – berry brambles SNC is present in the PSB. If berry brambles are pruned with the root left intact, they would be expected to revegetate naturally, and no mitigation would be necessary. If berry brambles

are permanently removed by construction, they should be replaced at a ratio of 1:1. Alternatively, Himalayan blackberry may be removed from existing stands of berry brambles within the API as mitigation for Project impacts. The proposed measures may be included in and potentially expanded upon in forthcoming regulatory documents (as needed).

7. Scope and limitations

GHD otherwise disclaims responsibility to any person other than City of Fortuna arising in connection with this report. GHD also excludes implied warranties and conditions, to the extent legally permissible.

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

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

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

8. Assumptions

Conclusions for this BSR were drawn from historic surveys and studies, as well as web-based sensitive species database and literature searches, and field surveys. As these studies/surveys only serve as a snapshot of conditions during a short time period, they may not accurately reflect actual occurrence of species presence in the Project vicinity at a given time. Therefore, conclusions in this BSR have been based more on the assumption of presence or non-presence given existing habitat in the PSB, and impact minimization measures have been developed accordingly. All determinations herein were based on the proposed Project Description, the current Project footprint known as the PSB (**Appendix A, Figure 2**). If the Project footprint or construction methods change significantly prior to Project implementation, determinations would need to be revisited to ensure that they remain accurate.

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10. Report Preparers

10.1 Client

The City of Fortuna, California

10.2 GHD

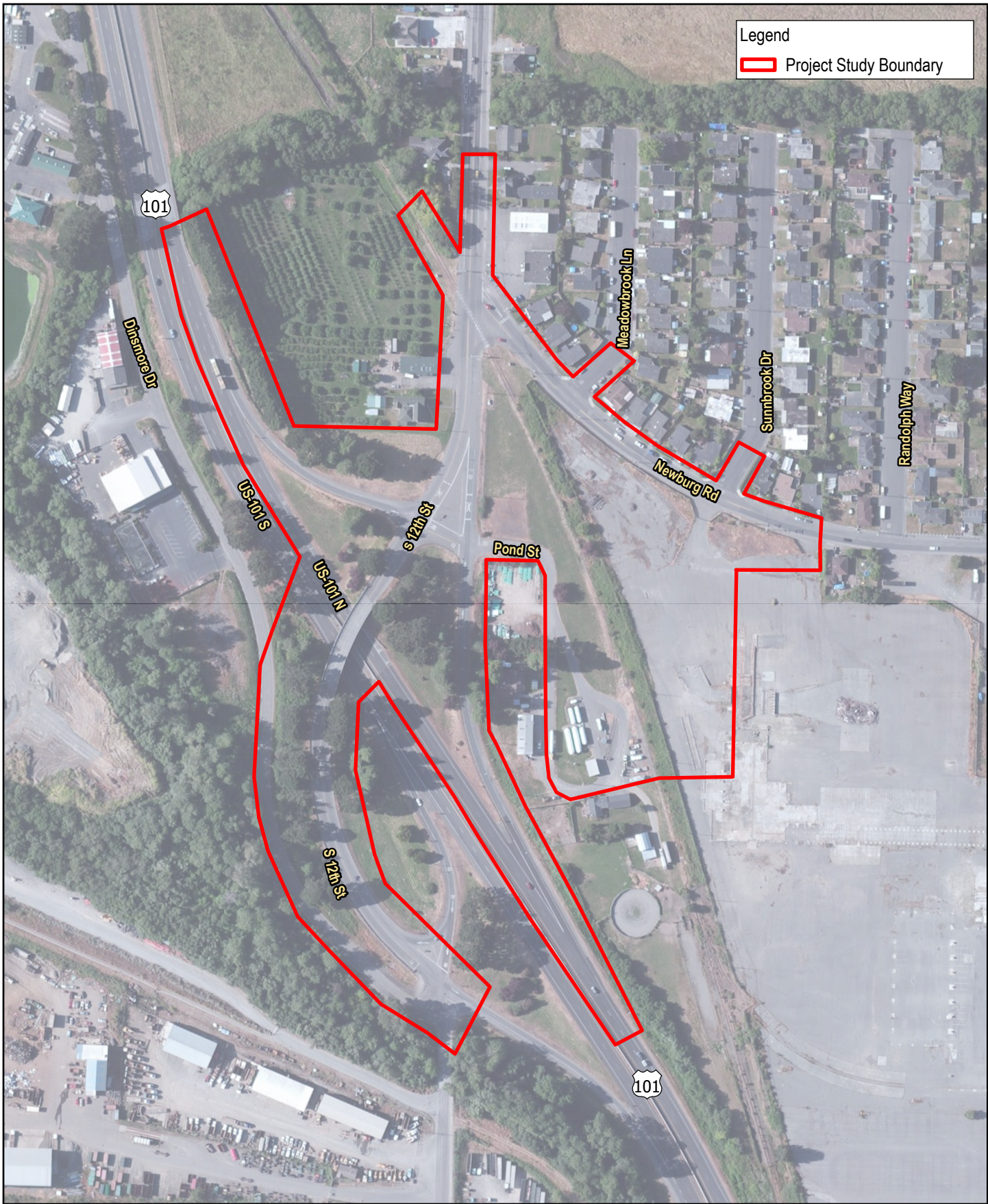
Jane Cipra, Botanist, Author

Andrea Hilton, Environmental Planner, Reviewer

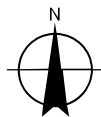
Appendices

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

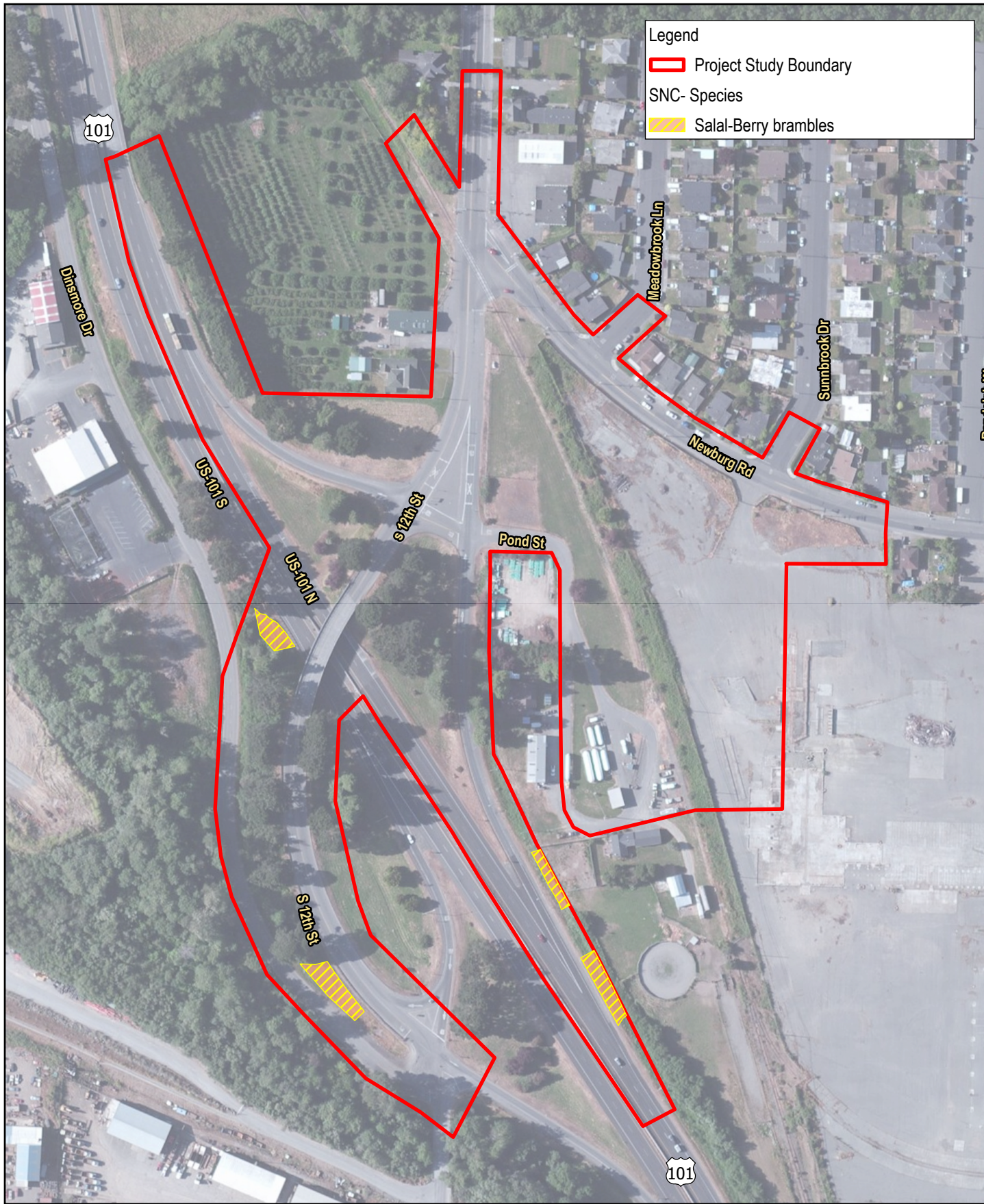


City of Fortuna
US 101 & 12th St.
Interchange

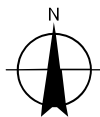
Project No. 12577017
Revision No. -
Date Jul 2023

Project Study Boundary

FIGURE 2



Paper Size ANSI A
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



City of Fortuna
US 101 & 12th St.
Interchange

Project No. 12577017
Revision No. -
Date Jul 2023

Sensitive Natural Communities

FIGURE 3

Appendix B

**Database Search Results
(CNDDDB, CNPS, IPaC)**

Element_Type	Scientific_Name	Common_Name	Element_Code	Federal_Status	State_Status	CDFW_Status	CA_Rare_Plant_Rank	Quad_C
Animals - Amphibians	Ascaphus truei	Pacific tailed frog	AAABA01010	None	None	SSC	-	4012462
Animals - Amphibians	Ascaphus truei	Pacific tailed frog	AAABA01010	None	None	SSC	-	4012461
Animals - Amphibians	Ascaphus truei	Pacific tailed frog	AAABA01010	None	None	SSC	-	4012453
Animals - Amphibians	Ascaphus truei	Pacific tailed frog	AAABA01010	None	None	SSC	-	4012443
Animals - Amphibians	Ascaphus truei	Pacific tailed frog	AAABA01010	None	None	SSC	-	4012441
Animals - Amphibians	Rana aurora	northern red-legged frog	AAABH01021	None	None	SSC	-	4012441
Animals - Amphibians	Rana aurora	northern red-legged frog	AAABH01021	None	None	SSC	-	4012442
Animals - Amphibians	Rana aurora	northern red-legged frog	AAABH01021	None	None	SSC	-	4012451
Animals - Amphibians	Rana aurora	northern red-legged frog	AAABH01021	None	None	SSC	-	4012452
Animals - Amphibians	Rana aurora	northern red-legged frog	AAABH01021	None	None	SSC	-	4012453
Animals - Amphibians	Rana aurora	northern red-legged frog	AAABH01021	None	None	SSC	-	4012461
Animals - Amphibians	Rana aurora	northern red-legged frog	AAABH01021	None	None	SSC	-	4012462
Animals - Amphibians	Rana aurora	northern red-legged frog	AAABH01021	None	None	SSC	-	4012463
Animals - Amphibians	Rana boylei pop. 1	foothill yellow-legged frog - north coast DPS	AAABH01051	None	None	SSC	-	4012462
Animals - Amphibians	Rana boylei pop. 1	foothill yellow-legged frog - north coast DPS	AAABH01051	None	None	SSC	-	4012461
Animals - Amphibians	Rana boylei pop. 1	foothill yellow-legged frog - north coast DPS	AAABH01051	None	None	SSC	-	4012452
Animals - Amphibians	Rana boylei pop. 1	foothill yellow-legged frog - north coast DPS	AAABH01051	None	None	SSC	-	4012451
Animals - Amphibians	Rana boylei pop. 1	foothill yellow-legged frog - north coast DPS	AAABH01051	None	None	SSC	-	4012442
Animals - Amphibians	Rana boylei pop. 1	foothill yellow-legged frog -	AAABH01051	None	None	SSC	-	4012443

		north coast DPS						
Animals - Amphibians	Rana boylei pop. 1	foothill yellow-legged frog - north coast DPS	AAABH01051	None	None	SSC	-	4012441
Animals - Amphibians	Rhyacotriton variegatus	southern torrent salamander	AAAAJ01020	None	None	SSC	-	4012441
Animals - Amphibians	Rhyacotriton variegatus	southern torrent salamander	AAAAJ01020	None	None	SSC	-	4012442
Animals - Amphibians	Rhyacotriton variegatus	southern torrent salamander	AAAAJ01020	None	None	SSC	-	4012461
Animals - Birds	Accipiter cooperii	Coopers hawk	ABNKC12040	None	None	WL	-	4012461
Animals - Birds	Accipiter cooperii	Coopers hawk	ABNKC12040	None	None	WL	-	4012462
Animals - Birds	Accipiter cooperii	Coopers hawk	ABNKC12040	None	None	WL	-	4012442
Animals - Birds	Accipiter cooperii	Coopers hawk	ABNKC12040	None	None	WL	-	4012451
Animals - Birds	Accipiter cooperii	Coopers hawk	ABNKC12040	None	None	WL	-	4012441
Animals - Birds	Accipiter gentilis	northern goshawk	ABNKC12060	None	None	SSC	-	4012442
Animals - Birds	Accipiter striatus	sharp-shinned hawk	ABNKC12020	None	None	WL	-	4012451
Animals - Birds	Accipiter striatus	sharp-shinned hawk	ABNKC12020	None	None	WL	-	4012462
Animals - Birds	Accipiter striatus	sharp-shinned hawk	ABNKC12020	None	None	WL	-	4012441
Animals - Birds	Aquila chrysaetos	golden eagle	ABNKC22010	None	None	FP WL	-	4012442
Animals - Birds	Aquila chrysaetos	golden eagle	ABNKC22010	None	None	FP WL	-	4012443
Animals - Birds	Circus hudsonius	northern harrier	ABNKC11011	None	None	SSC	-	4012452
Animals - Birds	Circus hudsonius	northern harrier	ABNKC11011	None	None	SSC	-	4012463
Animals - Birds	Haliaeetus leucocephalus	bald eagle	ABNKC10010	Delisted	Endangered	FP	-	4012462
Animals - Birds	Haliaeetus leucocephalus	bald eagle	ABNKC10010	Delisted	Endangered	FP	-	4012451
Animals - Birds	Brachyramphus marmoratus	marbled murrelet	ABNNN06010	Threatened	Endangered	-	-	4012451
Animals - Birds	Brachyramphus marmoratus	marbled murrelet	ABNNN06010	Threatened	Endangered	-	-	4012461

Animals - Birds	Brachyramphus marmoratus	marbled murrelet	ABNNN06010	Threatened	Endangered	-	-	4012441
Animals - Birds	Ardea alba	great egret	ABNGA04040	None	None	-	-	4012462
Animals - Birds	Ardea alba	great egret	ABNGA04040	None	None	-	-	4012463
Animals - Birds	Ardea alba	great egret	ABNGA04040	None	None	-	-	4012453
Animals - Birds	Ardea herodias	great blue heron	ABNGA04010	None	None	-	-	4012453
Animals - Birds	Ardea herodias	great blue heron	ABNGA04010	None	None	-	-	4012452
Animals - Birds	Ardea herodias	great blue heron	ABNGA04010	None	None	-	-	4012451
Animals - Birds	Ardea herodias	great blue heron	ABNGA04010	None	None	-	-	4012463
Animals - Birds	Ardea herodias	great blue heron	ABNGA04010	None	None	-	-	4012462
Animals - Birds	Egretta thula	snowy egret	ABNGA06030	None	None	-	-	4012462
Animals - Birds	Nycticorax nycticorax	black-crowned night heron	ABNGA11010	None	None	-	-	4012462
Animals - Birds	Nycticorax nycticorax	black-crowned night heron	ABNGA11010	None	None	-	-	4012463
Animals - Birds	Nycticorax nycticorax	black-crowned night heron	ABNGA11010	None	None	-	-	4012452
Animals - Birds	Nycticorax nycticorax	black-crowned night heron	ABNGA11010	None	None	-	-	4012453
Animals - Birds	Charadrius montanus	mountain plover	ABNNB03100	None	None	SSC	-	4012463
Animals - Birds	Charadrius montanus	mountain plover	ABNNB03100	None	None	SSC	-	4012462
Animals - Birds	Charadrius nivosus nivosus	western snowy plover	ABNNB03031	Threatened	None	SSC	-	4012462
Animals - Birds	Charadrius nivosus nivosus	western snowy plover	ABNNB03031	Threatened	None	SSC	-	4012463
Animals - Birds	Charadrius nivosus nivosus	western snowy plover	ABNNB03031	Threatened	None	SSC	-	4012453
Animals - Birds	Charadrius nivosus nivosus	western snowy plover	ABNNB03031	Threatened	None	SSC	-	4012452
Animals - Birds	Coccyzus americanus	western yellow-billed cuckoo	ABNRB02022	Threatened	Endangered	-	-	4012453

	occidentalis							
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Animals - Birds	Falco peregrinus anatum	American peregrine falcon	ABNKD06071	Delisted	Delisted	FP	-	4012441
Animals - Birds	Progne subis	purple martin	ABPAU01010	None	None	SSC	-	4012452
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Animals - Birds	Riparia riparia	bank swallow	ABPAU08010	None	Threatened	-	-	4012453
Animals - Birds	Riparia riparia	bank swallow	ABPAU08010	None	Threatened	-	-	4012451
Animals - Birds	Riparia riparia	bank swallow	ABPAU08010	None	Threatened	-	-	4012441
Animals - Birds	Agelaius tricolor	tricolored blackbird	ABPBXB0020	None	Threatened	SSC	-	4012452
Animals - Birds	Icteria virens	yellow-breasted chat	ABPBX24010	None	None	SSC	-	4012452
Animals - Birds	Pandion haliaetus	osprey	ABNKC01010	None	None	WL	-	4012452
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Animals - Birds	Poecile atricapillus	black-capped chickadee	ABPAW01010	None	None	WL	-	4012453
Animals - Birds	Setophaga petechia	yellow warbler	ABPBX03010	None	None	SSC	-	4012453
Animals - Birds	Setophaga petechia	yellow warbler	ABPBX03010	None	None	SSC	-	4012452

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Animals - Birds	Pelecanus occidentalis californicus	California brown pelican	ABNFC01021	Delisted	Delisted	FP	-	4012462
Animals - Birds	Pelecanus occidentalis californicus	California brown pelican	ABNFC01021	Delisted	Delisted	FP	-	4012453
Animals - Birds	Nannopterum auritum	double-crested cormorant	ABNFD01020	None	None	WL	-	4012462
Animals - Birds	Coturnicops noveboracensis	yellow rail	ABNME01010	None	None	SSC	-	4012463
Animals - Birds	Strix occidentalis caurina	Northern Spotted Owl	ABNSB12011	Threatened	Threatened	-	-	4012441
Animals - Birds	Strix occidentalis caurina	Northern Spotted Owl	ABNSB12011	Threatened	Threatened	-	-	4012442
Animals - Birds	Strix occidentalis caurina	Northern Spotted Owl	ABNSB12011	Threatened	Threatened	-	-	4012443
Animals - Birds	Strix occidentalis caurina	Northern Spotted Owl	ABNSB12011	Threatened	Threatened	-	-	4012451
Animals - Birds	Strix occidentalis caurina	Northern Spotted Owl	ABNSB12011	Threatened	Threatened	-	-	4012452
Animals - Birds	Strix occidentalis caurina	Northern Spotted Owl	ABNSB12011	Threatened	Threatened	-	-	4012453
Animals - Birds	Strix occidentalis caurina	Northern Spotted Owl	ABNSB12011	Threatened	Threatened	-	-	4012461
Animals - Birds	Strix occidentalis caurina	Northern Spotted Owl	ABNSB12011	Threatened	Threatened	-	-	4012462
Animals - Birds	Empidonax traillii	willow flycatcher	ABPAE33040	None	Endangered	-	-	4012463
Animals - Birds	Empidonax traillii	willow flycatcher	ABPAE33040	None	Endangered	-	-	4012452
Animals - Birds	Empidonax traillii	willow flycatcher	ABPAE33040	None	Endangered	-	-	4012453
Animals - Fish	Acipenser medirostris pop. 1	green sturgeon - southern DPS	AFCAA01031	Threatened	None	-	-	4012463
Animals - Fish	Acipenser medirostris pop.	green sturgeon - southern DPS	AFCAA01031	Threatened	None	-	-	4012462

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Animals - Fish	Acipenser medirostris pop. 2	green sturgeon - northern DPS	AFCAA01032	None	None	SSC	-	4012462
Animals - Fish	Acipenser medirostris pop. 2	green sturgeon - northern DPS	AFCAA01032	None	None	SSC	-	4012463
Animals - Fish	Acipenser medirostris pop. 2	green sturgeon - northern DPS	AFCAA01032	None	None	SSC	-	4012452
Animals - Fish	Acipenser medirostris pop. 2	green sturgeon - northern DPS	AFCAA01032	None	None	SSC	-	4012451
Animals - Fish	Acipenser medirostris pop. 2	green sturgeon - northern DPS	AFCAA01032	None	None	SSC	-	4012441
Animals - Fish	Acipenser transmontanus	white sturgeon	AFCAA01050	None	None	SSC	-	4012452
Animals - Fish	Eucyclogobius newberryi	tidewater goby	AFCQN04010	Endangered	None	-	-	4012453
Animals - Fish	Eucyclogobius newberryi	tidewater goby	AFCQN04010	Endangered	None	-	-	4012463
Animals - Fish	Eucyclogobius newberryi	tidewater goby	AFCQN04010	Endangered	None	-	-	4012462
Animals - Fish	Spirinchus thaleichthys	longfin smelt	AFCHB03010	Candidate	Threatened	-	-	4012462
Animals - Fish	Spirinchus thaleichthys	longfin smelt	AFCHB03010	Candidate	Threatened	-	-	4012463
Animals - Fish	Spirinchus thaleichthys	longfin smelt	AFCHB03010	Candidate	Threatened	-	-	4012453
Animals - Fish	Spirinchus thaleichthys	longfin smelt	AFCHB03010	Candidate	Threatened	-	-	4012452
Animals - Fish	Thaleichthys pacificus	eulachon	AFCHB04010	Threatened	None	-	-	4012462
Animals - Fish	Entosphenus tridentatus	Pacific lamprey	AFBAA02100	None	None	SSC	-	4012461
Animals - Fish	Entosphenus tridentatus	Pacific lamprey	AFBAA02100	None	None	SSC	-	4012462
Animals - Fish	Lampetra richardsoni	western brook lamprey	AFBAA02180	None	None	SSC	-	4012462
Animals - Fish	Lampetra richardsoni	western brook lamprey	AFBAA02180	None	None	SSC	-	4012461
Animals - Fish	Oncorhynchus clarkii clarkii	coast cutthroat trout	AFCHA0208A	None	None	SSC	-	4012461

Animals - Fish	Oncorhynchus clarkii clarkii	coast cutthroat trout	AFCHA0208A	None	None	SSC	-	4012462
Animals - Fish	Oncorhynchus clarkii clarkii	coast cutthroat trout	AFCHA0208A	None	None	SSC	-	4012463
Animals - Fish	Oncorhynchus clarkii clarkii	coast cutthroat trout	AFCHA0208A	None	None	SSC	-	4012452
Animals - Fish	Oncorhynchus clarkii clarkii	coast cutthroat trout	AFCHA0208A	None	None	SSC	-	4012453
Animals - Fish	Oncorhynchus clarkii clarkii	coast cutthroat trout	AFCHA0208A	None	None	SSC	-	4012451
Animals - Fish	Oncorhynchus clarkii clarkii	coast cutthroat trout	AFCHA0208A	None	None	SSC	-	4012441
Animals - Fish	Oncorhynchus kisutch pop. 2	coho salmon - southern Oregon / northern California ESU	AFCHA02032	Threatened	Threatened	-	-	4012441
Animals - Fish	Oncorhynchus kisutch pop. 2	coho salmon - southern Oregon / northern California ESU	AFCHA02032	Threatened	Threatened	-	-	4012451
Animals - Fish	Oncorhynchus kisutch pop. 2	coho salmon - southern Oregon / northern California ESU	AFCHA02032	Threatened	Threatened	-	-	4012442
Animals - Fish	Oncorhynchus kisutch pop. 2	coho salmon - southern Oregon / northern California ESU	AFCHA02032	Threatened	Threatened	-	-	4012453
Animals - Fish	Oncorhynchus kisutch pop. 2	coho salmon - southern Oregon / northern California ESU	AFCHA02032	Threatened	Threatened	-	-	4012452
Animals - Fish	Oncorhynchus kisutch pop. 2	coho salmon - southern Oregon / northern California ESU	AFCHA02032	Threatened	Threatened	-	-	4012462
Animals - Fish	Oncorhynchus kisutch pop. 2	coho salmon - southern Oregon / northern California ESU	AFCHA02032	Threatened	Threatened	-	-	4012463
Animals - Fish	Oncorhynchus kisutch pop. 2	coho salmon - southern Oregon / northern California ESU	AFCHA02032	Threatened	Threatened	-	-	4012461
Animals - Fish	Oncorhynchus mykiss irideus pop. 16	steelhead - northern California DPS	AFCHA0209Q	Threatened	None	-	-	4012461
Animals - Fish	Oncorhynchus mykiss irideus pop. 16	steelhead - northern California DPS	AFCHA0209Q	Threatened	None	-	-	4012462
Animals - Fish	Oncorhynchus mykiss irideus pop. 48	steelhead - northern California DPS summer-run	AFCHA0213P	Threatened	Endangered	-	-	4012462
Animals - Fish	Oncorhynchus mykiss irideus pop. 48	steelhead - northern	AFCHA0213P	Threatened	Endangered	-	-	4012463

		California DPS summer-run						
Animals - Fish	Oncorhynchus mykiss irideus pop. 48	steelhead - northern California DPS summer-run	AFCHA0213P	Threatened	Endangered	-	-	4012452
Animals - Fish	Oncorhynchus mykiss irideus pop. 48	steelhead - northern California DPS summer-run	AFCHA0213P	Threatened	Endangered	-	-	4012453
Animals - Fish	Oncorhynchus mykiss irideus pop. 48	steelhead - northern California DPS summer-run	AFCHA0213P	Threatened	Endangered	-	-	4012451
Animals - Fish	Oncorhynchus mykiss irideus pop. 48	steelhead - northern California DPS summer-run	AFCHA0213P	Threatened	Endangered	-	-	4012441
Animals - Fish	Oncorhynchus mykiss irideus pop. 49	steelhead - northern California DPS winter-run	AFCHA0213Q	Threatened	None	-	-	4012441
Animals - Fish	Oncorhynchus mykiss irideus pop. 49	steelhead - northern California DPS winter-run	AFCHA0213Q	Threatened	None	-	-	4012451
Animals - Fish	Oncorhynchus mykiss irideus pop. 49	steelhead - northern California DPS winter-run	AFCHA0213Q	Threatened	None	-	-	4012442
Animals - Fish	Oncorhynchus mykiss irideus pop. 49	steelhead - northern California DPS winter-run	AFCHA0213Q	Threatened	None	-	-	4012443
Animals - Fish	Oncorhynchus mykiss irideus pop. 49	steelhead - northern California DPS winter-run	AFCHA0213Q	Threatened	None	-	-	4012453
Animals - Fish	Oncorhynchus mykiss irideus pop. 49	steelhead - northern California DPS winter-run	AFCHA0213Q	Threatened	None	-	-	4012452
Animals - Fish	Oncorhynchus mykiss irideus pop. 49	steelhead - northern California DPS winter-run	AFCHA0213Q	Threatened	None	-	-	4012463
Animals - Fish	Oncorhynchus mykiss irideus pop. 49	steelhead - northern California DPS winter-run	AFCHA0213Q	Threatened	None	-	-	4012462
Animals - Fish	Oncorhynchus mykiss irideus pop. 49	steelhead - northern California DPS winter-run	AFCHA0213Q	Threatened	None	-	-	4012461
Animals - Fish	Oncorhynchus tshawytscha pop. 17	chinook salmon - California coastal ESU	AFCHA0205S	Threatened	None	-	-	4012461
Animals - Fish	Oncorhynchus tshawytscha pop. 17	chinook salmon - California coastal ESU	AFCHA0205S	Threatened	None	-	-	4012462

Animals - Fish	Oncorhynchus tshawytscha pop. 17	chinook salmon - California coastal ESU	AFCHA0205S	Threatened	None	-	-	4012452
Animals - Fish	Oncorhynchus tshawytscha pop. 17	chinook salmon - California coastal ESU	AFCHA0205S	Threatened	None	-	-	4012442
Animals - Fish	Oncorhynchus tshawytscha pop. 17	chinook salmon - California coastal ESU	AFCHA0205S	Threatened	None	-	-	4012451
Animals - Fish	Oncorhynchus tshawytscha pop. 17	chinook salmon - California coastal ESU	AFCHA0205S	Threatened	None	-	-	4012441
Animals - Insects	Bombus caliginosus	obscure bumble bee	IIHYM24380	None	None	-	-	4012452
Animals - Insects	Bombus caliginosus	obscure bumble bee	IIHYM24380	None	None	-	-	4012453
Animals - Insects	Bombus caliginosus	obscure bumble bee	IIHYM24380	None	None	-	-	4012463
Animals - Insects	Bombus caliginosus	obscure bumble bee	IIHYM24380	None	None	-	-	4012461
Animals - Insects	Bombus caliginosus	obscure bumble bee	IIHYM24380	None	None	-	-	4012462
Animals - Insects	Bombus occidentalis	western bumble bee	IIHYM24252	None	Candidate Endangered	-	-	4012462
Animals - Insects	Bombus occidentalis	western bumble bee	IIHYM24252	None	Candidate Endangered	-	-	4012461
Animals - Insects	Bombus occidentalis	western bumble bee	IIHYM24252	None	Candidate Endangered	-	-	4012453
Animals - Insects	Bombus occidentalis	western bumble bee	IIHYM24252	None	Candidate Endangered	-	-	4012451
Animals - Insects	Bombus occidentalis	western bumble bee	IIHYM24252	None	Candidate Endangered	-	-	4012452
Animals - Insects	Bombus occidentalis	western bumble bee	IIHYM24252	None	Candidate Endangered	-	-	4012441
Animals - Insects	Limnephilus atercus	Fort Dick limnephilus caddisfly	IITRI15020	None	None	-	-	4012453
Animals - Mammals	Aplodontia rufa humboldtiana	Humboldt mountain beaver	AMAF01017	None	None	-	-	4012451
Animals - Mammals	Aplodontia rufa humboldtiana	Humboldt mountain beaver	AMAF01017	None	None	-	-	4012461
Animals - Mammals	Aplodontia rufa humboldtiana	Humboldt mountain beaver	AMAF01017	None	None	-	-	4012462
Animals - Mammals	Aplodontia rufa humboldtiana	Humboldt mountain beaver	AMAF01017	None	None	-	-	4012441

Animals - Mammals	Arborimus pomo	Sonoma tree vole	AMAFF23030	None	None	SSC	-	4012441
Animals - Mammals	Arborimus pomo	Sonoma tree vole	AMAFF23030	None	None	SSC	-	4012462
Animals - Mammals	Arborimus pomo	Sonoma tree vole	AMAFF23030	None	None	SSC	-	4012461
Animals - Mammals	Arborimus pomo	Sonoma tree vole	AMAFF23030	None	None	SSC	-	4012451
Animals - Mammals	Arborimus pomo	Sonoma tree vole	AMAFF23030	None	None	SSC	-	4012452
Animals - Mammals	Arborimus pomo	Sonoma tree vole	AMAFF23030	None	None	SSC	-	4012442
Animals - Mammals	Arborimus pomo	Sonoma tree vole	AMAFF23030	None	None	SSC	-	4012443
Animals - Mammals	Arborimus pomo	Sonoma tree vole	AMAFF23030	None	None	SSC	-	4012453
Animals - Mammals	Erethizon dorsatum	North American porcupine	AMAFJ01010	None	None	-	-	4012453
Animals - Mammals	Erethizon dorsatum	North American porcupine	AMAFJ01010	None	None	-	-	4012452
Animals - Mammals	Erethizon dorsatum	North American porcupine	AMAFJ01010	None	None	-	-	4012451
Animals - Mammals	Erethizon dorsatum	North American porcupine	AMAFJ01010	None	None	-	-	4012461
Animals - Mammals	Erethizon dorsatum	North American porcupine	AMAFJ01010	None	None	-	-	4012462
Animals - Mammals	Erethizon dorsatum	North American porcupine	AMAFJ01010	None	None	-	-	4012463
Animals - Mammals	Erethizon dorsatum	North American porcupine	AMAFJ01010	None	None	-	-	4012441
Animals - Mammals	Martes caurina humboldtensis	Humboldt marten	AMAJF01012	Threatened	Endangered	SSC	-	4012461
Animals - Mammals	Martes caurina humboldtensis	Humboldt marten	AMAJF01012	Threatened	Endangered	SSC	-	4012451

Animals - Mammals	Pekania pennanti	Fisher	AMAJF01020	None	None	SSC	-	4012451
Animals - Mammals	Pekania pennanti	Fisher	AMAJF01020	None	None	SSC	-	4012442
Animals - Mammals	Taxidea taxus	American badger	AMAJF04010	None	None	SSC	-	4012452
Animals - Mammals	Antrozous pallidus	pallid bat	AMACC10010	None	None	SSC	-	4012452
Animals - Mammals	Antrozous pallidus	pallid bat	AMACC10010	None	None	SSC	-	4012453
Animals - Mammals	Corynorhinus townsendii	Townsend's big-eared bat	AMACC08010	None	None	SSC	-	4012451
Animals - Mammals	Corynorhinus townsendii	Townsend's big-eared bat	AMACC08010	None	None	SSC	-	4012461
Animals - Mammals	Corynorhinus townsendii	Townsend's big-eared bat	AMACC08010	None	None	SSC	-	4012462
Animals - Mammals	Corynorhinus townsendii	Townsend's big-eared bat	AMACC08010	None	None	SSC	-	4012441
Animals - Mammals	Lasionycteris noctivagans	silver-haired bat	AMACC02010	None	None	-	-	4012441
Animals - Mammals	Lasiurus cinereus	hoary bat	AMACC05032	None	None	-	-	4012453
Animals - Mammals	Lasiurus cinereus	hoary bat	AMACC05032	None	None	-	-	4012452
Animals - Mammals	Myotis yumanensis	Yuma myotis	AMACC01020	None	None	-	-	4012441
Animals - Mollusks	Littorina subrotundata	Newcombs littorine snail	IMGASR3010	None	None	-	-	4012462
Animals - Mollusks	Littorina subrotundata	Newcombs littorine snail	IMGASR3010	None	None	-	-	4012463
Animals - Mollusks	Margaritifera falcata	western pearlshell	IMBIV27020	None	None	-	-	4012462

Animals - Mollusks	Margaritifera falcata	western pearlshell	IMBIV27020	None	None	-	-	4012461
Animals - Mollusks	Margaritifera falcata	western pearlshell	IMBIV27020	None	None	-	-	4012441
Animals - Mollusks	Anodonta californiensis	California floater	IMBIV04220	None	None	-	-	4012461
Animals - Mollusks	Anodonta californiensis	California floater	IMBIV04220	None	None	-	-	4012462
Animals - Mollusks	Gonidea angulata	western ridged mussel	IMBIV19010	None	None	-	-	4012441
Animals - Reptiles	Emys marmorata	western pond turtle	ARAAD02030	None	None	SSC	-	4012462
Animals - Reptiles	Emys marmorata	western pond turtle	ARAAD02030	None	None	SSC	-	4012461
Animals - Reptiles	Emys marmorata	western pond turtle	ARAAD02030	None	None	SSC	-	4012463
Animals - Reptiles	Emys marmorata	western pond turtle	ARAAD02030	None	None	SSC	-	4012453
Animals - Reptiles	Emys marmorata	western pond turtle	ARAAD02030	None	None	SSC	-	4012451
Animals - Reptiles	Emys marmorata	western pond turtle	ARAAD02030	None	None	SSC	-	4012452
Community - Terrestrial	Coastal Terrace Prairie	Coastal Terrace Prairie	CTT41100CA	None	None	-	-	4012463
Community - Terrestrial	Northern Coastal Salt Marsh	Northern Coastal Salt Marsh	CTT52110CA	None	None	-	-	4012463
Community - Terrestrial	Northern Coastal Salt Marsh	Northern Coastal Salt Marsh	CTT52110CA	None	None	-	-	4012462
Community - Terrestrial	Northern Coastal Salt Marsh	Northern Coastal Salt Marsh	CTT52110CA	None	None	-	-	4012453
Community - Terrestrial	Sitka Spruce Forest	Sitka Spruce Forest	CTT82110CA	None	None	-	-	4012463
Plants - Bryophytes	Anomobryum julaceum	slender silver moss	NBMUS80010	None	None	-	4.2	4012453
Plants - Bryophytes	Fissidens pauperculus	minute pocket moss	NBMUS2W0U0	None	None	-	1B.2	4012452
Plants - Lichens	Usnea longissima	Methuselahs beard lichen	NLLEC5P420	None	None	-	4.2	4012452
Plants - Lichens	Usnea longissima	Methuselahs beard lichen	NLLEC5P420	None	None	-	4.2	4012453

Plants - Lichens	Usnea longissima	Methuselahs beard lichen	NLLEC5P420	None	None	-	4.2	4012451
Plants - Lichens	Usnea longissima	Methuselahs beard lichen	NLLEC5P420	None	None	-	4.2	4012442
Plants - Lichens	Usnea longissima	Methuselahs beard lichen	NLLEC5P420	None	None	-	4.2	4012461
Plants - Lichens	Usnea longissima	Methuselahs beard lichen	NLLEC5P420	None	None	-	4.2	4012441
Plants - Vascular	Angelica lucida	sea-watch	PDAPI070G0	None	None	-	4.2	4012462
Plants - Vascular	Angelica lucida	sea-watch	PDAPI070G0	None	None	-	4.2	4012463
Plants - Vascular	Angelica lucida	sea-watch	PDAPI070G0	None	None	-	4.2	4012453
Plants - Vascular	Glehnia littoralis ssp. leiocarpa	American glehnia	PDAPI13011	None	None	-	4.2	4012453
Plants - Vascular	Glehnia littoralis ssp. leiocarpa	American glehnia	PDAPI13011	None	None	-	4.2	4012463
Plants - Vascular	Glehnia littoralis ssp. leiocarpa	American glehnia	PDAPI13011	None	None	-	4.2	4012462
Plants - Vascular	Hemizonia congesta ssp. tracyi	Tracys tarplant	PDAST4R067	None	None	-	4.3	4012452
Plants - Vascular	Hemizonia congesta ssp. tracyi	Tracys tarplant	PDAST4R067	None	None	-	4.3	4012443
Plants - Vascular	Hemizonia congesta ssp. tracyi	Tracys tarplant	PDAST4R067	None	None	-	4.3	4012451
Plants - Vascular	Hemizonia congesta ssp. tracyi	Tracys tarplant	PDAST4R067	None	None	-	4.3	4012441
Plants - Vascular	Hesperevax sparsiflora var. brevifolia	short-leaved evax	PDASTE5011	None	None	-	1B.2	4012442
Plants - Vascular	Hesperevax sparsiflora var. brevifolia	short-leaved evax	PDASTE5011	None	None	-	1B.2	4012443
Plants - Vascular	Hesperevax sparsiflora var. brevifolia	short-leaved evax	PDASTE5011	None	None	-	1B.2	4012453
Plants - Vascular	Hesperevax sparsiflora var. brevifolia	short-leaved evax	PDASTE5011	None	None	-	1B.2	4012463
Plants - Vascular	Layia carnosa	beach layia	PDAST5N010	Threatened	Endangered	-	1B.1	4012463

Plants - Vascular	Layia carnosae	beach layia	PDAST5N010	Threatened	Endangered	-	1B.1	4012462
Plants - Vascular	Packera bolanderi var. bolanderi	seacoast ragwort	PDAST8H0H1	None	None	-	2B.2	4012442
Plants - Vascular	Packera bolanderi var. bolanderi	seacoast ragwort	PDAST8H0H1	None	None	-	2B.2	4012451
Plants - Vascular	Packera bolanderi var. bolanderi	seacoast ragwort	PDAST8H0H1	None	None	-	2B.2	4012441
Plants - Vascular	Cardamine angulata	seaside bittercress	PDBRA0K010	None	None	-	2B.1	4012461
Plants - Vascular	Erysimum menziesii	Menzies wallflower	PDBRA160R0	Endangered	Endangered	-	1B.1	4012463
Plants - Vascular	Downingia willamettensis	Cascade downingia	PDCAM060E0	None	None	-	2B.2	4012451
Plants - Vascular	Downingia willamettensis	Cascade downingia	PDCAM060E0	None	None	-	2B.2	4012452
Plants - Vascular	Spergularia canadensis var. occidentalis	western sand-spurrey	PDCAR0W032	None	None	-	2B.1	4012463
Plants - Vascular	Spergularia canadensis var. occidentalis	western sand-spurrey	PDCAR0W032	None	None	-	2B.1	4012462
Plants - Vascular	Carex leptalea	bristle-stalked sedge	PMCYP037E0	None	None	-	2B.2	4012462
Plants - Vascular	Carex lyngbyei	Lyngbyes sedge	PMCYP037Y0	None	None	-	2B.2	4012463
Plants - Vascular	Carex lyngbyei	Lyngbyes sedge	PMCYP037Y0	None	None	-	2B.2	4012453
Plants - Vascular	Astragalus pycnostachyus var. pycnostachyus	coastal marsh milk-vetch	PDFAB0F7B2	None	None	-	1B.2	4012443
Plants - Vascular	Astragalus rattanii var. rattanii	Rattans milk-vetch	PDFAB0F7E2	None	None	-	4.3	4012441
Plants - Vascular	Hosackia gracilis	harlequin lotus	PDFAB2A0D0	None	None	-	4.2	4012442
Plants - Vascular	Hosackia gracilis	harlequin lotus	PDFAB2A0D0	None	None	-	4.2	4012443
Plants - Vascular	Hosackia gracilis	harlequin lotus	PDFAB2A0D0	None	None	-	4.2	4012451
Plants - Vascular	Hosackia gracilis	harlequin lotus	PDFAB2A0D0	None	None	-	4.2	4012452
Plants - Vascular	Hosackia gracilis	harlequin lotus	PDFAB2A0D0	None	None	-	4.2	4012463

Plants - Vascular	Hosackia gracilis	harlequin lotus	PDFAB2A0D0	None	None	-	4.2	4012462
Plants - Vascular	Lathyrus glandulosus	sticky pea	PDFAB251A0	None	None	-	4.3	4012451
Plants - Vascular	Lathyrus glandulosus	sticky pea	PDFAB251A0	None	None	-	4.3	4012442
Plants - Vascular	Lathyrus glandulosus	sticky pea	PDFAB251A0	None	None	-	4.3	4012441
Plants - Vascular	Ribes laxiflorum	trailing black currant	PDGRO020V0	None	None	-	4.3	4012462
Plants - Vascular	Ribes laxiflorum	trailing black currant	PDGRO020V0	None	None	-	4.3	4012461
Plants - Vascular	Ribes roezlii var. amictum	hoary gooseberry	PDGRO021B1	None	None	-	4.3	4012441
Plants - Vascular	Ribes roezlii var. amictum	hoary gooseberry	PDGRO021B1	None	None	-	4.3	4012442
Plants - Vascular	Sisyrinchium hitchcockii	Hitchcocks blue-eyed grass	PMIRI0D0S0	None	None	-	1B.1	4012443
Plants - Vascular	Erythronium oregonum	giant fawn lily	PMLIL0U0C0	None	None	-	2B.2	4012442
Plants - Vascular	Erythronium oregonum	giant fawn lily	PMLIL0U0C0	None	None	-	2B.2	4012441
Plants - Vascular	Erythronium revolutum	coast fawn lily	PMLIL0U0F0	None	None	-	2B.2	4012441
Plants - Vascular	Erythronium revolutum	coast fawn lily	PMLIL0U0F0	None	None	-	2B.2	4012442
Plants - Vascular	Lilium kelloggii	Kelloggs lily	PMLIL1A0A0	None	None	-	4.3	4012451
Plants - Vascular	Lilium kelloggii	Kelloggs lily	PMLIL1A0A0	None	None	-	4.3	4012461
Plants - Vascular	Lilium occidentale	western lily	PMLIL1A0G0	Endangered	Endangered	-	1B.1	4012462
Plants - Vascular	Lilium occidentale	western lily	PMLIL1A0G0	Endangered	Endangered	-	1B.1	4012463
Plants - Vascular	Lilium rubescens	redwood lily	PMLIL1A0N0	None	None	-	4.2	4012451
Plants - Vascular	Lilium rubescens	redwood lily	PMLIL1A0N0	None	None	-	4.2	4012442
Plants - Vascular	Lilium rubescens	redwood lily	PMLIL1A0N0	None	None	-	4.2	4012441
Plants - Vascular	Lycopodium clavatum	running-pine	PPLYC01080	None	None	-	4.1	4012441

Plants - Vascular	Lycopodium clavatum	running-pine	PPLYC01080	None	None	-	4.1	4012451
Plants - Vascular	Lycopodium clavatum	running-pine	PPLYC01080	None	None	-	4.1	4012461
Plants - Vascular	Lycopodium clavatum	running-pine	PPLYC01080	None	None	-	4.1	4012462
Plants - Vascular	Sidalcea malachroides	maple-leaved checkerbloom	PDMAL110E0	None	None	-	4.2	4012461
Plants - Vascular	Sidalcea malachroides	maple-leaved checkerbloom	PDMAL110E0	None	None	-	4.2	4012462
Plants - Vascular	Sidalcea malachroides	maple-leaved checkerbloom	PDMAL110E0	None	None	-	4.2	4012453
Plants - Vascular	Sidalcea malachroides	maple-leaved checkerbloom	PDMAL110E0	None	None	-	4.2	4012451
Plants - Vascular	Sidalcea malachroides	maple-leaved checkerbloom	PDMAL110E0	None	None	-	4.2	4012441
Plants - Vascular	Sidalcea malachroides	maple-leaved checkerbloom	PDMAL110E0	None	None	-	4.2	4012442
Plants - Vascular	Sidalcea malviflora ssp. patula	Siskiyou checkerbloom	PDMAL110F9	None	None	-	1B.2	4012442
Plants - Vascular	Sidalcea malviflora ssp. patula	Siskiyou checkerbloom	PDMAL110F9	None	None	-	1B.2	4012441
Plants - Vascular	Sidalcea malviflora ssp. patula	Siskiyou checkerbloom	PDMAL110F9	None	None	-	1B.2	4012451
Plants - Vascular	Sidalcea malviflora ssp. patula	Siskiyou checkerbloom	PDMAL110F9	None	None	-	1B.2	4012443
Plants - Vascular	Sidalcea malviflora ssp. patula	Siskiyou checkerbloom	PDMAL110F9	None	None	-	1B.2	4012453
Plants - Vascular	Sidalcea malviflora ssp. patula	Siskiyou checkerbloom	PDMAL110F9	None	None	-	1B.2	4012452
Plants - Vascular	Sidalcea malviflora ssp. patula	Siskiyou checkerbloom	PDMAL110F9	None	None	-	1B.2	4012462
Plants - Vascular	Sidalcea oregana ssp. eximia	coast checkerbloom	PDMAL110K9	None	None	-	1B.2	4012462

Plants - Vascular	<i>Sidalcea oregana</i> ssp. <i>eximia</i>	coast checkerbloom	PDMAL110K9	None	None	-	1B.2	4012463
Plants - Vascular	<i>Pityopus californicus</i>	California pinefoot	PDMON05010	None	None	-	4.2	4012462
Plants - Vascular	<i>Pityopus californicus</i>	California pinefoot	PDMON05010	None	None	-	4.2	4012461
Plants - Vascular	<i>Pityopus californicus</i>	California pinefoot	PDMON05010	None	None	-	4.2	4012441
Plants - Vascular	<i>Pityopus californicus</i>	California pinefoot	PDMON05010	None	None	-	4.2	4012442
Plants - Vascular	<i>Montia howellii</i>	Howells montia	PDPOR05070	None	None	-	2B.2	4012442
Plants - Vascular	<i>Montia howellii</i>	Howells montia	PDPOR05070	None	None	-	2B.2	4012441
Plants - Vascular	<i>Montia howellii</i>	Howells montia	PDPOR05070	None	None	-	2B.2	4012461
Plants - Vascular	<i>Montia howellii</i>	Howells montia	PDPOR05070	None	None	-	2B.2	4012462
Plants - Vascular	<i>Montia howellii</i>	Howells montia	PDPOR05070	None	None	-	2B.2	4012453
Plants - Vascular	<i>Montia howellii</i>	Howells montia	PDPOR05070	None	None	-	2B.2	4012451
Plants - Vascular	<i>Montia howellii</i>	Howells montia	PDPOR05070	None	None	-	2B.2	4012443
Plants - Vascular	<i>Montia howellii</i>	Howells montia	PDPOR05070	None	None	-	2B.2	4012452
Plants - Vascular	<i>Abronia umbellata</i> var. <i>breviflora</i>	pink sand-verbena	PDNYC010N4	None	None	-	1B.1	4012462
Plants - Vascular	<i>Clarkia amoena</i> ssp. <i>whitneyi</i>	Whitneys farewell-to-spring	PDONA05025	None	None	-	1B.1	4012452
Plants - Vascular	<i>Oenothera wolfii</i>	Wolfs evening-primrose	PDONA0C1K0	None	None	-	1B.1	4012443
Plants - Vascular	<i>Listera cordata</i>	heart-leaved twayblade	PMORC1N060	None	None	-	4.2	4012451
Plants - Vascular	<i>Listera cordata</i>	heart-leaved twayblade	PMORC1N060	None	None	-	4.2	4012452
Plants - Vascular	<i>Listera cordata</i>	heart-leaved twayblade	PMORC1N060	None	None	-	4.2	4012462
Plants - Vascular	<i>Listera cordata</i>	heart-leaved twayblade	PMORC1N060	None	None	-	4.2	4012461
Plants - Vascular	<i>Listera cordata</i>	heart-leaved twayblade	PMORC1N060	None	None	-	4.2	4012441
Plants - Vascular	<i>Listera cordata</i>	heart-leaved twayblade	PMORC1N060	None	None	-	4.2	4012442
Plants - Vascular	<i>Piperia candida</i>	white-flowered rein orchid	PMORC1X050	None	None	-	1B.2	4012441

Plants - Vascular	Castilleja ambigua var. humboldtiensis	Humboldt Bay owls-clover	PDSCR0D402	None	None	-	1B.2	4012462
Plants - Vascular	Castilleja ambigua var. humboldtiensis	Humboldt Bay owls-clover	PDSCR0D402	None	None	-	1B.2	4012463
Plants - Vascular	Castilleja ambigua var. humboldtiensis	Humboldt Bay owls-clover	PDSCR0D402	None	None	-	1B.2	4012453
Plants - Vascular	Castilleja litoralis	Oregon coast paintbrush	PDSCR0D012	None	None	-	2B.2	4012453
Plants - Vascular	Castilleja litoralis	Oregon coast paintbrush	PDSCR0D012	None	None	-	2B.2	4012443
Plants - Vascular	Castilleja litoralis	Oregon coast paintbrush	PDSCR0D012	None	None	-	2B.2	4012463
Plants - Vascular	Castilleja litoralis	Oregon coast paintbrush	PDSCR0D012	None	None	-	2B.2	4012462
Plants - Vascular	Chloropyron maritimum ssp. palustre	Point Reyes salty birds-beak	PDSCR0J0C3	None	None	-	1B.2	4012462
Plants - Vascular	Chloropyron maritimum ssp. palustre	Point Reyes salty birds-beak	PDSCR0J0C3	None	None	-	1B.2	4012463
Plants - Vascular	Pleuropogon refractus	nodding semaphore grass	PMPOA4Y080	None	None	-	4.2	4012462
Plants - Vascular	Pleuropogon refractus	nodding semaphore grass	PMPOA4Y080	None	None	-	4.2	4012461
Plants - Vascular	Pleuropogon refractus	nodding semaphore grass	PMPOA4Y080	None	None	-	4.2	4012443
Plants - Vascular	Pleuropogon refractus	nodding semaphore grass	PMPOA4Y080	None	None	-	4.2	4012451
Plants - Vascular	Pleuropogon refractus	nodding semaphore grass	PMPOA4Y080	None	None	-	4.2	4012453
Plants - Vascular	Pleuropogon refractus	nodding semaphore grass	PMPOA4Y080	None	None	-	4.2	4012441
Plants - Vascular	Pleuropogon refractus	nodding semaphore grass	PMPOA4Y080	None	None	-	4.2	4012442
Plants - Vascular	Puccinellia pumila	dwarf alkali grass	PMPOA531L0	None	None	-	2B.2	4012463
Plants - Vascular	Collomia tracyi	Tracys collomia	PDPLM020B0	None	None	-	4.3	4012451
Plants - Vascular	Gilia capitata ssp. pacifica	Pacific gilia	PDPLM040B6	None	None	-	1B.2	4012451

Plants - Vascular	<i>Gilia capitata</i> ssp. <i>pacifica</i>	Pacific <i>gilia</i>	PDPLM040B6	None	None	-	1B.2	4012452
Plants - Vascular	<i>Gilia capitata</i> ssp. <i>pacifica</i>	Pacific <i>gilia</i>	PDPLM040B6	None	None	-	1B.2	4012453
Plants - Vascular	<i>Gilia capitata</i> ssp. <i>pacifica</i>	Pacific <i>gilia</i>	PDPLM040B6	None	None	-	1B.2	4012442
Plants - Vascular	<i>Gilia capitata</i> ssp. <i>pacifica</i>	Pacific <i>gilia</i>	PDPLM040B6	None	None	-	1B.2	4012441
Plants - Vascular	<i>Gilia millefoliata</i>	dark-eyed <i>gilia</i>	PDPLM04130	None	None	-	1B.2	4012463
Plants - Vascular	<i>Gilia millefoliata</i>	dark-eyed <i>gilia</i>	PDPLM04130	None	None	-	1B.2	4012462
Plants - Vascular	<i>Polemonium carneum</i>	Oregon <i>polemonium</i>	PDPLM0E050	None	None	-	2B.2	4012453
Plants - Vascular	<i>Polemonium carneum</i>	Oregon <i>polemonium</i>	PDPLM0E050	None	None	-	2B.2	4012452
Plants - Vascular	<i>Polemonium carneum</i>	Oregon <i>polemonium</i>	PDPLM0E050	None	None	-	2B.2	4012443
Plants - Vascular	<i>Polemonium carneum</i>	Oregon <i>polemonium</i>	PDPLM0E050	None	None	-	2B.2	4012442
Plants - Vascular	<i>Chrysosplenium glechomifolium</i>	Pacific golden saxifrage	PDSAX07020	None	None	-	4.3	4012442
Plants - Vascular	<i>Chrysosplenium glechomifolium</i>	Pacific golden saxifrage	PDSAX07020	None	None	-	4.3	4012462
Plants - Vascular	<i>Chrysosplenium glechomifolium</i>	Pacific golden saxifrage	PDSAX07020	None	None	-	4.3	4012461
Plants - Vascular	<i>Mitellastra caulescens</i>	leafy-stemmed mitrewort	PDSAX0N020	None	None	-	4.2	4012461
Plants - Vascular	<i>Mitellastra caulescens</i>	leafy-stemmed mitrewort	PDSAX0N020	None	None	-	4.2	4012462
Plants - Vascular	<i>Mitellastra caulescens</i>	leafy-stemmed mitrewort	PDSAX0N020	None	None	-	4.2	4012451
Plants - Vascular	<i>Mitellastra caulescens</i>	leafy-stemmed mitrewort	PDSAX0N020	None	None	-	4.2	4012441
Plants - Vascular	<i>Tiarella trifoliata</i> var. <i>trifoliata</i>	trifoliolate laceflower	PDSAX10031	None	None	-	3.2	4012441

Search Results

50 matches found. Click on scientific name for details

Search Criteria: 9-Quad include [4012453:4012452:4012451:4012462:4012463:4012461:4012441:4012442:4012443]

▲ SCIENTIFIC NAME	COMMON NAME	FAMILY	LIFEFORM	BLOOMING PERIOD	FED LIST	STATE LIST	GLOBAL RANK	STATE RANK	CA RARE PLANT RANK	CA ENDEMIC	DATE ADDED
<i>Abronia umbellata</i> var. <i>breviflora</i>	pink sand-verbena	Nyctaginaceae	annual herb	Jun-Oct	None	None	G4G5T2	S2	1B.1		1988-01-01
<i>Angelica lucida</i>	sea-watch	Apiaceae	perennial herb	Apr-Sep	None	None	G5	S3	4.2		2001-01-01
<i>Anomobryum julaceum</i>	slender silver moss	Bryaceae	moss		None	None	G5?	S2	4.2		2001-01-01
<i>Astragalus pycnostachyus</i> var. <i>pycnostachyus</i>	coastal marsh milk-vetch	Fabaceae	perennial herb	(Apr)Jun-Oct	None	None	G2T2	S2	1B.2	Yes	2001-01-01
<i>Astragalus rattanii</i> var. <i>rattanii</i>	Rattan's milk-vetch	Fabaceae	perennial herb	Apr-Jul	None	None	G4T4	S4	4.3	Yes	1988-01-01
<i>Cardamine angulata</i>	seaside bittercress	Brassicaceae	perennial herb	(Jan)Mar-Jul	None	None	G4G5	S3	2B.2		2012-04-10
<i>Carex leptalea</i>	bristle-stalked sedge	Cyperaceae	perennial rhizomatous herb	Mar-Jul	None	None	G5	S1	2B.2		1994-01-01
<i>Carex lyngbyei</i>	Lyngbye's sedge	Cyperaceae	perennial rhizomatous herb	Apr-Aug	None	None	G5	S3	2B.2		2001-01-01
<i>Castilleja ambigua</i> var. <i>humboldtensis</i>	Humboldt Bay owl's-clover	Orobanchaceae	annual herb (hemiparasitic)	Apr-Aug	None	None	G4T2	S2	1B.2	Yes	1974-01-01
<i>Castilleja litoralis</i>	Oregon coast paintbrush	Orobanchaceae	perennial herb (hemiparasitic)	Jun	None	None	G3	S3	2B.2		2001-01-01
<i>Chloropyron maritimum</i> ssp. <i>palustre</i>	Point Reyes salty bird's-beak	Orobanchaceae	annual herb (hemiparasitic)	Jun-Oct	None	None	G4?T2	S2	1B.2		1974-01-01
<i>Chrysosplenium glechomifolium</i>	Pacific golden saxifrage	Saxifragaceae	perennial herb	Feb-Jun	None	None	G5?	S3	4.3		2015-10-15
<i>Clarkia amoena</i> ssp. <i>whitneyi</i>	Whitney's farewell-to-spring	Onagraceae	annual herb	Jun-Aug	None	None	G5T1	S1	1B.1	Yes	1980-01-01
<i>Collomia tracyi</i>	Tracy's collomia	Polemoniaceae	annual herb	Jun-Jul	None	None	G4	S4	4.3	Yes	1974-01-01
<i>Downingia willamettensis</i>	Cascade downingia	Campanulaceae	annual herb	Jun-Jul(Sep)	None	None	G4	S2	2B.2		2018-09-20
<i>Erysimum menziesii</i>	Menzies' wallflower	Brassicaceae	perennial herb	Mar-Sep	FE	CE	G1	S1	1B.1	Yes	1974-01-01
<i>Erythronium oregonum</i>	giant fawn lily	Liliaceae	perennial herb	Mar-Jun(Jul)	None	None	G5	S2	2B.2		2007-07-23

<u><i>Erythronium revolutum</i></u>	coast fawn lily	Liliaceae	perennial bulbiferous herb	Mar-Jul(Aug)	None	None	G4G5	S3	2B.2		2001-01-01
<u><i>Fissidens pauperculus</i></u>	minute pocket moss	Fissidentaceae	moss		None	None	G3?	S2	1B.2		2001-01-01
<u><i>Gilia capitata</i> ssp. <i>pacifica</i></u>	Pacific gilia	Polemoniaceae	annual herb	Apr-Aug	None	None	G5T3	S2	1B.2		2001-01-01
<u><i>Gilia millefoliata</i></u>	dark-eyed gilia	Polemoniaceae	annual herb	Apr-Jul	None	None	G2	S2	1B.2		2001-01-01
<u><i>Glehnia littoralis</i> ssp. <i>leiocarpa</i></u>	American glehnia	Apiaceae	perennial herb	May-Aug	None	None	G5T5	S2S3	4.2		2001-01-01
<u><i>Hemizonia congesta</i> ssp. <i>tracyi</i></u>	Tracy's tarplant	Asteraceae	annual herb	(Mar-Apr)May-Oct	None	None	G5T4	S4	4.3	Yes	1974-01-01
<u><i>Hesper-evax sparsiflora</i> var. <i>brevifolia</i></u>	short-leaved evax	Asteraceae	annual herb	Mar-Jun	None	None	G4T3	S3	1B.2		1994-01-01
<u><i>Hosackia gracilis</i></u>	harlequin lotus	Fabaceae	perennial rhizomatous herb	Mar-Jul	None	None	G3G4	S3	4.2		2004-01-01
<u><i>Lathyrus glandulosus</i></u>	sticky pea	Fabaceae	perennial rhizomatous herb	Apr-Jun	None	None	G3	S3	4.3	Yes	1988-01-01
<u><i>Layia carnosa</i></u>	beach layia	Asteraceae	annual herb	Mar-Jul	FT	CE	G2	S2	1B.1		1988-01-01
<u><i>Lilium kelloggii</i></u>	Kellogg's lily	Liliaceae	perennial bulbiferous herb	(Feb)May-Aug	None	None	G3	S3	4.3		1974-01-01
<u><i>Lilium occidentale</i></u>	western lily	Liliaceae	perennial bulbiferous herb	Jun-Jul	FE	CE	G1G2	S1	1B.1		1974-01-01
<u><i>Lilium rubescens</i></u>	redwood lily	Liliaceae	perennial bulbiferous herb	(Mar)Apr-Aug(Sep)	None	None	G3	S3	4.2	Yes	1974-01-01
<u><i>Listera cordata</i></u>	heart-leaved twayblade	Orchidaceae	perennial herb	Feb-Jul	None	None	G5	S4	4.2		1974-01-01
<u><i>Lycopodium clavatum</i></u>	running-pine	Lycopodiaceae	perennial rhizomatous herb	Jun-Aug(Sep)	None	None	G5	S3	4.1		1974-01-01
<u><i>Mitellastra caulescens</i></u>	leafy-stemmed mitrewort	Saxifragaceae	perennial rhizomatous herb	(Mar)Apr-Oct	None	None	G5	S4	4.2		2001-01-01
<u><i>Montia howellii</i></u>	Howell's montia	Montiaceae	annual herb	(Feb)Mar-May	None	None	G3G4	S2	2B.2		1994-01-01
<u><i>Oenothera wolffii</i></u>	Wolf's evening-primrose	Onagraceae	perennial herb	May-Oct	None	None	G2	S1	1B.1		1980-01-01
<u><i>Packera bolanderi</i> var. <i>bolanderi</i></u>	seacoast ragwort	Asteraceae	perennial rhizomatous herb	(Jan-Apr)May-Jul(Aug)	None	None	G4T4	S2S3	2B.2		2001-01-01
<u><i>Piperia candida</i></u>	white-flowered rein orchid	Orchidaceae	perennial herb	(Mar-Apr)May-Sep	None	None	G3?	S3	1B.2		1994-01-01
<u><i>Pityopus californicus</i></u>	California pinefoot	Ericaceae	perennial herb (achlorophyllous)	(Mar-Apr)May-Aug	None	None	G4G5	S4	4.2		1974-01-01

<u><i>Pleuropogon refractus</i></u>	nodding semaphore grass	Poaceae	perennial rhizomatous herb	(Feb-Mar)Apr-Aug	None	None	G4	S4	4.2		1974-01-01
<u><i>Polemonium carneum</i></u>	Oregon polemonium	Polemoniaceae	perennial herb	Apr-Sep	None	None	G3G4	S2	2B.2		2008-11-03
<u><i>Puccinellia pumila</i></u>	dwarf alkali grass	Poaceae	perennial herb	Jul	None	None	G5	SH	2B.2		1988-01-01
<u><i>Ribes laxiflorum</i></u>	trailing black currant	Grossulariaceae	perennial deciduous shrub	Mar-Jul(Aug)	None	None	G5?	S3	4.3		1974-01-01
<u><i>Ribes roezlii</i> var. <i>amictum</i></u>	hoary gooseberry	Grossulariaceae	perennial deciduous shrub	Mar-Apr	None	None	G5T4	S4	4.3	Yes	2001-01-01
<u><i>Sidalcea malachroides</i></u>	maple-leaved checkerbloom	Malvaceae	perennial herb	(Mar)Apr-Aug	None	None	G3	S3	4.2		1994-01-01
<u><i>Sidalcea malviflora</i> ssp. <i>patula</i></u>	Siskiyou checkerbloom	Malvaceae	perennial rhizomatous herb	(Mar)May-Aug	None	None	G5T2	S2	1B.2		1994-01-01
<u><i>Sidalcea oregana</i> ssp. <i>eximia</i></u>	coast checkerbloom	Malvaceae	perennial herb	Jun-Aug	None	None	G5T1	S1	1B.2	Yes	1994-01-01
<u><i>Sisyrinchium hitchcockii</i></u>	Hitchcock's blue-eyed grass	Iridaceae	perennial rhizomatous herb	Jun	None	None	G1G2	S1	1B.1		2004-01-01
<u><i>Spergularia canadensis</i> var. <i>occidentalis</i></u>	western sand-spurrey	Caryophyllaceae	annual herb	Jun-Aug	None	None	G5T4	S1	2B.1		2001-01-01
<u><i>Tiarella trifoliata</i> var. <i>trifoliata</i></u>	trifoliate laceflower	Saxifragaceae	perennial rhizomatous herb	(May)Jun-Aug	None	None	G5T5	S2S3	3.2		1980-01-01
<u><i>Usnea longissima</i></u>	Methuselah's beard lichen	Parmeliaceae	fruticose lichen (epiphytic)		None	None	G4	S4	4.2		2014-03-01

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Suggested Citation:

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United States Department of the Interior

FISH AND WILDLIFE SERVICE

Arcata Fish And Wildlife Office

1655 Heindon Road

Arcata, CA 95521-4573

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In Reply Refer To:

Project Code: 2023-0034986

Project Name: Fortuna 12th Street Roundabout

July 03, 2023

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: 2023-0034986

Project Name: Fortuna 12th Street Roundabout

Project Type: Road/Hwy - Maintenance/Modification

Project Description: Replacing old infrastructure with modern roundabout to improve traffic safety and flow.

Project Location:

The approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/@40.588176849999996,-124.15508600436507,14z>



Counties: Humboldt County, California

ENDANGERED SPECIES ACT SPECIES

There is a total of 7 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 Fisheries¹, 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.

-
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 <i>Martes caurina</i> There is proposed critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/9081	Threatened

BIRDS

NAME	STATUS
Marbled Murrelet <i>Brachyramphus marmoratus</i> Population: U.S.A. (CA, OR, WA) There is final critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/4467	Threatened
Northern Spotted Owl <i>Strix occidentalis caurina</i> There is final critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/1123	Threatened
Western Snowy Plover <i>Charadrius nivosus nivosus</i> 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. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/8035	Threatened
Yellow-billed Cuckoo <i>Coccyzus americanus</i> Population: Western U.S. DPS There is final critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/3911	Threatened

INSECTS

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

FLOWERING PLANTS

NAME	STATUS
Western Lily <i>Lilium occidentale</i> 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.

YOU ARE STILL REQUIRED TO DETERMINE IF YOUR PROJECT(S) MAY HAVE EFFECTS ON ALL ABOVE LISTED SPECIES.

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 Act¹ and the Bald and Golden Eagle Protection Act².

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described [below](#).

-
1. The [Migratory Birds Treaty Act](#) of 1918.
 2. The [Bald and Golden Eagle Protection Act](#) of 1940.
 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 <i>Selasphorus sasin</i> 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 <i>Haliaeetus leucocephalus</i> 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.	Breeds Jan 1 to Sep 30

NAME	BREEDING SEASON
California Gull <i>Larus californicus</i> 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 Mar 1 to Jul 31
Olive-sided Flycatcher <i>Contopus cooperi</i> 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
Rufous Hummingbird <i>selasphorus rufus</i> 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
Western Grebe <i>aechmophorus occidentalis</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/6743	Breeds Jun 1 to Aug 31
Willet <i>Tringa semipalmata</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds elsewhere
Wrentit <i>Chamaea fasciata</i> 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 (I)

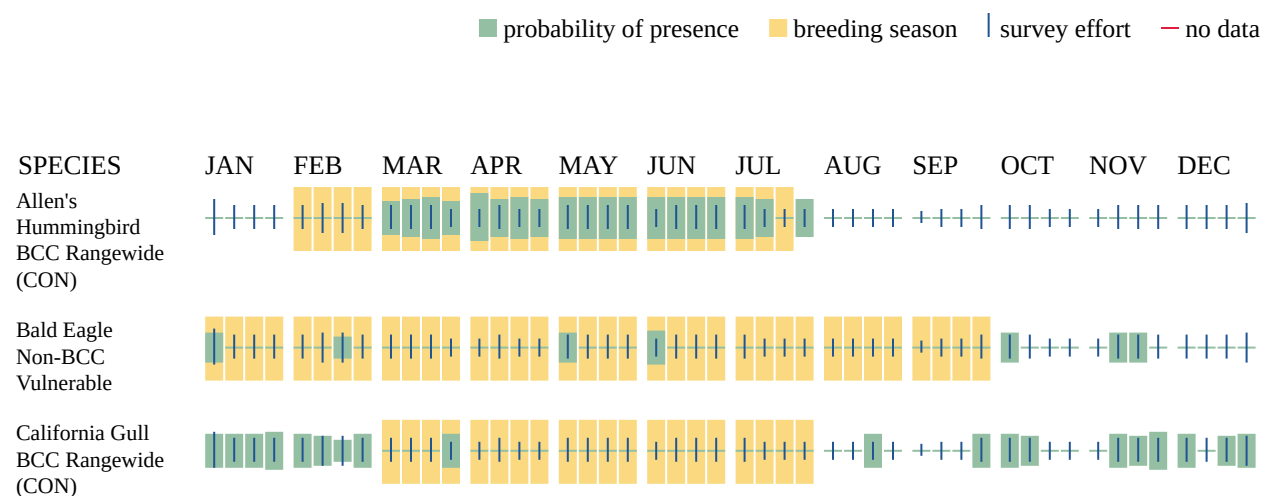
Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

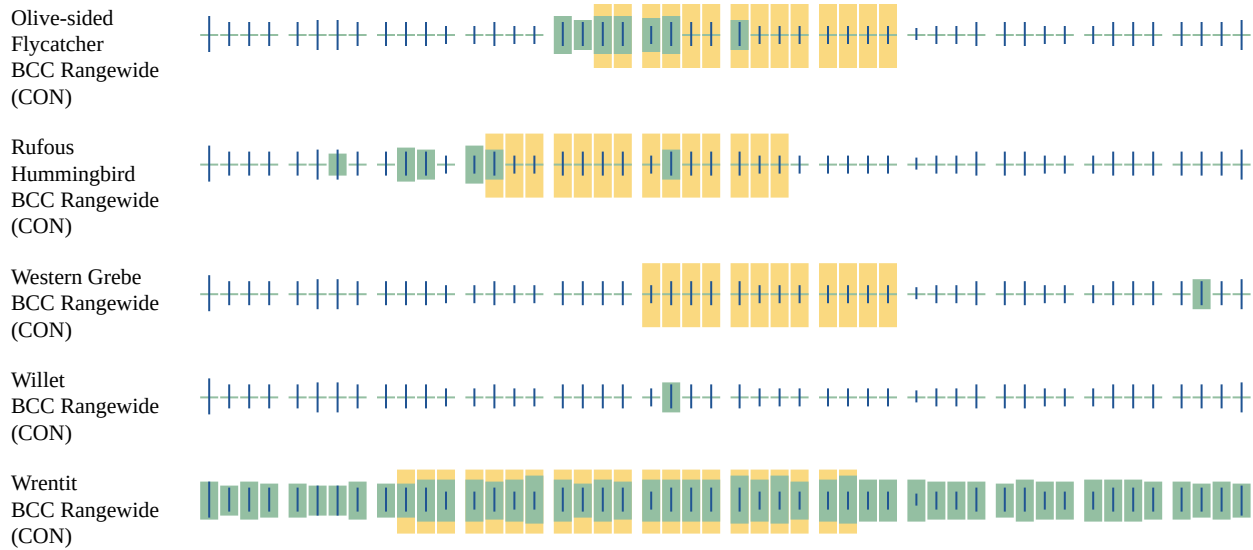
No Data (—)

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 list of migratory birds that potentially occur in my specified location?

The Migratory Bird Resource List is comprised of USFWS [Birds of Conservation Concern \(BCC\)](#) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the [Avian Knowledge Network \(AKN\)](#). The AKN data is based on a growing collection of [survey, banding, and citizen science datasets](#) and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as

warranting special attention because they are a BCC species in that area, an eagle ([Eagle Act](#) requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the [Rapid Avian Information Locator \(RAIL\) Tool](#).

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the [Avian Knowledge Network \(AKN\)](#). This data is derived from a growing collection of [survey, banding, and citizen science datasets](#).

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering or migrating in my area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may query your location using the [RAIL Tool](#) and look at the range maps provided for birds in your area at the bottom of the profiles provided for each bird in your results. If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are [Birds of Conservation Concern](#) (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the [Eagle Act](#) requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the [Northeast Ocean Data Portal](#). The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the [NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf](#) project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the [Diving Bird Study](#) and the [nanotag studies](#) or contact [Caleb Spiegel](#) or [Pam Loring](#).

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to [obtain a permit](#) to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

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.

THERE ARE NO WETLANDS WITHIN YOUR PROJECT AREA.

IPAC USER CONTACT INFORMATION

Agency: GHD

Name: Jane Cipra

Address: 718 Third Street

City: Eureka

State: CA

Zip: 95501

Email jane.cipra@ghd.com

Phone: 7072672206

LEAD AGENCY CONTACT INFORMATION

Lead Agency: Fortuna city

Appendix C

Site Visit Photographs



Photo C-1. Salal-berry bramble SNC on the southeast edge of the PSB.



Photo C-2. Google street-view of southern-most patch of salal-berry bramble SNC.



Photo C-3. Salal-berry brambles along Dinsmore Drive.



Photo C-4. Area of non-native grasses, redwood trees and Monterey pine-knobcone hybrids between Dinsmore Drive and Highway 101.



Photo C-5. Railroad tracks with mowed grasses northeast of the Newburg road and 12th Street intersection.

Appendix D

List of Plant Species Observed On-site

Table D1 All plant species observed within the PSB.

Scientific Name	Common Name	Native	Family
<i>Sambucus racemosa</i>	Red elderberry	Native	Adoxaceae
<i>Allium triquetrum</i>	Three-cornered leek	Non-native	Amaryllidaceae
<i>Cotinus coggygria</i>	Smokebush	Non-native	Anacardiaceae
<i>Toxicodendron diversilobum</i>	Poison oak	Native	Anacardiaceae
<i>Conium maculatum</i>	Hemlock	Non-native	Apiaceae
<i>Daucus carota</i>	Wild carrot	Native	Apiaceae
<i>Foeniculum vulgare</i>	Fennel	Non-native	Apiaceae
<i>Heracleum maximum</i>	Cow parsnip	Native	Apiaceae
<i>Oenanthe sarmentosa</i>	Water parseley	Native	Apiaceae
<i>Scandix pecten-veneris</i>	Shepherd's needle	Non-native	Apiaceae
<i>Vinca major</i>	Periwinkle	Non-native	Apocynaceae
<i>Ilex aquifolium</i>	English holly	Non-native	Aquifoliaceae
<i>Hedera helix</i>	English ivy	Non-native	Araliaceae
<i>Achillea millefolium</i>	Yarrow	Native	Asteraceae
<i>Ambrosia artemisiifolia</i>	Ragweed	native	Asteraceae
<i>Artemisia douglasiana</i>	California mugwort	Native	Asteraceae
<i>Baccharis pilularis</i>	Coyote brush	Native	Asteraceae
<i>Bellis perennis</i>	Daisy	Non-native	Asteraceae
<i>Carduus pycnocephalus</i>	Italian thistle	Non-native	Asteraceae
<i>Cirsium vulgare</i>	Bull thistle	Non-native	Asteraceae
<i>Conyza canadensis</i>	Marestail	Non-native	Asteraceae
<i>Erechtites minima</i>	Toothed fireweed	Non-native	Asteraceae
<i>Gnaphalium palustre</i>	Cudweed	Native	Asteraceae
<i>Helminthotheca echioides</i>	Prickly oxtongue	Non-native	Asteraceae
<i>Hypericum perforatum</i>	St. John's wort	Non-native	Asteraceae
<i>Hypochaeris radicata</i>	Cat's ear	Non-native	Asteraceae
<i>Lapsana communis</i>	Nipplewort	Non-native	Asteraceae
<i>Leontodon crispus</i>	Hawkbit	Non-native	Asteraceae
<i>Leucanthemum vulgare</i>	Oxeye daisy	Non-native	Asteraceae
<i>Matricaria discoidea</i>	Pineapple weed	Non-native	Asteraceae
<i>Silybum marianum</i>	Milk thistle	Non-native	Asteraceae
<i>Sonchus asper</i>	Prickly sowthistle	Non-native	Asteraceae
<i>Sonchus oleraceus</i>	Prickly lettuce	Non-native	Asteraceae
<i>Tanacetum parthenium</i>	Feverfew	Non-native	Asteraceae
<i>Taraxacum officinale</i>	Dandelion	Non-native	Asteraceae
<i>Tragopogon porrifolius</i>	Purple goat's beard	Non-native	Asteraceae
<i>Alnus rubra</i>	Red alder	Native	Betulacaea

Scientific Name	Common Name	Native	Family
<i>Borago officinalis</i>	Borage	Non-native	Boraginaceae
<i>Myosotis micrantha</i>	Small-flowered forget-me-not	Non-native	Boraginaceae
<i>Myosotis stricta</i>	Blue forget-me-not	Non-native	Boraginaceae
<i>Brassica rapa</i>	Common mustard	Non-native	Brassicaceae
<i>Cardamine hirsuta</i>	Hairy bittercress	Non-native	Brassicaceae
<i>Raphanus raphanistrum</i>	Wild radish	Non-native	Brassicaceae
<i>Centranthus ruber</i>	Red valerian	Non-native	Caprifoliacea
<i>Dipsacus fullonum</i>	Teasel	Non-native	Caprifoliacea
<i>Lonicera involucrata</i>	Twinberry	Native	Caprifoliacea
<i>Cerastrium glomeratum</i>	Mouseear chickweed	Non-native	Caryophyllaceae
<i>Polycarpon tetraphyllum</i>	Four-leaved allseed	Non-native	Caryophyllaceae
<i>Stellaria media</i>	Chickweed	Non-native	Caryophyllaceae
<i>Convolvulus sp.</i>	Bindweed	Non-native	Convolvulaceae
<i>Crassula connata</i>	Pigmy weed	Native	Crassulaceae
<i>Sequoia sempervirens</i>	Redwood	Native	Cupressaceae
<i>Carex obnupta</i>	Slough sedge	Native	Cyperaceae
<i>Carex sp.</i>	Sedge	Native	Cyperaceae
<i>Cyperus eragrostis</i>	Tall flatsedge	Native	Cyperaceae
<i>Polystichum munitum</i>	Western sword fern	Native	Dryopteridaceae
<i>Equisetum arvense</i>	Common horsetail	Native	Equisetaceae
<i>Equisetum telmateia</i>	Great horsetail	Native	Equisetaceae
<i>Acmispon corniculatus</i>	Big trefoil	Non-native	Fabaceae
<i>Fumaria capreolata</i>	White-ramping fumitory	Non-native	Fabaceae
<i>Lathyrus latifolius</i>	Perennial sweet pea	Non-native	Fabaceae
<i>Lupinus bicolor</i>	Miniature lupine	Native	Fabaceae
<i>Lupinus rivularis</i>	Riverbank lupine	Non-native	Fabaceae
<i>Medicago polymorpha</i>	Burr clover	Non-native	Fabaceae
<i>Trifolium arvense</i>	Hare's foot clover	Non-native	Fabaceae
<i>Trifolium dubium</i>	Lesser trefoil	Non-native	Fabaceae
<i>Trifolium repens</i>	White clover	Non-native	Fabaceae
<i>Trifolium subterraneum</i>	Subterranean clover	Non-native	Fabaceae
<i>Vicia hirsuta</i>	Hairy vetch	Non-native	Fabaceae
<i>Vicia sativa</i>	Common vetch	Non-native	Fabaceae
<i>Quercus robur</i>	English oak	Non-native	Fagaceae
<i>Erodium cicutarium</i>	Redstem filaree	Non-native	Geraniaceae
<i>Erodium moschatum</i>	Whitestem filaree	Non-native	Geraniaceae
<i>Geranium dissectum</i>	Cutleaf geranium	Non-native	Geraniaceae
<i>Geranium molle</i>	Dove's foot geranium	Non-native	Geraniaceae

Scientific Name	Common Name	Native	Family
<i>Geranium robertianum</i>	Herb robert	Non-native	Geraniaceae
<i>Escallonia rubra</i>	Red claws	Non-native	Grossulariaceae
<i>Ribes sanguineum</i>	Red flowering currant	Native	Grossulariaceae
<i>Juncus bufonius</i>	Toad rush	Native	Juncaceae
<i>Juncus patens</i>	Spreading rush	Native	Juncaceae
<i>Lavendula stoechas</i>	Spanish lavender	Non-native	Lamiaceae
<i>Mentha pulegium</i>	Pennyroyal	Non-native	Lamiaceae
<i>Prunella vulgaris</i>	Common self-heal	Non-native	Lamiaceae
<i>Linum bienne</i>	Blue flax	Non-native	Linaceae
<i>Claytonia perfoliata</i>	Miner's lettuce	Native	Montiaceae
<i>Eucalyptus globulus</i>	Blue gum	Non-native	Myrtaceae
<i>Epilobium ciliatum</i>	Willowherb	Non-native	Onagraceae
<i>Oxalis articulata</i>	Pink wood sorrel	Non-native	Oxalidaceae
<i>Oxalis corniculata</i>	Creeping wood sorrel	Non-native	Oxalidaceae
<i>Pinus radiata</i>	Monterey pine	Non-native	Pinaceae
<i>Bellardia trixago</i>	Mediterranean linseed	Non-native	Plantaginaceae
<i>Plantago coronopus</i>	Cutleaf plantago	Non-native	Plantaginaceae
<i>Plantago lanceolata</i>	Ribwort plantain	Non-native	Plantaginaceae
<i>Triphysaria pusilla</i>	Dwarf owl's clover	Native	Plantaginaceae
<i>Agrostis stolonifera</i>	Creeping bentgrass	Non-native	Poaceae
<i>Aira caryophyllea</i>	Silver hairgrass	Non-native	Poaceae
<i>Aira praecox</i>	Early hair-grass	Non-native	Poaceae
<i>Anthoxanthum odoratum</i>	Vernal sweet grass	Non-native	Poaceae
<i>Avena barbata</i>	Slender wild oat	Non-native	Poaceae
<i>Briza maxima</i>	Rattlesnake grass	Non-native	Poaceae
<i>Briza minor</i>	Lesser quaking grass	Native	Poaceae
<i>Bromus catharticus</i>	Rescue grass	Non-native	Poaceae
<i>Bromus diandrus</i>	Ripgut brome	Non-native	Poaceae
<i>Bromus hordaceus</i>	Hairy brome	Non-native	Poaceae
<i>Cortaderia jubata</i>	Pampas grass	Non-native	Poaceae
<i>Cynosurus echinatus</i>	Bristly dogtail grass	Non-native	Poaceae
<i>Dactylis glomerata</i>	Orchard grass	Non-native	Poaceae
<i>Festuca arundinacea</i>	Reed fescue	Non-native	Poaceae
<i>Festuca bromoides</i>	Fescue	Non-native	Poaceae
<i>Festuca californica</i>	California fescue	Native	Poaceae
<i>Festuca myuros</i>	Rat-tail fescue	Non-native	Poaceae
<i>Festuca perennis</i>	Italian ryegrass	Non-native	Poaceae
<i>Holcus lanatus</i>	Soft chess	Non-native	Poaceae

Scientific Name	Common Name	Native	Family
<i>Hordeum murinum</i>	Foxtail barley	Non-native	Poaceae
<i>Hordeum sp.</i>	Barley	Non-native	Poaceae
<i>Paspalum sp.</i>	Dallis grass	Non-native	Poaceae
<i>Poa annua</i>	Annual bluegrass	Non-native	Poaceae
<i>Poa pratensis</i>	Kentucky bluegrass	Non-native	Poaceae
<i>Polypogon monspeliensis</i>	Rabbit's foot grass	Non-native	Poaceae
<i>Rumex acetosella</i>	Sheep sorrel	Non-native	Polygonaceae
<i>Rumex crispus</i>	Curly dock	Non-native	Polygonaceae
<i>Rumex occidentalis</i>	Western dock	Native	Polygonaceae
<i>Lysimachia arvensis</i>	Scarlet pimpernel	Non-native	Primulaceae
<i>Ranunculus bulbosus</i>	Bulbous buttercup	Non-native	Ranunculaceae
<i>Ranunculus repens</i>	Buttercup	Non-native	Ranunculaceae
<i>Rhamnus purshiana</i>	Cascara sagrada	Native	Rhamnaceae
<i>Cotoneaster sp.</i>	Cotoneaster	Non-native	Rosaceae
<i>Crataegus monogyna</i>	Common hawthorn	Non-native	Rosaceae
<i>Lyonothamnus floribundus</i>	Catalina ironwood	Non-native	Rosaceae
<i>Malus fusca</i>	Crab apple	Native	Rosaceae
<i>Photinia sp.</i>	Photinia	Non-native	Rosaceae
<i>Prunus avium</i>	Cherry tree	Non-native	Rosaceae
<i>Prunus laurocerasus</i>	Cherry laurel	Non-native	Rosaceae
<i>Prunus sp.</i>	Ornamental plum	Non-native	Rosaceae
<i>Rosa californica</i>	Ornamental rose	Non-native	Rosaceae
<i>Rubus armeniacus</i>	Himalayan blackberry	Non-native	Rosaceae
<i>Rubus parviflorus</i>	Thimbleberry	Native	Rosaceae
<i>Rubus ursinus</i>	California blackberry	Native	Rosaceae
<i>Sanguisorba minor</i>	Salad burnet	Non-native	Rosaceae
<i>Galium aparine</i>	Cleavers	Non-native	Rubiaceae
<i>Populus trichocarpa</i>	Black cottonwood	Native	Salicaceae
<i>Salix lasiolepis</i>	Arroyo willow	Native	Salicaceae
<i>Acer macrophyllum</i>	Bigleaf maple	Native	Sapindaceae
<i>Scrophularia californica</i>	California figwort	Native	Scrophulariaceae
<i>Urtica dioica</i>	Nettle	Native	Urticaceae

Appendix E

Rapid Assessment Datasheets

Combined Vegetation Rapid Assessment and Relevé Field Form

(Revised March 27, 2018)

For Office Use:	Final database #: F12-01	Final vegetation type:	Alliance: Salal-berry brambles Association: Rubus ursinus
I. LOCATIONAL/ENVIRONMENTAL DESCRIPTION			☐ Relevé or ☒ RA
Database #: F12-03	Date: May 9, 2023 11:08 AM	Name of recorder: Jane Cipra	
		Other surveyors:	
	UID:	Location Name: Fortuna 12 th Street, northbound 101	
GPS name: _ For Relevé only: Bearing°, left axis at ID point _ of ☐ Long / ☐ Short side			
UTME _____ UTMN _____ Zone: 11 NAD83 GPS error: ☐ ft./ ☐ m./ ☐ PDOP _			
Decimal degrees: LAT 40.58684749 LONG -124.15393283			
GPS within stand? ☒ Yes / ☐ No If No, cite from GPS to stand: distance (m) _ bearing ° _ inclination ° _			
and record: Base point ID _ Projected UTMs: UTME _____ UTMN _____			
Camera Name:		Cardinal photos at ID point:	
Other photos:			
Stand Size (acres): ☒ <1, ☐ 1-5, ☐ >5 Plot Area (m ²): 100 / _ Plot Dimensions _ x _ m RA Radius _ m			
Exposure, Actual °: _ ☐ NE ☐ NW ☐ SE ☐ SW ☒ Flat ☐ Variable Steepness, Actual °: _ ☐ 0° ☐ 1-5° ☐ > 5-25° ☐ >25°			
Topography: Macro: ☐ top ☐ upper ☐ mid ☐ lower ☒ bottom Micro: ☒ convex ☐ flat ☐ concave ☐ undulating			
Geology code: _ Soil Texture code: _ ☒ Upland or ☐ Wetland/Riparian			
% Surface cover:			
H20: 0 BA Stems: 2 Litter: 98 Bedrock (Incl. outcrops): 0 Boulder (>60cm diam): 0 Stone (25-60cm): 0 Cobble (7.5-25cm): 0 Gravel (2mm-7.5cm): 0 Fines (Incl sand, mud): 0 =100%			
% Current year bioturbation _ Past bioturbation present? ☐ Yes / ☒ No % Hoof punch _			
Fire evidence: ☐ Yes / ☒ No If yes, describe in Site history section, including date of fire, if known.			
Site history, stand age, comments:			
Brambles on fence adjacent to freeway			
Disturbance code / Intensity (L,M,H): 01 Development / H _ / _ / _ / "Other" _ / _			
II. HABITAT DESCRIPTION			
Tree DBH : ☐ T1 (<1" dbh), ☐ T2 (1-6" dbh), ☐ T3 (6-11" dbh), ☐ T4 (11-24" dbh), ☐ T5 (>24" dbh), ☐ T6 multi-layered (T3 or T4 layer under T5, >60% cover)			
Shrub: ☐ S1 seedling (<3 yr. old), ☐ S2 young (<1% dead), ☐ S3 mature (1-25% dead), ☒ S4 decadent (>25% dead)			
Herbaceous: ☐ H1 (<12" plant ht.), ☐ H2 (>12" ht.)			
Desert Riparian Tree/Shrub: ☐ 1 (<2ft. stem ht.), ☐ 2 (2-10ft. ht.), ☐ 3 (10-20ft. ht.), ☐ 4 (>20ft. ht.)			
Desert Palm/Joshua Tree: ☐ 1 (<1.5" base diameter), ☐ 2 (1.5-6" diam.), ☐ 3 (>6" diam.)			
III. INTERPRETATION OF STAND			
Field-assessed vegetation Alliance name: SHRUB: Salal - berry brambles (Gaultheria shallon - Rubus (ursinus))			
Field-assessed Association name (optional): Rubus ursinus			
Adjacent Alliances/direction: _ / _ , _ / _			
Confidence in Alliance identification: ☐ L ☐ M ☐ H Explain: _			
Phenology (E,P,L): Herb _ Shrub _ Tree _ Other identification or mapping information:			

Combined Vegetation Rapid Assessment and Relevé Field Form

(Revised March 27, 2018)

Database #: F12-03

SPECIES SHEET

IV. VEGETATION DESCRIPTION

% Cover Conifer tree / Hardwood tree: <u>/</u> % NonVasc cover: <u> </u> Total % Vasc Veg cover: <u>80</u> Height Conifer tree / Hardwood tree: <u>/</u> Regenerating Tree: <u> </u> Shrub: <u>80</u> Herbaceous: <u> </u> Class Regenerating Tree: <u> </u> Shrub: <u>1-2m</u> Herbaceous: <u> </u> <i>Height classes: 1=<1/2m, 2=1/2-1m, 3=1-2m, 4=2-5m, 5=5-10m, 6=10-15m, 7=15-20m, 8=20-35m, 9=35-50m, 10=>50m</i>				
Stratum categories: T=Tree, A = SApling, E = SEedling, S = Shrub, H= Herb, N= Non-vascular % Cover Intervals for reference: r = trace, + = <1%, 1-5%, >5-15%, >15-25%, >25-50%, >50-75%, >75%				
Stratum	Species	% cover	C	Final species determination
Shrub (S)	Rubus ursinus	80	No	
Unusual species: <u> </u>				

Combined Vegetation Rapid Assessment and Relevé Field Form

(Revised March 27, 2018)

For Office Use:	Final database #: F12-02	Final vegetation type: Alliance: Salal-berry brambles Association: Rubus ursinus
I. LOCATIONAL/ENVIRONMENTAL DESCRIPTION		☐ Relevé or ☒ RA
Database #: F12-05	Date: May 9, 2023 1:12 PM	Name of recorder: Jane Cipra
	UID:	Other surveyors:
		Location Name: Fortuna 12 th Street, between Dinsmore Dr and Riverwalk Dr
GPS name: _ For Relevé only: Bearing°, left axis at ID point _ of ☐ Long / ☐ Short side		
UTME _____ UTMN _____ Zone: 11 NAD83 GPS error: ☐ ft./ ☐ m./ ☐ PDOP _		
Decimal degrees: LAT <u>40.5862067</u> LONG <u>-124.15509197</u>		
GPS within stand? ☒ Yes / ☐ No If No, cite from GPS to stand: distance (m) _ bearing ° _ inclination ° _ and record: Base point ID _ Projected UTMs: UTME _____ UTMN _____		
Camera Name: _____ Cardinal photos at ID point: _____		
Other photos: _____		
Stand Size (acres): ☒ <1, ☐ 1-5, ☐ >5 Plot Area (m ²): 100 / _ Plot Dimensions <u>x</u> m RA Radius <u>3</u> m		
Exposure, Actual °: _ ☐ NE ☐ NW ☐ SE ☒ SW ☐ Flat ☐ Variable Steepness, Actual °: _ ☐ 0° ☒ 1-5° ☐ > 5-25° ☐ >25°		
Topography: Macro: ☐ top ☐ upper ☒ mid ☐ lower ☐ bottom Micro: ☐ convex ☐ flat ☒ concave ☐ undulating		
Geology code: _ Soil Texture code: _ ☒ Upland or ☐ Wetland/Riparian		
% Surface cover: H20: 0 BA Stems: 2 Litter: 95 Bedrock (Incl. outcrops): 0 Boulder (>60cm diam): 0 Stone (25-60cm): 0 Cobble (7.5-25cm): 0 Gravel (2mm-7.5cm): 0 Fines (Incl sand, mud): 3 =100%		
% Current year bioturbation _ Past bioturbation present? ☐ Yes / ☐ No % Hoof punch _		
Fire evidence: ☐ Yes / ☒ No If yes, describe in Site history section, including date of fire, if known.		
Site history, stand age, comments: Vegetation between freeway off-ramp and road		
Disturbance code / Intensity (L,M,H): <u>15</u> Road/trail construction/maint. / H _ / _ / _ / "Other" _ /		
II. HABITAT DESCRIPTION		
Tree DBH : ☐ T1 (<1" dbh), ☒ T2 (1-6" dbh), ☐ T3 (6-11" dbh), ☐ T4 (11-24" dbh), ☐ T5 (>24" dbh), ☐ T6 multi-layered (T3 or T4 layer under T5, >60% cover)		
Shrub: ☐ S1 seedling (<3 yr. old), ☐ S2 young (<1% dead), ☒ S3 mature (1-25% dead), ☐ S4 decadent (>25% dead)		
Herbaceous: ☐ H1 (<12" plant ht.), ☒ H2 (>12" ht.)		
Desert Riparian Tree/Shrub: ☐ 1 (<2ft. stem ht.), ☐ 2 (2-10ft. ht.), ☐ 3 (10-20ft. ht.), ☐ 4 (>20ft. ht.)		
Desert Palm/Joshua Tree: ☐ 1 (<1.5" base diameter), ☐ 2 (1.5-6" diam.), ☐ 3 (>6" diam.)		
III. INTERPRETATION OF STAND		
Field-assessed vegetation Alliance name: <u>SHRUB: Salal - berry brambles (Gaultheria shallon - Rubus (ursinus))</u>		
Field-assessed Association name (optional): <u>Rubus ursinus</u>		
Adjacent Alliances/direction: <u>_</u> , <u>_</u>		
Confidence in Alliance identification: ☐ L ☐ M ☐ H Explain: _		
Phenology (E,P,L): Herb _ Shrub _ Tree _ Other identification or mapping information:		

Combined Vegetation Rapid Assessment and Relevé Field Form

(Revised March 27, 2018)

Database #: F12-05

SPECIES SHEET

IV. VEGETATION DESCRIPTION

% Cover Conifer tree / Hardwood tree: / 3 **% NonVasc cover:** **Total % Vasc Veg cover:** 90
Height **Regenerating Tree:** **Shrub:** 85 **Herbaceous:** 5
Class Conifer tree / Hardwood tree: / 2-5m **Regenerating Tree:** **Shrub:** 1-2m **Herbaceous:** 1/2-1m
Height classes: 1=<1/2m, 2=1/2-1m, 3=1-2m, 4=2-5m, 5=5-10m, 6=10-15m, 7=15-20m, 8=20-35m, 9=35-50m, 10=>50m

Stratum categories: T=Tree, A = SApling, E = SEedling, S = Shrub, H= Herb, N= Non-vascular

% Cover Intervals for reference: r = trace, + = <1%, 1-5%, >5-15%, >15-25%, >25-50%, >50-75%, >75%

Stratum	Species	% cover	C	Final species determination
Tree (T)	Alnus rubra	3	No	
Shrub (S)	Rubus ursinus	80	No	
Shrub (S)	Baccharis pilularis	5	No	
Herb (H)	Foeniculum vulgare	2	No	
Herb (H)	Rumex crispus	1	No	
Herb (H)	Briza maxima	4	No	

Unusual species:



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Appendix D

Natural Environment Study

Fortuna 12th Street Roundabout Project

Natural Environment Study



Fortuna 12th Street Roundabout Project

Fortuna, Humboldt County, California

HUM/101/PM 60.2-60.7

EA 01-0M340

EFIS 01 2200 0143

August 2023



Natural Environment Study

Fortuna 12th Street Roundabout Project

Fortuna, Humboldt County, California

HUM/101/PM 60.2-60.7

EA 01-0M340

EFIS 01 2200 0143

August 2023

STATE OF CALIFORNIA

Department of Transportation

City of Fortuna



Prepared By: _____ Date: 08/30/2023

Andrea Hilton, Environmental Planner
707-267-2279718 Third Street, Eureka, CA, 95501
GHD Inc.



Prepared By: _____ Date: 08/30/2023

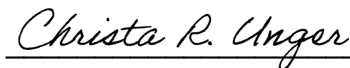
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City of Fortuna



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Caltrans District 1



Approved By: _____ Date: 08/29/2023

-

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The public can obtain this document in an alternative format by contacting the City of Fortuna at (707) 725-1469 or use the California Relay Service 1 (800) 735-2929 (Voice) or 711 for further information.

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Acronyms List

API	Area of Potential Impact
BIOS	Biogeographic Information and Observation System
BMPs	Best Management Practices
BSA	Biological Study Area
Caltrans	California Department of Transportation
CDFG	California Department of Fish and Game
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
CRPR	California Rare Plant Ranking
CWA	Clean Water Act
DPS	Distinct Population Segment
ECOS	Environmental Conservation Online System
EEZ	U.S. Exclusive Economic Zone
EFH	Essential Fish Habitat
EPA	Environmental Protection Agency
ESA	Federal Endangered Species Act
ESU	Evolutionarily Significant Unit

Natural Environment Study

FE	Federally endangered
FGC	California Fish and Game Code
FP	California fully protected
FT	Federally threatened
GNR	Globally Not Ranked
HCP	Habitat Conservation Plan
IPaC	Information for Planning and Consultation
ISMND	Initial Study / Mitigated Negative Declaration
MBPA	Migratory Bird Protection Act
MBTA	Migratory Bird Treaty Act
MSFCMA	Magnuson-Stevens Fishery Conservation and Management Act
NCRWQCB	North Coast Regional Water Quality Control Board
NEPA	National Environmental Protection Act
NES	Natural Environment Study
NOAA Fisheries	National Oceanic and Atmospheric Administration Fisheries
NPPA	Native Plant Protection Act
PM	Post Mile
ROW	right-of-way
RSP	Rock Slope Protection
RWQCB	Regional Water Quality Control Board
SAL	CDFW Special Animals List
SC	State candidate for listing
SE	State endangered
SFA	Sustainable Fisheries Act
SNC	Sensitive Natural Community
SONCC	southern Oregon/northern California coast
SNR	State Not Ranked
SR	State Rare
SSC	Species of Special Concern
ST	State threatened
USACE	U.S. Army Corps of Engineers
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
VegCAMP	CDFW Vegetation Classification and Mapping Program

Summary

The Fortuna 12th Street Roundabout Project (hereafter “Project”) is intended to improve traffic operation and safety at a key highway interchange in Fortuna, California. Highway 101 serves as the primary regional roadway in Humboldt County and is critically important to the residents and economy of Fortuna. The existing intersection controls, roadway geometry, and the high volumes of local and regional traffic on 12th Street result in poor traffic operation at and near the interchange.

Thirteen federally threatened, endangered, or candidate wildlife species were considered to have potential to occur within the Project vicinity based on database scoping. These species include Pacific Marten, Marbled Murrelet, Northern Spotted Owl, Western Snowy Plover, Western Yellow-billed Cuckoo, Green Sturgeon, Coho Salmon, Chinook Salmon, Steelhead, Eulachon, Longfin Smelt, Tidewater Goby and Monarch Butterfly. The proposed Project will have no effect on these species and their associated critical habitat. Additionally, impacts to Essential Fish Habitat (EFH), designated for anadromous fish species in Rohner Creek and Strongs Creek, would not occur, as the Project does not involve in-water work or channel modification.

Twelve state threatened, endangered, or candidate wildlife species were considered have potential to occur within the Project vicinity based on database scoping and include Coho Salmon, Longfin Smelt, Tidewater Goby, Tricolored Blackbird, Marbled Murrelet, Western Yellow-billed Cuckoo, Willow Flycatcher, Bald Eagle, Bank Swallow, Northern Spotted Owl, and Pacific Marten and Western Bumblebee. The project would have no impact or a less than significant impact on these state-listed species with the incorporation of avoidance and minimization measures.

With the incorporation of standard avoidance and minimization efforts, potential impacts to other state special status wildlife species would not result.

Three special status plant species listed as both federally and state endangered or threatened were identified in the U.S. Fish and Wildlife Service (USFWS) official species list and California Natural Diversity Database (CNDDDB) Quickview query; Menzies wallflower, beach layia, and Western lily. The Project would not impact or effect any federally or state listed special status plants as none were identified within the Project Area during protocol level field surveys.

The Project would result in temporary or permanent impacts to one upland Sensitive Natural Community (SNC): salal-berry brambles. Required compensatory mitigation for impacts to this SNC will be documents in the Project’s California Environmental Quality Act (CEQA) Initial Study/Mitigated Negative Declaration (ISMND).

Invasive plant species including Himalayan blackberry (*Rubus armeniacus*), pampas grass (*Cortaderia jubata*), and English ivy (*Hedera helix*) were noted in the Project’s Area of Potential Impact (API; see accompanying Botanical Memorandum GHD 2023a).

Removal of these invasive species is recommended for incorporation into the compensatory Sensitive Natural Community mitigation.

The Project would not result in any impacts to wetlands as none are present in the API (see accompanying Wetland Delineation Report for additional details; GHD 2023b). The Project will not require any permits from the North Coast Regional Water Quality Board, U.S. Army Corps of Engineers, or the California Department of Fish and Wildlife but will require compliance with CEQA and the National Environmental Policy Act (NEPA).

Environmental benefits of the Project include neutral or better effect on existing local drainage, flooding, and implementation of stormwater design to contemporary standards, as well as invasive species removal.

Chapter 1: Introduction

Project History

Project Purpose and Need

The Project is intended to improve traffic operation and safety at a key highway interchange in Fortuna, California (**Appendix A, Figure 1 – Vicinity Map**). Highway 101 serves as the primary regional roadway in Humboldt County and is critically important to the residents and economy of Fortuna. The existing intersection controls, roadway geometry, and the high volumes of local and regional traffic on 12th Street result in poor traffic operations around the interchange.

Project Description

The proposed Project would replace the existing 12th Street interchange with modifications to the northbound US 101 on- and offramps, widening of the highway overcrossing bridge or a new standalone structure to accommodate non-motorized vehicles, realignment of Newburg Road, and a new 5-leg roundabout on 12th Street at the northbound US 101 ramp (**Appendix A, Figure 2 – Area of Potential Impact**). The Project would simplify and improve navigation and traffic operations while reducing congestion and minimizing conflicts on 12th Street between Newburg Road and Riverwalk Drive, including the 12th Street/US 101 interchange. The Project would also create a gateway into central Fortuna that incorporates bicycle and pedestrian facilities, landscaping, and wayfinding.

The Project is located in the City of Fortuna in Humboldt County, California, on the Fortuna U.S. Geological Survey (USGS) 7.5" quadrangle (**Appendix A, Figure 1 – Vicinity Map**). The Project Area spans both the north-bound and south-bound 12th Street-Highway 101 entrances and exits. The Project Area also includes approximately 870 feet of Newburg Road and staging in the vacant lot south of Newburg Road. Access to the Project and staging areas is via paved roads, and all work will occur within the City's right of way (ROW).

Area of Potential Impact (API)

The Project area, or area of potential impact (API) for the purposes of this Natural Environment Study (NES), includes all areas where Project-related ground disturbances are anticipated to occur. This encompasses the roadway and the proposed staging area(s), a total area of approximately 14.1 acres (**Appendix A, Figure 2 – Area of Potential Impact**). Approximately 65% the API consists of an existing paved roadway (construction area), adjacent road shoulders, and an empty paved lot (easternmost portion of API).

Cumulative Projects

To evaluate potentially cumulative projects, outreach to the following local and state agencies was completed to identify any recent, current, or planned projects within 0.5 to 1.0 mile of the Project:

- Caltrans (1-mile radius)
- City of Fortuna (0.5-mile radius)

A cumulative project summary is provided in **Table 1**.

Caltrans responded and indicated they were aware of four projects within a 1-mile radius of the Project. The projects are located on and off the highway system.

Additional City of Fortuna projects within a 0.5-mile radius are included in **Table 1**.

Table 1: Cumulative Projects Summary

Agency	Project	Construction Year	In-Water Work?
Caltrans	Kenmar Road interchange roundabouts	2024 or 2025	No
Caltrans	Construct Materials Lab	2023	No
Caltrans	Fortuna Median Paving/Fortuna Median Roadside Safety Project	2026	No
Caltrans	Rehabilitate Drainage/HUM-101 Drainage North	2026	No
Caltrans	Fortuna Maintenance Station Crane/Hoist	Not programmed for construction	No
City of Fortuna	Secondary Entry to Old Mill Site	Long-term future	No
City of Fortuna	Expired Approved Subdivision for 39 Homes on 23 acres	Unknown	No
City of Fortuna	Generator Repair Shop in Commercial Zone	TBD, Building Permit Pending	No
City of Fortuna	Brewery Expansion in Commercial Zone	Unknown	No

Chapter 2 – Study Methods

Regulatory Requirements

Federal Jurisdiction

Endangered Species Act (ESA)

The ESA of 1973 (16 USC 1531 et seq.) establishes a national policy that all federal departments and agencies provide for the conservation of threatened and endangered species and their ecosystems. The Secretary of the Interior and the Secretary of Commerce are designated in the ESA as responsible for: (1) maintaining a list of species likely to become endangered within the foreseeable future throughout all or a significant portion of their range (threatened) and that

are currently in danger of extinction throughout all or a significant portion of their range (endangered); (2) carrying out programs for the conservation of these species; and (3) rendering opinions regarding the impact of proposed federal actions on listed species. The ESA also outlines what constitutes unlawful taking, importation, sale, and possession of listed species and specifies civil and criminal penalties for unlawful activities.

Pursuant to the requirements of the ESA, an agency reviewing a proposed Project within its jurisdiction must determine whether any federally-listed or proposed species may be present in the Project region, and whether the proposed Project would result in a “take” of such species. The ESA prohibits “take” of a single threatened and endangered species except under certain circumstances and only with authorization from the U.S. Fish and Wildlife Service (USFWS) or the National Oceanic and Atmospheric Administration (NOAA) Fisheries through a permit under Section 7 (for federal entities or federal actions) or 10(a) (for non-federal entities) of the Act. “Take” under the ESA includes activities such as “harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct.” USFWS regulations define harm to include “significant habitat modification or degradation.” On June 29, 1995, a U.S. Supreme Court ruling further defined harm to include habitat modification “...where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering.”

In addition, the agency is required to determine whether the project is likely to jeopardize the continued existence of any species proposed to be listed under the ESA or result in the destruction or adverse modification of critical habitat for such species (16 USC 1536[3][4]). If it is determined that a project may result in the “take” of a federally-listed species, consultation would be required under Section 7 or Section 10 of the ESA.

Critical habitat is defined by the ESA as a specific geographic area containing features essential for the conservation of an endangered or threatened species. Under Section 7 of the ESA, critical habitat should be evaluated if designated for federally-listed species that may be present in a project’s Action Area (federally designated term for a BSA).

Habitat Conservation Plans (HCPs)

Conservation plans were incorporated into the ESA in 1982 (sections 10(a)(1)(B) and 10(a)(2)(A) of the ESA, as amended) to create a pathway for take exemptions under the Act for federal and non-federal entities (previously prohibited under Section 9 of the Act). HCPs are planning documents that provide measures to minimize or mitigate Project impacts to listed or candidate species (as well as eagles, following 2011 guidance) at an ecosystem versus single-species level. An HCP provides a degree of assurance for private entities that measures agreed upon in the HCP by federal regulators and the entity would be upheld and not altered for the lifespan of the document, and no additional obligations (financial, land use, or other) would be required at a later date with respect to the species covered in the HCP (referred to as the “No Surprises

Rule”; 63 FR 8859). Requirements for issuance of an HCP require that all take is incidental, that take would be minimized and mitigated to the maximum extent practical, that adequate funds are available to implement the plan, and that the incidental take would not appreciably reduce the survival and recovery potential of the species, among others. HCPs also must comply with the Five Point Policy (65 FR 35242) that requires the incorporation of biological goals and objectives for each species in the document, adaptive management, monitoring, a set time frame for implementation, and public participation through the National Environmental Protection Act (NEPA) process.

The Project does not overlap any HCPs (Data Basin 2021a). The nearest HCP covers Humboldt Redwood Company property industrial timberlands and is located several miles northwest of the API (USFWS 2015).

Clean Water Act (CWA)

The CWA of 1977 as amended establishes the basic structure for regulating discharges of pollutants into waters of the U.S. It gives the U.S. Environmental Protection Agency (EPA) the authority to implement pollution control programs, including setting wastewater standards for industry and water quality standards for contaminants in surface waters. The CWA makes it unlawful for any person to discharge any pollutant from a point source into navigable waters, without a permit under its provisions.

Discharge of fill material into “waters of the U.S.,” including wetlands, is regulated by the USACE under Section 404 of the CWA (33 USC 1251-1376). USACE regulations implementing Section 404 define “waters of the U.S.” to include the territorial seas, tributaries, lakes, ponds, impoundments, and adjacent wetlands. Wetlands are defined for regulatory purposes as “areas that are inundated or saturated by surface or groundwater 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” (33 CFR 328.3; 40 CFR 230.3). The placement of structures in “navigable waters of the U.S.” is also regulated by the USACE under Section 10 of the Federal Rivers and Harbors Act (33 USC 401 et seq.). Projects are approved by USACE under standard (i.e., individual) or general (i.e., nationwide, programmatic, or regional) permits. The type of permit is determined by the USACE and based on project parameters.

The Fish and Wildlife Coordination Act requires consultation with the USFWS, NOAA Fisheries, and responsible state wildlife agency for any federally authorized action to control or modify surface waters. Therefore, any Project proposed or permitted by the USACE under the CWA Section 404 must also be reviewed by the federal wildlife agencies and the California Department of Fish and Wildlife (CDFW).

Section 401 of the CWA requires any applicant for a federal license or permit, which involves an activity that may result in a discharge of a pollutant into waters of the U.S., obtain a certification that the discharge will comply with applicable

effluent limitations and water quality standards. CWA 401 certifications are issued by Regional Water Quality Control Boards (RWQCBs) under the California Environmental Protection Agency.

Executive Order 11990 – Protection of Wetlands

Executive Order 11990 of 1977 furthers the protection of wetlands under NEPA through avoidance of long- and short-term adverse impacts associated with the destruction or modification of wetlands where practicable. The order requires all federal agencies managing federal lands, sponsoring federal projects, or funding state or local projects to assess the effects of their actions on wetlands. The agencies are required to follow avoidance, mitigation, and preservation procedures. The Presidential Wetland Policy of 1993 and subsequent reaffirmation of the policy in 1995 supports effective protection and restoration of wetlands, while advocating for increased fairness of federal regulatory programs.

Executive Order 13112 – Invasive Species

Executive Order 13112 directs federal agencies to use relevant programs and authorities to:

- Prevent the introduction of invasive species;
- Detect and respond rapidly to and control populations of such species in a cost-effective and environmentally sound manner;
- Monitor invasive species populations accurately and reliably;
- Provide for restoration of native species and habitat conditions in ecosystems that have been invaded;
- Conduct research on invasive species and develop technologies to prevent introduction and provide for environmentally sound control of invasive species;
- Promote public education on invasive species and the means to address them; and
- Not authorize, fund, or carry out actions that it believes are likely to cause or promote the introduction or spread of invasive species in the United States or elsewhere unless, in accordance with guidelines that it has prescribed, the agency has determined and made public its determination that the benefits of such actions clearly outweigh the potential harm caused by invasive species; and that all feasible and prudent measures to minimize risk of harm will be taken in conjunction with the actions.

Executive Order 11988 (Floodplain Management)

Executive Order 11988 requires federal agencies to avoid the long- and short-term adverse impacts associated with the occupancy and modification of floodplains and avoid direct and indirect support of floodplain development.

Migratory Bird Treaty Act (MBTA)

The MBTA of 1918 (16 USC 703-712) as amended established federal responsibilities for the protection of nearly all species of birds, their eggs, and nests. A migratory bird is defined as any species or family of birds that live, reproduce, or migrate within or across international borders at some point during their annual life cycle. The MBTA prohibits the take, possession, buying, selling, purchasing, or bartering of any migratory bird listed in 50 CFR Part 10, including feathers or other parts, nests, eggs, or products, except as allowed by implementing regulations (50 CFR 21). Only exotic species such as Rock Pigeons (*Columba livia*), House Sparrows (*Passer domesticus*), and European Starlings (*Sturnus vulgaris*) are exempt from protection.

Magnuson-Stevens Fishery Conservation and Management Act (MSFCMA)

The MSFCMA of 1976 (16 U.S.C. 1801 et seq.) as amended provides the federal government with the authority to manage fisheries in the U.S. Exclusive Economic Zone (EEZ) (from state waters which end three nautical miles offshore to a distance of 200 nautical miles). In addition, the Act mandates inter-agency cooperation in achieving protection, conservation, and enhancement of EFH. The Act defines EFH as "Those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity. For the purpose of interpreting the definition of EFH: 'waters' include aquatic areas and their associated physical, chemical, and biological properties that are used by fish and may include aquatic 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 a species' full life cycle" (50 CFR 600.10).

EFH relates directly to the physical fish habitat and indirectly to factors that contribute to degradation of this habitat. Important features of EFH that deserve attention are adequate water quality, temperature, food source, water depth, and cover/vegetation. Adverse effects to EFH are considered to be "any impact that reduces quality and/or quantity of EFH. Adverse effects may include direct or indirect physical, chemical, or biological alterations of the waters or substrate and loss of, or injury to, benthic organisms, prey species and their habitat, and other ecosystem components, if such modifications reduce the quality and/or quantity of EFH. Adverse effects to EFH may result from actions occurring within EFH or outside of EFH and may include site-specific or habitat-wide impacts, including individual, cumulative, or synergistic consequences of actions" (50 CFR 600.10). Federal agencies are required to consult with NOAA Fisheries regarding any actions (may include funding, permitting, or activities) that may adversely impact EFH.

Sustainable Fisheries Act (SFA)

The SFA of 1996 (Public Law 104-107) serves as an amendment to the MSFCMA to "authorize appropriations, to provide for sustainable fisheries, and

for other purposes”. The SFA includes requirements for describing EFH in Fishery Management Plans (FMP) and also mandates the protection EFH. According to the SFA, “[o]ne of the greatest long-term threats to the viability of commercial and recreational fisheries is the continuing loss of marine, estuarine, and other aquatic habitats. Habitat considerations should receive increased attention for the conservation and management of fishery resources of the United States.” This act also mandates the delineation of EFH for all managed species.

State Jurisdiction

Porter-Cologne Water Quality Act

The Porter-Cologne Act provides for statewide coordination of water quality regulations by establishing the California State Water Resources Control Board. The State Board is the statewide authority that oversees nine separate RWQCBs that collectively oversee water quality at regional and local levels. California RWQCBs issue CWA Section 401 Water Quality Certifications for possible pollutant discharges into waters of the U.S. or state. On April 6, 2021 the California State Water Resources Control Board adopted new definitions and procedures for discharges of dredged or fill material to Waters of the State.

California Endangered Species Act (CESA)

The CESA includes provisions for the protection and management of species listed by the State of California as endangered, threatened, or designated as candidates for such listing (California Fish and Game Code [FGC] Sections 2050 through 2085). The CESA generally parallels the main provisions of the ESA and is administered by the CDFW, who maintains a list of state threatened and endangered species as well as candidate species. The CESA prohibits the “take” of any species listed as threatened or endangered unless authorized by the CDFW in the form of an Incidental Take Permit. Under the FGC, “take” is defined as to “hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill.”

Other State Special Status Species and Communities

The CDFW maintains a list of special status species (CDFW 2023d). These are broadly defined as species that are of concern to the CDFW because of population declines and restricted distributions, and/or they are associated with habitats that are declining in California. The criteria used to define special status species are described by the CDFW. Impacts to special status plants, animals, and SNCs may be considered significant under the California Environmental Quality Act (CEQA).

State Species of Special Concern (SSC) include those plants and wildlife species that have not been formally listed yet are proposed or may qualify as endangered or threatened.

Sensitive Natural Communities (SNCs)

CDFW provides oversight of habitats (i.e., plant communities) listed as Sensitive in the California Natural Diversity Database (CNDDB) and on the California SNC List, based on global and state rarity rankings, and rankings by CDFW

Vegetation Classification and Mapping Program (VegCAMP, CDFW 2023b). The natural communities are broken down to alliance and association levels for vegetation types affiliated with ecological sections in California. The alliances on the California SNC List coincide with A Manual of California Vegetation (Sawyer et al. 2009, CNPS 2023a). In general, CDFW considers alliances and associations with a state rank of S1 to S3 to be Sensitive but has also determined some unranked communities to be Sensitive. The application of ranking for determination of Sensitive Communities is summarized as follows in **Table 2** (NatureServe 2023):

Table 2: NatureServe Conservation Status Ranks

Name	Calculated Status Rank	Status Description
Score $\leq$ 1.5	G1 (Global), S1 (State)	Critically Imperiled
1.5 $\leq$ Score $\leq$ 2.5	G2, S2	Imperiled
2.5 $\leq$ Score $\leq$ 3.5	G3, S3	Vulnerable
3.5 $\leq$ Score $\leq$ 4.5	G4, S4	Apparently Secure
Score $>$ 4.5	G5, S5	Secure

California Fish and Game Code (FGC)

Native Plant Protection Act (NPPA)

The CDFW administers the NPPA (Sections 1900–1913 of the FGC). These sections allow the California Fish and Game Commission to designate endangered and rare plant species and to notify landowners of the presence of such species. Plant species on California Native Plant Society's (CNPS) California Rare Plant Ranking (CRPR) Lists 1 and 2 are considered eligible for state listing as Endangered or Threatened pursuant to the FGC and CDFW has oversight of these special status plant species as a trustee agency. As part of the CEQA process, such species should be considered as they meet the definition of Threatened or Endangered under Sections 2062 and 2067 of the FGC. CRPR List 3 and 4 plants may warrant protection under CEQA Guidelines 15380 only in special circumstances. CDFW publishes and periodically updates lists of special status species which include, for the most part, the above categories.

Additionally, there are 64 plant species designated as “rare” which is a special designation created before plants were rolled into CESA in the 1980s. The CESA and the NPPA required a Project to have a “Scientific, Educational, or Management Permit” from CDFW for activities that would result in “take,” possession, import, or export of state-listed plant species including research, seed banking, reintroduction efforts, habitat restoration, and other activities

relating to any plant designated SE (State endangered), ST (State threatened), SR (State rare), or SC (State candidate for listing).

Birds of Prey and Native Nesting Birds

Sections 3503 and 3513 of the FGC prohibits the take, possession, or needless destruction of the nest or eggs of any bird. Subsection 3503.5 specifically prohibits the take, possession, or destruction of any birds in the orders Falconiformes (hawks and eagles) or Strigiformes (owls) and their eggs or nests. These provisions, along with the federal MBTA, essentially serve to protect nesting native birds. Non-native species, including the European Starling, Rock Pigeon, and House Sparrow, are not afforded protection under the MBTA or FGC.

Fully Protected Species

The CDFW enforces the FGC, which provides protection for “fully protected birds” (Section 3511), “fully protected mammals” (Section 4700), “fully protected reptiles and amphibians” (Section 5050), and “fully protected fish” (Section 5515). As fully protected (FP) species, the CDFW cannot authorize any Project or action that would result in “take” of these species, even with an incidental take permit.

Migratory Bird Protection Act (MBPA)

The California MBPA (FGC Section 3513, as amended) was introduced in the California State Assembly 2019 by Assembly Member Ash Kalra and co-sponsored by the National Audubon Society. The text of the Act specifies that it is unlawful to take or possess any migratory nongame bird as designated in the federal MBTA (16 USC 703-712) before January 1, 2017. This upholds the interpretation of the MBTA under Clinton’s Executive Order 13166, where “take” was defined as both “unintentional as well as intentional.” Governor Gavin Newsom signed the Act into law on September 27, 2019. The MBPA effectively closes the federal MBTA loophole on incidental take of migratory birds in California.

Regional Jurisdiction

The Project is entirely within City limits and will not require any regional permits.

Studies Required

Biological Study Area (BSA)

The BSA, or the area directly or indirectly impacted by the proposed Project, encompasses a 500-foot radius around the API (construction area and staging area[s]) (**Appendix A, Figure 3 – Biological Study Area, Appendix B, Photos 1-3**). The BSA encompasses approximately 111.4 acres including the 14.1-acre API. The BSA boundary was determined based on the scope of work and includes all potential areas of impact (physical impacts such as sediment

discharge and habitat loss, as well as potential for visual and auditory disturbance) to sensitive biological resources.

Literature Search

The following information or sources pertaining to biological resources within the BSA reviewed during this analysis, includes (but is not limited to):

- Bat Acoustic Monitoring Visualization Tool (BAMVT 2023);
- Bumble Bee Watch - Bumblebee Sightings Map (Bumble Bee Watch 2023);
- CDFW Biogeographic Information and Observation System (BIOS) (CDFW 2023a);
- CDFW CNDDDB Quickview (CDFW 2023c, **Appendix A, Figure 4, Appendix C**);
- CDFW Special Animals List (SAL) as of January 2023 (CDFW 2023d);
- CNPS Online Inventory of Rare and Endangered Plants (8th Edition) (CNPS 2023b; **Appendix D**);
- eBird Hot Spot Data (eBird 2023);
- iNaturalist Occurrence Data (iNaturalist 2023);
- NOAA Fisheries EFH mapper (NOAA 2023a);
- NOAA Fisheries Critical Habitat-Salmon and Steelhead (NOAA 2023b);
- NOAA Fisheries, West Coast Region, California Species List Tool (**Appendix E**)
- Satellite imagery of the proposed BSA and surrounding area;
- USFWS Information for Planning and Consultation (IPaC) tool (USFWS 2023b; **Appendix F**);
- USFWS Environmental Conservation Online System (ECOS; USFWS 2023a); and
- USFWS Wetlands Mapper (USFWS 2023c; **Appendix A, Figure 5 – NWI Wetlands**).

Field Reviews

A field reconnaissance wildlife survey of the BSA was conducted by GHD on March 8, 2023 and is described further below. In addition to the wildlife survey, a

protocol level Special Status Plant and Sensitive Natural Community Survey (GHD, 2023a) and a Wetland Delineation (GHD, 2023b) were completed by GHD in 2023.

Additionally, a stream inventory survey was completed in 2009 by the California Department of Fish and Game (CDFG, now CDFW) for Rohner Creek and Strongs Creek tributaries to the Eel River. These surveys included biological inventories documenting juvenile Steelhead (*Oncorhynchus mykiss irideus*) presence within the two creeks. The CDFG recommended both Rohner Creek and Strongs Creek be managed as anadromous streams (CDFG 2009a, CDFG 2009b).

Survey Methods

GHD performed pedestrian reconnaissance surveys for wildlife in the BSA by walking the full Project footprint (API) as well as adjacent accessible areas. Field investigations included a general inspection to characterize existing habitat with emphasis on areas having the potential to support special status species or sensitive habitats. The survey methods were intended to identify vegetation communities and sensitive habitat, and to determine the potential for sensitive species presence. Where 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, etc. for the presence of any wildlife species or special status plants. This reconnaissance-level survey was conducted to identify general wildlife resources, plants, and habitat in the BSA. No protocol-level surveys for special status wildlife were conducted at this time.

A formal wetland delineation was conducted (GHD, 2023b) and protocol-level surveys for rare plants were completed (see separate Botanical Report; GHD 2023a).

Personnel and Survey Dates

A reconnaissance-level biological field survey was conducted by Miles Hartnett, GHD wildlife biologist (hereafter surveyor), on March 8, 2023 0845-11:30, and The weather was cloudy with light rain and the temperature was approximately 45 degrees Fahrenheit (°F) with variable wind (Beaufort scale 2-3). The survey included an assessment of the entire API. The surrounding BSA, including adjacent private property, was assessed visually.

Wetland delineation field work was completed on January 26, 2023 by Jane Cipra, GHD Botanist, and Kerry McNamee, GHD Environmental Scientist.

Seasonally appropriate rare plant and SNC surveys were conducted by Jane Cipra, GHD botanist, on May 9 and June 29, 2023.

Agency Coordination and Professional Contacts

Official Species Lists for the proposed Project were obtained from the Arcata Fish and Wildlife Office for the API (USFWS 2023b; **Appendix F**; March 2022).

Additional agency coordination has yet to occur but is anticipated as part of the permitting phase. Local agency permits from the City of Fortuna will not be required. The following permits are anticipated to be required for the Project:

- Caltrans Encroachment Permit
- County of Humboldt Encroachment Permit

Limitations That May Influence Results

The API was defined based on preliminary design and is subject to modification pending final design. Determinations reached in this NES are based on historic surveys and studies, as well as web-based sensitive species database and literature searches. Protocol-level surveys for rare plants have been conducted. However, no protocol-level surveys or studies were conducted to determine the presence or absence of listed or sensitive wildlife species within the BSA; only relatively brief reconnaissance-level site visits were conducted. As the historic studies/surveys may not accurately reflect actual occurrence of species presence in the BSA at this time, conclusions were based on the assumption of presence or non-presence based on existing habitat conditions, and impact and minimization measures have been developed accordingly.

Chapter 3 – Results: Environmental Setting

Description of the Existing Physical and Biological Conditions

Information regarding existing biological and physical conditions presented in this section is based on literature review of known resources within the vicinity of the BSA and on-site investigations.

Study Area

The study area is limited to the BSA as defined above. A description of physical and biological conditions within the BSA and API is provided in the following sections. Representative photographs of the BSA are provided in **Appendix B**.

Physical Conditions

Climate

The Mediterranean climate is relatively mild and cool due to year-around coastal influences, including fog in the summer months. Precipitation primarily falls in the form of rain at this low elevation. Annual rainfall averages 49 inches per year in Fortuna (BestPlaces 2023). Air temperatures vary, with winter/summer highs in the 50s (degrees Fahrenheit) and high 60s, respectively.

Topographic Conditions

The topography of the BSA is generally composed of a flat road and highway overpass, and relatively flat agricultural or residential areas, and steeply incised banks along Rohner Creek and Strongs Creek (**Appendix A, Figure 6 – Topography**). The climate is mild and cool due to year-round coastal influences, including fog in the summer months. The elevation at the API is approximately 40-50 feet above mean sea level.

Hydrological Resources

Rohner Creek and Strongs Creek are within the BSA but are outside of the API (**Appendix A, Figure 5 – NWI Wetlands**). Rohner Creek and Strongs Creek originate on private timberlands and drain into the Eel River and ultimately the Pacific Ocean. Additionally, the API/BSA is located approximately 0.3 mile east of the Eel River. No wetlands or waters of the state are present in the API.

Biological Conditions

The API is located on the western edge of Fortuna, between the confluence of Rohner and Strongs Creek, a residential neighborhood, and an abandoned industrial paved lot. An inactive rail line dominated by California blackberry runs through the northeast portion of the API. The majority of the interchange is mowed grasses with knobcone x Monterey pine hybrids (*Pinus attenuata* X *P. radiata*) and redwoods (*Sequoia sempervirens*) that were likely planted at the time of the freeway construction (EDR 2022). The southern arms of the API include mixed thickets of arroyo willow (*Salix lasiolepis*), red alder (*Alnus rubra*), and California blackberry (*Rubus ursinus*). Invasive plant species of concern

include English ivy (*Hedera helix*), and Himalayan blackberry (*Rubus armeniacus*).

Primary habitat features include several large individual redwoods, the Rohner Creek and Strongs Creek riparian area, and willow and blackberry thickets. While these habitat features are not extensive, they could harbor sensitive wildlife species and have habitat and aesthetic value.

Aquatic resources in the BSA include Rohner Creek and Strongs Creek, anadromous tributaries to the Eel River; however, both creeks are excluded from the API.

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 diversity among many wildlife populations. Therefore, resource agencies consider wildlife corridors to be a sensitive resource.

Rohner Creek and Strongs Creek should be managed as anadromous fish streams (CDFG 2009) and serve as important corridors for resident and migratory fish species. General dispersal of terrestrial wildlife may also occur along the Rohner Creek and Strongs Creek riparian corridors through the BSA. Terrestrial habitats are fragmented by roads and other development in the area.

No other terrestrial wildlife movement corridors or regional wildlife linkages have been identified within the BSA. The BSA is not located within or near a high-integrity forest habitat "natural landscape block" identified in the California Essential Habitat Connectivity Project (Spencer et al. 2010, Data Basin 2021b).

Regional Species and Habitats and Natural Communities of Concern

Habitats and Natural Communities of Special Concern

A list of regionally occurring habitats and natural communities of special concern was compiled based on a review of the CNDDDB database records (**Appendix C**) and the April, and July 2023 site visits. There are three SNCs with CNDDDB occurrences in the Project vicinity: Coastal Terrace Prairie, Northern Coastal Salt Marsh, and Sitka Spruce Forest (within the nine-quad search, all specifically mapped in the Cannibal Island 7.5" quadrangle; CDFW 2022b). None of these known SNCs are present in the BSA.

The botanical surveys conducted in May and July, 2023 documented one SNC occurring in the API: Salal-berry brambles (GHD 2023a).

A discussion of the potential for habitat occurrence, avoidance and minimization measures, and potential Project-related impacts to habitats and natural communities of special concern is provided in **Chapter 4 – Discussion of**

Shining Willow Groves SNC. Rohner Creek and Strongs Creek was identified as an aquatic feature and is discussed in **Chapter 4 – Discussion of Aquatic Habitat, Regulated Waters, and Wetlands**. Habitats and natural communities of special concern potentially occurring or known to occur in the BSA are listed in the following table.

Table 3: Habitats and Natural Communities of Special Concern Potentially Occurring or Known to Occur in the Project BSA

Name	Association	Global Rank ¹	State Rank ²	CDFW Sensitive	Habitat Present/Absent ³	Rationale
Coastal Terrace Prairie		G2	S2.1	Yes	A	Not observed during botanical surveys.
Northern Coastal Salt Marsh		G3	S3.2	Yes	A	Not observed during botanical surveys.
Sitka Spruce Forest		G1	S1.1	Yes	A	Not observed during botanical surveys.
Salal-berry brambles	<i>Rubus ursinus</i>			Yes	P	Documented within the API during field surveys. This association is considered Sensitive by CDFW.

Footnotes:

¹ Global Ranks: G4 = Apparently Secure – Uncommon but not rare; some cause for long-term concern due to declines or other factors; G3 [Vulnerable] – At moderate risk of extinction or elimination due to a fairly restricted range, relatively few populations or occurrences, recent and widespread declines, threats, or other factors; G4 [Apparently Secure] – At fairly low risk of extinction or elimination due to an extensive range and/or many populations or occurrences, but with possible cause for some concern as a result of local recent declines, threats, or other factors (NatureServe 2023).

² State Ranks: S4 = Apparently Secure – Uncommon but not rare in the state; S3 [Vulnerable] – At moderate risk of extirpation in the jurisdiction due to a fairly restricted range, relatively few populations or occurrences, recent and widespread declines, threats, or other factors (NatureServe 2023).

³ Habitat Present/Absent: Absent [A], Present [P]

Special Status Plant Species

For the purpose of this study, special status plant species include plants that are (1) listed as threatened or endangered under the CESA or the ESA; (2) designated as rare by the CDFW; (3) state or federal candidate or proposed species for listing as threatened or endangered; and/or (4) that have a California Rare Plant Rank (CRPR) as designated by the California Native Plant Society (CNPS). Additionally, locally significant plants (CEQA Guidelines, § 15125, subd. (c)), or as designated in local or regional plans, policies, or ordinances) are considered special status plant species (CDFW 2018).

A list of regionally occurring special status plant species was compiled based on a review of the USFWS official species list (generated for the API; **Appendix F**; March 2022), CNDDDB Quickview (generated for the Fortuna 7.5" quadrangle and surrounding 8 quads; **Appendix C**; February 2022), and CNPS (generated for the Fortuna 7.5" quadrangle and surrounding 8 quads; **Appendix D**; March

2023) database records. Three federally-listed and state-listed plant species (also CNPS-ranked) have been documented in the Project vicinity (nine-quad search). There are also known occurrences of an additional 47 CRPR plant species within the nine-quad area. No special status plant species were observed during either seasonally appropriate protocol level survey (GHD 2023a). A list of plant species observed is provided in **Appendix G**.

Habitat requirements for each species were assessed and compared to the habitats within the BSA in order to evaluate the potential for species presence. A discussion of the habitat requirements, potential for species occurrence, avoidance and minimization measures (if necessary), and potential Project-related impacts to special status plant species is provided in Section 4.2. Special status plant species potentially occurring or known to occur in the BSA are listed in the following table. Effects determinations have been provided for all federally-listed species.

Table 4: Special Status Plant Species Potentially Occurring or Known to Occur in the Project BSA

Common Name	Scientific Name	Status ¹ / CRPR ²	General Habitat ³	Habitat Present/ Absent ⁴	Rationale
American glehnia	<i>Glehnia littoralis</i> ssp. <i>leiocarpa</i>	4.2	Coastal dunes	A	No potential. No suitable habitat is present in the API.
beach layia	<i>Layia carnosa</i>	FT, SE, 1B.1	Coastal dunes, Coastal scrub (sandy)	A	<i>No effect.</i> No suitable habitat is present in the API. The proposed project would not adversely affect this species or its critical habitat.
bristle-stalked sedge	<i>Carex leptalea</i>	2B.2	Bogs and fens, Marshes and swamps, Meadows and seeps (mesic)	A	Low potential. Marginally suitable habitat is present in the API.
California pinefoot	<i>Pityopus californicus</i>	4.2	Broadleafed upland forest, Lower montane coniferous forest, North Coast coniferous forest, Upper montane coniferous forest, Mesic	A	Low potential. Marginally suitable habitat is present in the API.
Cascade downingia	<i>Downingia willamettensis</i>	2B.2	Cismontane woodland (lake margins), Valley and foothill grassland (lake margins), Vernal pools	A	No potential. No suitable habitat is present in the API.
coast checkerbloom	<i>Sidalcea oregana</i> ssp. <i>eximia</i>	1B.2	Lower montane coniferous forest, Meadows and seeps, North Coast coniferous forest	A	Low potential. Marginally suitable habitat is present in the API.

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Common Name	Scientific Name	Status ^{1/} CRPR ²	General Habitat ³	Habitat Present/ Absent ⁴	Rationale
coast fawn lily	<i>Erythronium revolutum</i>	2B.2	Bogs and fens, Broadleafed upland forest, North Coast coniferous forest, Mesic, Streambanks	A	Low potential. Marginally suitable habitat is present in the API.
coastal marsh milk-vetch	<i>Astragalus pycnostachyus</i> var. <i>pycnostachyus</i>	1B.2	Coastal dunes (mesic), Coastal scrub, Marshes and swamps (coastal salt, streamsides)	A	No potential. No suitable habitat is present in the API.
dark-eyed gilia	<i>Gilia millefoliata</i>	1B.2	Coastal dunes	A	No potential. No suitable habitat is present in the API.
dwarf alkali grass	<i>Puccinellia pumila</i>	2B.2	Marshes and swamps (coastal salt)	A	No potential. The API is outside of the elevational range for this species (5 - 35 feet).
giant fawn lily	<i>Erythronium oregonum</i>	2B.2	Cismontane woodland, Meadows and seeps, Openings, Rocky, Serpentine (sometimes)	A	No potential. The API is outside of the elevational range for this species (330 – 3,775 feet).
harlequin lotus	<i>Hosackia gracilis</i>	4.2	Broadleafed upland forest, Cismontane woodland, Closed-cone/North Coast coniferous forest, Coastal bluff scrub, Coastal prairie, Coastal scrub, Marshes and swamps, Meadows and seeps, Valley and foothill grassland, wetlands, roadsides	HP	Moderate potential. Suitable habitat is present in the API (grassland, roadsides).
heart-leaved twayblade	<i>Listera cordata</i>	4.2	Bogs and fens, Lower montane coniferous forest, North Coast coniferous forest	A	No potential. No suitable habitat is present in the API.
Hitchcock's blue-eyed grass	<i>Sisyrinchium hitchcockii</i>	1B.1	Cismontane woodland (openings), Valley and foothill grassland	A	No potential. The API is outside of the elevational range for this species (1000 - 1000 feet).
hoary gooseberry	<i>Ribes roezlii</i> var. <i>amictum</i>	4.3	Broadleafed upland forest, Cismontane woodland, Lower montane coniferous forest, Upper montane coniferous forest	A	No potential. The API is outside of the elevational range for this species (395 - 7545 feet).

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Common Name	Scientific Name	Status ¹ / CRPR ²	General Habitat ³	Habitat Present/ Absent ⁴	Rationale
Howell's montia	<i>Montia howellii</i>	2B.2	Meadows and seeps, North Coast coniferous forest, Vernal pools, Roadsides (sometimes), Vernal Mesic	A	Low potential. Marginally suitable habitat is present in the API (roadsides but not mesic conditions).
Humboldt Bay owl's-clover	<i>Castilleja ambigua</i> var. <i>humboldtiensis</i>	1B.2	Marshes and swamps (coastal salt)	A	No potential. The API is outside of the elevational range for this species (0 - 10 feet).
Kellogg's lily	<i>Lilium kelloggii</i>	4.3	Lower montane coniferous forest, North Coast coniferous forest, Openings, Roadsides	HP	Moderate potential. Suitable habitat is present in the API (roadsides).
leafy-stemmed mitrewort	<i>Mitellastra caulescens</i>	4.2	Broadleafed upland forest, Lower montane coniferous forest, Meadows and seeps, North Coast coniferous forest, Mesic, Roadsides (sometimes)	HP	Moderate potential. Suitable habitat is present in the API (roadsides).
Lyngbye's sedge	<i>Carex lyngbyei</i>	2B.2	Marshes and swamps (brackish, freshwater)	A	No potential. The API is outside of the elevational range for this species (0 - 35 feet).
maple-leaved checkerbloom	<i>Sidalcea malachroides</i>	4.2	Broadleafed upland forest, Coastal prairie, Coastal scrub, North Coast coniferous forest, Riparian woodland, Disturbed areas (often)	HP	Moderate potential. Suitable habitat is present in the API (disturbed areas).
Menzies' wallflower	<i>Erysimum menziesii</i>	FE, SE, 1B.1	Coastal dunes	A	<i>No effect.</i> No suitable habitat is present in the API. The proposed project would not adversely affect this species or its critical habitat.
Methuselah's beard lichen	<i>Usnea longissima</i>	4.2	Broadleafed upland forest, North Coast coniferous forest, on tree branches; usually on old growth hardwoods and conifers	A	No potential. The API is outside of the elevational range for this species (165 - 4790 feet).
minute pocket moss	<i>Fissidens pauperculus</i>	1B.2	North Coast coniferous forest (damp coastal soil)	A	Low potential. Marginally suitable habitat is present in the API.

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Common Name	Scientific Name	Status ¹ / CRPR ²	General Habitat ³	Habitat Present/ Absent ⁴	Rationale
nodding semaphore grass	<i>Pleuropogon refractus</i>	4.2	Lower montane/North Coast coniferous forest, Meadows, Seeps, Riparian forest, Mesic	A	Low potential. Marginally suitable habitat is present in the API.
Oregon coast paintbrush	<i>Castilleja litoralis</i>	2B.2	Coastal bluff scrub, Coastal dunes, Coastal scrub, Sandy	A	No potential. No suitable habitat is present in the API.
Oregon polemonium	<i>Polemonium carneum</i>	2B.2	Coastal prairie, Coastal scrub, Lower montane coniferous forest	A	Low potential. Marginally suitable habitat is present in the API.
Pacific gilia	<i>Gilia capitata ssp. pacifica</i>	1B.2	Chaparral (openings), Coastal bluff scrub, Coastal prairie, Valley and foothill grassland	A	Low potential. Marginally suitable habitat is present in the API.
Pacific golden saxifrage	<i>Chrysosplenium glechomifolium</i>	4.3	North Coast coniferous forest, Riparian forest, Roadsides (sometimes), Seeps (sometimes), Streambanks	HP	Moderate potential. Suitable habitat is present in the API (roadsides).
pink sand- verbena	<i>Abronia umbellata</i> var. <i>breviflora</i>	1B.1	Coastal dunes	A	No potential. The API is outside of the elevational range for this species (0 - 35 feet).
Point Reyes salty bird's-beak	<i>Chloropyron maritimum</i> ssp. <i>palustre</i>	1B.2	Marshes and swamps (coastal salt)	A	No potential. The API is outside of the elevational range for this species (0 - 35 feet).
Rattan's milk- vetch	<i>Astragalus rattanii</i> var. <i>rattanii</i>	4.3	Chaparral, Cismontane woodland, Lower montane coniferous forest, Gravelly, Streambanks	A	No potential. The API is outside of the elevational range for this species (100 - 2705 feet).
redwood lily	<i>Lilium rubescens</i>	4.2	Broadleaved upland forest, Chaparral, Lower montane/ North Coast/Upper montane coniferous forest, Roadsides (sometimes), Serpentine (sometimes)	A	No potential. The API is outside of the elevational range for this species (100 - 6265 feet).
running-pine	<i>Lycopodium clavatum</i>	4.1	Lower montane/North Coast coniferous forest (mesic), Marshes and swamps, Edges (often), Openings, Roadsides	A	No potential. The API is outside of the elevational range for this species (150 - 4020 feet).
seacoast ragwort	<i>Packera bolanderi</i> var. <i>bolanderi</i>	2B.2	Coastal scrub, North Coast coniferous forest, Roadsides (sometimes)	A	No potential. The API is outside of the elevational

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Common Name	Scientific Name	Status ¹ / CRPR ²	General Habitat ³	Habitat Present/ Absent ⁴	Rationale
					range for this species (100 - 2135 feet).
seaside bittercress	<i>Cardamine angulata</i>	2B.2	Lower montane/North Coast coniferous forest, wet areas, streambanks	A	Low potential. Marginally suitable habitat is present in the API.
sea-watch	<i>Angelica lucida</i>	4.2	Coastal bluff scrub, Coastal dunes/scrub, Marshes and swamps (coastal salt)	A	No potential. No suitable habitat is present in the API.
short-leaved evax	<i>Hesperervax sparsiflora</i> var. <i>brevifolia</i>	1B.2	Coastal bluff scrub (sandy), Coastal dunes, Coastal prairie	A	No potential. No suitable habitat is present in the API.
Siskiyou checkerbloom	<i>Sidalcea malviflora</i> ssp. <i>patula</i>	1B.2	Coastal bluff scrub/prairie, North Coast coniferous forest, often roadcuts and roadsides	HP	Moderate potential. Suitable habitat is present in the API (roadsides).
slender silver moss	<i>Anomobryum julaceum</i>	4.2	Broadleafed upland forest, Lower montane/North Coast coniferous forest, damp rock and soil on outcrops, usually on roadcuts, Roadsides (usually)	A	No potential. The API is outside of the elevational range for this species (330 - 3280 feet).
sticky pea	<i>Lathyrus glandulosus</i>	4.3	Cismontane woodland	A	No potential. The API is outside of the elevational range for this species (985 - 2625 feet).
Tracy's collomia	<i>Collomia tracyi</i>	4.3	Broadleafed upland forest, Lower montane coniferous forest, Rocky, Serpentinite (sometimes)	A	No potential. The API is outside of the elevational range for this species (985 - 6890 feet).
Tracy's tarplant	<i>Hemizonia congesta</i> ssp. <i>tracyi</i>	4.3	Coastal prairie, Lower montane coniferous forest, North Coast coniferous forest, Openings, Serpentinite (sometimes)	A	No potential. The API is outside of the elevational range for this species (395 - 3935 feet).
trailing black currant	<i>Ribes laxiflorum</i>	4.3	North Coast coniferous forest, Roadsides (sometimes)	HP	Moderate potential. Suitable habitat is present in the API (roadsides).
trifoliate laceflower	<i>Tiarella trifoliata</i> var. <i>trifoliata</i>	3.2	Lower montane coniferous forest, North Coast coniferous forest, wet areas, moist shady streambanks, edges	A	No potential. The API is outside of the elevational range for this species (560 - 4920 feet).

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Common Name	Scientific Name	Status ¹ / CRPR ²	General Habitat ³	Habitat Present/ Absent ⁴	Rationale
western lily	<i>Lilium occidentale</i>	FE, SE, 1B.1	Bogs, fens, marsh, swamps, Coastal prairie/scrub, North Coast coniferous forest	A	<i>No effect.</i> No suitable habitat is present in the API. The proposed project would not adversely affect this species or its critical habitat.
western sand- spurrey	<i>Spergularia canadensis</i> var. <i>occidentalis</i>	2B.1	Marshes and swamps (coastal salt)	A	No potential. The API is outside of the elevational range for this species (0 - 10 feet).
white-flowered rein orchid	<i>Piperia candida</i>	1B.2	Broadleafed upland forest, Lower montane coniferous forest, North Coast coniferous forest, Serpentine (sometimes)	A	No potential. The API is outside of the elevational range for this species (100 - 4300 feet).
Whitney's farewell-to- spring	<i>Clarkia amoena</i> ssp. <i>whitneyi</i>	1B.1	Coastal bluff scrub, Coastal scrub	A	No potential. No suitable habitat is present in the API.
Wolf's evening- primrose	<i>Oenothera wolfii</i>	1B.1	Coastal bluff scrub, Coastal dunes, Coastal prairie, Lower montane coniferous forest, Mesic (usually), Sandy	A	No potential. No suitable habitat is present in the API.

Footnotes:

¹ Status: FE = Federal Endangered; SE = State Endangered.

² California Rare Plant Ranking: 1A = Plants presumed extinct in California; 1B = Plants rare, threatened or endangered in California and elsewhere; 2 = Plants rare, threatened, or endangered in California, but more common elsewhere; 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)" (CNPS 2023b).

³ General habitat column information reprinted from CNDDDB (March 2023; CDFW 2023c).

⁴ Habitat Present/Absent: Absent [A] - no habitat present and no further work needed. Habitat Present [HP] -habitat is or may be present. The species may be present. Present [P] - the species is present.

Special Status Invertebrate Species

Special status invertebrate species include species that are (1) listed as threatened or endangered under the CESA or the ESA; (2) proposed for federal listing as threatened or endangered; (3) state or federal candidates for listing as threatened or endangered; and/or (4) identified by the CDFW as SSC, California FP species, or species on their SAL (CDFW 2023d).

The USFWS IPaC official species list (generated for the API; **Appendix F**; November 2022) and CNDDDB BIOs QuickView Tool (generated for the Fortuna 7.5" quadrangle and surrounding 8 quads; **Appendix C**; November 2022) identified eight special status invertebrate species with known occurrences or potential to occur within the nine-quad search area, one of which is a federal candidate species. A discussion of the habitat requirements, potential for species occurrence, avoidance and minimization measures, and potential Project-related impacts to special status invertebrate species is provided in **Chapter 4 – Discussion of Special Status Invertebrates** of this document. Special status invertebrate species potentially occurring or known to occur in the BSA are listed in the following table.

Table 5: Special Status Invertebrate Species with Potential to Occur in the Project Vicinity

Common Name	Scientific Name	Status ¹	General Habitat ²	Habitat Present/Absent ³	Rationale
Mollusks					
California Floater	<i>Anodonta californiensis</i>	--/--/SAL	Freshwater lakes and slow-moving streams and rivers. Taxonomy under review by specialists. Generally in shallow water.	HP	No known occurrences within API or BSA or surrounding 5 miles. Marginal habitat present within BSA. See Chapter 4 – Discussion of Special Status Invertebrates .
Western Ridged Mussel	<i>Gonidea angulata</i>	--/--/SAL	Primarily creeks & rivers & less often lakes. Originally in most of state, now extirpated from Central & Southern Calif.	HP	No known occurrences within API or BSA or surrounding 5 miles. Marginal habitat present within BSA. See Chapter 4 – Discussion of Special Status Invertebrates .
Newcomb's littorine snail	<i>Littorina subrotundata</i>	--/--/SAL	Salt/brackish water snail known only from Humboldt Bay in California. Restricted to Salicornia or the muddy substrate immediately below; submerged in sea water only a few hours per year.	A	No known occurrences within the API or BSA. No suitable habitat (e.g., salt or brackish water habitat) present in BSA; excluded from further consideration
Western Pearlshell	<i>Margaritifera falcata</i>	--/--/SAL	Aquatic. Prefers lower velocity waters.	HP	No known occurrences within API or BSA or surrounding 5 miles. Marginal habitat present within BSA. See Chapter 4 – Discussion of Special Status Invertebrates .
Insects					

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Common Name	Scientific Name	Status ¹	General Habitat ²	Habitat Present/Absent ³	Rationale
Obscure Bumble Bee	<i>Bombus caliginosus</i>	--/--/SAL	Coastal areas from Santa Barbara county north to Washington state. Food plant genera include <i>Baccharis</i> ssp., <i>Cirsium</i> ssp., <i>Lupinus</i> ssp., <i>Lotus</i> ssp., <i>Grindelia</i> ssp., and <i>Phacelia</i> ssp.	HP	Suitable habitat present; see Chapter 4 – Discussion of Special Status Invertebrates
Western Bumble Bee	<i>Bombus occidentalis</i>	--/SC/SAL	Once common & widespread, species has declined precipitously from central California to southern British Columbia, perhaps from disease.	HP	Suitable habitat present; see Chapter 4 – Discussion of Special Status Invertebrates
Monarch Butterfly - California overwintering population (pop. 1)	<i>Danaus plexippus</i>	FC/--/SAL	Winter roost sites extend along the coast from northern Mendocino to Baja California, Mexico. Roosts located in wind-protected tree groves (eucalyptus, Monterey pine, cypress), with nectar and water sources nearby.	HP	Suitable habitat present; see Chapter 4 – Discussion of Special Status Invertebrates
Fort Dick limnephilus caddisfly	<i>Limnephilus atercus</i>	--/--/SAL	Aquatic Klamath/North coast flowing waters Klamath/North coast standing waters Known only from Fort Dick in Del Norte County	A	No known occurrences within the API or BSA. Outside of known range (e.g., Del Norte County area); excluded from further consideration.

Footnotes:

¹ Status: FC = Federal Candidate; SC = State Candidate; SAL = CDFW Special Animals List; UR = federally under review for listing (CDFW 2023a).

² General habitat column information reprinted from CNDDDB (March 2023; CDFW 2023c).

³ Habitat Present/Absent: Absent [A] - no habitat present and no further work needed. Habitat Present [HP] -habitat is or may be present. The species may be present.

Special Status Fish Species

Special status fish species include species that are (1) listed as threatened or endangered under the CESA or the ESA; (2) proposed for federal listing as threatened or endangered; (3) state or federal candidates for listing as threatened or endangered; and/or (4) identified by the CDFW as SSC, California FP species, or species on their SAL.

The USFWS IPaC official species list (generated for the API; **Appendix F**; November 2022), NOAA Fisheries official species list (generated for the Fortuna 7.5" quadrangle, **Appendix E**) and CNDDDB BIOS QuickView Tool (generated for the Fortuna 7.5" quadrangle and surrounding 8 quads; **Appendix C**; November 2022) identified eleven special status fish species that may occur within the nine-quad search area, five of which are federally-listed species, one of which is a federal candidate species, and three of which are state listed. Rohner Creek and Strong's Creek within the BSA contains requisite aquatic habitat for several special status fish species. There is no aquatic habitat within the API. See **Chapter 4 – Discussion of Special Status Fish** for general aquatic habitat conservation measures. Special status fish species that may occur within the nine-quad search area are listed in the following table. Effects determinations have been provided for all federally-listed species.

Table 6: Special Status Fish Species with Potential to Occur in the Project Vicinity

Common Name	Scientific Name	Status ¹	General Habitat ²	Habitat Present/ Absent ³	Rationale
Green Sturgeon Northern DPS	<i>Acipenser medirostris</i>	--/-- /SSC	These are the most marine species of sturgeon. Exhibits spawning site fidelity. Known to spawn in the Klamath, Trinity, Salmon, and Eel Rivers in California; historically known to spawn in the South Fork Trinity River. Non-spawning adults occupy marine and estuarine waters. Spawns at temps between 8-14 C. Preferred spawning substrate is large cobble but can range from clean sand to bedrock.	A	No known occurrences within API or BSA. No suitable habitat present (species usually associated with estuaries and mainstem rivers); excluded from further consideration. <i>No effect.</i> Habitat is absent and no in-water work will occur.
White Sturgeon	<i>Acipenser transmontanus</i>	--/-- /SSC	Live in estuaries of large rivers, moving into freshwater to spawn. Most abundant in brackish portions of estuaries.	A	No known occurrences within API or BSA. No suitable habitat present (species usually associated with estuaries and mainstem rivers);

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Common Name	Scientific Name	Status ¹	General Habitat ²	Habitat Present/ Absent ³	Rationale
			In estuaries adults concentrate in deep areas with soft bottoms.		excluded from further consideration.
Pacific Lamprey	<i>Entosphenus tridentatus</i>	--/-- /SSC	Found 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.	HP	Suitable habitat present; see Chapter 4 – Discussion of Special Status Fish.
Tidewater Goby	<i>Eucyclogobius newberryi</i>	FE/SE/--	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.	A	BSA is located at an inland location. No known occurrences within API or BSA. BSA does not overlap designated critical habitat (USFWS 2020b). No suitable habitat (e.g., brackish water) present in BSA; excluded from further consideration. <i>No effect.</i> Estuarine habitat absent in the BSA.
Western Brook Lamprey	<i>Lampetra richardsoni</i>	--/-- /SSC	Aquatic Freshwater rivers and streams.	HP	Suitable habitat present; see Chapter 4 – Discussion of Special Status Fish.
Coast Cutthroat Trout	<i>Oncorhynchus clarkii clarkii</i>	--/-- /SSC	Small 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.	HP	Suitable habitat present; see Chapter 4 – Discussion of Special Status Fish.
Coho Salmon - southern Oregon / northern California ESU	<i>Oncorhynchus kisutch pop. 2</i>	FT/ST/--	Federal listing refers to populations between Cape Blanco, Oregon and Punta Gorda, Humboldt County, California. State listing refers	HP	Suitable habitat present; see Chapter 4 – Discussion of Special Status Fish.

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Common Name	Scientific Name	Status ¹	General Habitat ²	Habitat Present/ Absent ³	Rationale
			to populations between the Oregon border and Punta Gorda, California.		<i>No effect.</i> No in-water work or channel modification will occur.
Chinook Salmon - California coastal ESU	<i>Oncorhynchus tshawytscha</i> pop. 17	FT/--/--	Federal listing refers to wild spawned, coastal, spring & fall runs between Redwood Cr, Humboldt Co & Russian River, Sonoma Co	HP	Suitable habitat present; see Chapter 4 – Discussion of Special Status Fish. <i>No effect.</i> No in-water work or channel modification will occur.
Steelhead - northern California DPS	<i>Oncorhynchus mykiss irideus</i> pop. 16	FT/--/--	Coastal basins from Redwood Creek south to the Gualala River, inclusive. Does not include summer-run steelhead.	HP	Suitable habitat present; see Chapter 4 – Discussion of Special Status Fish. <i>No effect.</i> No in-water work or channel modification will occur.
Longfin Smelt	<i>Spirinchus thaleichthys</i>	FC/ST/--	Euryhaline, nektonic & 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.	A	<i>No effect.</i> Estuarine habitat absent in the BSA.
Eulachon	<i>Thaleichthys pacificus</i>	FT/--/--	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.	A	The BSA contains requisite foraging habitat within Strongs Creek. However, this species is believed to be extirpated south of the Klamath River. This species has no potential to occur in the API or BSA; excluded from further consideration. <i>No effect.</i>

Footnotes:

¹ Status: FC = Federal Candidate; FE = Federal Endangered; FE = Federal Threatened; SE = State Endangered; ST = State Threatened; SSC = State Special Status Species.

Common Name	Scientific Name	Status ¹	General Habitat ²	Habitat Present/Absent ³	Rationale
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² General habitat column information reprinted from CNDDDB (March 2023; CDFW 2023c).

³ Habitat Present/Absent: Absent [A] - no habitat present and no further work needed. Habitat Present [HP] -habitat is or may be present. The species may be present.

Special Status Amphibian Species

Special status amphibian species include species that are (1) listed as threatened or endangered under the CESA or the ESA; (2) proposed for federal listing as threatened or endangered; (3) state or federal candidates for listing as threatened or endangered; and/or (4) identified by the CDFW as SSC, California FP species, or species on their SAL.

The USFWS IPaC official species list (generated for the API; **Appendix F**; November, 2022) did not identify any federally-listed amphibian species in the Project vicinity. The CNDDDB BIOS QuickView Tool (generated for the Fortuna 7.5" quadrangle and surrounding 8 quads; **Appendix C**; November 2022) identified four special status amphibian species that have potential to occur within the nine-quad search area. A discussion of the habitat requirements, potential for species occurrence, avoidance and minimization measures, and potential Project-related impacts to special status amphibian species is provided in **Chapter 4 – Discussion of Special Status Amphibians** of this document. Special status amphibian species potentially occurring or known to occur in the BSA are listed in the following table.

Table 7: Special Status Amphibian Species with Potential to Occur in the Project Vicinity

Common Name	Scientific Name	Status ¹	General Habitat ²	Habitat Present/Absent ³	Rationale
Pacific Tailed Frog	<i>Ascaphus truei</i>	--/--/SSC	Occurs in montane hardwood-conifer, redwood, Douglas-fir & ponderosa pine habitats. Restricted to perennial montane streams. Tadpoles require water below 15 degrees C.	A	No known occurrences within the API or BSA. No suitable habitat (e.g., high-gradient rocky streams) present in BSA; excluded from further consideration.
Northern Red-legged Frog	<i>Rana aurora</i>	--/--/SSC	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.	HP	Suitable habitat present; see Chapter 4 – Discussion of Special Status Amphibians .

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Common Name	Scientific Name	Status ¹	General Habitat ²	Habitat Present/ Absent ³	Rationale
Foothill Yellow-legged Frog North Coast Clade	<i>Rana boylei</i> pop. 1	--/--/SSC	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.	HP	Suitable habitat present; see Chapter 4 – Discussion of Special Status Amphibians .
Southern Torrent Salamander	<i>Rhyacotriton variegatus</i>	--/--/SSC	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.	A	No known occurrences within the API or BSA. No suitable habitat (e.g., high-gradient rocky streams) present in BSA; excluded from further consideration.

Footnotes:

¹ Status: SSC = State Species of Special Concern.

² General habitat column information reprinted from CNDDDB (March 2023; CDFW 2023c).

³ Habitat Present/Absent: Absent [A] - no habitat present and no further work needed. Habitat Present [HP] -habitat is or may be present. The species may be present.

Special Status Reptile Species

Special status reptile species include species that are (1) listed as threatened or endangered under the CESA or the ESA; (2) proposed for federal listing as threatened or endangered; (3) state or federal candidates for listing as threatened or endangered; and/or (4) identified by the CDFW as SSC, California FP species, or species on their SAL (CDFW 2023d).

The USFWS IPaC official species list (generated for the API; **Appendix F**; March 2022) did not identify any federally-listed reptile species in the Project vicinity. The CNDDDB BIOS QuickView Tool (generated for the Fortuna 7.5" quadrangle and surrounding 8 quads; **Appendix C**; November 2022) identified one special status reptile species with potential to occur in the nine-quad search area. A discussion of the habitat requirements, potential for species occurrence, avoidance and minimization measures, and potential Project-related impacts to special status reptile species is provided in **Chapter 4 – Discussion of Special Status Reptiles** of this document. Special status reptile species potentially occurring or known to occur in the BSA are listed in the following table.

Table 8: Special Status Reptile Species with Potential to Occur in the Project Vicinity

Common Name	Scientific Name	Status ¹	General Habitat ²	Habitat Present/Absent ³	Rationale
Western Pond Turtle	<i>Emys marmorata</i>	--/--/SSC	A thoroughly aquatic turtle of ponds, marshes, rivers, streams and irrigation ditches, usually with aquatic vegetation, below 6000 ft elevation.	HP	Suitable habitat present; see Chapter 4 – Discussion of Special Status Reptiles .

Footnotes:

¹ Status: State Species of Special Concern (SSC).

² General habitat column information reprinted from CNDDB (March 2023; CDFW 2023c).

³ Habitat Present/Absent: Habitat Present [HP] -habitat is or may be present. The species may be present.

Special Status Bird Species

Special status bird species include species that are (1) listed as threatened or endangered under the CESA or the ESA; (2) proposed for federal listing as threatened or endangered; (3) state or federal candidates for listing as threatened or endangered; and/or (4) identified by the CDFW as SSC, California FP species, or species on their SAL (CDFW 2023d).

The USFWS IPaC official species list (generated for the API; **Appendix F**; November 2022) identified four federally listed species with potential to occur in the Project vicinity. The CNDDB BIOS QuickView Tool (generated for the Fortuna 7.5" quadrangle and surrounding 8 quads **Appendix C**; November 2022) identified 27 special status bird species with potential to occur within the nine-quad search area. 12 special status bird species were determined to have habitat present within the BSA. A discussion of the habitat requirements, potential for species occurrence, avoidance and minimization measures, and potential Project-related impacts to special status bird species is provided in **Chapter 4 – Discussion of Special Status Birds** of this document. Special status bird species potentially occurring or known to occur in the BSA are listed in the following table.

Table 9: Special Status Bird Species with Potential to Occur in the Project Vicinity

Common Name	Scientific Name	Status ¹	General Habitat ²	Habitat Present/Absent ³	Rationale
Cooper's Hawk	<i>Accipiter cooperii</i>	--/--/WL	Woodland, chiefly of open, interrupted or marginal type. Nest sites mainly in riparian growths of deciduous trees, as in canyon bottoms on river flood-plains; also, live oaks.	HP	Suitable habitat present; see Chapter 4 – Discussion of Special Status Birds .
Northern Goshawk	<i>Accipiter gentilis</i>	--/--/SSC	Within, and in vicinity of, coniferous forest. Uses old nests and maintains alternate sites.	A	No known occurrences within the API or BSA. Typically associated with mature, dense conifer

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Common Name	Scientific Name	Status ¹	General Habitat ²	Habitat Present/ Absent ³	Rationale
			Usually nests on north slopes, near water. Red fir, lodgepole pine, Jeffrey pine, and aspens are typical nest trees		forests at higher elevations; excluded from further consideration.
Sharp-shinned Hawk	<i>Accipiter striatus</i>	--/--/WL	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.	HP	Suitable habitat present; see Chapter 4 – Discussion of Special Status Birds .
Tricolored Blackbird	<i>Agelaius tricolor</i>	--/ST/SSC	Highly colonial species, most numerous in Central Valley & vicinity. Largely endemic to California. Requires open water, protected nesting substrate, and foraging area with insect prey within a few km of the colony.	A	Closest known record is of an extirpated colony in Fortuna, approximately 2 miles south of the API (CDFW 2023c). No known occurrences within the API or BSA. Rare seasonal visitor to Humboldt County. No suitable habitat (e.g., open water and emergent vegetation) in the BSA; excluded from further consideration.
Grasshopper Sparrow	<i>Ammodramus savannarum</i>	--/--/SSC	Dense grasslands on rolling hills, lowland plains, in valleys and on hillsides on lower mountain slopes. Favors native grasslands with a mix of grasses, forbs and scattered shrubs. Loosely colonial when nesting.	A	No known occurrences within the API or BSA. Rare seasonal visitor to Humboldt County. No suitable habitat (e.g., native grasslands) in the BSA; excluded from further consideration.
Golden Eagle	<i>Aquila chrysaetos</i>	--/--/FP, WL	Rolling foothills, mountain areas, sage-juniper flats, and desert. Cliff-walled canyons provide nesting habitat in most parts of range; also, large trees in open areas.	A	No known occurrences within the API or BSA. No suitable habitat (e.g., grasslands, large trees for nesting, etc.) in the BSA; excluded from further consideration.
Great Egret	<i>Ardea alba</i>	--/--/SAL	Colonial nester in large trees. Rookery sites located near marshes, tide-flats, irrigated pastures, and margins of rivers and lakes.	HP	Suitable habitat present; see Chapter 4 – Discussion of Special Status Birds .
Great Blue Heron	<i>Ardea herodias</i>	--/--/SAL	Colonial nester in tall trees, cliffsides, and sequestered spots on marshes. Rookery sites in close proximity to foraging areas: marshes,	HP	Suitable habitat present; see Chapter 4 – Discussion of Special Status Birds .

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Common Name	Scientific Name	Status ¹	General Habitat ²	Habitat Present/ Absent ³	Rationale
			lake margins, tide-flats, rivers and streams, wet meadows.		
Marbled Murrelet	<i>Brachyramphus marmoratus</i>	FT/SE/--	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.	A	Closest record is ~4.5 miles east of the API in Headwaters Forest Reserve (CDFW 2023b). BSA does not overlap designated critical habitat (USFWS 2023b). No suitable nesting habitat (old growth coniferous forest) is present in the API or BSA; excluded from further consideration. <i>No effect.</i> Required habitat not present within the BSA.
Mountain Plover	<i>Charadrius montanus</i>	--/--/SSC	Short grasslands, freshly plowed fields, newly sprouting grain fields, & sometimes sod farms. Short vegetation, bare ground, and flat topography. Prefers grazed areas and areas with burrowing rodents.	A	No known occurrences within the API or BSA. Rare seasonal visitor to Humboldt County. No suitable habitat present in API or BSA; excluded from further consideration.
Western Snowy Plover	<i>Charadrius nivosus nivosus</i>	FT/--/SSC	Sandy beaches, salt pond levees & shores of large alkali lakes. Needs sandy, gravelly or friable soils for nesting.	A	API is located at an inland location approximately 10 miles from the nearest extant recorded population (Humboldt Bay South Spit; CDFW 2023c). BSA does not overlap designated critical habitat (USFWS 2023a). No suitable habitat present in API or BSA; excluded from further consideration. <i>No effect.</i> Required habitat not present within the BSA.
Northern Harrier	<i>Circus hudsonius</i>	--/--/SSC	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.	HP	Suitable habitat present; see Chapter 4 – Discussion of Special Status Birds .

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Common Name	Scientific Name	Status ¹	General Habitat ²	Habitat Present/ Absent ³	Rationale
Western Yellow-billed Cuckoo	<i>Coccyzus americanus occidentalis</i>	FT/SE/WL	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.	HP	Closest record is ~6 miles west of the API near Ferndale (CDFW 2023b). BSA does not overlap designated critical habitat (USFWS 2023b). No suitable nesting habitat (old growth coniferous forest) is present in the API or BSA; excluded from further consideration. BSA does not overlap proposed critical habitat (USFWS 2020b). <i>No effect.</i> Required habitat not present within the BSA.
Yellow Rail	<i>Coturnicops noveboracensis</i>	--/--/SSC	Summer resident in eastern Sierra Nevada in Mono County. Freshwater marshlands.	A	No known occurrences within the API or BSA. No suitable habitat (e.g. freshwater marsh) present in API or BSA; excluded from further consideration.
Snowy Egret	<i>Egretta thula</i>	--/--/SAL	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.	HP	Suitable habitat present; see Chapter 4 – Discussion of Special Status Birds .
Willow Flycatcher	<i>Empidonax traillii</i>	--/SE/SAL	Inhabits extensive thickets of low, dense willows on edge of wet meadows, ponds, or backwaters; 2000-8000 ft elevation. Requires dense willow thickets for nesting/roosting. Low, exposed branches are used for singing posts/hunting perches.	A	No known occurrences within the API or BSA. Typically at higher elevations. No suitable habitat present in API or BSA; excluded from further consideration.
American peregrine falcon	<i>Falco peregrinus anatum</i>	--/--/FP	Near wetlands, lakes, rivers, or other water; on cliffs, banks, dunes, mounds; also, human-made structures. Nest consists of a scrape or a depression or ledge in an open site.	A	No known occurrences within the API or BSA. Marginal foraging and no suitable nesting habitat present in API or BSA, flyovers may be possible; excluded from further consideration.
Bald Eagle	<i>Haliaeetus leucocephalus</i>	FD/SE/FP	Ocean shore, lake margins, and rivers for both nesting and wintering. Most nests	A	No known occurrences within the API or BSA. Marginal foraging and

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Common Name	Scientific Name	Status ¹	General Habitat ²	Habitat Present/ Absent ³	Rationale
			within 1 mile of water. Nests in large, old-growth, or dominant live tree with open branches, especially ponderosa pine. Roosts communally in winter.		nesting habitat present in API or BSA, flyovers may be possible; excluded from further consideration.
Yellow-breasted Chat	<i>Icteria virens</i>	--/--/SSC	Summer resident; inhabits riparian thickets of willow and other brushy tangles near watercourses. Nests in low, dense riparian, consisting of willow, blackberry, wild grape; forages and nests within 10 ft of ground	HP	Suitable habitat present; see Chapter 4 – Discussion of Special Status Birds .
Double-crested Cormorant	<i>Nannopterum auritum</i>	--/--/WL	Colonial nester, usually in trees, occasionally in tule patches. Nests along coast on sequestered islets, usually on ground with sloping surface, or in tall trees along lake margins.	A	No known occurrences within the API or BSA. No suitable nesting habitat (sequestered islets) or foraging habitat (large waterbody) are present in the API or BSA; excluded from further consideration.
Black-crowned Night-heron	<i>Nycticorax nycticorax</i>	--/--/SAL	Colonial nester, usually in trees, occasionally in tule patches. Rookery sites located adjacent to foraging areas: lake margins, mud-bordered bays, marshy spots.	HP	Suitable habitat present; see Chapter 4 – Discussion of Special Status Birds .
Osprey	<i>Pandion haliaetus</i>	--/--/WL	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.	HP	Suitable habitat present; see Chapter 4 – Discussion of Special Status Birds .
California Brown Pelican	<i>Pelecanus occidentalis californicus</i>	--/--/FP	Colonial nester on coastal islands just outside the surf line. Nests on coastal islands of small to moderate size which afford immunity from attack by ground-dwelling predators. Roosts communally.	A	No known occurrences within the API or BSA. No suitable nesting habitat (coastal islands) or foraging habitat (large waterbody) are present in the API or BSA. Flyovers may be possible; excluded from further consideration.

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Common Name	Scientific Name	Status ¹	General Habitat ²	Habitat Present/ Absent ³	Rationale
Black-capped Chickadee	<i>Poecile atricapillus</i>	--/--/WL	Inhabits riparian woodlands in Del Norte and northern Humboldt counties. Mainly found in deciduous tree-types, especially willows and alders, along large or small watercourses.	HP	Suitable habitat present; see Chapter 4 – Discussion of Special Status Birds .
Bank Swallow	<i>Riparia riparia</i>	--/ST/--	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.	A	Closest known record approximately 2 miles west of the API along the bank of the Eel River (CDFW 2023c). No known occurrences within the API or BSA. No suitable nesting habitat (e.g., vertical banks to dig nesting hole) in the BSA; excluded from further consideration.
Yellow Warbler	<i>Setophaga petechia</i>	--/--/SSC	Riparian plant associations in close proximity to water. Also nests in montane shrubbery in open conifer forests in Cascades and Sierra Nevada. Frequently found nesting and foraging in willow shrubs and thickets, and in other riparian plants including cottonwoods, sycamores, ash, and alders	HP	Suitable habitat present; see Chapter 4 – Discussion of Special Status Birds .
Northern Spotted Owl	<i>Strix occidentalis caurina</i>	FT/ST/SSC	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.	A	Closest known Activity Center is HUM1023, approximately 2 miles northeast of the API (CDFW 2023c). No known occurrences within the API or BSA. BSA does not overlap designated critical habitat (USFWS 2023a). The narrow riparian area within the BSA does not contain suitable habitat (e.g., mature contiguous forest with complex structure) and traffic-generated noise (moderate ambient sounds levels, 71-80

Common Name	Scientific Name	Status ¹	General Habitat ²	Habitat Present/Absent ³	Rationale
					decibels [dB]) along Highway 101 likely discourages nesting activity adjacent to the API. No suitable habitat present in BSA; excluded from further consideration. <i>No effect.</i> Required habitat not present within the BSA.

Footnotes:

¹ Status: FE = Federal Endangered; FD = Federal Delisted; FT = Federal Threatened; SE = State Endangered; ST = State Threatened; FP = CDFW Fully Protected Species; WL = CDFW Watch List Species; SAL = CDFW Special Animals List; SSC = State Species of Special Concern.

² General habitat column information reprinted from CNDDDB (March 2023; CDFW 2023c).

³ Habitat Present/Absent: Absent [A] - no habitat present and no further work needed. Habitat Present [HP] -habitat is or may be present. The species may be present.

Special Status Mammal Species

Special status mammal species include species that are (1) listed as threatened or endangered under the CESA or the ESA; (2) proposed for federal listing as threatened or endangered; (3) state or federal candidates for listing as threatened or endangered; and/or (4) identified by the CDFW as SSC, California FP species, or species on their SAL (CDFW 2023d).

The USFWS IPaC official species list (generated for the API; **Appendix F**; November 2022) identified one federally-listed mammal species with potential to occur in the Project vicinity. The CNDDDB BIOS QuickView (generated for the Fortuna 7.5" quadrangle and surrounding 8 quads; **Appendix C**; November 2022) identified eleven special status mammal species with potential to occur within the nine-quad search area. A discussion of the habitat requirements, potential for species occurrence, avoidance and minimization measures, and potential Project-related impacts to special status mammal species is provided in **Chapter 4 – Discussion of Special Status Mammals** of this document. Special status mammal species potentially occurring or known to occur in the BSA are listed in the following table.

Table 10: Special Status Mammal Species with Potential to Occur in the Project Vicinity

Common Name	Scientific Name	Status ¹	General Habitat ²	Habitat Present/Absent ³	Rationale
Pallid Bat	<i>Antrozous pallidus</i>	--/--/SSC	Deserts, grasslands, shrublands, woodlands and forests. Most common in open, dry habitats with	A	No known occurrence records from API or BSA. Recent sampling efforts in coastal Humboldt

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Common Name	Scientific Name	Status ¹	General Habitat ²	Habitat Present/Absent ³	Rationale
			rocky areas for roosting. Roosts must protect bats from high temperatures. Very sensitive to disturbance of roosting sites.		County have not detected this species (BAMVT 2020). Species typically occurs in more inland, arid regions, and present is not expected to occur in a coastal, environment; this species is excluded from further consideration.
Humboldt Mountain Beaver	<i>Aplodontia rufa humboldtiana</i>	--/--/SAL	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.	A	No known occurrence records from API or BSA. No suitable habitat (coniferous forest slopes adjacent to suffice water) present in API or BSA; excluded from further consideration.
Sonoma Tree Vole	<i>Arborimus pomo</i>	--/--/SSC	North coast fog belt from Oregon border to Sonoma County. In Douglas-fir, redwood & montane hardwood-conifer forests. Feeds almost exclusively on Douglas-fir needles. Will occasionally take needles of grand fir, hemlock or spruce.	A	No known occurrence records from API or BSA. No suitable habitat (e.g., Douglas-fir forest) present in API or BSA; excluded from further consideration.
Townsend's Big-eared Bat	<i>Corynorhinus townsendii</i>	--/--/SSC	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.	A	No known occurrence records from API or BSA. No suitable habitat (e.g., caves, large tree hollows) present in API or BSA, highly disturbed area; excluded from further consideration.
North American Porcupine	<i>Erethizon dorsatum</i>	--/--/SAL	Forested 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.	HP	Suitable habitat present; see Chapter 4 – Discussion of Special Status Mammals .
Silver-haired Bat	<i>Lasionycteris noctivagans</i>	--/--/SAL	Primarily a coastal and montane forest dweller, feeding over streams, ponds and open brushy areas. Roosts in hollow trees, beneath exfoliating bark, abandoned	HP	Suitable habitat present; see Chapter 4 – Discussion of Special Status Mammals .

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Common Name	Scientific Name	Status ¹	General Habitat ²	Habitat Present/Absent ³	Rationale
			woodpecker holes, and rarely under rocks. Needs drinking water.		
Hoary Bat	<i>Lasiurus cinereus</i>	--/--/SAL	Prefers open habitats or habitat mosaics, with access to trees for cover and open areas or habitat edges for feeding. Roosts in dense foliage of medium to large trees. Feeds primarily on moths. Requires water.	HP	Suitable habitat present; see Chapter 4 – Discussion of Special Status Mammals .
Pacific Marten, Coastal Distinct Population Segment (Humboldt Marten)	<i>Martes caurina humboldtensis</i>	FT/SE/SSC	Occurs 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.	A	Closest record is historical (1913) near Carlotta, ~5.3 miles east of the API (CDFW 2023c). No known occurrence records from API or BSA. BSA does not overlap proposed critical habitat (USFWS 2023b). There are no recent records of this species south of the Klamath River. Current populations are only known from coastal redwood forests in Del Norte and northern Humboldt County (CDFW 2018). No suitable habitat within the BSA; species is excluded from further consideration. <i>No effect.</i> South of known range and habitat not present.
Yuma Myotis	<i>Myotis yumanensis</i>	--/--/SAL	Optimal habitats are open forests and woodlands with sources of water over which to feed. Distribution is closely tied to bodies of water. Maternity colonies in caves, mines, buildings or crevices.	HP	Suitable habitat present; see Chapter 4 – Discussion of Special Status Mammals .
Fisher	<i>Pekania pennanti</i>	--/--/SSC	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	A	No known occurrence records from API or BSA. No suitable habitat present in API or BSA; excluded from further consideration.

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Common Name	Scientific Name	Status ¹	General Habitat ²	Habitat Present/Absent ³	Rationale
			and denning. Needs large areas of mature, dense forest.		
American badger	<i>Taxidea taxus</i>	--/--/SSC	Most abundant in drier open stages of most shrub, forest, and herbaceous habitats, with friable soils. Needs sufficient food, friable soils and open, uncultivated ground. Preys on burrowing rodents. Digs burrows.	A	No known occurrence records from API or BSA. No suitable habitat present in API or BSA, very uncommon in the North Coast; excluded from further consideration.

Footnotes:

¹ Status: FPT = Federal Proposed Threatened; SE = State Endangered; SSC = State Species of Special Concern; FP = State Fully Protected Species.

² General habitat column information reprinted from CNDDDB (March 2023; CDFW 2023c).

³ Habitat Present/Absent: Absent [A] - no habitat present and no further work needed. Habitat Present [HP] -habitat is or may be present. The species may be present. Present [P] - the species is present.

Chapter 4 – Results: Biological Resources, Discussion of Impacts, and Mitigation

Habitats and Natural Communities of Special Concern

One SNC was identified in the Project Area: Salal-berry brambles. Planted redwoods occurring in the Project Area have not been classified as an SNC as they do not form a canopy and are not a natural community. Areas of invasive Himalayan blackberry are recommended for removal as mitigation for disturbance to SNCs, or other sensitive resources. No critical habitat for federally-listed plants or wildlife occurs within the API or BSA.

Discussion of Salal-berry brambles SNC

The Salal-berry brambles alliance (GNR, S4) is not considered sensitive at the alliance level; however, the *Rubus ursinus* association (GNR, SNR) within this alliance is designated sensitive by the CDFW VegCAMP (Sawyer et al. 2009, CDFW 2023b). This association is characterized by a dominant cover of California blackberry (*Rubus ursinus*) with no other trees or shrubs.

Survey Results

Four stands of Salal-berry brambles, *Rubus ursinus* alliance were observed in the Project Area along the east side of Highway 101, and between Dinsmore Drive and Riverwalk Drive (**Appendix A, Figure 7**).

Project Impacts

Portions of Salal-berry brambles may be temporarily or permanently impacted as a result of construction. The footprint of temporary and permanent impacts will be determined as Project design progresses.

Avoidance and Minimization Efforts

Pruning and removal of blackberry vines will be kept to the minimum necessary for fire safety and to complete project activities.

Compensatory Mitigation

If impacts to Salal-berry brambles cannot be avoided, this SNC shall be replaced either on or off-site at no less than a 1:1 ratio. Alternatively, Himalayan blackberry may be removed from existing stands of berry brambles within the API as mitigation for Project impacts.

Cumulative Impacts

SNC mapping for the cumulative projects summarized in **Table 1** is not available; however, each of the considered cumulative projects would also be subject to review under CEQA. As such, any potential impact to SNCs would be addressed through each project's separate requirements for compensatory mitigation. Cumulative impacts to SNCs would not occur.

Discussion of Aquatic Habitat, Regulated Waters, and Wetlands

Aquatic habitat in the BSA includes the waters of Rohner Creek and Strongs Creek, an anadromous tributary to Strongs Creek and the Eel River. There are no wetlands or other waters within the API (GHD 2023b).

Survey Results

Rohner Creek and Strongs Creek were not surveyed for the purposes of this report, as no in-water work, culvert modification, riparian habitat removal or alteration, and/or channel modification will occur. Standard erosion control measures would limit inadvertent inputs of fine sediments or contaminants into aquatic resources during construction.

A National Wetlands Inventory (NWI) query was completed and a delineation conducted (see **Appendix A, Figure 5 – NWI Wetlands**). No wetlands or other waters are present within the API.

Project Impacts

The Project would not impact any aquatic habitat, regulated waters, or wetlands.

Special Status Plant Species

As discussed in **Chapter 3**, based on the USFWS Official Species List generated for the API (**Appendix F**; January 2023), three federally-listed plant species (also state-listed and CNPS-ranked) occur within the Project vicinity, but are not expected to occur within the API or greater BSA given a lack of suitable habitat. No special status plant species were observed during two protocol-level botanical surveys conducted in 2023.

There are 47 additional CNPS ranked plant species records in CNDDDB known to occur in the nine-quad area surrounding the API (CDFW 2023c, CNPS 2023b). A discussion of the habitat requirements, potential for species occurrence, survey results, potential Project-related impacts, applicable impact avoidance and minimization measures, compensatory mitigation, and cumulative impacts to federally and state listed plant species is provided below.

Discussion of Special Status Plant Species

Beach layia (FT, SE, 1B.1)

Beach layia (*Layia carnosa*) is listed as federally threatened, state endangered, and has a CRPR rank of 1B.1 which means it is rare or endangered throughout its range, and seriously threatened in California (CNPS 2023b). This species is an annual herb in the sunflower family (Asteraceae) that typically blooms from March through July (CNPS 2023). This species grows in sandy coastal dunes and coastal scrub from sea level to 195 feet in California (Humboldt, Marin, Monterey, San Francisco, San Mateo, and Santa Barbara Counties).

The closest known record is from 2005, on coastal dunes approximately 9.6 miles northwest of the API (CDFW 2023a). There is no suitable habitat within API and this

species was not observed during protocol-level floristic surveys in 2023 (GHD 2023a). No effects or impacts to beach layia would occur.

Menzies' wallflower (FE, SE, 1B.1)

Menzies' wallflower (*Erysimum menziesii*) is listed as federally endangered, state endangered, and has a CRPR rank of 1B.1 which means it is rare or endangered throughout its range, and seriously threatened in California (CNPS 2023b). This species is a perennial herb in the mustard family (Brassicaceae) that typically blooms from March through September (CNPS 2023b). This species grows in coastal dunes and from sea level to 115 feet in California (Humboldt, Mendocino, and Monterey Counties).

The closest known record is from 2014, on coastal dunes approximately 10 miles northwest of the API (CDFW 2023a). There is no suitable habitat within API and this species was not observed during protocol-level floristic surveys in 2023 (GHD 2023a). No effects or impacts to Menzies' wallflower would occur.

Western lily (FE, SE, 1B.1)

Western lily (*Lilium occidentale*) is listed as federally endangered, state endangered, and has a CRPR rank of 1B.1 which means it is rare or endangered throughout its range, and seriously threatened in California (CNPS 2023b). This species is a perennial bulbiferous herb in the lily family (Liliaceae) that typically blooms from June through July (CNPS 2023b). This species grows in bogs, fens, marshes, swamps, coastal bluff scrub, coastal prairie, coastal scrub, and openings in North Coast coniferous forest from 5 to 605 feet in California (Del Norte and Humboldt Counties).

Observation records for this collectible species are suppressed in CNDDDB (CDFW 2023a). There are records of this species in the Fortuna USGS quad from 1938, 2005, 2007, and 2011. There is no suitable habitat within API and this species was not observed during protocol-level floristic surveys in 2023 (GHD 2023a). No effects or impacts to western lily are anticipated.

Survey Results

No special status plants were observed during the two protocol-level, seasonally appropriate floristic surveys conducted in 2023 within the API. See separate Botanical Survey Report for a list of plant species observed on-site (GHD 2023a).

The API and BSA do not overlap designated or proposed critical habitat for any federally-listed plant species.

Project Impacts

Since protocol-level surveys have been completed and no special plant status species were observed, this study concludes the evaluation of potential impacts to special status plant species. Available roadside habitat is generally disturbed and low quality. No impacts to special status plant species would occur.

Avoidance and Minimization Efforts

As no impacts to special status plants would occur; therefore, no avoidance or minimization efforts are proposed.

Compensatory Mitigation

The proposed Project has been designed such that conservation measures and proposed avoidance and minimization measures shall avoid or minimize potential effects to vegetation to the fullest extent feasible. A small amount of disturbance to vegetation will occur; however, no compensatory mitigation is proposed for special status plant species because floristic surveys have not identified sensitive species that would be impacted, and the temporary disturbance area will be restored in place.

Cumulative Impacts

Special status plant mapping results for the cumulative projects summarized in **Table 1** is not available and/or has not been completed for all identified projects; however, each of the considered cumulative projects would also be required to undergo CEQA review. As such, any potential impact to special status plants would be addressed through separate requirements for compensatory mitigation. As such, cumulative impacts to special status plants would not result.

Special Status Animal Species

Discussion of Special Status Invertebrates

As discussed in **Chapter 3**, there are eight special status invertebrate species, including one federal candidate, that have potential to occur within the nine-quad scoping area and five that the BSA likely provides suitable habitat for. A discussion of the habitat requirements, potential for species occurrence, survey results, potential Project-related impacts, applicable impact avoidance and minimization measures, compensatory mitigation, and cumulative impacts to invertebrate species is provided below.

California Floater (SAL)

A great deal of uncertainty surrounds the taxonomy of this species and its western North American congeners, *Anodonta wahlametensis*, *Anodonta nuttalliana*, and *Anodonta oregonensis* (NatureServe 2023). The historic range of the California Floater may have spanned from British Columbia to Mexico (NatureServe 2023). It is considered extirpated from the Central Valley of California and its current range is disjunct (NatureServe 2023). Extant populations in California may be limited to the Fall and Pit rivers in Shasta County (NatureServe 2023). One large population (approximately 8,000 individuals) has been recorded in the Eel River with thousands in a 100-meter span of a river bend (NatureServe 2023). This species is threatened by pollution, water diversion and impoundments, elimination of their fish host species, and eutrophication (NatureServe 2023).

There are no known occurrences within API or BSA or surrounding 5 miles (CDFW 2023a). Based on suitable aquatic habitat, the species may be present in the BSA within Rohner Creek and Strongs Creek, although no suitable habitat is present in the

API. With the implementation of avoidance and minimization measures, no impact would result to the California Floater.

Western Ridged Mussel (SAL)

Western Ridged Mussels were historically known from rivers and creeks across western North America including California, Oregon, Washington, Idaho, Nevada, and British Columbia (Blevins and Selvaggio 2020). However, the species has experienced a drastic 43% range reduction, especially within southern California (Blevins and Selvaggio 2020). Recent studies have documented their presence in northern California and southern Oregon rivers (Howard 2010).

There are no known occurrences within API or BSA or surrounding 5 miles (CDFW 2023a). Based on suitable aquatic habitat, the species may be present in the BSA within Rohner Creek and Strongs Creek, although no suitable habitat is present in the API. With the implementation of avoidance and minimization measures, no impact would result to the Western Ridged Mussel.

Western Pearlshell (SAL)

The Western Pearlshell is an aquatic freshwater mussel. Its geographic distribution spans the western U.S. including Alaska, California, Idaho, Montana, Nevada, Oregon, Utah, Washington, and Wyoming (NatureServe 2023). The mussel tends to prefer low velocity water. This species is primarily threatened by water diversion, pollution, and siltation (NatureServe 2023).

There are no known occurrences within API or BSA or surrounding 5 miles (CDFW 2023a). Based on suitable aquatic habitat, the species may be present in the BSA within Rohner Creek and Strongs Creek, although no suitable habitat is present in the API. With the implementation of avoidance and minimization measures, no impact would result to the Western Pearlshell.

Obscure Bumble Bee (SAL)

Individuals can live approximately one year (Hatfield et al. 2014). They occur in coastal habitat within the fog-belt from British Columbia to southern California (Koch and Williams 2012, Hatfield et al. 2014). Preferred plants for foraging include the following genera: *Baccharis*, *Cirsium*, *Lupinus*, *Lotus*, *Grindelia*, *Phacelia* (Koch and Williams 2012). Their populations have experienced severe declines range wide. These declines are poorly understood, largely because they overlap with *Bombus vosnesenskii*, a common bee that is difficult to distinguish from *B. caliginosus* in the field (Xerces Society 2023).

The closest known record is from 1968 in Ferndale, approximately 6 miles west of the API (CDFW 2023a). The API and BSA fall within the species current range (Hatfield et al. 2014). In addition, the API and BSA is within the coastal fog belt and includes several of the species' food plants. The API largely consists of ruderal habitat conditions and impacts to the Obscure Bumble Bee are expected be temporary in nature and less than significant.

Western Bumble Bee (SC, SAL)

Western Bumble Bees were historically widespread in coastal valleys and foothills throughout western North America. However, the species has experienced precipitous declines and they are now regionally rare. Western Bumble Bees are habitat generalists but require reliable sources of nectar plants and pollen resources (blooming periods from spring through fall). Meadow complexes are a preferred habitat type (DoW 2015). Colonies are typically located underground in rodent burrows (Bumble Bee Watch 2021).

The closest known record is from 1970 in Fortuna, within 1 mile of the API (CDFW 2023a). There are no recent documented occurrences of this species within the BSA or nearby (Bumble Bee Watch 2021, CDFW 2023b). Although the API and BSA fall within the species' pre-2002 range (according to ICUN Redlist), the range has contracted significantly in the last decade and now primarily includes the intermountain west and cascade regions of the US (Hatfield et al. 2015). This being the case, the species is not expected to occur in the API or BSA during construction. Impacts to the Western Bumble Bee are expected to be less than significant.

Monarch Butterfly (FC)

The Monarch Butterfly - California overwintering population (pop. 1) was proposed for listing under the federal ESA in 2014 (Xerces Society 2014). Critical habitat has not been designated or proposed (USFWS 2023b).

Monarchs are distributed across North America in the spring and summer months. The Continental Divide splits their overwintering populations: those on the eastern side typically overwinter in Mexico, while those on the western side overwinter in California. There are over 400 known overwintering sites along the coast of California from Mendocino County to Baja California, Mexico (Pelton et al. 2016). Individuals begin arriving at their overwintering sites in October and remain as late as early March (Marriott 1997). Mating begins during warm days in late January, and subsequently females begin dispersing inland to lay their eggs on their obligate host plant, milkweed (*Asclepias* spp.; Marriott 1997). They rely on milkweed for larval development and various nectar plants for adult food. Threats to their populations include breeding habitat loss and pesticide use, as well as loss to their overwintering habitat (Pelton et al. 2016). From population data collected at overwintering sites, scientists estimate that the population has experienced a 74% decline since the late 1990s (Pelton et al. 2016).

Monarchs are relatively rare in Humboldt County, although a few observations have been reported generally concentrated between Trinidad and Fortuna from 2015 to 2023 (iNaturalist 2023). The closest confirmed record is from July 2016 in Fortuna (iNaturalist 2023). No Monarch roosts have been recorded in Humboldt County according to community science surveys conducted since 1997 (Xerces Society 2022). The API does not include habitat suitable for Monarch overwintering. Given the lack of suitable overwintering habitat within the API, the Project would have no effect on the Monarch.

Survey Results.

No special status invertebrates were observed during the 2023 site visits. However, this survey was not targeted towards detection of the full range of invertebrates. Some nectar sources that could be utilized by Obscure Bumble Bee and Western Bumble Bee were observed. The API and BSA do not overlap designated or proposed critical habitat for any federally-listed invertebrate species.

Project Impacts

Vegetation removal will be limited to roadside vegetation. No impacts to large areas of nectar sources or open meadow are expected. The Project is not expected to result in any significant impacts to the Obscure Bumble Bee, Western Bumble Bee, or Monarch Butterfly if present.

Given that no in-water work within Rohner Creek and Strongs Creek would occur, direct impacts to aquatic mollusks would not result. Standard BMPs would be implemented to avoid indirect impacts associated with sedimentation and accidental spills.

Avoidance and Minimization Efforts

Project design (including staging and stockpile locations) considered minimization of impacts to vegetation and sensitive wildlife habitat during design. Standard BMPs would be implemented to avoid indirect impacts associated with sedimentation and accidental spills. No further avoidance or minimization measures are proposed.

Compensatory Mitigation

The proposed Project has been designed with avoidance and minimization measures in place to result in no impacts or effects to special status invertebrate species or reduce impacts to less than significant levels. No compensatory mitigation is proposed.

Cumulative Impacts

The proposed Project will not facilitate further development in the area. In addition, with implementation of the recommended avoidance and minimization measures, the Project would not contribute to cumulative impacts to special status invertebrates.

Discussion of Special Status Fish

As discussed in **Chapter 3**, the BSA contains suitable habitat for three federally and state listed anadromous salmonids and three other special status fish species within Rohner Creek and Strongs Creek. A discussion of the habitat requirements, potential for species occurrence, survey results, potential Project-related impacts, applicable impact avoidance and minimization measures, compensatory mitigation, and cumulative impacts to fish species is provided below.

Pacific Lamprey (SSC)

Pacific Lamprey is a primitive fish lacking true fins and jaws of true fishes (Streif 2007, Stillwater Sciences 2010). Pacific Lamprey range from the Japan to the Bering Sea in Alaska and along the west coast of North America to central Baja, California (Stillwater Sciences 2010).

Pacific Lamprey are anadromous with typical spawning from March through July (Stillwater Sciences et al. 2010). Both sexes build redds (nests) where eggs are deposited by moving stones with their mouths, typically in riffles of gravel-bottomed streams and upstream of quality ammocoete (larval lamprey) habitat. Ammocoetes hatch within approximately 19 days depending on water temperature (Streif 2007). Upon hatching, ammocoetes move downstream where they settle into silty sandy substrates (Streif 2007). They remain in these areas, often in colonies, for two to seven years filter feeding primarily on algae until they metamorphose into macrophthmia (juveniles; Streif 2007). As macrophthmia, they emigrate downstream to the ocean (Streif 2007). They mature into adults where they are parasitic on a variety of fishes. Adults return to their natal streams following one to three years in the marine environment (Streif 2007). There may be two major life strategies in which some adults spawn immediately upon returning to freshwater and other adults may overwinter in freshwater before spawning (Streif 2007, Stillwater Sciences et al. 2010).

Pacific Lamprey are common in the Eel River year-round and are known to occur in the Strongs Creek watershed (UC Davis 2023a). Suitable rearing and migratory habitat and potentially spawning habitat are present for Pacific Lamprey in Rohner Creek and Strongs Creek within the BSA. Based on suitable aquatic habitat, the species may be present in the BSA within Rohner Creek and Strongs Creek, although no suitable habitat is present in the API. With the implementation of avoidance and minimization measures, the project would have no impact on Pacific Lamprey.

Western Brook Lamprey (SSC)

The Western Brook Lamprey is a small (total length typically less than 18 centimeters [7 inches]) non-migratory lamprey that resides in freshwater (69 FR 77158, UC Davis 2023b). They inhabit coastal streams along the Pacific Coast from Alaska to California (CTUIR 2004). The species occurs in many of the same habitats and has been considered in conjunction with Pacific Lamprey in conservation efforts (i.e., petition to be listed; 69 FR 77158, Nawa et al. 2003). Despite these similarities, Western Brook Lamprey differ in being non-migratory and non-parasitic. Both lamprey species have otherwise similar life histories, including being semelparous (adults die after spawning). Additionally, ammocoetes are nearly indistinguishable (69 FR 77158).

Spawning typically occurs March-July (69 FR 77158), often involving spawning groups (12 individuals have been documented at a single nest) and nests may be laid on top of each other (CTUIR 2004). Both sexes build redds (nests), by moving stones with their mouths, typically in riffles of gravel-bottomed streams (USFWS unk. yr.). A given female may lay 1,100-5,500 eggs (69 FR 77158). Ammocoetes hatch within approximately 10 days, dependent on water temperature (CTUIR 2004, UC Davis 2021b, 69 FR 77158). Upon hatching, ammocoetes move downstream where they settle into silty substrates in “backwater” areas (69 FR 77158). They remain in these areas, often in very high densities, for two to seven years filter feeding on algae and detritus until they metamorphose into adults (69 FR 77158). Adult metamorphosis occurs February-July (69 FR 77158). However, their gonads are not fully developed at this metamorphosis; they will burrow into the stream during the winter months until emerging in the spring to spawn (69 FR 77158). After reaching sexual maturation, all feeding stops as their small,

poorly developed oral disc and teeth are non-functional (69 FR 77158). Adults die after spawning.

Western Brook Lamprey are known to occur in the Strongs Creek watershed (UC Davis 2023). Suitable rearing and migratory habitat and potentially spawning habitat are present for Western Brook Lamprey in Rohner Creek and Strongs Creek within the BSA. Based on suitable aquatic habitat, the species may be present in the BSA within Rohner Creek and Strongs Creek, although no suitable habitat is present in the API. With the implementation of avoidance and minimization measures, the project would have no impact on Western Brook Lamprey.

Coastal Cutthroat Trout (SSC)

The Coastal Cutthroat Trout ranges from the southernmost extent of its range in the Eel River (California) to Prince Williams Sound in Alaska. Life history strategies are more variable than for most salmonids. Moyle (2002) and Trotter (1989, 1997) recognized four main life history groupings including sea run, lacustrine, riverine, and stream resident. Ecological requirements are similar to those of Steelhead, and where the two species co-occur. Coastal Cutthroat Trout usually occupy smaller tributary streams (Moyle et al. 2008). Unlike most salmon, and similar to Steelhead, this species may spawn more than once. Adults commonly enter streams during the fall and feed on eggs from other salmon's redds. Spawning can occur from December through May. Young Cutthroat Trout may spend up to two weeks in the gravel before emerging and from one to nine years in freshwater before migrating to estuaries and ocean in the spring. Coastal Cutthroat Trout usually spend less than one year in salt water before returning to spawn. Juveniles and adults are carnivorous, feeding mostly on insects, crustaceans, and other fish throughout their lives. In freshwater, adult Cutthroat Trout typically reside in large pools while the young reside in riffles, most commonly in upper tributaries of small rivers. Coastal Cutthroat Trout utilize a wide variety of habitat types during their complex life cycle. They spawn in small tributary streams, and utilize slow flowing backwater areas, low velocity pools, and side channels for rearing of young. Good forest canopy cover, in-stream woody debris, and abundant supplies of insects are crucial for the young Cutthroat Trout's survival. During the estuarine or ocean phase of life, Cutthroat Trout utilize tidal sloughs, marshes, and swamps as holding areas and feeding grounds.

Cutthroat Trout populations are present in the Eel River as well as lower Eel River tributaries (CDFW 2015). Additionally, the species is known to occur in the Strongs Creek watershed (UC Davis 2023). The closest known occurrence record is from 1995 in Strongs Creek within the BSA (CDFW 2023a). Suitable rearing and migratory habitat is present for Coastal Cutthroat Trout in Rohner Creek and Strongs Creek within the BSA. However, no spawning habitat (based on lack of graveled stream bottom in Rohner Creek and Strongs Creek) is present in the BSA. Based on suitable aquatic habitat, the species may be present in the BSA within Rohner Creek and Strongs Creek, although no suitable habitat is present in the API. With the implementation of avoidance and minimization measures, the project would have no impact on Coastal Cutthroat Trout.

Coho Salmon - southern Oregon / northern California ESU Coho Salmon (FT/ST)

The southern Oregon/northern California coast Coho Salmon (SONCC) Coho Salmon ESU was federally-listed as a threatened effective June 5, 1997 (62 FR 24588). The listing status was reaffirmed effective August 29, 2005 (70 FR 37159) and April 14, 2014 (79 FR 20802). Critical habitat was designated for SONCC Coho Salmon, effective June 4, 1999. Critical habitat includes all accessible reaches between and including the Mattole River (California) and Elk River (Oregon) (64 FR 24049). This ESU is also state listed as threatened under the CESA.

The SONCC ESU is defined as all Coho Salmon naturally produced in streams between Punta Gorda in northern California (Humboldt County) and Cape Blanco in southern Oregon (70 FR 37160). Adult Coho Salmon enter rivers from late summer to mid-winter with most spawning occurring in early to mid-winter. Eggs incubate for one to one and a half months during winter. Fry emerge and occupy shallow areas with vegetative cover. Juvenile Coho Salmon rear in freshwater for over a year (some for two years) before migrating to the ocean in spring (Weitkamp et al. 1995, NMFS 2014). Juveniles and yearlings spend various amounts of time in freshwater/estuary transition zones. Length of stay by an individual averages about one to two months, with spring being the heaviest time of use. Adults typically spend the next two years in the ocean before returning to their home streams to spawn (Wallace 2010). Marine invertebrates, such as copepods, euphausiids, amphipods, and crab larvae, are the primary food sources for Coho Salmon when they first enter saltwater. Fish represent an increasing proportion of the diet as Coho Salmon grow and mature (Moyle 2002).

Freshwater habitat requirements for juvenile Coho Salmon include cool water temperatures (53.6-57.2 °F is optimal), clear water, riparian vegetation that provides shade, clean silt-free gravel for spawning, in-stream large woody debris, availability of food (invertebrates), and overwintering habitat consisting of large off-channel pools with complex cover or small spring-fed tributary streams (Moyle 2002). Coho Salmon from Humboldt Bay tributaries that rear in the estuary grow larger than their cohorts that reared farther upstream, which suggests that a stream/estuary ecotone is an important overwintering and rearing habitat for juvenile Coho Salmon (Wallace and Allen 2009).

Population declines and extirpations in individual streams and tributaries have occurred due to widespread degradation of freshwater habitats from activities such as timber harvest, road building, grazing and mining activities, urbanization, stream channelization, dam construction, wetland filling or draining, beaver trapping, and water withdrawals and diversions for irrigation (NOAA 2011). These activities have resulted in changes to channel morphology and substrate, loss and degradation of estuaries, wetlands, and riparian areas, declines in water quality (e.g., elevated pH and water temperatures, reduced dissolved oxygen, altered stream fertility and biological communities, and toxics), altered stream flows, and fish passage impediments such as dams and road crossings (NOAA 2011).

The Eel River supports populations of Coho Salmon (Yoshiyama and Moyle 2010). However, Coho Salmon are not known to occur in the Strongs Creek watershed historically or currently (UC Davis 2023). This species is unlikely to be present within the

BSA in Rohner Creek and Strongs Creek; however, given the absence of fish passage barriers between the Eel River and the BSA, presence cannot be ruled out. With the implementation of avoidance and minimization measures, the project would have no impact and no effect on Coho Salmon.

Chinook Salmon – California Coastal ESU (FT)

The California Coastal (CC) Chinook Salmon ESU was listed as threatened, effective November 15, 1999 (64 FR 50394). The listing was updated effective August 29, 2005 (70 FR 37159) and April 14, 2014 (79 FR 20802). Critical habitat was designated for Chinook Salmon (Coastal California ESU), effective January 2, 2006. Designated critical habitat includes riverine and estuarine habitat in Humboldt, Trinity, Mendocino, Sonoma, Lake, Napa, Glenn, Colusa, and Tehama counties (70 FR 52487).

The California Coast Chinook Salmon (California coastal ESU) ranges from Redwood Creek in Humboldt County south to the Russian River in Sonoma County. California Coast Chinook Salmon spawn and rear in coastal and interior rivers in northern California. Ocean-type Chinook (fall run) rear for less than one year in freshwater, while stream-type Chinook (spring run) remain in freshwater for one year or more before emigrating to forage in coastal and marine zones of California for two to five years (Healey 1991). Currently, only fall-run Chinook appear to be extant in the DPS. These Chinook Salmon typically migrate to the ocean within their first year from April through July (NOAA 2007). The ideal temperature range for rearing, smolting, and migrating (seaward) Chinook Salmon appears to be 50° to 55° F (Rich 1997). Habitat requirements for spawning also include clean, loose gravel, a lack of fine sediment, cool water, and unimpeded passage to the ocean. After spawning, females bury fertilized eggs in gravel and guard them until they die. Rearing habitat is characterized by the presence of pools, off-stream channels, and riparian cover.

The destruction and modification of historic spawning habitat, fish passage barriers, over-harvesting, decreased floodplain connectivity and function, as well as reduced stream flow and predation are considered moderate to very high threats to this ESU. Land use activities (logging, road construction, streambank alterations, etc.), water diversions and overutilization of rivers and streams for recreational purposes are also have contributed to the decline of the ESU. The main factors limiting this Chinook Salmon ESU are low abundance, low distribution, and negative population trends. Predation by pikeminnow in the Eel River and genetic integrity are considered significant threats to the population (NOAA 2007).

The Eel River supports populations of Chinook Salmon (Yoshiyama and Moyle 2010). Chinook Salmon are known to occur in the Strongs Creek watershed (UC Davis 2023), and recreational fishermen have reported three catches in Strongs Creek near the mouth with the Eel River (Fishbrain 2021). This species may be present within the BSA in Rohner Creek and Strongs Creek. With the implementation of avoidance and minimization measures, the project would have no impact and no effect on Chinook Salmon.

Steelhead, Northern California DPS (FT/SE)

Steelhead (northern California DPS) was listed as threatened, effective August 7, 2000 (65 FR 36074). This listing was reaffirmed, effective February 6, 2006 (at which point two hatchery stocks were added; these are no longer active) (71 FR 833), and again on April 14, 2014 (79 FR 20802). Both summer and winter-run Steelhead are included in this DPS. NOAA Fisheries recently announced that a petition to list summer-run Steelhead as a unique DPS was not warranted (85 FR 6527). Critical habitat was designated for Steelhead (northern California DPS), effective January 2, 2006. Designated critical habitat includes riverine and estuarine habitat in Humboldt, Trinity, Mendocino, Sonoma, Lake, Glenn, Colusa, and Tehama counties (70 FR 52487). Northern California summer Steelhead within four North Coast watersheds (including the Eel River) were recently listed as state endangered under CESA as of June 16, 2021.

The Northern California Steelhead (northern California DPS) occupies river basins from Redwood Creek in Humboldt County to the Gualala River (near the Mendocino/Sonoma County line). Both summer and winter-run Steelhead are included in this DPS. Steelhead spend their adult lives in marine environments, returning to freshwater at the age of four or five to spawn, usually in their stream of origin. Winter-run, sexually mature, Steelhead populations migrate from the ocean to freshwater rivers and streams in the fall/winter, spawn, and quickly return to marine habitat. In contrast, summer-run populations migrate to freshwater habitat in the late spring/summer, spend several months in freshwater (reaching sexual maturity during this time), and then spawn in the winter (NMFS 2016).

Steelhead is the anadromous form of rainbow trout. Unlike salmon, Steelhead do not necessarily die after spawning. Eggs are deposited in redds constructed in gravel, and (for winter run fish) hatch after three to 14 weeks in later winter through spring. The hatchlings, or alevins, emerge from the gravel after an additional two to five weeks (Moyle 2002). During the egg and alevin stages, survival depends in part on the presence of clean, well-oxygenated gravel (excessive siltation contributes to mortality at these stages) (Barnhart 1991, Stillwater Sciences 2006). Juveniles remain in fresh water for one or two years before returning to saltwater, with emigration typically occurring from March through June. A second year of growth is thought to contribute to a much higher probability of survival in the open ocean (Stillwater Sciences 2006). Less is known about the life history of summer run Steelhead, although adult fish are believed to enter rivers in May (Yoshiyama and Moyle 2010).

In the Northern California DPS, the decline of Steelhead has been attributed to factors such as watershed disturbances, including logging on steep slopes, grazing, road building, water diversions, and severe habitat degradation caused by timber harvest and intensive agricultural practices. These factors have resulted in decreased flows, loss of riparian habitat, channel widening, and increased siltation and water temperatures. Despite this decline, north coast rivers and streams have the greatest amount of Steelhead habitat in California. Importantly, summer-run Steelhead adults rely upon cold-water refuges to oversummer in (CalTrout un. yr., NMFS un. yr). The most

abundant populations of Steelhead are in the Klamath/Trinity River system (Barnhart 1991, Stillwater Sciences 2006).

Juvenile Steelhead have been documented in Rohner Creek and Strongs Creek in 2009 (CDFG 2009a, CDFG 2009b). Both winter-run and summer-run Steelhead are found in the Eel River (NFS 2020). Suitable rearing and migratory habitat is present for Steelhead in Rohner Creek and Strongs Creek within the BSA. However, no spawning habitat (based on lack of graveled stream bottom in Rohner Creek and Strongs Creek) is present in the BSA. Based on suitable aquatic habitat, the species may be present in the BSA within Rohner Creek and Strongs Creek, although no suitable habitat is present in the API. With the implementation of avoidance and minimization measures, the project would have no impact and no effect on Northern California Steelhead.

Survey Results

Although no fish surveys were conducted as part of this environmental review, previous stream inventory reports have been completed by CDFG in Rohner Creek and Strongs Creek and juvenile Steelhead were recorded in the lower reaches of both creeks (CDFG 2009a, CDFG 2009b).

The presence of Coho Salmon, Chinook Salmon, Steelhead, and Pacific Lamprey is well documented in the Eel River (CDFW 2021).

The Eel River and its tributaries are considered EFH for Chinook Salmon and Coho Salmon (NOAA 2023a). Chinook and Coho Salmon are managed under the Pacific Coast Salmon Fisheries Management Plan (NOAA 2022). The Eel River and its tributaries is also considered critical habitat for Coho Salmon, Chinook Salmon, and Steelhead (NOAA 2023b).

Project Impacts

Given that no in-water work within Rohner Creek and Strongs Creek would occur, direct impacts to anadromous fish would not result. Standard BMPs would be implemented to avoid indirect impacts associated with sedimentation and accidental spills. **Table 11** provides a summary of potential impacts to fisheries resources and habitat associated with permanent roadway restoration.

Table 11: Impacts to Fish and Habitat Resources

Description and Likelihood of Impacts	
Description of Potential Impact	Anticipated Level of Effect: (None/Minimal/Moderate/High)
Loss or Modification of Juvenile Rearing Habitat	None
Loss of Spawning Habitat	None
Loss of Riparian Habitat	None
Hydroacoustic Effects	None
Increased Turbidity and Suspended Sediment	Less than significant with BMPs
Impaired Fish Passage during Construction	None
Potential Spill Hazard	Less than significant with BMPs
Injury and Mortality of Juveniles during Construction	None

Loss or Modification of Juvenile Rearing Habitat

Given no in-water work, culvert replacement or modification, or channel alternation would occur, the loss or modification of juvenile rearing habitat would not occur.

Loss of Spawning Habitat

Given no in-water work, culvert replacement or modification, or channel alternation would occur, the loss or modification of spawning habitat would not occur.

Loss of Riparian Habitat

Tree removal along Rohner Creek and Strongs Creek would not occur. There would be no loss of riparian habitat.

Hydroacoustic Effects

Noise effects would be limited to repaving and related construction activities on the roadway surface. Construction-related noise would be similar to the existing background noise on the roadway, which includes frequent passenger and commercial traffic at the interchange. Given the noise setting would not be substantially different, hydroacoustic effects would not impact special status salmonids and other special status fish species.

Increased Turbidity and Suspended Sediment

Increased turbidity and suspended sediments have the potential to enter Rohner Creek and Strongs Creek during construction. Avoidance and minimization measures are recommended to minimize risks related to habitat sedimentation.

Impaired Fish Passage During Construction

Given no in-water work, culvert replacement or modification, or channel alternation would occur, impairment of fish passage would not occur.

Potential Spill of Hazardous Materials

Potential spills of hazardous materials (i.e., oil, grease, fuels, and coolants) could have deleterious effects on fisheries resources downstream of the Project. Additionally, operating construction equipment in or adjacent to any watercourse, whether it is wet or dry, poses the risk of serious environmental damage if a spill were to occur. The Project requires daily on-site refueling of construction equipment. As a result of that activity, minor fuel and oil spills can occur, and there is always the risk of larger releases. Without rapid containment, such materials can be extremely difficult to clean up in their entirety, when taking into consideration the size of a spill and its proximity to flowing water. Oils, fuels, and other toxic contaminants can have deleterious effects on fisheries resources, with the risk being substantially elevated when spills are near streams or

other waterbodies. Safeguards to prevent spills in the BSA are critical because of the Project's relationship to a fish-bearing stream (Rohner Creek and Strongs Creek). Avoidance and minimization measures are recommended to minimize risks related to the accidental spill of hazardous materials.

Injury and Mortality of Fisheries Resources

Given no in-water work, dewatering, or fish relocation would occur, injury and mortality of fisheries resources would not occur.

Avoidance and Minimization Efforts

Avoidance and minimization efforts include:

- Sediment and/or erosion control shall be established to avoid sedimentation and runoff into Strongs Creek and Rohner Creek. The location of sediment and/or erosion control measures will be included on the final construction plan set.
- Equipment shall be cleaned of deleterious materials before working within 100 ft of either creek.
- Equipment shall be staged, and materials shall be stockpiled outside Rohner Creek and Strongs Creek riparian habitat, in designated staging and stockpile areas.
- Any construction equipment operating adjacent to a stream shall be inspected daily for leaks. Any oil, fuel, and grease residue that has the potential to fall from machinery shall be removed and properly disposed of. Refueling and equipment maintenance would occur in designated staging and stockpiling areas only.
- Spill containment booms shall be available on-site at all times during construction operations and/or staging of equipment or during fueling when work occurs over live waterbodies. Fueling trucks shall at all times be equipped with sealed spill kits.
- The awarded contractors shall develop and implement site-specific BMPs, a Storm Water Pollution Prevention Plan if applicable, and emergency spill control plan. The awarded contractor shall be responsible for immediate spill containment and cleanup, as well as proper disposal of hazardous materials and BMPs used during spill recovery.

Compensatory Mitigation

The proposed Project has been designed with avoidance and minimization measures in place to result in no impacts or effects to special status fish species or reduce impacts to less than significant levels. No compensatory mitigation is proposed.

Cumulative Impacts

Cumulative projects summarized in **Table 1** do not involve aquatic work, avoiding the potential to impact fisheries resources. Thus, a cumulative impact to fisheries resources would not result.

Discussion of Special Status Amphibians

As discussed in **Chapter 3**, based on the USFWS Official Species List generated for this Project (**Appendix F**), no federally-listed amphibian species are expected to occur within the Project vicinity. There are two special status amphibian species with suitable habitat for in the BSA. A discussion of the habitat requirements, potential for species occurrence, survey results, potential Project-related impacts, applicable impact avoidance and minimization measures, compensatory mitigation, and cumulative impacts to amphibian species is provided below.

Northern Red-legged Frog (SSC)

Northern Red-legged Frogs occur along the west coast of North America from British Columbia to California. The geographic range split between the Northern and California Red-legged Frog species occurs just south of Elk Creek in Mendocino County where both species overlap (Nafis 2023). Northern Red-legged Frogs are typically found near freshwater sources (e.g., wetlands, ponds, streams, etc.). However, they can range widely and inhabit damp places far from water. Northern Red-legged Frogs reproduce in water from December to February in Humboldt County, with some breeding occurring as late as March. Preferred egg laying locations are in “vegetated shallows with little water flow in permanent wetlands and temporary pools” (Nafis 2023). Northern Red-legged Frogs are relatively common in and near coastal portions of Humboldt County.

The closest known occurrence record is from 2011 approximately 4.3 miles southeast of the API (CDFW 2023a). The BSA includes potential breeding, foraging, and dispersal habitat, especially within the riparian habitat associated with Rohner Creek and Strongs Creek. With the implementation of avoidance and minimization measures, potential impacts to the Northern Red-legged Frog would be less than significant.

Foothill Yellow-legged Frog (SSC)

Foothill Yellow-legged Frogs occur from sea level to elevations of 7,000 feet and range from the Willamette River in Oregon south to the Upper San Gabriel River in California, including the coast ranges and Sierra Nevada Foothills (Stebbins 2003, NatureServe 2023). The species prefers open to partially shaded, perennial streams with rocky substrate, often near riffles. These rivers and streams are typically bordered by chaparral, riparian habitat, mixed conifer forest, or wet meadows. Streams are usually small to mid-size with shallow pools and slow-moving water (CBD 2012). They are also found at river edges, in calm pools, and vegetated backwaters (CBD 2012). Rocky, cobble substrate (3 in or larger) is preferred, particularly for egg laying sites (CBD 2012).

There is a known occurrence record within the BSA from 2018 at the mouth of Strongs Creek on the Eel River near the Fortuna Wastewater Treatment Plant (CDFW 2023a).

With the implementation of avoidance and minimization measures, potential impacts to the Foothill Yellow-legged Frog would be less than significant.

Survey Results

During the March 8, 2023 reconnaissance level biological survey the surveyor noted the habitat conditions of Rohner Creek, Strongs Creek and associated riparian areas within the BSA are suitable for Northern Red-legged Frog and Foothill Yellow-legged Frog. Intermittent ponding and wet conditions observed within the API may temporarily attract special status amphibians to the API during the wet season. No other amphibian surveys or incidental occurrence data are known from the BSA.

The API and BSA do not overlap designated or proposed critical habitat for any federally-listed amphibian species.

Project Impacts

Northern Red-legged Frogs and Foothill Yellow-legged Frogs may occur in the BSA but are unlikely to be present in the API during the dry season; therefore, impacts to these two species would be less than significant.

The proposed Project has the potential to result in adverse impacts to the amphibian species for the reasons identified below:

- Construction related impacts could have in an adverse impact via direct mortality or injury (e.g., due to grading, ground disturbance, or operation of equipment). The potential for direct injury is likely low since the majority of impacts will be restricted to previously disturbed areas and work would occur in late summer or fall outside of peak surface activity periods for these species. Implementation of various avoidance and minimization measures will minimize the potential for direct injury.
- Certain activities related to the Project could result in disturbance to vegetation and soil. Vegetation removal and soil disturbances can accelerate erosion processes in the API/BSA and increase the potential for sediment to enter nearby streams. Excessive sedimentation into streams has the potential to reduce habitat quality for amphibians and other sensitive species (e.g., decreasing availability of potential food items including aquatic invertebrates and filling interstitial spaces in substrate).
- Construction activities typically include the on-site refueling and maintenance of equipment. As a result, minor fuel and oil spills may occur as well as a risk of large-scale releases. Without rapid containment and clean up, these materials can be potentially toxic depending on the location of the spill in proximity to surface water features.

Avoidance and Minimization Efforts

As well as adhering to the sediment reduction measures and efforts to minimize disturbances to vegetation, the footprint of the proposed Project, when in proximity to aquatic habitat, will be restricted to the minimum area necessary.

A qualified biologist will conduct environmental awareness training for contractors prior to construction detailing special status amphibians that could be encountered within the API during construction. If special status amphibian species are encountered during construction, construction related activities shall cease within 100 feet of the individual until it has left the API upon its own volition. If necessary, a qualified biologist may relocate the individual or individuals into otherwise suitable habitat nearby and outside of harm's way.

Compensatory Mitigation

The proposed Project has been designed with avoidance and minimization measures in place to result in no impacts or effects to special status amphibian species or reduce impacts to less than significant levels. No compensatory mitigation is proposed.

Cumulative Impacts

The proposed Project will not facilitate further development in the area. Most impacts to Northern Red-legged Frogs and Foothill Yellow-legged Frogs, potentially found in the API/BSA, if any, will be avoided or minimized. Projects considered for cumulative effects, summarized in **Table 1**, do not involve work in or near aquatic environments suitable for amphibians. Thus, cumulative impacts would not result.

Discussion of Special Status Reptiles

As discussed in **Chapter 3**, based on the USFWS Official Species List generated for this Project (**Appendix F**), no federally-listed reptile species are expected to occur within the Project vicinity. There is one special status (SSC) reptile species recorded in the CNDDDB within a nine-quad vicinity and with suitable habitat in the BSA. A discussion of the habitat requirements, potential for species occurrence, survey results, potential Project-related impacts, applicable impact avoidance and minimization measures, compensatory mitigation, and cumulative impacts to reptile species is provided below.

Western Pond Turtle (SSC)

Western Pond Turtles occur in a variety of permanent and semi-permanent freshwater aquatic habitats including lakes, rivers, ponds, creeks, and marshes. Nesting occurs on land in areas of loose to hard-packed soils on south or west facing slopes (Rathbun et al. 1992, Reese and Welsh 1997). The species is frequently observed basking on exposed banks, logs, and rocks. Winter activity is possible but limited to unusually warm, sunny days. Normally pond turtles are dormant during winter months on the north coast, which typically involves the turtle burrowing into loose substrate above the high water mark (Thomson et al. 2016).

The closest known record is from 2011 approximately 4.45 miles north of the API (CDFW 2023a). The BSA includes suitable aquatic habitat within the Rohner Creek and Strongs Creek. There is only marginal upland habitat available in the BSA that may be suitable for nesting. With the implementation of avoidance and minimization measures, potential impacts to the Western Pond Turtle would be less than significant.

Survey Results

No special status reptiles were observed during the March 8, 2023 site visit. Given the presence of suitable habitat within Rohner Creek and Strongs Creek, it is assumed that Western Pond Turtles could be present in BSA during construction. The API lacks suitable aquatic and upland nesting habitat for Western Pond Turtle and this species is unlikely to be present in the API during construction. No other reptile surveys or incidental occurrence data are known from the BSA.

The API and BSA do not overlap designated or proposed critical habitat for any federally-listed reptile species.

Project Impacts

The proposed Project has the potential to result impacts to Western Pond Turtle for the reasons identified below and has thus incorporated avoidance and minimization measures to ensure the potential impact remains less than significant:

- Construction related impacts could have an adverse impact via direct injury. The potential for direct injury is likely low since the majority of impacts will be restricted to the previously disturbed road prism or areas directly adjacent to the road prism, and the lower slope. Implementation of various avoidance and minimization measures will minimize the potential for direct injury.
- Certain activities related to the Project could result in localized disturbances to vegetation and soil. Vegetation removal and soil disturbances can accelerate erosion processes in the API/BSA and increase the potential for sediment to enter nearby streams. Excessive sedimentation into streams has the potential to reduce habitat quality for semi-aquatic reptiles and other sensitive species (e.g., decreasing availability of potential food items including aquatic invertebrates and filling interstitial spaces in substrate).
- Construction activities typically include the on-site refueling and maintenance of equipment. As a result, minor fuel and oil spills may occur as well as a risk of large-scale releases. Without rapid containment and clean up, these materials can be potentially toxic depending on the location of the spill in proximity to surface water features.

Avoidance and Minimization Efforts

As well as adhering to the sediment reduction and spill prevention measures, and efforts to minimize disturbances to vegetation, the footprint of the proposed Project when in proximity to aquatic habitat will be restricted to the minimum area necessary.

A qualified biologist will conduct environmental awareness training for contractors prior to construction detailing special status reptiles that could be encountered within the API during construction. If special status reptile species are encountered during construction, construction related activities shall cease within 100 feet of the individual until it has left the API upon its own volition. If necessary, a qualified biologist may relocate the individual or individuals into otherwise suitable habitat nearby and outside of harm's way.

Compensatory Mitigation

The proposed Project has been designed with avoidance and minimization measures in place to result in no impacts to special status reptile species or reduce impacts to less than significant levels. No compensatory mitigation is proposed.

Cumulative Impacts

The proposed Project will not facilitate further development in the area. Impacts to Western Pond Turtle, potentially found in the API/BSA, if any, will be avoided or minimized. Projects considered for cumulative effects, summarized in **Table 1**, do not involve work in or near aquatic environments suitable for semi-aquatic reptiles. Thus, cumulative impacts would not result.

Discussion of Special Status Birds

As discussed in **Chapter 3**, the BSA contains suitable habitat for 12 special status bird species. A discussion of the habitat requirements, potential for species occurrence, applicable impact avoidance and minimization measures, potential Project-related effects, and cumulative effects to bird species is provided below.

As discussed in **Chapter 3**, the USFWS Official Species List generated for this Project (**Appendix F**) identified four federally-listed bird species that could occur within the Project vicinity. None of these species are expected to occur within the API or greater BSA. There are twelve special status avian species recorded in the CNDDDB as known to occur within a nine-quad vicinity of the Project and that the BSA may provide suitable habitat for. A discussion of the habitat requirements, potential for species occurrence, survey results, potential Project-related impacts, applicable impact avoidance and minimization measures, compensatory mitigation, and cumulative impacts to avian species is provided below.

Cooper's Hawk (WL)

Cooper's Hawks are year-round residents across most temperate areas in North America. In California, migrants from more northern climes (southern Canada) pass through the state during the fall months (August-November). Some of these northern populations of Cooper's Hawks likely winter in the state. Cooper's Hawks may be found in a variety of forested habitats included deciduous, mixed, or evergreen forests in urban, suburban, or rural areas. Cooper's Hawk populations have increased over the past few decades in urban and suburban areas, likely as a result of readily available prey populations in these habitats (e.g., European Starling and Rock Pigeon flocks). Cooper's Hawks build their nests in any number of tree species including pines, oaks,

firs, eucalyptus, etc. Nest site selection is most likely related to dense prey availability in the surrounding area as well as canopy cover and the adjacent habitat structure. Their nests are constructed out of sticks and bark and may be built on top of existing squirrel or other raptor nests. Cooper's Hawks prey on a variety of small bird and mammal species including European Starlings, Mourning Doves (*Zenaida macroura*), Rock Pigeons, Deer Mice (*Peromyscus maniculatus*), squirrels, and hares. (Rosenfield 2020).

There are known occurrences of this species within 5 miles of the API (iNaturalist 2023). Suitable nesting and foraging habitat are present within the BSA. With the implementation of avoidance and minimization measures, potential impacts to the Cooper's Hawk would be less than significant.

Sharp-shinned Hawk (WL)

Sharp-shinned Hawks are year-round residents across most densely forested areas of western and eastern North America. In California, migrants from more northern climes (southern Canada) pass through the state during the fall months (August-November). Some of these northern populations of Sharp-shinned Hawks winter in the state. Sharp-shinned Hawks may be found in a variety of forested habitats including coniferous forests, deciduous forests, woodlots, and transitional/forested edges. They prefer to nest in dense stands of a diversity of tree species. Nests are constructed out of dead twigs and placed against a tree trunk on a horizontal limb. Sharp-shinned Hawks primarily prey on small forest birds and mammals. In more urban/developed areas, Sharp-shinned Hawks hunt at bird feeders. (Bildstein and Meyer 2001).

There are known occurrences of this species within 5 miles of the API (iNaturalist 2023). Suitable nesting and foraging habitat are present within the BSA. With the implementation of avoidance and minimization measures, potential impacts to the Sharp-shinned Hawk would be less than significant.

Great Egret (SAL)

Great Egrets are year-round residents in western California, with breeders concentrated in the Klamath and Warner basin in Siskiyou and Modoc Counties, along the coast in Humboldt County, the San Francisco Bay area, Monterey County, the Salton Sea, and the Central Valley. This species favors wetlands, estuaries, lakes, rivers, ponds, streams, marshes, and tidal flats. Great Egrets utilize a variety of substrates for nesting including trees, woody vegetation, or artificial nest platforms. Nests platforms are typically constructed of locally available sticks and vegetation. Great Egrets nest communally or in mixed-species colonies. They are opportunistic foragers, wading in shallow water to feed on fish, amphibians, and invertebrates. They also hunt on shore for reptiles, birds, and small mammals. (Mccrimmon et al. 2020).

There are known occurrences of this species within 5 miles of the API (iNaturalist 2023). Suitable foraging habitat is present within the BSA within Rohner Creek and Strongs Creek; marginal nesting habitat may be present within the BSA (e.g., riparian corridor). With the implementation of avoidance and minimization measures, potential impacts to the Great Egret would be less than significant.

Great Blue Heron (SAL)

Great Blue Herons are year-round residents in the majority of coastal and central California. Notable exceptions include the Sierras and the very southeastern desert regions of the state. Great Blue Herons are extremely adaptable to a variety of habitats including most saltwater and freshwater bodies, agricultural land, wetlands, as well as commercial and residential areas such as golf courses. Nesting habitat includes trees, bushes, or artificial structures. Nest platforms are typically constructed out of locally available sticks and lined with material such as grass, moss, and reeds. Great Blue Herons are colonial nesters in mixed-species colonies. They are opportunistic foragers, wading in shallow water to feed on fish, amphibians, and invertebrates. They also hunt on shore for reptiles, birds, and small mammals. Additionally, they are known to scavenge carrion. (Vennesland and Butler 2020).

There are known occurrences of this species within 5 miles of the API (iNaturalist 2023). Suitable foraging habitat is present within the BSA within Rohner Creek and Strongs Creek; marginal nesting habitat may be present within the BSA. With the implementation of avoidance and minimization measures, potential impacts to the Great Blue Heron would be less than significant.

Northern Harrier (SSC)

Northern Harriers occur from annual grasslands up to lodgepole pine and alpine meadow habitats. Frequents meadows, grasslands, open rangelands, desert sinks, fresh and saltwater emergent wetlands; seldom found in wooded areas. Permanent resident of the northeastern plateau and coastal areas; less common resident of the Central Valley. Widespread winter resident and migrant in suitable habitat. California population has decreased in recent decades (Remsen 1978); however, they can be locally abundant where suitable habitat remains free of disturbance, especially from intensive agriculture. Breeding population much reduced, especially in southern coastal district. Destruction of wetland habitat, native grassland, and moist meadows, and burning and plowing of nesting areas during early stages of breeding cycle, are major reasons for the decline (Remsen 1978). Northern Harriers nest on the ground in shrubby vegetation, usually at marsh edge (Brown and Amadon 1968). Nests are built of a large mound of sticks on wet areas, and a smaller cup of grasses on dry sites. Mostly nests in emergent wetland or along rivers or lakes, but may nest in grasslands, grain fields, or on sagebrush flats several miles from water.

There are known occurrences of this species within 5 miles of the API (iNaturalist 2023). Suitable foraging habitat is present within the BSA. Marginal nesting habitat may be present within the BSA. With the implementation of avoidance and minimization measures, potential impacts to the Northern Harrier would be less than significant.

Western Yellow-billed Cuckoo (FT/SE)

Western Yellow-billed Cuckoos are an uncommon to rare summer resident of valley foothill and desert riparian habitats in scattered locations in California. They nest in dense riparian cover and the nest consists of a flimsy, open cup of twigs built on horizontal limb of tree or shrub at height of 0.6 to 7.8 m (2-25 ft) (Gaines 1977).

Formerly much more common and widespread throughout lowland California, but numbers drastically reduced by habitat loss (Garrett and Dunn 1981).

The closest known occurrence of this species is from 2013 approximately 6.1 miles west of the API near Ferndale, CA (CDFW 2023a). The BSA contains only marginal foraging and nesting habitat typically suitable for this species within riparian habitat associated with Rohner Creek and Strongs Creek. This species is typically associated with larger riparian forests of the Central Valley (Gains, 1977). With the implementation of avoidance and minimization measures, there would be no effect to the Western Yellow-billed Cuckoo.

Snowy Egret (SSC)

The Snowy Egret is widespread in California along shores of coastal estuaries, fresh and saline emergent wetlands, ponds, slow-moving rivers, irrigation ditches, and wet fields. In northern California, they are common March to November in coastal lowlands. Dense marshes are required for nesting (Garrett and Dunn 1981). Typically, tree nests are 1.5-3 m (5-10 ft) above ground, but they may be up to 9 m (30 ft) (Palmer 1962), and they are built of sticks. San Francisco Bay colonies nested at ground level on *Grindelia humilis* and *Salicornia pacifica*, more commonly on *Baccharis pilularis* 0.5-2.0 m (1-6 ft) above ground. One large colony nested on *Scirpus acutus* (Gill and Mewaldt 1979).

There are known occurrences of this species within 5 miles of the API (iNaturalist 2023). Marginal foraging and nesting habitat is present within the BSA. With the implementation of avoidance and minimization measures, potential impacts to the Snowy Egret would be less than significant.

Yellow-breasted Chat (SSC)

Yellow-breasted Chat is an uncommon summer resident and migrant in coastal California and in the foothills of the Sierra Nevada. They can be found up to about 1450 m (4800 ft) in valley foothill riparian, and up to 2050 m (6500 ft) east of the Sierra Nevada in desert riparian habitats (Garrett and Dunn 1981). Uncommon along coast of northern California east to Cascades and occurs only locally south of Mendocino Co. (McCaskie et al. 1979). Numbers much reduced in recent decades (Remsen 1978). They nest usually 0.6 to 2.4 m (2-8 ft) above ground in dense shrubs along a stream or river.

There are no known occurrences of this species within 5 miles of the API (CDFW 2023, iNaturalist 2023). Suitable foraging and nesting habitat is present within the BSA within Rohner Creek and Strongs Creek (e.g., riparian corridor). With the implementation of avoidance and minimization measures, potential impacts to the Yellow-breasted Chat would be less than significant.

Black-crowned Night Heron (SAL)

The Black-crowned Night Heron is a common, yearlong resident in lowlands and foothills throughout most of California and common in large nesting colonies. They feed along the margins of lacustrine, large riverine, and fresh and saline emergent habitats

and, rarely, on kelp beds in marine subtidal habitats. Nests and roosts in dense-foliaged trees and dense emergent wetlands. Common nesting species on northeastern plateau from April to August. Uncommon in northwestern, and rare in northeastern, California in midwinter (McCaskie et al. 1979, Garrett and Dunn 1981). Nests in dense-foliaged trees, dense, fresh or brackish emergent wetlands, or dense shrubbery or vine tangles, usually near aquatic or emergent feeding areas. Nests are built of twigs and/or marsh plants (Zeiner et al. 1988).

There are known occurrences of this species within 5 miles of the API along Rohner Creek (iNaturalist 2023). Suitable foraging habitat is present within the BSA. Marginal nesting habitat may be present within the BSA. With the implementation of avoidance and minimization measures, potential impacts to the Black-crowned Night Heron would be less than significant.

Osprey (WL)

Ospreys breed in northern California from Cascade Ranges south to Lake Tahoe, and along the coast south to Marin Co. Regular breeding sites include Shasta Lake, Eagle Lake, Lake Almanor, other inland lakes and reservoirs, and northwest river systems. An uncommon breeder along southern Colorado River, and uncommon winter visitor along the coast of southern California (Garrett and Dunn 1981). Associated strictly with large, fish-bearing waters, primarily in ponderosa pine through mixed conifer habitats. Nests on platform of sticks at the top of large snags, dead-topped trees, on cliffs, or on human made structures (Zeiner et al. 1988).

There are known occurrences of this species within 5 miles of the API (iNaturalist 2023). Marginal foraging and nesting habitat may be present within the BSA. With the implementation of avoidance and minimization measures, potential impacts to the Osprey would be less than significant.

Black-capped Chickadee (WL)

An uncommon resident restricted to Del Norte, Humboldt, and Siskiyou cos. in northern California. Occurs locally in montane riparian habitat from coast into mountainous areas inland; also found locally in the more arid Shasta Valley, Siskiyou Co. Occasionally wanders in winter (McCaskie et al. 1979). It excavates its own cavity in a rotten snag, branch, or stump, or nests in old woodpecker hole. Nest usually less than 3 m (10 ft) above ground in a deciduous tree (Zeiner et al. 1988).

There are known occurrences of this species within 5 miles of the API (iNaturalist 2023). Suitable foraging and nesting habitat is present within the BSA. With the implementation of avoidance and minimization measures, potential impacts to the Black-capped Chickadee would be less than significant.

Yellow Warbler (SSC)

Breeding distribution includes from the coast range in Del Norte county, east to Modoc plateau, south along coast range to Santa Barbara and Ventura counties and along western slope of Sierra Nevada south to Kern county. Also breeds along eastern side of California from the Lake Tahoe area south through Inyo co. Breeds in riparian

woodlands from coastal and desert lowlands up to 2500 m (8000 ft) in the Sierra Nevada. Also breeds in montane chaparral, and in open ponderosa pine and mixed conifer habitats with substantial amounts of brush. Numbers of breeding pairs have declined dramatically in recent decades in many lowland areas (southern coast, Colorado River, San Joaquin and Sacramento valleys). Now rare to uncommon in many lowland areas where formerly common (Garrett and Dunn 1981). Nest is an open cup placed 0.6 to 5 m (2-16 ft) above ground in a deciduous sapling or shrub (Zeiner et al. 1988).

There are known occurrences of this species within 5 miles of the API (iNaturalist 2023). Suitable foraging and nesting habitat is present within the BSA. With the implementation of avoidance and minimization measures, potential impacts to the Yellow Warbler would be less than significant.

Survey Results

A total of 19 avian species were observed within or flying over the API and BSA during the March 8, 2023 reconnaissance site visit (**Appendix H, Wildlife Species Observed**). One special status avian species, the Great Blue Heron, was observed flying through the Rohner Creek riparian corridor. Rohner Creek, Strongs Creek and associated riparian habitat within the BSA contain suitable foraging and nesting habitat for both common and special status avian species. The blackberry brambles along the railroad corridor also provide suitable foraging and nesting habitat for many avian species.

The API and BSA do not overlap designated or proposed critical habitat for any federally-listed avian species.

Project Impacts

The Project is expected to have no effect on the Marbled Murrelet, Western Snowy Plover, Yellow-billed Cuckoo (Western DPS), and Northern Spotted Owl. The Project will have no effect on designated critical habitat for the Marbled Murrelet, Western Snowy Plover, Yellow-billed Cuckoo (Western DPS), or Northern Spotted Owl. With implementation of avoidance and minimization measures, any potential Project-related impacts to other nesting special status or migratory bird species are expected to be temporary and minimal. With the incorporation of avoidance and minimization measures, potential impacts to nesting migratory bird species would be less than significant.

As described above, common, protected migratory bird species may nest in the API or greater BSA. Construction-related disturbance (noise and visual disturbance, as well as possible nest destruction during clearing and grubbing) during the nesting season could result in the loss of fertile eggs or nestlings, or otherwise lead to nest abandonment. Loss of fertile eggs or any activities resulting in nest abandonment may have the potential to affect these species. However, most disturbances will occur in the roadway or directly adjacent to the roadway, where nesting habitat is marginal. Riparian habitat within the BSA would not be impacted by the Project. It is likely that the majority of nesting activity would occur outside of the API, in adjacent habitat within the BSA.

Project implementation will be concluded in as short a timeframe as is reasonable to minimize long-term disturbance to migratory and resident nesting birds.

Avoidance and Minimization Efforts

The following measures shall be implemented to avoid or minimize the potential for Project-related impacts on protected avian species potentially nesting adjacent to the API:

- Contractors shall attempt to remove trees and other vegetation that could potentially contain nesting birds outside the bird nesting season (March 15 to August 15). If vegetation removal occurs outside the bird nesting season, no further mitigation is necessary. If vegetation removal or construction work occur adjacent to suitable nesting habitat between March 15 and August 15 a qualified wildlife biologist shall conduct pre-construction surveys within the vicinity of the Project, to check for nesting activity of native birds and to evaluate the site for presence of raptors and special status bird species. As specified by CDFW, “a qualified wildlife biologist shall be defined as a person who is 1) knowledgeable in distribution, habitat, nesting behavior, and life history of northern California birds; 2) can correctly identify bird species found in northern California; 3) has conducted previous field surveys of nesting birds; and 4) is knowledgeable in survey protocols and has obtained the necessary state and federal authorization for any potential take of listed birds, if necessary.” The qualified wildlife biologist shall conduct at minimum a one-day pre-construction survey within the 7-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 breeding season, a qualified wildlife biologist shall conduct a supplemental avian pre-construction survey before Project work is reinitiated.
- If active special status and MBTA nests are detected within the construction footprint or up to 500 feet from construction activities, the qualified wildlife biologist shall flag a buffer around each nest (assuming property access). Construction activities shall avoid nest sites until the qualified wildlife biologist determines that the young have fledged or nesting activity has ceased. If nests are documented outside of the construction footprint, but within 500 feet of the construction area, buffers will be implemented as needed (buffer size dependent on species). 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 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. An absolute minimum buffer size of 30 feet is recommended as a starting point of discussion for common species, with larger buffers expected for special status species and raptors.
- If active nests are detected during the survey within the construction footprint or surrounding 500 feet, the qualified wildlife biologist shall monitor all nests at least once per week to determine whether birds are being disturbed. Activities that might,

in the opinion of the qualified wildlife biologist, disturb nesting activities (e.g., excessive noise), shall be prohibited within the buffer zone until such a determination is made. If signs of disturbance or distress are observed, the qualified wildlife biologist shall 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.

Compensatory Mitigation

The proposed Project has been designed with avoidance and minimization measures in place to result in no impacts or effects to special status avian species or reduce impacts to less than significant levels. No compensatory mitigation is proposed.

Cumulative Impacts

The proposed Project will not facilitate further development in the area. With implementation of the recommended avoidance and minimization measures, the proposed Project would not contribute to cumulative impacts on special status birds.

Discussion of Special Status Terrestrial Mammals

As discussed in **Chapter 3**, the BSA contains suitable habitat for one special status terrestrial mammal species. A discussion of the habitat requirements, potential for species occurrence, applicable impact avoidance and minimization measures, potential Project-related effects, and cumulative effects to terrestrial mammalian species is provided below.

North American Porcupine (SAL)

The North American Porcupine are primarily nocturnal but can sometimes be seen during the day. Their range extends across mainland Canada, Alaska, and the western and northeastern United States (Reid 2006). They use a wide variety of habitats, but are most common in montane conifer, Douglas fir, alpine dwarf-shrub, and wet meadow habitats (Zeiner et. al 1988).). A population in Del Norte County, centered in Tolowa Dunes State Park, is especially known to concentrate in riparian areas. Porcupines are herbivores and feed on a variety of plant materials depending on the season (Appel et al. 2017, They feed on berries, seeds, grasses, leaves, roots and stems during the spring and summer (SNZ and CBI 2019). In contrast, they primarily feed on evergreen needles and tree bark during the winter.

The closest known record is from 2014 along Highway 101, approximately 4.5 miles north of the API (CDFW 2023a). Suitable habitat for this species is limited in the API, however, they may occur in the greater BSA. With the incorporation of avoidance and

minimization measures, the potential impact to North American Porcupine would be less than significant.

Survey Results

A total of two terrestrial mammal species were detected within the API and BSA during the March 8, 2023 reconnaissance site visit (**Appendix H, Wildlife Species Observed**). No special status mammals were detected during the site visits. No other mammalian surveys are known from the BSA.

The API and BSA do not overlap designated or proposed critical habitat for any federally-listed terrestrial mammalian species.

Project Impacts

The API does not provide suitable foraging or denning habitat for the North American Porcupine. However, habitat within the greater BSA may serve as suitable habitat for this species. The following avoidance and minimization measures are recommended to ensure potential impacts remain less than significant.

Avoidance and Minimization Efforts

The Project footprint shall be restricted to the minimum necessary. Deep steep-sided excavations will be covered or ramped if left overnight, to avoid the risk of a nocturnally dispersing terrestrial mammals (e.g., North American Porcupine) becoming trapped. Food waste and other trash shall be removed from the site at the end of each work day to avoid attractants. Pets (e.g., dogs) will not be permitted on the construction site.

Compensatory Mitigation

The proposed Project has been designed such that Project-specific conservation measures and avoidance and minimization measures shall effectively avoid or minimize to the greatest extent feasible, affects to terrestrial mammals and their habitat. It is not anticipated that other compensatory mitigation will be required.

Cumulative Impacts

The proposed Project will not facilitate further development in the area. In addition, with implementation of the recommended avoidance and minimization measures, the Project would not contribute to cumulative impacts to terrestrial mammals.

Discussion of Special Status Bats

As discussed in **Chapter 3**, the BSA contains suitable habitat for three special status bat species. A discussion of the habitat requirements, potential for species occurrence, applicable impact avoidance and minimization measures, potential Project-related effects, and cumulative effects to bat species is provided below.

The BSA likely provides suitable roosting habitat for foliage and tree roosting bats (will roost in woodpecker holes, under loose bark, and basal hollows as well as other cavities). In addition, open water in the vicinity (Rohner Creek and Strong's Creek) likely serves as a foraging area for several species (and sources of water for species that need to drink freshwater regularly).

Silver-haired Bat (SAL)

The Silver-haired Bat is a medium sized vespertilionid with black or dark brown hairs which are silver-tipped. The interfemoral membrane is partially furred. Its ears are short and rounded, with a blunt tragus (WBWG 2017). Females form small nursery colonies of up to 70 individuals. Maternity roosts appear to be almost exclusively in trees, inside natural hollows and bird excavated cavities or under loose bark of large diameter snags. This species has been found hibernating in hollow trees, under sloughing bark, in rock crevices, and occasionally under wood piles, in leaf litter, under foundations, and in buildings, mines and caves. Silver-haired bat forages above the canopy, over open meadows, and in the riparian zone along water courses (WBWG 2017).

The closest known recent record is from 2017 in Humboldt Redwoods State Park, approximately 15 miles south of the API (BAMVT 2023). Suitable roosting habitat may be present in the BSA, and foraging habitat may be present in the API and BSA. With the incorporation of avoidance and minimization measures, potential impacts to Silver-haired Bat would remain less than significant.

Hoary Bat (SAL)

The Hoary Bat is a relatively large bat with brown to rufous fur with a white “frosting” on the tips (SBDWG 2004). They are found throughout North, Central and South America but not usually in great densities (SBDWG 2004, NatureServe 2023). The species is found throughout California with the exception of xeric desert habitats in the southeast. The species breeds in inland forest habitat and winters along the coast and in the southern portion of the state. The species engages in seasonal movements which results in sexual segregation during the warmer months (males are found in greater numbers in western portions of the state while the females are more common in the northeast). Hoary Bats migrate between the summer and winter ranges from September through November. Mating occurs during migration or on the wintering grounds. Females give birth to one to four pups in May through July of the following year (Harris et al. 2008a).

Preferred habitat includes a mosaic of forested habitat for roosting and open/edge habitat for foraging. Hoary Bats are insectivorous and feed primarily on moths (usually over water or over the forest canopy). The species roosts solitarily in dense tree foliage typically near water (species requires water for drinking) (SBDWG 2004, Harris et al. 2008a). Threats to the species include deforestation, wind energy developments (common source of mortality for the species), and reduced prey from over application of pesticides (NatureServe 2023).

The closest known recent record is historic (1934) record from Ferndale, approximately 4.7 miles west of the API (CDFW 2023a). Suitable roosting habitat may be present in the BSA, and foraging habitat may be present in the API and BSA. With the incorporation of avoidance and minimization measures, potential impacts to Hoary Bat would remain less than significant.

Yuma Myotis (SAL)

The Yuma Myotis is a medium-sized bat with light to dark brown fur and a paler underbelly (NorCalBats 2023). The species is widespread and common throughout western North America from southern British Columbia to southern Mexico (NatureServe 2023). In California, the species is widespread throughout the state except for the desert regions. The species is thought to engage in seasonal and possibly elevational migratory movements (Harris et al. 2008b). The species feeds on moths and insects over water and other open habitat types (NatureServe 2023). Roosts include bridges, swallow nests, rock crevices, tunnels, tree cavities, and buildings (NatureServe 2023). The species mates during the fall. Females form maternity roosts in April and give birth to one pup between May through July (NatureServe 2023). Maternity roosts may include several thousand individuals and are most common in mines and caves (Harris et al. 2008b). Threats to the species include roost disturbance, roosting habitat loss, and reduced prey from over application of pesticides (NatureServe 2023).

The closest known occurrence record is from 1999 in Humboldt Redwoods State Park, approximately 12 miles south of the API (BAMVT 2023). Suitable roosting habitat may be present in the BSA, and foraging habitat may be present in the API and BSA. With the incorporation of avoidance and minimization measures, potential impacts to Yuma Myotis remain less than significant.

Survey Results

No bat species were detected within the API and BSA during the March 8, 2023 reconnaissance site visit (**Appendix H, Wildlife Species Observed**). No special status bats were detected during the site visits. No other bat surveys are known from the BSA.

The reconnaissance site visits occurred during daylight hours when bat activity is known to be very low, and the survey methods were not focused on documenting bat presence. No data collection has occurred in the immediate Project vicinity (nearest bat monitoring efforts have occurred in Humboldt Redwoods State Park, approximately 17 linear miles south of the API, and surrounding Arcata, approximately 18 miles north of the API; BAMVT 2023). Nonetheless, the BSA contains suitable habitat for a variety of special status bats (Silver-haired Bat, Hoary Bat, and Yuma Myotis), and it is anticipated that there is moderate potential for these special status bat species to occur in the API and BSA during Project implementation.

The API and BSA do not overlap designated or proposed critical habitat for any federally-listed bat species.

Project Impacts

The API is unlikely to provide high-quality foraging and roosting habitat for sensitive bat species. However, the greater BSA is likely to provide foraging and roosting habitat for bats. It is unlikely that any physical impacts to bat or bat roosting sites will occur. Additional avoidance and minimization measures for sensitive bat species and roosts are detailed below. With the incorporation of avoidance and minimization measures, potential impacts to special status bats would remain less than significant.

Avoidance and Minimization Efforts

Should nighttime work occur, Project-related lighting shall be minimized and focused on active construction areas, and areas needed for safety, security or other essential requirements.

Compensatory Mitigation

The proposed Project has been designed with avoidance and minimization measures in place to result in no impacts to special status bat species or reduce impacts to less than significant levels. No compensatory mitigation is proposed.

Cumulative Impacts

The proposed Project will not facilitate further development in the area. With implementation of the recommended avoidance and minimization measures, the proposed Project would not contribute to cumulative impacts to special status bats.

Chapter 5 – Conclusions and Regulatory Determinations

Federal Endangered Species Act Consultation Summary

An USFWS official species list for the API was received on November 10, 2022 (USFWS 2023b; **Appendix F**). Seven federally threatened, endangered, or candidate species, including one threatened mammal (Pacific Marten), four threatened bird species (Marbled Murrelet, Northern Spotted Owl, Western Snowy Plover, and Yellow-billed Cuckoo), and one candidate insect (Monarch Butterfly) were identified as having potential presence in the API. A NOAA official species list from the West Coast Region California Species List Tool was obtained on August 8, 2023 (**Appendix E**). Three federally listed and/or candidate fish species (Chinook Salmon, Coho Salmon, and Steelhead, were identified as having potential presence in the API. The proposed Project will have **no effect** on these species and their associated critical habitat.

Essential Fish Habitat (EFH) Consultation Summary

EFH is designated for species managed within Fisheries Management Plans under the MSFCMA. The Pacific Coast Salmon Fisheries Management Plan (PCS FMP) addresses EFH for Pacific salmonid species. EFH for Pacific salmonids is designated within the BSA of the proposed Project (e.g., Rohner Creek and Strongs Creek, tributary to the Eel River).

The PCS FMP was created to promote sustainable salmon harvest and fisheries management across a broad geographic region. According to the PCS FMP, freshwater EFH includes “all water bodies currently or historically occupied by [Pacific Fisheries Management Council] PFMC-managed salmon in Washington, Oregon, Idaho, and California; including aquatic areas above all artificial barriers that are not specifically excluded” (75 FR 75449). The plan manages Chinook Salmon Coho Salmon, and Pink Salmon, Steelhead are not managed under a FMP, and are thus not discussed further here. Although Coho Salmon have not recently been documented in Rohner Creek and Strongs Creek, Rohner Creek and Strongs Creek is still considered to be EFH under the PCS FMP and is managed as such.

The PCS FMP designates five Habitat Areas of Particular Concern (HAPCs), which include complex channels and floodplain habitats, thermal refugia, spawning habitat, estuaries, and marine and estuarine submerged aquatic vegetation (SAV). 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 2014). According to the PCS FMP, adverse effects to EFH may include “direct or indirect physical, chemical, or biological alterations of the waters or substrate and loss of, or injury to, benthic organisms, prey species and their habitat, and other ecosystem components, if such modifications reduce the quality or quantity of EFH” (PFMC 2014).

No HAPCs were observed within the area of Rohner Creek and Strongs Creek that overlaps the BSA during the reconnaissance-level Project surveys. However, it should

be noted that the Stream Inventory Report of the creek indicates that Rohner Creek and Strongs Creek should be managed for anadromous salmonids and some suitable habitat features are present (CDFG 2009a, CDFG 2009b). Consistent with this recommendation, the City has been actively upgrading crossings on both streams to improve fish passage.

As a result of construction activities, the following adverse effects could potentially occur to EFH:

- Increased turbidity and suspended sediment from work immediately adjacent to Rohner Creek and/or Strongs Creek; and
- Potential contaminant releases from equipment adjacent to Rohner Creek and/or Strongs Creek.

As no work will occur within Rohner Creek and Strongs Creek or below the top of bank, no effects associated with in-water work are expected. Effects to EFH, if any, resulting from potential for sediment and contaminants to enter the creek, would be minimized through implementation of key avoidance and minimization measures (**Chapter 4 – Aquatic Habitat, Regulated Waters, and Wetlands**) during Project implementation, and diligent monitoring for stormwater damage post-construction will ensure that Project effects on EFH, if any, would be insignificant. Consultation with NOAA Fisheries on EFH is therefore not necessary.

California Endangered Species Act Consultation Summary

The CESA states that all native species of fishes, amphibians, reptiles, birds, mammals, invertebrates, and plants, and their habitats, threatened with extinction and those experiencing a significant decline which, if not halted, would lead to a threatened or endangered designation, will be protected or preserved. The CDFW is mandated to protect and preserve such sensitive resources and their habitats. However, CESA also allows for take incidental to otherwise lawful development projects. CESA emphasizes early consultation to avoid potential impacts to rare, endangered, and threatened species and to develop appropriate mitigation planning to offset project-caused losses of listed species. No incidental take of CESA-listed species would occur in association with this Project.

Wetlands and Other Waters Coordination Summary

No work will occur within Rohner Creek or Strongs Creek and no wetlands were delineated within the API (GHD 2023b). No impacts to wetlands or aquatic resources would occur and no permitting with the USACE or the North Coast Regional Water Quality Control Board (NCRWQCB) would be required.

Invasive Species

Implementation of Prevention of Spread of Invasive Species measures (see **Chapter 4 – Special Status Plants**) will avoid and minimize the spread of invasive species as required by Executive Order 13112. Invasive Himalayan blackberry, pampas grass, and

English ivy were observed in the API (GHD 2023a). Removal of these invasive species is recommended for incorporation into the compensatory habitat mitigation that will be required of the Project.

Other

Migratory Bird Treaty Act (MBTA)

Several avian species protected under the MBTA have the potential to nest within the BSA. Avoidance and minimization measures (detailed in **Chapter 4 – Discussion of Special Status Birds**) will be implemented to avoid adverse effects on migratory birds.

California Fish and Game Code (FGC)

In addition to being protected by the MBTA, avian species are protected under FGC Sections 3503 and 3503.5 (protection of birds' nests) and 3513 (taking of MBTA birds). Several species have the potential to nest within the API and BSA. Avoidance and minimization measures (detailed in **Chapter 4 – Discussion of Special Status Birds**) will be implemented to avoid adverse effects on migratory birds.

The proposed Project does not include work within any stream which has the potential to alter the bed, channel, or bank of said stream. Additional coordination or regulations (beyond those discussed throughout this NES) are not applicable at this time. However, should the scope of the Project change significantly, enforcement of further regulations may be necessary for Project implementation.

Chapter 6 – References

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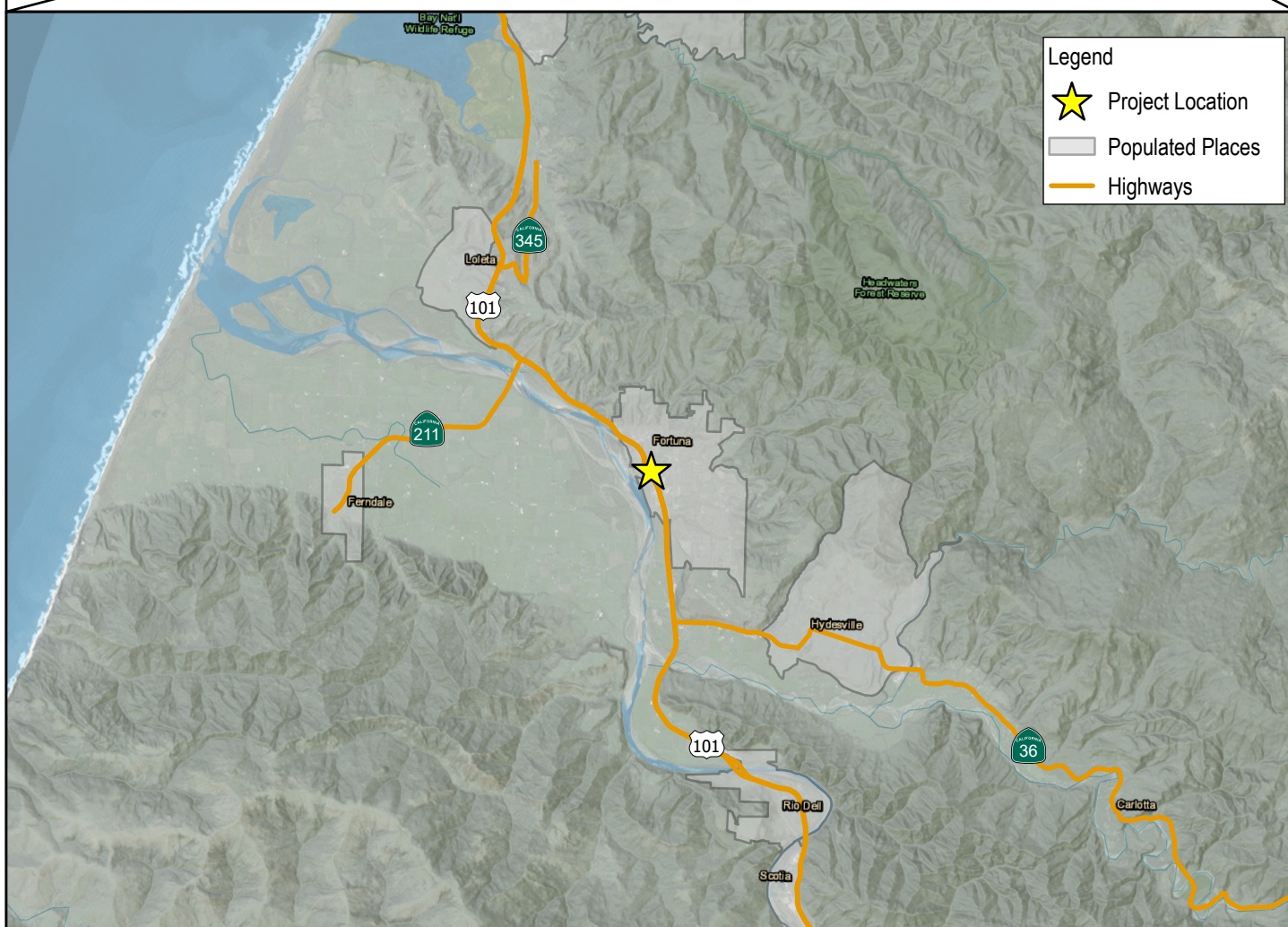
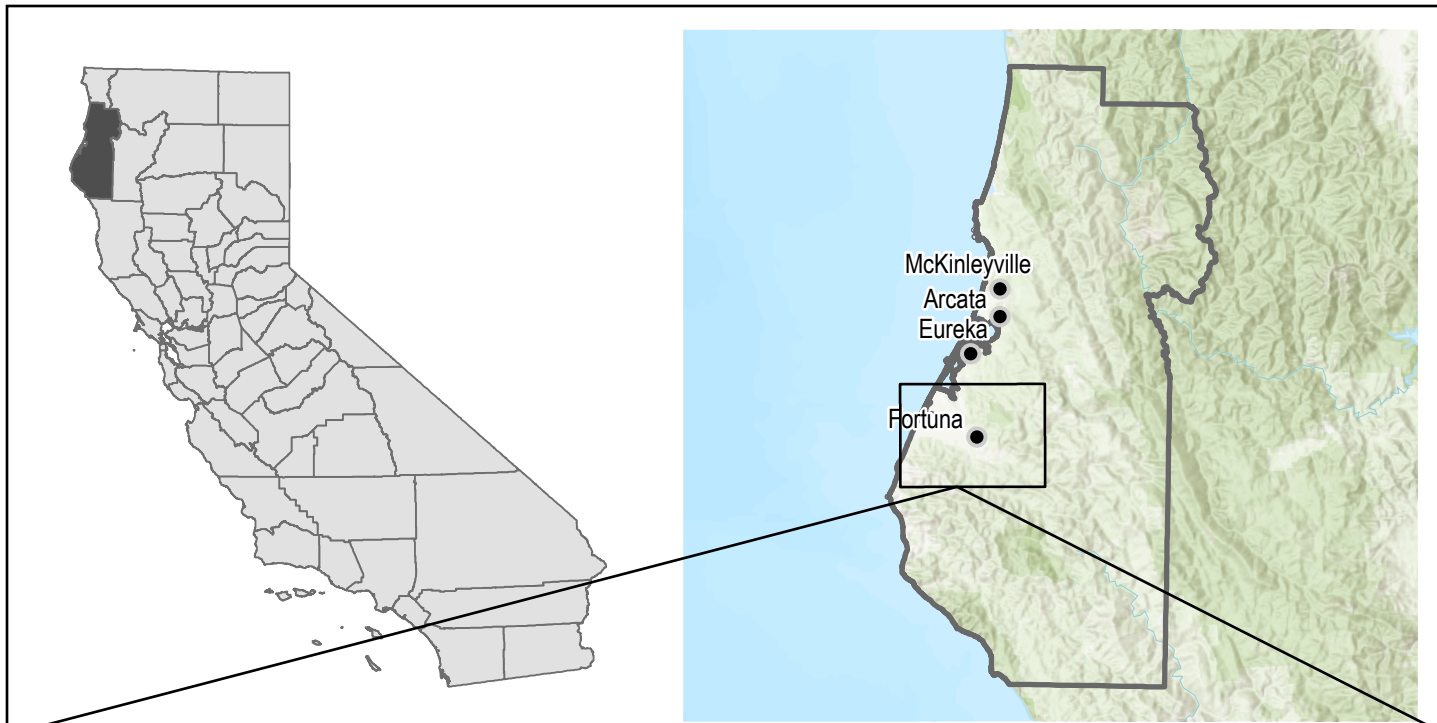
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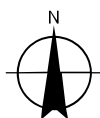
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Appendix A - Figures



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



City of Fortuna
US 101 & 12th St.
Interchange

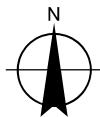
Project No. 12577017
Revision No. -
Date Jul 2023

Vicinity Map

FIGURE 1



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Feet



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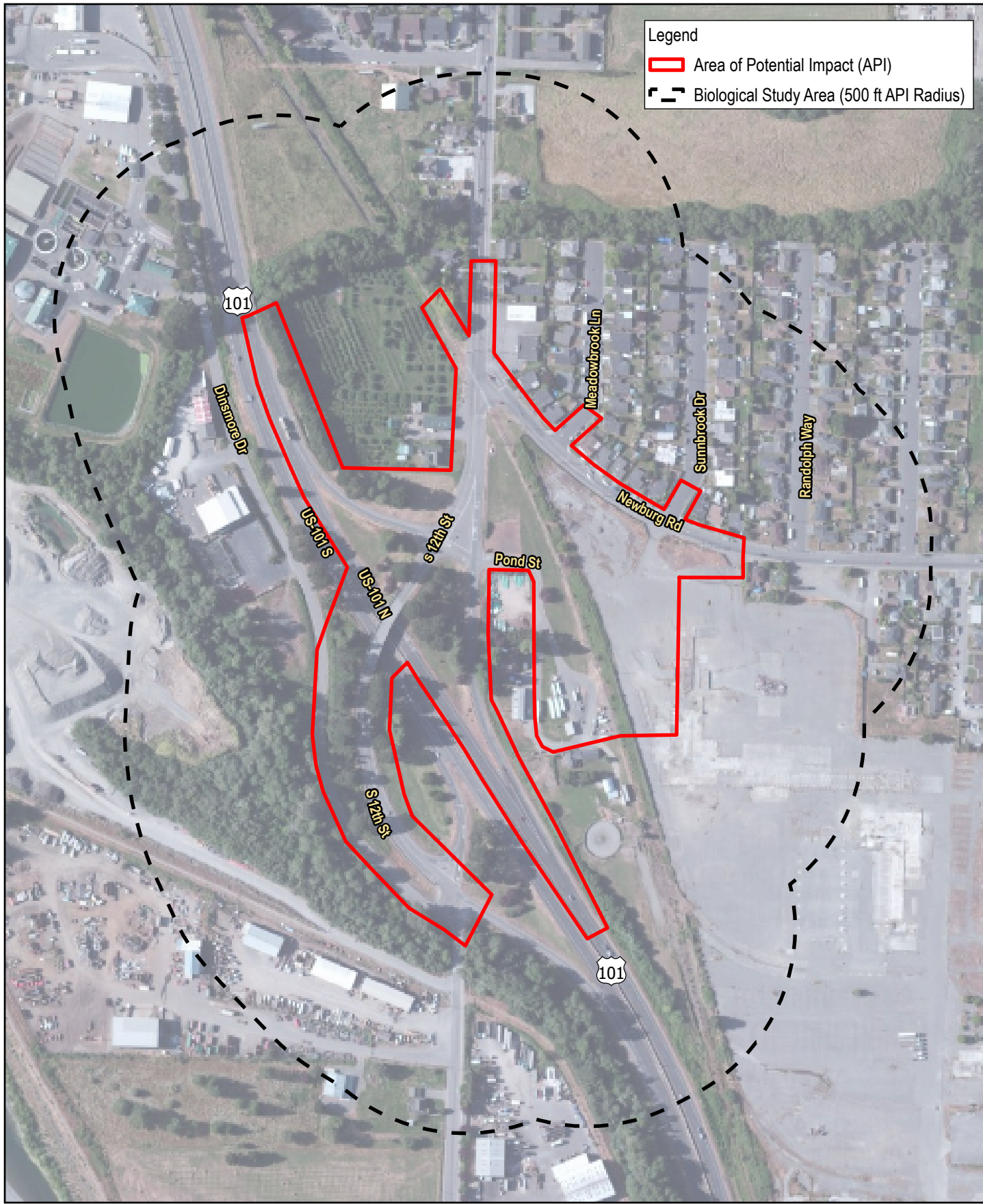


City of Fortuna
US 101 & 12th St.
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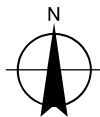
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Revision No. -
Date Apr 2023

Area of Potential Impact

FIGURE 2



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

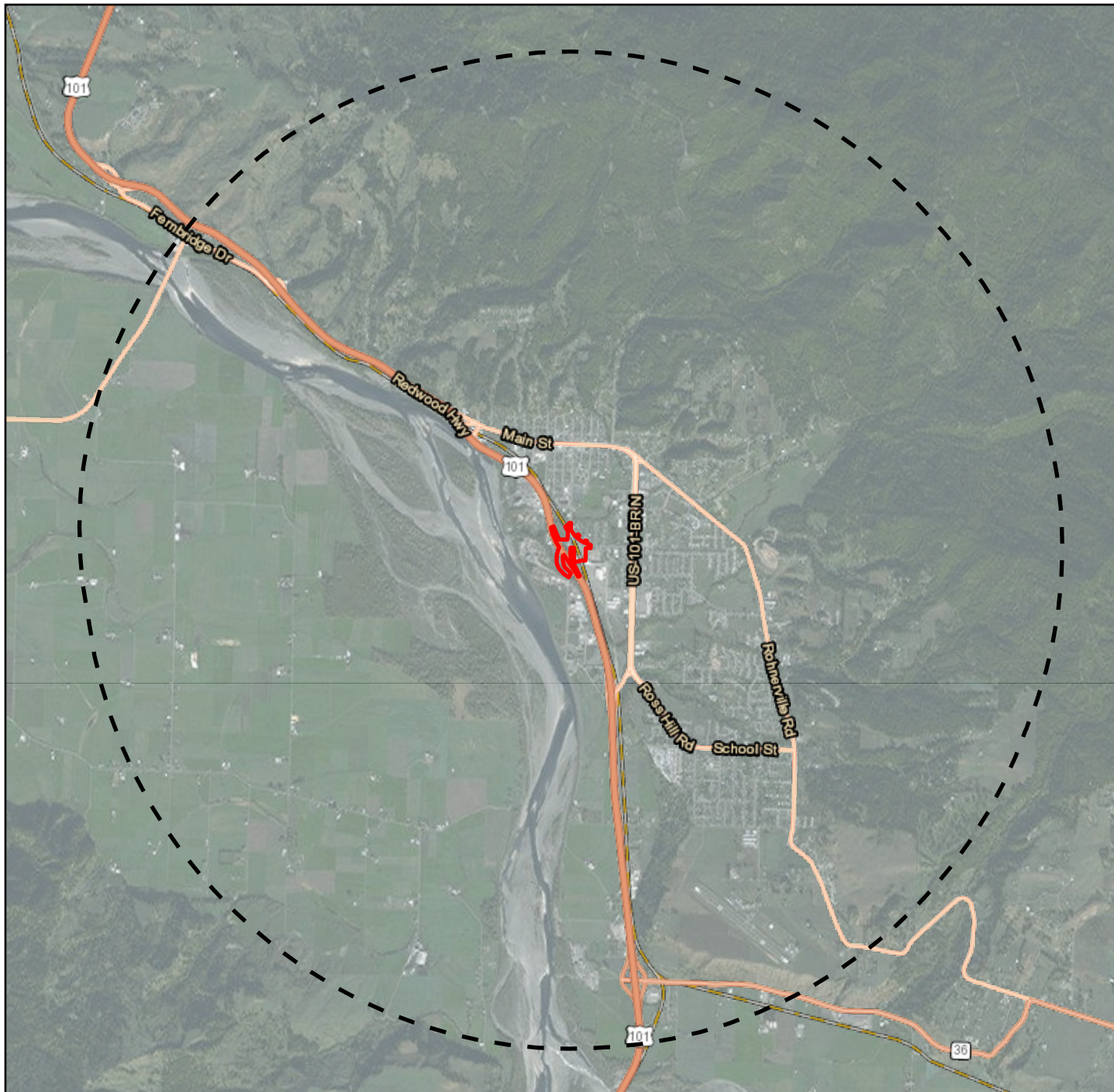


City of Fortuna
US 101 & 12th St.
Interchange

Project No. 12577017
Revision No. -
Date Apr 2023

Biological Study Area

FIGURE 3



Legend

Area of Potential Impact (API)

Animals- Common Name

American Peregrine Falcon

Bank Swallow

Coast Cutthroat Trout

Foothill Yellow-legged Frog - North Coast
DPS

Grasshopper Sparrow

Longfin Smelt

Steelhead - Northern California DPS

Summer-run

Tricolored Blackbird

Western Bumble Bee

Northern Spotted Owl

Plants- Common Name

Cascade downingia

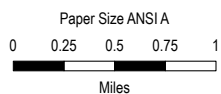
Pacific gilia

Siskiyou checkerbloom

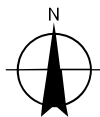
Whitney's farewell-to-spring

minute pocket moss

western lily



Map Projection: Lambert Conformal Conic
Horizontal Datum: North American 1983
Grid: NAD 1983 StatePlane California 1 FIPS 0401 Feet

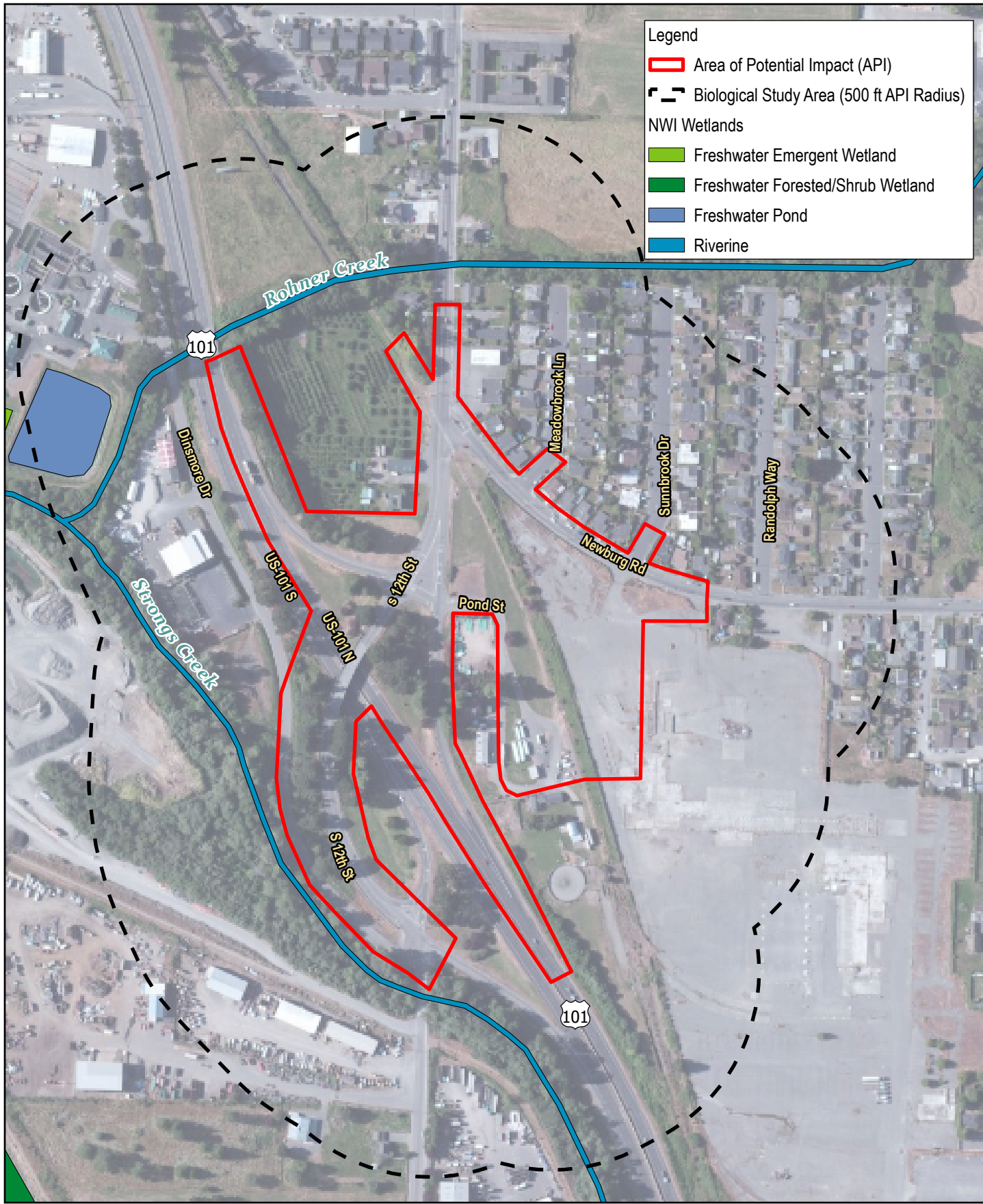


City of Fortuna
US 101 & 12th St.
Interchange

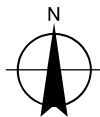
**CNDDDB Occurrences
within a 3 Mile Radius**

Project No. 12577017
Revision No. -
Date Jul 2023

FIGURE 4



Paper Size ANSI A
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Feet



Map Projection: Lambert Conformal Conic
Horizontal Datum: North American 1983
Grid: NAD 1983 StatePlane California 1 FIPS 0401 Feet



City of Fortuna
US 101 & 12th St.
Interchange

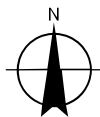
Project No. 12577017
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Date Apr 2023

National Wetlands Inventory

FIGURE 5



Paper Size ANSI A
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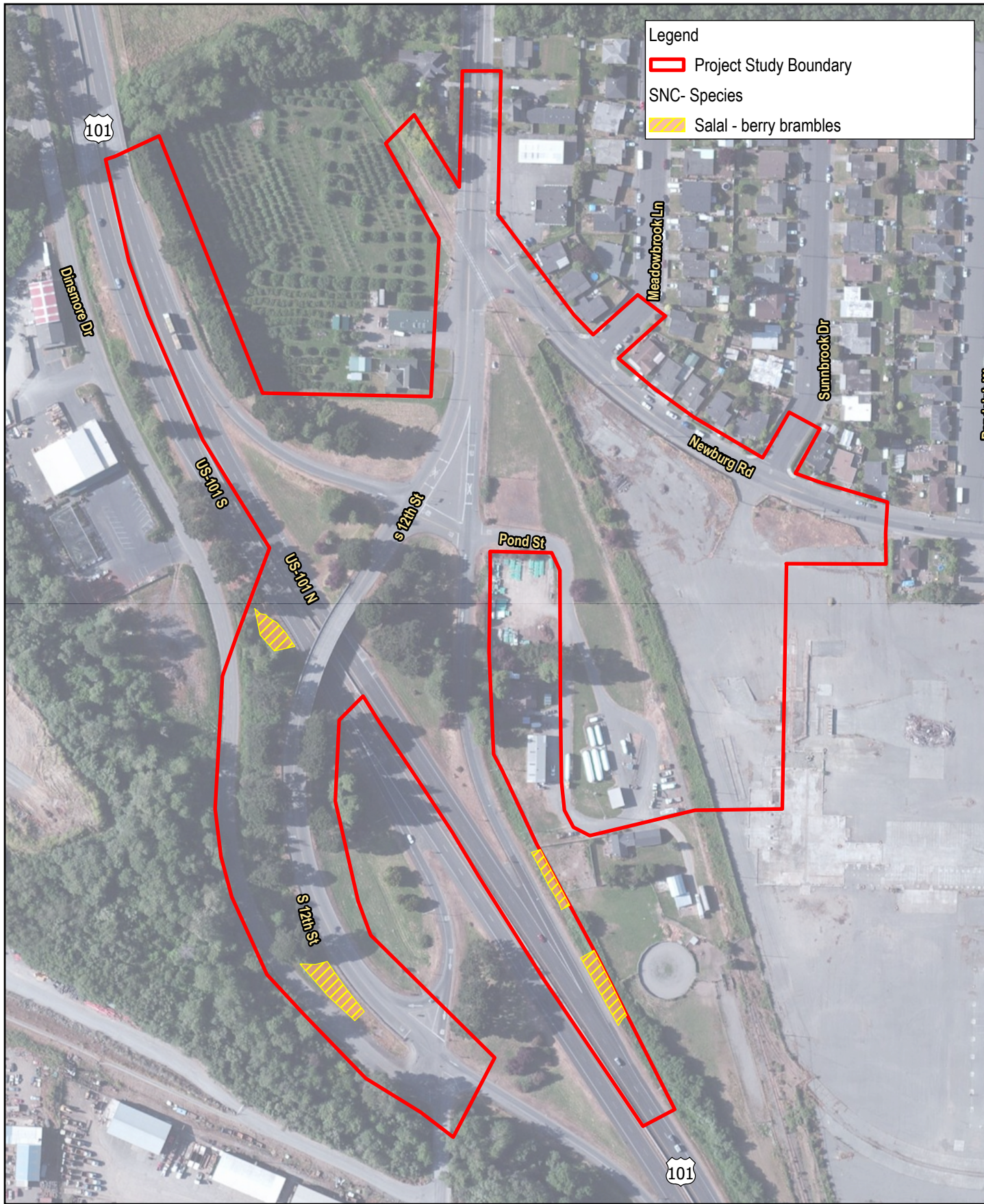
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City of Fortuna
US 101 & 12th St.
Interchange

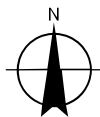
Project No. 12577017
Revision No. -
Date Jul 2023

Topography

FIGURE 6



Paper Size ANSI A
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Feet



City of Fortuna
US 101 & 12th St.
Interchange

Project No. 12577017
Revision No. -
Date Jul 2023

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

Sensitive Natural Communities

FIGURE 7

Appendix B – Site Visit Photographs



Photo 1: Representative photo of the API at the proposed 12th Steet roundabout.

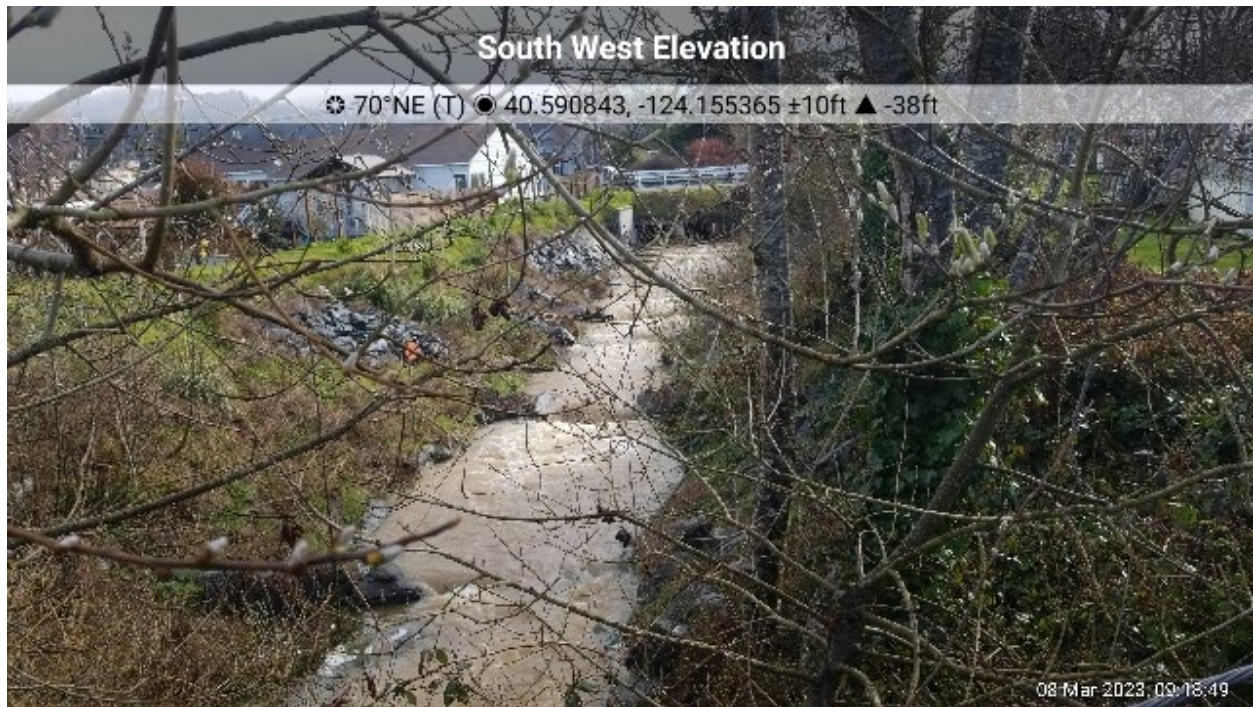


Photo 2: Rohner Creek within the BSA.



Photo 3: Strong's Creek within the BSA.

Appendix C - CNDDDB Database Search Results

Element_Type	Scientific_Name	Common_Name	Element_Code	Federal_Status	State_Status	CDFW_Status	CA_Rare_Plant_Rank	Quad_C
Animals - Amphibians	Ascaphus truei	Pacific tailed frog	AAABA01010	None	None	SSC	-	4012462
Animals - Amphibians	Ascaphus truei	Pacific tailed frog	AAABA01010	None	None	SSC	-	4012461
Animals - Amphibians	Ascaphus truei	Pacific tailed frog	AAABA01010	None	None	SSC	-	4012453
Animals - Amphibians	Ascaphus truei	Pacific tailed frog	AAABA01010	None	None	SSC	-	4012443
Animals - Amphibians	Ascaphus truei	Pacific tailed frog	AAABA01010	None	None	SSC	-	4012441
Animals - Amphibians	Rana aurora	northern red-legged frog	AAABH01021	None	None	SSC	-	4012441
Animals - Amphibians	Rana aurora	northern red-legged frog	AAABH01021	None	None	SSC	-	4012442
Animals - Amphibians	Rana aurora	northern red-legged frog	AAABH01021	None	None	SSC	-	4012451
Animals - Amphibians	Rana aurora	northern red-legged frog	AAABH01021	None	None	SSC	-	4012452
Animals - Amphibians	Rana aurora	northern red-legged frog	AAABH01021	None	None	SSC	-	4012453
Animals - Amphibians	Rana aurora	northern red-legged frog	AAABH01021	None	None	SSC	-	4012461
Animals - Amphibians	Rana aurora	northern red-legged frog	AAABH01021	None	None	SSC	-	4012462
Animals - Amphibians	Rana aurora	northern red-legged frog	AAABH01021	None	None	SSC	-	4012463
Animals - Amphibians	Rana boylei pop. 1	foothill yellow-legged frog - north coast DPS	AAABH01051	None	None	SSC	-	4012462
Animals - Amphibians	Rana boylei pop. 1	foothill yellow-legged frog - north coast DPS	AAABH01051	None	None	SSC	-	4012461
Animals - Amphibians	Rana boylei pop. 1	foothill yellow-legged frog - north coast DPS	AAABH01051	None	None	SSC	-	4012452
Animals - Amphibians	Rana boylei pop. 1	foothill yellow-legged frog - north coast DPS	AAABH01051	None	None	SSC	-	4012451
Animals - Amphibians	Rana boylei pop. 1	foothill yellow-legged frog - north coast DPS	AAABH01051	None	None	SSC	-	4012442
Animals - Amphibians	Rana boylei pop. 1	foothill yellow-legged frog -	AAABH01051	None	None	SSC	-	4012443

		north coast DPS						
Animals - Amphibians	Rana boylei pop. 1	foothill yellow-legged frog - north coast DPS	AAABH01051	None	None	SSC	-	4012441
Animals - Amphibians	Rhyacotriton variegatus	southern torrent salamander	AAAAJ01020	None	None	SSC	-	4012441
Animals - Amphibians	Rhyacotriton variegatus	southern torrent salamander	AAAAJ01020	None	None	SSC	-	4012442
Animals - Amphibians	Rhyacotriton variegatus	southern torrent salamander	AAAAJ01020	None	None	SSC	-	4012461
Animals - Birds	Accipiter cooperii	Coopers hawk	ABNKC12040	None	None	WL	-	4012461
Animals - Birds	Accipiter cooperii	Coopers hawk	ABNKC12040	None	None	WL	-	4012462
Animals - Birds	Accipiter cooperii	Coopers hawk	ABNKC12040	None	None	WL	-	4012442
Animals - Birds	Accipiter cooperii	Coopers hawk	ABNKC12040	None	None	WL	-	4012451
Animals - Birds	Accipiter cooperii	Coopers hawk	ABNKC12040	None	None	WL	-	4012441
Animals - Birds	Accipiter gentilis	northern goshawk	ABNKC12060	None	None	SSC	-	4012442
Animals - Birds	Accipiter striatus	sharp-shinned hawk	ABNKC12020	None	None	WL	-	4012451
Animals - Birds	Accipiter striatus	sharp-shinned hawk	ABNKC12020	None	None	WL	-	4012462
Animals - Birds	Accipiter striatus	sharp-shinned hawk	ABNKC12020	None	None	WL	-	4012441
Animals - Birds	Aquila chrysaetos	golden eagle	ABNKC22010	None	None	FP WL	-	4012442
Animals - Birds	Aquila chrysaetos	golden eagle	ABNKC22010	None	None	FP WL	-	4012443
Animals - Birds	Circus hudsonius	northern harrier	ABNKC11011	None	None	SSC	-	4012452
Animals - Birds	Haliaeetus leucocephalus	bald eagle	ABNKC10010	Delisted	Endangered	FP	-	4012451
Animals - Birds	Haliaeetus leucocephalus	bald eagle	ABNKC10010	Delisted	Endangered	FP	-	4012462
Animals - Birds	Brachyramphus marmoratus	marbled murrelet	ABNNN06010	Threatened	Endangered	-	-	4012461
Animals - Birds	Brachyramphus marmoratus	marbled murrelet	ABNNN06010	Threatened	Endangered	-	-	4012451
Animals - Birds	Brachyramphus marmoratus	marbled murrelet	ABNNN06010	Threatened	Endangered	-	-	4012441

Animals - Birds	Ardea alba	great egret	ABNGA04040	None	None	-	-	4012453
Animals - Birds	Ardea alba	great egret	ABNGA04040	None	None	-	-	4012462
Animals - Birds	Ardea alba	great egret	ABNGA04040	None	None	-	-	4012463
Animals - Birds	Ardea herodias	great blue heron	ABNGA04010	None	None	-	-	4012463
Animals - Birds	Ardea herodias	great blue heron	ABNGA04010	None	None	-	-	4012462
Animals - Birds	Ardea herodias	great blue heron	ABNGA04010	None	None	-	-	4012453
Animals - Birds	Ardea herodias	great blue heron	ABNGA04010	None	None	-	-	4012452
Animals - Birds	Ardea herodias	great blue heron	ABNGA04010	None	None	-	-	4012451
Animals - Birds	Egretta thula	snowy egret	ABNGA06030	None	None	-	-	4012462
Animals - Birds	Nycticorax nycticorax	black-crowned night heron	ABNGA11010	None	None	-	-	4012462
Animals - Birds	Nycticorax nycticorax	black-crowned night heron	ABNGA11010	None	None	-	-	4012463
Animals - Birds	Nycticorax nycticorax	black-crowned night heron	ABNGA11010	None	None	-	-	4012452
Animals - Birds	Nycticorax nycticorax	black-crowned night heron	ABNGA11010	None	None	-	-	4012453
Animals - Birds	Charadrius montanus	mountain plover	ABNNB03100	None	None	SSC	-	4012463
Animals - Birds	Charadrius montanus	mountain plover	ABNNB03100	None	None	SSC	-	4012462
Animals - Birds	Charadrius nivosus nivosus	western snowy plover	ABNNB03031	Threatened	None	SSC	-	4012462
Animals - Birds	Charadrius nivosus nivosus	western snowy plover	ABNNB03031	Threatened	None	SSC	-	4012463
Animals - Birds	Charadrius nivosus nivosus	western snowy plover	ABNNB03031	Threatened	None	SSC	-	4012453
Animals - Birds	Charadrius nivosus nivosus	western snowy plover	ABNNB03031	Threatened	None	SSC	-	4012452
Animals - Birds	Coccyzus americanus occidentalis	western yellow-billed cuckoo	ABNBR02022	Threatened	Endangered	-	-	4012453
Animals - Birds	Falco peregrinus	American	ABNKD06071	Delisted	Delisted	FP	-	4012451

	anatum	peregrine falcon						
Animals - Birds	Falco peregrinus anatum	American peregrine falcon	ABNKD06071	Delisted	Delisted	FP	-	4012462
Animals - Birds	Falco peregrinus anatum	American peregrine falcon	ABNKD06071	Delisted	Delisted	FP	-	4012461
Animals - Birds	Falco peregrinus anatum	American peregrine falcon	ABNKD06071	Delisted	Delisted	FP	-	4012441
Animals - Birds	Riparia riparia	bank swallow	ABPAU08010	None	Threatened	-	-	4012441
Animals - Birds	Riparia riparia	bank swallow	ABPAU08010	None	Threatened	-	-	4012451
Animals - Birds	Riparia riparia	bank swallow	ABPAU08010	None	Threatened	-	-	4012453
Animals - Birds	Riparia riparia	bank swallow	ABPAU08010	None	Threatened	-	-	4012452
Animals - Birds	Agelaius tricolor	tricolored blackbird	ABPBXB0020	None	Threatened	SSC	-	4012452
Animals - Birds	Icteria virens	yellow-breasted chat	ABPBX24010	None	None	SSC	-	4012452
Animals - Birds	Pandion haliaetus	osprey	ABNKC01010	None	None	WL	-	4012452
Animals - Birds	Pandion haliaetus	osprey	ABNKC01010	None	None	WL	-	4012451
Animals - Birds	Pandion haliaetus	osprey	ABNKC01010	None	None	WL	-	4012461
Animals - Birds	Pandion haliaetus	osprey	ABNKC01010	None	None	WL	-	4012462
Animals - Birds	Pandion haliaetus	osprey	ABNKC01010	None	None	WL	-	4012463
Animals - Birds	Pandion haliaetus	osprey	ABNKC01010	None	None	WL	-	4012441
Animals - Birds	Poecile atricapillus	black-capped chickadee	ABPAW01010	None	None	WL	-	4012452
Animals - Birds	Poecile atricapillus	black-capped chickadee	ABPAW01010	None	None	WL	-	4012453
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Animals - Birds	Setophaga petechia	yellow warbler	ABPBX03010	None	None	SSC	-	4012452
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	occidentalis californicus	pelican						
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Animals - Birds	Nannopterum auritum	double-crested cormorant	ABNFD01020	None	None	WL	-	4012462
Animals - Birds	Coturnicops noveboracensis	yellow rail	ABNME01010	None	None	SSC	-	4012463
Animals - Birds	Strix occidentalis caurina	Northern Spotted Owl	ABNSB12011	Threatened	Threatened	-	-	4012441
Animals - Birds	Strix occidentalis caurina	Northern Spotted Owl	ABNSB12011	Threatened	Threatened	-	-	4012442
Animals - Birds	Strix occidentalis caurina	Northern Spotted Owl	ABNSB12011	Threatened	Threatened	-	-	4012443
Animals - Birds	Strix occidentalis caurina	Northern Spotted Owl	ABNSB12011	Threatened	Threatened	-	-	4012451
Animals - Birds	Strix occidentalis caurina	Northern Spotted Owl	ABNSB12011	Threatened	Threatened	-	-	4012452
Animals - Birds	Strix occidentalis caurina	Northern Spotted Owl	ABNSB12011	Threatened	Threatened	-	-	4012453
Animals - Birds	Strix occidentalis caurina	Northern Spotted Owl	ABNSB12011	Threatened	Threatened	-	-	4012461
Animals - Birds	Strix occidentalis caurina	Northern Spotted Owl	ABNSB12011	Threatened	Threatened	-	-	4012462
Animals - Birds	Empidonax traillii	willow flycatcher	ABPAE33040	None	Endangered	-	-	4012463
Animals - Birds	Empidonax traillii	willow flycatcher	ABPAE33040	None	Endangered	-	-	4012452
Animals - Birds	Empidonax traillii	willow flycatcher	ABPAE33040	None	Endangered	-	-	4012453
Animals - Fish	Acipenser medirostris pop. 1	green sturgeon - southern DPS	AFCAA01031	Threatened	None	-	-	4012463
Animals - Fish	Acipenser medirostris pop. 1	green sturgeon - southern DPS	AFCAA01031	Threatened	None	-	-	4012462
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Animals - Fish	Acipenser medirostris pop. 2	green sturgeon - northern DPS	AFCAA01032	None	None	SSC	-	4012463
Animals - Fish	Acipenser medirostris pop.	green sturgeon - northern DPS	AFCAA01032	None	None	SSC	-	4012452

	2							
Animals - Fish	Acipenser medirostris pop. 2	green sturgeon - northern DPS	AFCAA01032	None	None	SSC	-	4012451
Animals - Fish	Acipenser medirostris pop. 2	green sturgeon - northern DPS	AFCAA01032	None	None	SSC	-	4012441
Animals - Fish	Acipenser transmontanus	white sturgeon	AFCAA01050	None	None	SSC	-	4012452
Animals - Fish	Eucyclogobius newberryi	tidewater goby	AFCQN04010	Endangered	None	-	-	4012453
Animals - Fish	Eucyclogobius newberryi	tidewater goby	AFCQN04010	Endangered	None	-	-	4012463
Animals - Fish	Eucyclogobius newberryi	tidewater goby	AFCQN04010	Endangered	None	-	-	4012462
Animals - Fish	Spirinchus thaleichthys	longfin smelt	AFCHB03010	Candidate	Threatened	-	-	4012462
Animals - Fish	Spirinchus thaleichthys	longfin smelt	AFCHB03010	Candidate	Threatened	-	-	4012463
Animals - Fish	Spirinchus thaleichthys	longfin smelt	AFCHB03010	Candidate	Threatened	-	-	4012453
Animals - Fish	Spirinchus thaleichthys	longfin smelt	AFCHB03010	Candidate	Threatened	-	-	4012452
Animals - Fish	Thaleichthys pacificus	eulachon	AFCHB04010	Threatened	None	-	-	4012462
Animals - Fish	Entosphenus tridentatus	Pacific lamprey	AFBAA02100	None	None	SSC	-	4012461
Animals - Fish	Entosphenus tridentatus	Pacific lamprey	AFBAA02100	None	None	SSC	-	4012462
Animals - Fish	Lampetra richardsoni	western brook lamprey	AFBAA02180	None	None	SSC	-	4012462
Animals - Fish	Lampetra richardsoni	western brook lamprey	AFBAA02180	None	None	SSC	-	4012461
Animals - Fish	Oncorhynchus clarkii clarkii	coast cutthroat trout	AFCHA0208A	None	None	SSC	-	4012461
Animals - Fish	Oncorhynchus clarkii clarkii	coast cutthroat trout	AFCHA0208A	None	None	SSC	-	4012462
Animals - Fish	Oncorhynchus clarkii clarkii	coast cutthroat trout	AFCHA0208A	None	None	SSC	-	4012463
Animals - Fish	Oncorhynchus clarkii clarkii	coast cutthroat trout	AFCHA0208A	None	None	SSC	-	4012452

Animals - Fish	Oncorhynchus clarkii clarkii	coast cutthroat trout	AFCHA0208A	None	None	SSC	-	4012453
Animals - Fish	Oncorhynchus clarkii clarkii	coast cutthroat trout	AFCHA0208A	None	None	SSC	-	4012451
Animals - Fish	Oncorhynchus clarkii clarkii	coast cutthroat trout	AFCHA0208A	None	None	SSC	-	4012441
Animals - Fish	Oncorhynchus kisutch pop. 2	coho salmon - southern Oregon / northern California ESU	AFCHA02032	Threatened	Threatened	-	-	4012441
Animals - Fish	Oncorhynchus kisutch pop. 2	coho salmon - southern Oregon / northern California ESU	AFCHA02032	Threatened	Threatened	-	-	4012451
Animals - Fish	Oncorhynchus kisutch pop. 2	coho salmon - southern Oregon / northern California ESU	AFCHA02032	Threatened	Threatened	-	-	4012442
Animals - Fish	Oncorhynchus kisutch pop. 2	coho salmon - southern Oregon / northern California ESU	AFCHA02032	Threatened	Threatened	-	-	4012453
Animals - Fish	Oncorhynchus kisutch pop. 2	coho salmon - southern Oregon / northern California ESU	AFCHA02032	Threatened	Threatened	-	-	4012452
Animals - Fish	Oncorhynchus kisutch pop. 2	coho salmon - southern Oregon / northern California ESU	AFCHA02032	Threatened	Threatened	-	-	4012463
Animals - Fish	Oncorhynchus kisutch pop. 2	coho salmon - southern Oregon / northern California ESU	AFCHA02032	Threatened	Threatened	-	-	4012462
Animals - Fish	Oncorhynchus kisutch pop. 2	coho salmon - southern Oregon / northern California ESU	AFCHA02032	Threatened	Threatened	-	-	4012461
Animals - Fish	Oncorhynchus mykiss irideus pop. 16	steelhead - northern California DPS	AFCHA0209Q	Threatened	None	-	-	4012461
Animals - Fish	Oncorhynchus mykiss irideus pop. 16	steelhead - northern California DPS	AFCHA0209Q	Threatened	None	-	-	4012462
Animals - Fish	Oncorhynchus mykiss irideus pop. 16	steelhead - northern California DPS	AFCHA0209Q	Threatened	None	-	-	4012463
Animals - Fish	Oncorhynchus mykiss irideus pop. 16	steelhead - northern California DPS	AFCHA0209Q	Threatened	None	-	-	4012452
Animals - Fish	Oncorhynchus mykiss irideus pop. 16	steelhead - northern California DPS	AFCHA0209Q	Threatened	None	-	-	4012453
Animals - Fish	Oncorhynchus mykiss irideus pop. 16	steelhead - northern California DPS	AFCHA0209Q	Threatened	None	-	-	4012442

Animals - Fish	Oncorhynchus mykiss irideus pop. 16	steelhead - northern California DPS	AFCHA0209Q	Threatened	None	-	-	4012443
Animals - Fish	Oncorhynchus mykiss irideus pop. 16	steelhead - northern California DPS	AFCHA0209Q	Threatened	None	-	-	4012451
Animals - Fish	Oncorhynchus mykiss irideus pop. 16	steelhead - northern California DPS	AFCHA0209Q	Threatened	None	-	-	4012441
Animals - Fish	Oncorhynchus mykiss irideus pop. 36	summer-run steelhead trout	AFCHA0213B	None	Candidate Endangered	SSC	-	4012451
Animals - Fish	Oncorhynchus mykiss irideus pop. 36	summer-run steelhead trout	AFCHA0213B	None	Candidate Endangered	SSC	-	4012452
Animals - Fish	Oncorhynchus mykiss irideus pop. 36	summer-run steelhead trout	AFCHA0213B	None	Candidate Endangered	SSC	-	4012463
Animals - Fish	Oncorhynchus mykiss irideus pop. 48	steelhead - northern California DPS summer-run	AFCHA0213P	Threatened	Endangered	-	-	4012463
Animals - Fish	Oncorhynchus mykiss irideus pop. 48	steelhead - northern California DPS summer-run	AFCHA0213P	Threatened	Endangered	-	-	4012462
Animals - Fish	Oncorhynchus mykiss irideus pop. 48	steelhead - northern California DPS summer-run	AFCHA0213P	Threatened	Endangered	-	-	4012452
Animals - Fish	Oncorhynchus mykiss irideus pop. 48	steelhead - northern California DPS summer-run	AFCHA0213P	Threatened	Endangered	-	-	4012453
Animals - Fish	Oncorhynchus mykiss irideus pop. 48	steelhead - northern California DPS summer-run	AFCHA0213P	Threatened	Endangered	-	-	4012451
Animals - Fish	Oncorhynchus mykiss irideus pop. 48	steelhead - northern California DPS summer-run	AFCHA0213P	Threatened	Endangered	-	-	4012441
Animals - Fish	Oncorhynchus mykiss irideus pop. 49	steelhead - northern California DPS winter-run	AFCHA0213Q	Threatened	None	-	-	4012451
Animals - Fish	Oncorhynchus mykiss irideus pop. 49	steelhead - northern California DPS winter-run	AFCHA0213Q	Threatened	None	-	-	4012452
Animals - Fish	Oncorhynchus tshawytscha pop. 17	chinook salmon - California coastal ESU	AFCHA0205S	Threatened	None	-	-	4012452
Animals - Fish	Oncorhynchus tshawytscha pop.	chinook salmon - California	AFCHA0205S	Threatened	None	-	-	4012451

	17	coastal ESU						
Animals - Fish	Oncorhynchus tshawytscha pop. 17	chinook salmon - California coastal ESU	AFCHA0205S	Threatened	None	-	-	4012442
Animals - Fish	Oncorhynchus tshawytscha pop. 17	chinook salmon - California coastal ESU	AFCHA0205S	Threatened	None	-	-	4012462
Animals - Fish	Oncorhynchus tshawytscha pop. 17	chinook salmon - California coastal ESU	AFCHA0205S	Threatened	None	-	-	4012461
Animals - Fish	Oncorhynchus tshawytscha pop. 17	chinook salmon - California coastal ESU	AFCHA0205S	Threatened	None	-	-	4012441
Animals - Insects	Bombus caliginosus	obscure bumble bee	IIHYM24380	None	None	-	-	4012461
Animals - Insects	Bombus caliginosus	obscure bumble bee	IIHYM24380	None	None	-	-	4012462
Animals - Insects	Bombus caliginosus	obscure bumble bee	IIHYM24380	None	None	-	-	4012452
Animals - Insects	Bombus caliginosus	obscure bumble bee	IIHYM24380	None	None	-	-	4012453
Animals - Insects	Bombus occidentalis	western bumble bee	IIHYM24250	None	Candidate Endangered	-	-	4012453
Animals - Insects	Bombus occidentalis	western bumble bee	IIHYM24250	None	Candidate Endangered	-	-	4012452
Animals - Insects	Bombus occidentalis	western bumble bee	IIHYM24250	None	Candidate Endangered	-	-	4012451
Animals - Insects	Bombus occidentalis	western bumble bee	IIHYM24250	None	Candidate Endangered	-	-	4012462
Animals - Insects	Bombus occidentalis	western bumble bee	IIHYM24250	None	Candidate Endangered	-	-	4012461
Animals - Insects	Bombus occidentalis	western bumble bee	IIHYM24250	None	Candidate Endangered	-	-	4012441
Animals - Insects	Limnephilus atercus	Fort Dick limnephilus caddisfly	IITR115020	None	None	-	-	4012453
Animals - Mammals	Aplodontia rufa humboldtiana	Humboldt mountain beaver	AMAF01017	None	None	-	-	4012451
Animals - Mammals	Aplodontia rufa humboldtiana	Humboldt mountain beaver	AMAF01017	None	None	-	-	4012461
Animals - Mammals	Aplodontia rufa humboldtiana	Humboldt mountain beaver	AMAF01017	None	None	-	-	4012462
Animals - Mammals	Aplodontia rufa humboldtiana	Humboldt mountain beaver	AMAF01017	None	None	-	-	4012441

Animals - Mammals	Arborimus pomo	Sonoma tree vole	AMAFF23030	None	None	SSC	-	4012441
Animals - Mammals	Arborimus pomo	Sonoma tree vole	AMAFF23030	None	None	SSC	-	4012462
Animals - Mammals	Arborimus pomo	Sonoma tree vole	AMAFF23030	None	None	SSC	-	4012461
Animals - Mammals	Arborimus pomo	Sonoma tree vole	AMAFF23030	None	None	SSC	-	4012451
Animals - Mammals	Arborimus pomo	Sonoma tree vole	AMAFF23030	None	None	SSC	-	4012442
Animals - Mammals	Arborimus pomo	Sonoma tree vole	AMAFF23030	None	None	SSC	-	4012443
Animals - Mammals	Arborimus pomo	Sonoma tree vole	AMAFF23030	None	None	SSC	-	4012453
Animals - Mammals	Arborimus pomo	Sonoma tree vole	AMAFF23030	None	None	SSC	-	4012452
Animals - Mammals	Erethizon dorsatum	North American porcupine	AMAFJ01010	None	None	-	-	4012452
Animals - Mammals	Erethizon dorsatum	North American porcupine	AMAFJ01010	None	None	-	-	4012453
Animals - Mammals	Erethizon dorsatum	North American porcupine	AMAFJ01010	None	None	-	-	4012451
Animals - Mammals	Erethizon dorsatum	North American porcupine	AMAFJ01010	None	None	-	-	4012461
Animals - Mammals	Erethizon dorsatum	North American porcupine	AMAFJ01010	None	None	-	-	4012462
Animals - Mammals	Erethizon dorsatum	North American porcupine	AMAFJ01010	None	None	-	-	4012463
Animals - Mammals	Erethizon dorsatum	North American porcupine	AMAFJ01010	None	None	-	-	4012441
Animals - Mammals	Martes caurina humboldtensis	Humboldt marten	AMAJF01012	Threatened	Endangered	SSC	-	4012461
Animals - Mammals	Martes caurina humboldtensis	Humboldt marten	AMAJF01012	Threatened	Endangered	SSC	-	4012451

Animals - Mammals	Pekania pennanti	Fisher	AMAJF01020	None	None	SSC	-	4012451
Animals - Mammals	Pekania pennanti	Fisher	AMAJF01020	None	None	SSC	-	4012442
Animals - Mammals	Taxidea taxus	American badger	AMAJF04010	None	None	SSC	-	4012452
Animals - Mammals	Antrozous pallidus	pallid bat	AMACC10010	None	None	SSC	-	4012453
Animals - Mammals	Antrozous pallidus	pallid bat	AMACC10010	None	None	SSC	-	4012452
Animals - Mammals	Corynorhinus townsendii	Townsend's big-eared bat	AMACC08010	None	None	SSC	-	4012451
Animals - Mammals	Corynorhinus townsendii	Townsend's big-eared bat	AMACC08010	None	None	SSC	-	4012461
Animals - Mammals	Corynorhinus townsendii	Townsend's big-eared bat	AMACC08010	None	None	SSC	-	4012462
Animals - Mammals	Corynorhinus townsendii	Townsend's big-eared bat	AMACC08010	None	None	SSC	-	4012441
Animals - Mammals	Lasionycteris noctivagans	silver-haired bat	AMACC02010	None	None	-	-	4012441
Animals - Mammals	Lasiurus cinereus	hoary bat	AMACC05030	None	None	-	-	4012453
Animals - Mammals	Lasiurus cinereus	hoary bat	AMACC05030	None	None	-	-	4012452
Animals - Mammals	Myotis yumanensis	Yuma myotis	AMACC01020	None	None	-	-	4012441
Animals - Mollusks	Littorina subrotundata	Newcombs littorine snail	IMGASR3010	None	None	-	-	4012462
Animals - Mollusks	Littorina subrotundata	Newcombs littorine snail	IMGASR3010	None	None	-	-	4012463
Animals - Mollusks	Margaritifera falcata	western pearlshell	IMBIV27020	None	None	-	-	4012462

Animals - Mollusks	Margaritifera falcata	western pearlshell	IMBIV27020	None	None	-	-	4012461
Animals - Mollusks	Margaritifera falcata	western pearlshell	IMBIV27020	None	None	-	-	4012441
Animals - Mollusks	Anodonta californiensis	California floater	IMBIV04220	None	None	-	-	4012461
Animals - Mollusks	Anodonta californiensis	California floater	IMBIV04220	None	None	-	-	4012462
Animals - Mollusks	Gonidea angulata	western ridged mussel	IMBIV19010	None	None	-	-	4012441
Animals - Reptiles	Emys marmorata	western pond turtle	ARAAD02030	None	None	SSC	-	4012462
Animals - Reptiles	Emys marmorata	western pond turtle	ARAAD02030	None	None	SSC	-	4012461
Animals - Reptiles	Emys marmorata	western pond turtle	ARAAD02030	None	None	SSC	-	4012463
Animals - Reptiles	Emys marmorata	western pond turtle	ARAAD02030	None	None	SSC	-	4012452
Animals - Reptiles	Emys marmorata	western pond turtle	ARAAD02030	None	None	SSC	-	4012453
Animals - Reptiles	Emys marmorata	western pond turtle	ARAAD02030	None	None	SSC	-	4012451
Community - Terrestrial	Coastal Terrace Prairie	Coastal Terrace Prairie	CTT41100CA	None	None	-	-	4012463
Community - Terrestrial	Northern Coastal Salt Marsh	Northern Coastal Salt Marsh	CTT52110CA	None	None	-	-	4012463
Community - Terrestrial	Northern Coastal Salt Marsh	Northern Coastal Salt Marsh	CTT52110CA	None	None	-	-	4012462
Community - Terrestrial	Northern Coastal Salt Marsh	Northern Coastal Salt Marsh	CTT52110CA	None	None	-	-	4012453
Community - Terrestrial	Sitka Spruce Forest	Sitka Spruce Forest	CTT82110CA	None	None	-	-	4012463
Plants - Bryophytes	Anomobryum julaceum	slender silver moss	NBMUS80010	None	None	-	4.2	4012453
Plants - Bryophytes	Fissidens pauperculus	minute pocket moss	NBMUS2W0U0	None	None	-	1B.2	4012452
Plants - Lichens	Usnea longissima	Methuselahs beard lichen	NLLEC5P420	None	None	-	4.2	4012452
Plants - Lichens	Usnea longissima	Methuselahs beard lichen	NLLEC5P420	None	None	-	4.2	4012453

Plants - Lichens	Usnea longissima	Methuselahs beard lichen	NLLEC5P420	None	None	-	4.2	4012451
Plants - Lichens	Usnea longissima	Methuselahs beard lichen	NLLEC5P420	None	None	-	4.2	4012442
Plants - Lichens	Usnea longissima	Methuselahs beard lichen	NLLEC5P420	None	None	-	4.2	4012461
Plants - Lichens	Usnea longissima	Methuselahs beard lichen	NLLEC5P420	None	None	-	4.2	4012441
Plants - Vascular	Angelica lucida	sea-watch	PDAP1070G0	None	None	-	4.2	4012462
Plants - Vascular	Angelica lucida	sea-watch	PDAP1070G0	None	None	-	4.2	4012463
Plants - Vascular	Angelica lucida	sea-watch	PDAP1070G0	None	None	-	4.2	4012453
Plants - Vascular	Glehnia littoralis ssp. leiocarpa	American glehnia	PDAP113011	None	None	-	4.2	4012453
Plants - Vascular	Glehnia littoralis ssp. leiocarpa	American glehnia	PDAP113011	None	None	-	4.2	4012463
Plants - Vascular	Glehnia littoralis ssp. leiocarpa	American glehnia	PDAP113011	None	None	-	4.2	4012462
Plants - Vascular	Hemizonia congesta ssp. tracyi	Tracys tarplant	PDAST4R067	None	None	-	4.3	4012452
Plants - Vascular	Hemizonia congesta ssp. tracyi	Tracys tarplant	PDAST4R067	None	None	-	4.3	4012443
Plants - Vascular	Hemizonia congesta ssp. tracyi	Tracys tarplant	PDAST4R067	None	None	-	4.3	4012451
Plants - Vascular	Hemizonia congesta ssp. tracyi	Tracys tarplant	PDAST4R067	None	None	-	4.3	4012441
Plants - Vascular	Hesperevax sparsiflora var. brevifolia	short-leaved evax	PDASTE5011	None	None	-	1B.2	4012442
Plants - Vascular	Hesperevax sparsiflora var. brevifolia	short-leaved evax	PDASTE5011	None	None	-	1B.2	4012443
Plants - Vascular	Hesperevax sparsiflora var. brevifolia	short-leaved evax	PDASTE5011	None	None	-	1B.2	4012453
Plants - Vascular	Hesperevax sparsiflora var. brevifolia	short-leaved evax	PDASTE5011	None	None	-	1B.2	4012463
Plants - Vascular	Layia carnosa	beach layia	PDAST5N010	Threatened	Endangered	-	1B.1	4012463

Plants - Vascular	Layia carnososa	beach layia	PDAST5N010	Threatened	Endangered	-	1B.1	4012462
Plants - Vascular	Packera bolanderi var. bolanderi	seacoast ragwort	PDAST8H0H1	None	None	-	2B.2	4012442
Plants - Vascular	Packera bolanderi var. bolanderi	seacoast ragwort	PDAST8H0H1	None	None	-	2B.2	4012451
Plants - Vascular	Packera bolanderi var. bolanderi	seacoast ragwort	PDAST8H0H1	None	None	-	2B.2	4012441
Plants - Vascular	Cardamine angulata	seaside bittercress	PDBRA0K010	None	None	-	2B.1	4012461
Plants - Vascular	Erysimum menziesii	Menzies wallflower	PDBRA160R0	Endangered	Endangered	-	1B.1	4012463
Plants - Vascular	Downingia willamettensis	Cascade downingia	PDCAM060E0	None	None	-	2B.2	4012451
Plants - Vascular	Downingia willamettensis	Cascade downingia	PDCAM060E0	None	None	-	2B.2	4012452
Plants - Vascular	Spergularia canadensis var. occidentalis	western sand-spurrey	PDCAR0W032	None	None	-	2B.1	4012463
Plants - Vascular	Spergularia canadensis var. occidentalis	western sand-spurrey	PDCAR0W032	None	None	-	2B.1	4012462
Plants - Vascular	Carex leptalea	bristle-stalked sedge	PMCYP037E0	None	None	-	2B.2	4012462
Plants - Vascular	Carex lyngbyei	Lyngbyes sedge	PMCYP037Y0	None	None	-	2B.2	4012463
Plants - Vascular	Carex lyngbyei	Lyngbyes sedge	PMCYP037Y0	None	None	-	2B.2	4012453
Plants - Vascular	Astragalus pycnostachyus var. pycnostachyus	coastal marsh milk-vetch	PDFAB0F7B2	None	None	-	1B.2	4012443
Plants - Vascular	Astragalus rattanii var. rattanii	Rattans milk-vetch	PDFAB0F7E2	None	None	-	4.3	4012441
Plants - Vascular	Hosackia gracilis	harlequin lotus	PDFAB2A0D0	None	None	-	4.2	4012443
Plants - Vascular	Hosackia gracilis	harlequin lotus	PDFAB2A0D0	None	None	-	4.2	4012442
Plants - Vascular	Hosackia gracilis	harlequin lotus	PDFAB2A0D0	None	None	-	4.2	4012451
Plants - Vascular	Hosackia gracilis	harlequin lotus	PDFAB2A0D0	None	None	-	4.2	4012452
Plants - Vascular	Hosackia gracilis	harlequin lotus	PDFAB2A0D0	None	None	-	4.2	4012463

Plants - Vascular	Hosackia gracilis	harlequin lotus	PDFAB2A0D0	None	None	-	4.2	4012462
Plants - Vascular	Lathyrus glandulosus	sticky pea	PDFAB251A0	None	None	-	4.3	4012451
Plants - Vascular	Lathyrus glandulosus	sticky pea	PDFAB251A0	None	None	-	4.3	4012441
Plants - Vascular	Lathyrus glandulosus	sticky pea	PDFAB251A0	None	None	-	4.3	4012442
Plants - Vascular	Ribes laxiflorum	trailing black currant	PDGRO020V0	None	None	-	4.3	4012462
Plants - Vascular	Ribes laxiflorum	trailing black currant	PDGRO020V0	None	None	-	4.3	4012461
Plants - Vascular	Ribes roezlii var. amictum	hoary gooseberry	PDGRO021B1	None	None	-	4.3	4012442
Plants - Vascular	Ribes roezlii var. amictum	hoary gooseberry	PDGRO021B1	None	None	-	4.3	4012441
Plants - Vascular	Sisyrinchium hitchcockii	Hitchcocks blue-eyed grass	PMIRI0D0S0	None	None	-	1B.1	4012443
Plants - Vascular	Erythronium oregonum	giant fawn lily	PMLIL0U0C0	None	None	-	2B.2	4012442
Plants - Vascular	Erythronium oregonum	giant fawn lily	PMLIL0U0C0	None	None	-	2B.2	4012441
Plants - Vascular	Erythronium revolutum	coast fawn lily	PMLIL0U0F0	None	None	-	2B.2	4012441
Plants - Vascular	Erythronium revolutum	coast fawn lily	PMLIL0U0F0	None	None	-	2B.2	4012442
Plants - Vascular	Lilium kelloggii	Kelloggs lily	PMLIL1A0A0	None	None	-	4.3	4012451
Plants - Vascular	Lilium kelloggii	Kelloggs lily	PMLIL1A0A0	None	None	-	4.3	4012461
Plants - Vascular	Lilium occidentale	western lily	PMLIL1A0G0	Endangered	Endangered	-	1B.1	4012462
Plants - Vascular	Lilium occidentale	western lily	PMLIL1A0G0	Endangered	Endangered	-	1B.1	4012463
Plants - Vascular	Lilium rubescens	redwood lily	PMLIL1A0N0	None	None	-	4.2	4012451
Plants - Vascular	Lilium rubescens	redwood lily	PMLIL1A0N0	None	None	-	4.2	4012442
Plants - Vascular	Lilium rubescens	redwood lily	PMLIL1A0N0	None	None	-	4.2	4012441
Plants - Vascular	Lycopodium clavatum	running-pine	PPLYC01080	None	None	-	4.1	4012441
Plants -	Lycopodium	running-pine	PPLYC01080	None	None	-	4.1	4012451

Vascular	clavatum							
Plants - Vascular	Lycopodium clavatum	running-pine	PPLYC01080	None	None	-	4.1	4012461
Plants - Vascular	Lycopodium clavatum	running-pine	PPLYC01080	None	None	-	4.1	4012462
Plants - Vascular	Sidalcea malachroides	maple-leaved checkerbloom	PDMAL110E0	None	None	-	4.2	4012461
Plants - Vascular	Sidalcea malachroides	maple-leaved checkerbloom	PDMAL110E0	None	None	-	4.2	4012462
Plants - Vascular	Sidalcea malachroides	maple-leaved checkerbloom	PDMAL110E0	None	None	-	4.2	4012442
Plants - Vascular	Sidalcea malachroides	maple-leaved checkerbloom	PDMAL110E0	None	None	-	4.2	4012451
Plants - Vascular	Sidalcea malachroides	maple-leaved checkerbloom	PDMAL110E0	None	None	-	4.2	4012453
Plants - Vascular	Sidalcea malachroides	maple-leaved checkerbloom	PDMAL110E0	None	None	-	4.2	4012441
Plants - Vascular	Sidalcea malviflora ssp. patula	Siskiyou checkerbloom	PDMAL110F9	None	None	-	1B.2	4012441
Plants - Vascular	Sidalcea malviflora ssp. patula	Siskiyou checkerbloom	PDMAL110F9	None	None	-	1B.2	4012453
Plants - Vascular	Sidalcea malviflora ssp. patula	Siskiyou checkerbloom	PDMAL110F9	None	None	-	1B.2	4012452
Plants - Vascular	Sidalcea malviflora ssp. patula	Siskiyou checkerbloom	PDMAL110F9	None	None	-	1B.2	4012451
Plants - Vascular	Sidalcea malviflora ssp. patula	Siskiyou checkerbloom	PDMAL110F9	None	None	-	1B.2	4012442
Plants - Vascular	Sidalcea malviflora ssp. patula	Siskiyou checkerbloom	PDMAL110F9	None	None	-	1B.2	4012443
Plants - Vascular	Sidalcea malviflora ssp. patula	Siskiyou checkerbloom	PDMAL110F9	None	None	-	1B.2	4012462
Plants - Vascular	Sidalcea oregana ssp. eximia	coast checkerbloom	PDMAL110K9	None	None	-	1B.2	4012462
Plants - Vascular	Sidalcea oregana ssp.	coast checkerbloom	PDMAL110K9	None	None	-	1B.2	4012463

	eximia							
Plants - Vascular	Pityopus californicus	California pinefoot	PDMON05010	None	None	-	4.2	4012462
Plants - Vascular	Pityopus californicus	California pinefoot	PDMON05010	None	None	-	4.2	4012461
Plants - Vascular	Pityopus californicus	California pinefoot	PDMON05010	None	None	-	4.2	4012442
Plants - Vascular	Pityopus californicus	California pinefoot	PDMON05010	None	None	-	4.2	4012441
Plants - Vascular	Montia howellii	Howells montia	PDPOR05070	None	None	-	2B.2	4012442
Plants - Vascular	Montia howellii	Howells montia	PDPOR05070	None	None	-	2B.2	4012441
Plants - Vascular	Montia howellii	Howells montia	PDPOR05070	None	None	-	2B.2	4012451
Plants - Vascular	Montia howellii	Howells montia	PDPOR05070	None	None	-	2B.2	4012443
Plants - Vascular	Montia howellii	Howells montia	PDPOR05070	None	None	-	2B.2	4012452
Plants - Vascular	Montia howellii	Howells montia	PDPOR05070	None	None	-	2B.2	4012453
Plants - Vascular	Montia howellii	Howells montia	PDPOR05070	None	None	-	2B.2	4012461
Plants - Vascular	Montia howellii	Howells montia	PDPOR05070	None	None	-	2B.2	4012462
Plants - Vascular	Abronia umbellata var. breviflora	pink sand-verbena	PDNYC010N4	None	None	-	1B.1	4012462
Plants - Vascular	Clarkia amoena ssp. whitneyi	Whitneys farewell-to-spring	PDONA05025	None	None	-	1B.1	4012452
Plants - Vascular	Oenothera wolfii	Wolfs evening-primrose	PDONA0C1K0	None	None	-	1B.1	4012443
Plants - Vascular	Listera cordata	heart-leaved twayblade	PMORC1N060	None	None	-	4.2	4012451
Plants - Vascular	Listera cordata	heart-leaved twayblade	PMORC1N060	None	None	-	4.2	4012452
Plants - Vascular	Listera cordata	heart-leaved twayblade	PMORC1N060	None	None	-	4.2	4012462
Plants - Vascular	Listera cordata	heart-leaved twayblade	PMORC1N060	None	None	-	4.2	4012461
Plants - Vascular	Listera cordata	heart-leaved twayblade	PMORC1N060	None	None	-	4.2	4012441
Plants - Vascular	Listera cordata	heart-leaved twayblade	PMORC1N060	None	None	-	4.2	4012442
Plants - Vascular	Piperia candida	white-flowered rein orchid	PMORC1X050	None	None	-	1B.2	4012441
Plants -	Castilleja	Humboldt Bay	PDSCR0D402	None	None	-	1B.2	4012462

Vascular	ambigua var. humboldtiensis	owls-clover						
Plants - Vascular	Castilleja ambigua var. humboldtiensis	Humboldt Bay owls-clover	PDSCR0D402	None	None	-	1B.2	4012463
Plants - Vascular	Castilleja ambigua var. humboldtiensis	Humboldt Bay owls-clover	PDSCR0D402	None	None	-	1B.2	4012453
Plants - Vascular	Castilleja litoralis	Oregon coast paintbrush	PDSCR0D012	None	None	-	2B.2	4012453
Plants - Vascular	Castilleja litoralis	Oregon coast paintbrush	PDSCR0D012	None	None	-	2B.2	4012443
Plants - Vascular	Castilleja litoralis	Oregon coast paintbrush	PDSCR0D012	None	None	-	2B.2	4012463
Plants - Vascular	Castilleja litoralis	Oregon coast paintbrush	PDSCR0D012	None	None	-	2B.2	4012462
Plants - Vascular	Chloropyron maritimum ssp. palustre	Point Reyes salty birds-beak	PDSCR0J0C3	None	None	-	1B.2	4012462
Plants - Vascular	Chloropyron maritimum ssp. palustre	Point Reyes salty birds-beak	PDSCR0J0C3	None	None	-	1B.2	4012463
Plants - Vascular	Pleuropogon refractus	nodding semaphore grass	PMPOA4Y080	None	None	-	4.2	4012462
Plants - Vascular	Pleuropogon refractus	nodding semaphore grass	PMPOA4Y080	None	None	-	4.2	4012461
Plants - Vascular	Pleuropogon refractus	nodding semaphore grass	PMPOA4Y080	None	None	-	4.2	4012451
Plants - Vascular	Pleuropogon refractus	nodding semaphore grass	PMPOA4Y080	None	None	-	4.2	4012443
Plants - Vascular	Pleuropogon refractus	nodding semaphore grass	PMPOA4Y080	None	None	-	4.2	4012453
Plants - Vascular	Pleuropogon refractus	nodding semaphore grass	PMPOA4Y080	None	None	-	4.2	4012441
Plants - Vascular	Pleuropogon refractus	nodding semaphore grass	PMPOA4Y080	None	None	-	4.2	4012442
Plants - Vascular	Puccinellia pumila	dwarf alkali grass	PMPOA531L0	None	None	-	2B.2	4012463
Plants - Vascular	Collomia tracyi	Tracys collomia	PDPLM020B0	None	None	-	4.3	4012451
Plants - Vascular	Gilia capitata ssp. pacifica	Pacific gilia	PDPLM040B6	None	None	-	1B.2	4012451
Plants - Vascular	Gilia capitata ssp. pacifica	Pacific gilia	PDPLM040B6	None	None	-	1B.2	4012442

Plants - Vascular	<i>Gilia capitata</i> ssp. <i>pacifica</i>	Pacific gilia	PDPLM040B6	None	None	-	1B.2	4012453
Plants - Vascular	<i>Gilia capitata</i> ssp. <i>pacifica</i>	Pacific gilia	PDPLM040B6	None	None	-	1B.2	4012452
Plants - Vascular	<i>Gilia capitata</i> ssp. <i>pacifica</i>	Pacific gilia	PDPLM040B6	None	None	-	1B.2	4012441
Plants - Vascular	<i>Gilia millefoliata</i>	dark-eyed gilia	PDPLM04130	None	None	-	1B.2	4012463
Plants - Vascular	<i>Gilia millefoliata</i>	dark-eyed gilia	PDPLM04130	None	None	-	1B.2	4012462
Plants - Vascular	<i>Polemonium carneum</i>	Oregon polemonium	PDPLM0E050	None	None	-	2B.2	4012452
Plants - Vascular	<i>Polemonium carneum</i>	Oregon polemonium	PDPLM0E050	None	None	-	2B.2	4012453
Plants - Vascular	<i>Polemonium carneum</i>	Oregon polemonium	PDPLM0E050	None	None	-	2B.2	4012442
Plants - Vascular	<i>Polemonium carneum</i>	Oregon polemonium	PDPLM0E050	None	None	-	2B.2	4012443
Plants - Vascular	<i>Chrysosplenium glechomifolium</i>	Pacific golden saxifrage	PDSAX07020	None	None	-	4.3	4012462
Plants - Vascular	<i>Chrysosplenium glechomifolium</i>	Pacific golden saxifrage	PDSAX07020	None	None	-	4.3	4012461
Plants - Vascular	<i>Chrysosplenium glechomifolium</i>	Pacific golden saxifrage	PDSAX07020	None	None	-	4.3	4012442
Plants - Vascular	<i>Mitellastra caulescens</i>	leafy-stemmed mitrewort	PDSAX0N020	None	None	-	4.2	4012441
Plants - Vascular	<i>Mitellastra caulescens</i>	leafy-stemmed mitrewort	PDSAX0N020	None	None	-	4.2	4012461
Plants - Vascular	<i>Mitellastra caulescens</i>	leafy-stemmed mitrewort	PDSAX0N020	None	None	-	4.2	4012462
Plants - Vascular	<i>Mitellastra caulescens</i>	leafy-stemmed mitrewort	PDSAX0N020	None	None	-	4.2	4012451
Plants - Vascular	<i>Tiarella trifoliata</i> var. <i>trifoliata</i>	trifoliolate laceflower	PDSAX10031	None	None	-	3.2	4012441

Appendix D - CNPS Database Search Results

Search Results

50 matches found. Click on scientific name for details

Search Criteria: 9-Quad include [4012453:4012452:4012451:4012462:4012463:4012461:4012441:4012442:4012443]

▲ SCIENTIFIC NAME	COMMON NAME	FAMILY	LIFEFORM	BLOOMING PERIOD	FED LIST	STATE LIST	GLOBAL RANK	STATE RANK	CA RARE PLANT RANK
<i>Abronia umbellata</i> var. <i>breviflora</i>	pink sand-verbena	Nyctaginaceae	annual herb	Jun-Oct	None	None	G4G5T2	S2	1B.1
<i>Angelica lucida</i>	sea-watch	Apiaceae	perennial herb	Apr-Sep	None	None	G5	S3	4.2
<i>Anomobryum julaceum</i>	slender silver moss	Bryaceae	moss		None	None	G5?	S2	4.2
<i>Astragalus pycnostachyus</i> var. <i>pycnostachyus</i>	coastal marsh milk-vetch	Fabaceae	perennial herb	(Apr)Jun-Oct	None	None	G2T2	S2	1B.2
<i>Astragalus rattanii</i> var. <i>rattanii</i>	Rattan's milk-vetch	Fabaceae	perennial herb	Apr-Jul	None	None	G4T4	S4	4.3
<i>Cardamine angulata</i>	seaside bittercress	Brassicaceae	perennial herb	(Jan)Mar-Jul	None	None	G4G5	S3	2B.2
<i>Carex leptalea</i>	bristle-stalked sedge	Cyperaceae	perennial rhizomatous herb	Mar-Jul	None	None	G5	S1	2B.2
<i>Carex lyngbyei</i>	Lyngbye's sedge	Cyperaceae	perennial rhizomatous herb	Apr-Aug	None	None	G5	S3	2B.2
<i>Castilleja ambigua</i> var. <i>humboldtiensis</i>	Humboldt Bay owl's-clover	Orobanchaceae	annual herb (hemiparasitic)	Apr-Aug	None	None	G4T2	S2	1B.2
<i>Castilleja litoralis</i>	Oregon coast paintbrush	Orobanchaceae	perennial herb (hemiparasitic)	Jun	None	None	G3	S3	2B.2
<i>Chloropyron maritimum</i> ssp. <i>palustre</i>	Point Reyes salty bird's-beak	Orobanchaceae	annual herb (hemiparasitic)	Jun-Oct	None	None	G4?T2	S2	1B.2
<i>Chrysosplenium glechomifolium</i>	Pacific golden saxifrage	Saxifragaceae	perennial herb	Feb-Jun	None	None	G5?	S3	4.3
<i>Clarkia amoena</i> ssp. <i>whitneyi</i>	Whitney's farewell-to-spring	Onagraceae	annual herb	Jun-Aug	None	None	G5T1	S1	1B.1
<i>Collomia tracyi</i>	Tracy's collomia	Polemoniaceae	annual herb	Jun-Jul	None	None	G4	S4	4.3
<i>Downingia willamettensis</i>	Cascade downingia	Campanulaceae	annual herb	Jun-Jul(Sep)	None	None	G4	S2	2B.2
<i>Erysimum menziesii</i>	Menzies' wallflower	Brassicaceae	perennial herb	Mar-Sep	FE	CE	G1	S1	1B.1
<i>Erythronium oregonum</i>	giant fawn lily	Liliaceae	perennial herb	Mar-Jun(Jul)	None	None	G5	S2	2B.2
<i>Erythronium revolutum</i>	coast fawn lily	Liliaceae	perennial bulbiferous herb	Mar-Jul(Aug)	None	None	G4G5	S3	2B.2

<u><i>Fissidens pauperculus</i></u>	minute pocket moss	Fissidentaceae	moss		None	None	G3?	S2	1B.2
<u><i>Gilia capitata</i> ssp. <i>pacifica</i></u>	Pacific gilia	Polemoniaceae	annual herb	Apr-Aug	None	None	G5T3	S2	1B.2
<u><i>Gilia millefoliata</i></u>	dark-eyed gilia	Polemoniaceae	annual herb	Apr-Jul	None	None	G2	S2	1B.2
<u><i>Glehnia littoralis</i> ssp. <i>leiocarpa</i></u>	American glehnia	Apiaceae	perennial herb	May-Aug	None	None	G5T5	S2S3	4.2
<u><i>Hemizonia congesta</i> ssp. <i>tracyi</i></u>	Tracy's tarplant	Asteraceae	annual herb	(Mar)May-Oct	None	None	G5T4	S4	4.3
<u><i>Hesperevax sparsiflora</i> var. <i>brevifolia</i></u>	short-leaved evax	Asteraceae	annual herb	Mar-Jun	None	None	G4T3	S3	1B.2
<u><i>Hosackia gracilis</i></u>	harlequin lotus	Fabaceae	perennial rhizomatous herb	Mar-Jul	None	None	G3G4	S3	4.2
<u><i>Lathyrus glandulosus</i></u>	sticky pea	Fabaceae	perennial rhizomatous herb	Apr-Jun	None	None	G3	S3	4.3
<u><i>Layia carnosa</i></u>	beach layia	Asteraceae	annual herb	Mar-Jul	FT	CE	G2	S2	1B.1
<u><i>Lilium kelloggii</i></u>	Kellogg's lily	Liliaceae	perennial bulbiferous herb	May-Aug	None	None	G3	S3	4.3
<u><i>Lilium occidentale</i></u>	western lily	Liliaceae	perennial bulbiferous herb	Jun-Jul	FE	CE	G1G2	S1	1B.1
<u><i>Lilium rubescens</i></u>	redwood lily	Liliaceae	perennial bulbiferous herb	Apr-Aug(Sep)	None	None	G3	S3	4.2
<u><i>Listera cordata</i></u>	heart-leaved twayblade	Orchidaceae	perennial herb	Feb-Jul	None	None	G5	S4	4.2
<u><i>Lycopodium clavatum</i></u>	running-pine	Lycopodiaceae	perennial rhizomatous herb	Jun-Aug(Sep)	None	None	G5	S3	4.1
<u><i>Mitellastra caulescens</i></u>	leafy-stemmed mitrewort	Saxifragaceae	perennial rhizomatous herb	(Mar)Apr-Oct	None	None	G5	S4	4.2
<u><i>Montia howellii</i></u>	Howell's montia	Montiaceae	annual herb	(Feb)Mar-May	None	None	G3G4	S2	2B.2
<u><i>Oenothera wolfii</i></u>	Wolf's evening-primrose	Onagraceae	perennial herb	May-Oct	None	None	G2	S1	1B.1
<u><i>Packera bolanderi</i> var. <i>bolanderi</i></u>	seacoast ragwort	Asteraceae	perennial rhizomatous herb	(Jan-Apr)May-Jul(Aug)	None	None	G4T4	S2S3	2B.2
<u><i>Piperia candida</i></u>	white-flowered rein orchid	Orchidaceae	perennial herb	(Mar)May-Sep	None	None	G3?	S3	1B.2
<u><i>Pityopus californicus</i></u>	California pinefoot	Ericaceae	perennial herb (achlorophyllous)	(Mar-Apr)May-Aug	None	None	G4G5	S4	4.2
<u><i>Pleuropogon refractus</i></u>	nodding semaphore grass	Poaceae	perennial rhizomatous herb	(Mar)Apr-Aug	None	None	G4	S4	4.2
<u><i>Polemonium carneum</i></u>	Oregon polemonium	Polemoniaceae	perennial herb	Apr-Sep	None	None	G3G4	S2	2B.2
<u><i>Puccinellia pumila</i></u>	dwarf alkali grass	Poaceae	perennial herb	Jul	None	None	G5	SH	2B.2
<u><i>Ribes laxiflorum</i></u>	trailing black	Grossulariaceae	perennial deciduous	Mar-Jul(Aug)	None	None	G5?	S3	4.3

	currant		shrub							
<u><i>Ribes roezlii</i> var. <i>amictum</i></u>	hoary gooseberry	Grossulariaceae	perennial deciduous shrub	Mar-Apr	None	None	G5T4	S4	4.3	
<u><i>Sidalcea malachroides</i></u>	maple-leaved checkerbloom	Malvaceae	perennial herb	(Mar)Apr- Aug	None	None	G3	S3	4.2	
<u><i>Sidalcea malviflora</i> ssp. <i>patula</i></u>	Siskiyou checkerbloom	Malvaceae	perennial rhizomatous herb	(Mar)May- Aug	None	None	G5T2	S2	1B.2	
<u><i>Sidalcea oregana</i> ssp. <i>eximia</i></u>	coast checkerbloom	Malvaceae	perennial herb	Jun-Aug	None	None	G5T1	S1	1B.2	
<u><i>Sisyrinchium hitchcockii</i></u>	Hitchcock's blue- eyed grass	Iridaceae	perennial rhizomatous herb	Jun	None	None	G1G2	S1	1B.1	
<u><i>Spergularia canadensis</i> var. <i>occidentalis</i></u>	western sand- spurrey	Caryophyllaceae	annual herb	Jun-Aug	None	None	G5T4	S1	2B.1	
<u><i>Tiarella trifoliata</i> var. <i>trifoliata</i></u>	trifoliate laceflower	Saxifragaceae	perennial rhizomatous herb	(May)Jun- Aug	None	None	G5T5	S2S3	3.2	
<u><i>Usnea longissima</i></u>	Methuselah's beard lichen	Parmeliaceae	fruticose lichen (epiphytic)		None	None	G4	S4	4.2	

Showing 1 to 50 of 50 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 10 November 2022].

Appendix E - NOAA FISHERIES Official Species List

NOAA Official Species List obtained from the NOAA Fisheries West Coast Region California Species List Tool on 8/8/2023. Quad Name Fortuna

Quad Number 40124-E2

ESA Anadromous Fish

SONCC Coho ESU (T) - X

CCC Coho ESU (E) -

CC Chinook Salmon ESU (T) - X

CVSR Chinook Salmon ESU (T) -

SRWR Chinook Salmon ESU (E) -

NC Steelhead DPS (T) - X

CCC Steelhead DPS (T) -

SCCC Steelhead DPS (T) -

SC Steelhead DPS (E) -

CCV Steelhead DPS (T) -

Eulachon (T) -

sDPS Green Sturgeon (T) -

ESA Anadromous Fish Critical Habitat

SONCC Coho Critical Habitat - X

CCC Coho Critical Habitat -

CC Chinook Salmon Critical Habitat - X

CVSR Chinook Salmon Critical Habitat -

SRWR Chinook Salmon Critical Habitat -

Natural Environment Study

NC Steelhead Critical Habitat - X

CCC Steelhead Critical Habitat -

SCCC Steelhead Critical Habitat -

SC Steelhead Critical Habitat -

CCV Steelhead Critical Habitat -

Eulachon Critical Habitat -

sDPS Green Sturgeon Critical Habitat -

ESA Marine Invertebrates

Range Black Abalone (E) -

Range White Abalone (E) -

ESA Marine Invertebrates Critical Habitat

Black Abalone Critical Habitat -

ESA Sea Turtles

East Pacific Green Sea Turtle (T) -

Olive Ridley Sea Turtle (T/E) -

Leatherback Sea Turtle (E) -

North Pacific Loggerhead Sea Turtle (E) -

ESA Whales

Blue Whale (E) -

Fin Whale (E) -

Humpback Whale (E) -

Southern Resident Killer Whale (E) -

North Pacific Right Whale (E) -

Natural Environment Study

Sei Whale (E) -

Sperm Whale (E) -

ESA Pinnipeds

Guadalupe Fur Seal (T) -

Steller Sea Lion Critical Habitat -

Essential Fish Habitat

Coho EFH - X

Chinook Salmon EFH - X

Groundfish EFH - X

Coastal Pelagics EFH - X

Highly Migratory Species EFH -

MMPA Species (See list at left)

ESA and MMPA Cetaceans/Pinnipeds

See list at left and consult the NMFS Long Beach office

562-980-4000

MMPA Cetaceans -

MMPA Pinnipeds -

Appendix F - USFWS IPAC Official Species List



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: 2023-0034986

Project Name: Fortuna 12th Street Roundabout

July 03, 2023

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: 2023-0034986

Project Name: Fortuna 12th Street Roundabout

Project Type: Road/Hwy - Maintenance/Modification

Project Description: Replacing old infrastructure with modern roundabout to improve traffic safety and flow.

Project Location:

The approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/@40.588176849999996,-124.15508600436507,14z>



Counties: Humboldt County, California

ENDANGERED SPECIES ACT SPECIES

There is a total of 7 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 Fisheries¹, 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.

-
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 <i>Martes caurina</i> There is proposed critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/9081	Threatened

BIRDS

NAME	STATUS
Marbled Murrelet <i>Brachyramphus marmoratus</i> Population: U.S.A. (CA, OR, WA) There is final critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/4467	Threatened
Northern Spotted Owl <i>Strix occidentalis caurina</i> There is final critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/1123	Threatened
Western Snowy Plover <i>Charadrius nivosus nivosus</i> 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. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/8035	Threatened
Yellow-billed Cuckoo <i>Coccyzus americanus</i> Population: Western U.S. DPS There is final critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/3911	Threatened

INSECTS

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

FLOWERING PLANTS

NAME	STATUS
Western Lily <i>Lilium occidentale</i> 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.

YOU ARE STILL REQUIRED TO DETERMINE IF YOUR PROJECT(S) MAY HAVE EFFECTS ON ALL ABOVE LISTED SPECIES.

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 Act¹ and the Bald and Golden Eagle Protection Act².

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described [below](#).

-
1. The [Migratory Birds Treaty Act](#) of 1918.
 2. The [Bald and Golden Eagle Protection Act](#) of 1940.
 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 <i>Selasphorus sasin</i> 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 <i>Haliaeetus leucocephalus</i> 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.	Breeds Jan 1 to Sep 30

NAME	BREEDING SEASON
California Gull <i>Larus californicus</i> 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 Mar 1 to Jul 31
Olive-sided Flycatcher <i>Contopus cooperi</i> 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
Rufous Hummingbird <i>selasphorus rufus</i> 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
Western Grebe <i>aechmophorus occidentalis</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/6743	Breeds Jun 1 to Aug 31
Willet <i>Tringa semipalmata</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds elsewhere
Wrentit <i>Chamaea fasciata</i> 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 (I)

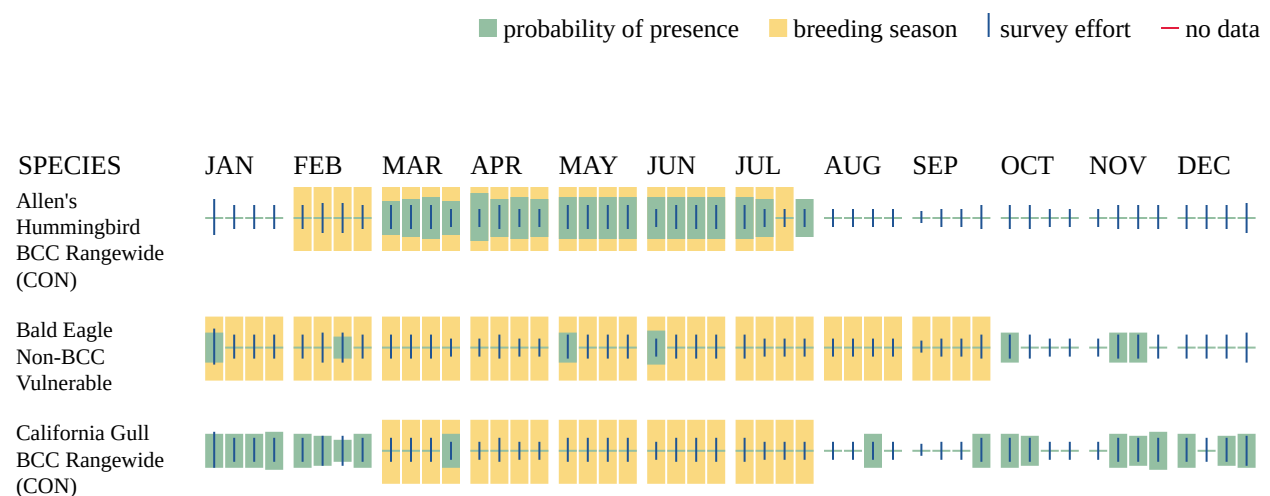
Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

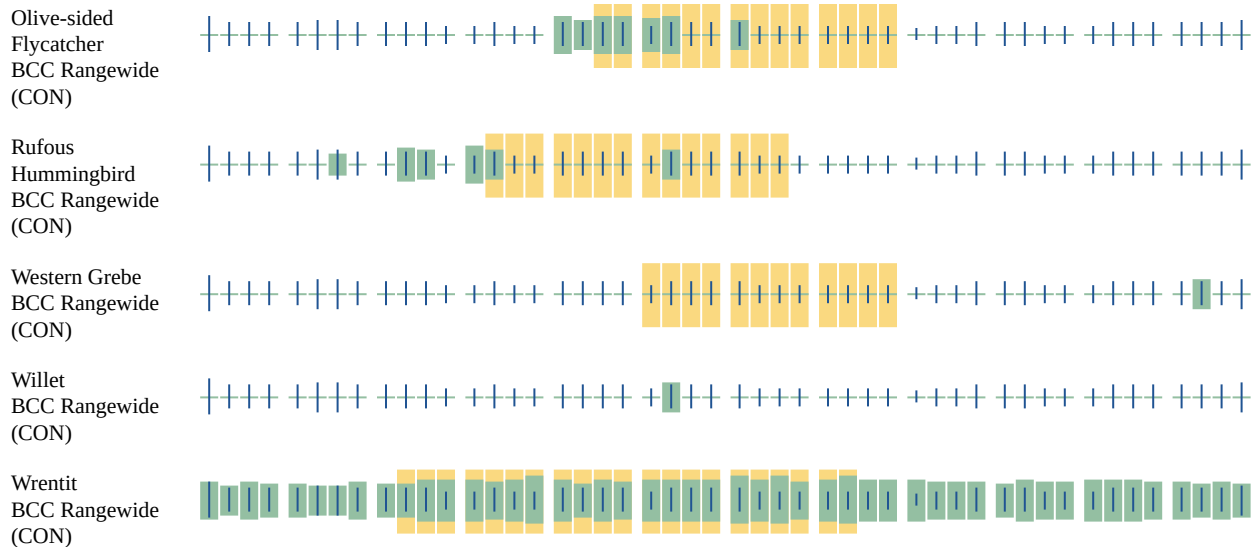
No Data (—)

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 list of migratory birds that potentially occur in my specified location?

The Migratory Bird Resource List is comprised of USFWS [Birds of Conservation Concern \(BCC\)](#) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the [Avian Knowledge Network \(AKN\)](#). The AKN data is based on a growing collection of [survey, banding, and citizen science datasets](#) and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as

warranting special attention because they are a BCC species in that area, an eagle ([Eagle Act](#) requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the [Rapid Avian Information Locator \(RAIL\) Tool](#).

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the [Avian Knowledge Network \(AKN\)](#). This data is derived from a growing collection of [survey, banding, and citizen science datasets](#).

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering or migrating in my area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may query your location using the [RAIL Tool](#) and look at the range maps provided for birds in your area at the bottom of the profiles provided for each bird in your results. If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are [Birds of Conservation Concern](#) (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the [Eagle Act](#) requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the [Northeast Ocean Data Portal](#). The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the [NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf](#) project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the [Diving Bird Study](#) and the [nanotag studies](#) or contact [Caleb Spiegel](#) or [Pam Loring](#).

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to [obtain a permit](#) to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

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.

THERE ARE NO WETLANDS WITHIN YOUR PROJECT AREA.

IPAC USER CONTACT INFORMATION

Agency: GHD

Name: Jane Cipra

Address: 718 Third Street

City: Eureka

State: CA

Zip: 95501

Email jane.cipra@ghd.com

Phone: 7072672206

LEAD AGENCY CONTACT INFORMATION

Lead Agency: Fortuna city

Appendix G - Plant Species Observed

Table 12: Plant Species Observed During Surveys May and June, 2023

Species Name	Common Name	Native	Family
<i>Sambucus racemosa</i>	Red elderberry	Native	Adoxaceae
<i>Allium triquetrum</i>	Three-cornered leek	Non-native	Amaryllidaceae
<i>Cotinus coggygria</i>	Smokebush	Non-native	Anacardiaceae
<i>Toxicodendron diversilobum</i>	Poison oak	Native	Anacardiaceae
<i>Conium maculatum</i>	Hemlock	Non-native	Apiaceae
<i>Daucus carota</i>	Wild carrot	Native	Apiaceae
<i>Foeniculum vulgare</i>	Fennel	Non-native	Apiaceae
<i>Heracleum maximum</i>	Cow parsnip	Native	Apiaceae
<i>Oenanthe sarmentosa</i>	Water parseley	Native	Apiaceae
<i>Scandix pecten-veneris</i>	Shepherd's needle	Non-native	Apiaceae
<i>Vinca major</i>	Periwinkle	Non-native	Apocynaceae
<i>Ilex aquifolium</i>	English holly	Non-native	Aquifoliaceae
<i>Hedera helix</i>	English ivy	Non-native	Araliaceae
<i>Achillea millefolium</i>	Yarrow	Native	Asteraceae
<i>Ambrosia artemisiifolia</i>	Ragweed	native	Asteraceae
<i>Artemisia douglasiana</i>	California mugwort	Native	Asteraceae
<i>Baccharis pilularis</i>	Coyote brush	Native	Asteraceae
<i>Bellis perennis</i>	Daisy	Non-native	Asteraceae
<i>Carduus pycnocephalus</i>	Italian thistle	Non-native	Asteraceae
<i>Cirsium vulgare</i>	Bull thistle	Non-native	Asteraceae
<i>Conyza canadensis</i>	Marestail	Non-native	Asteraceae
<i>Erechtites minima</i>	Toothed fireweed	Non-native	Asteraceae
<i>Gnaphalium palustre</i>	Cudweed	Native	Asteraceae
<i>Helminthotheca echioides</i>	Prickly oxtongue	Non-native	Asteraceae
<i>Hypericum perforatum</i>	St. John's wort	Non-native	Asteraceae
<i>Hypochaeris radicata</i>	Cat's ear	Non-native	Asteraceae
<i>Lapsana communis</i>	Nipplewort	Non-native	Asteraceae
<i>Leontodon crispus</i>	Hawkbit	Non-native	Asteraceae
<i>Leucanthemum vulgare</i>	Oxeye daisy	Non-native	Asteraceae
<i>Matricaria discoidea</i>	Pineapple weed	Non-native	Asteraceae
<i>Silybum marianum</i>	Milk thistle	Non-native	Asteraceae
<i>Sonchus asper</i>	Prickly sowthistle	Non-native	Asteraceae
<i>Sonchus oleraceus</i>	Prickly lettuce	Non-native	Asteraceae
<i>Tanacetum parthenium</i>	Feverfew	Non-native	Asteraceae
<i>Taraxacum officinale</i>	Dandelion	Non-native	Asteraceae
<i>Tragopogon porrifolius</i>	Purple goat's beard	Non-native	Asteraceae
<i>Alnus rubra</i>	Red alder	Native	Betulaceae
<i>Borago officinalis</i>	Borage	Non-native	Boraginaceae
<i>Myosotis micrantha</i>	Small-flowered forget-me-not	Non-native	Boraginaceae
<i>Myosotis stricta</i>	Blue forget-me-not	Non-native	Boraginaceae
<i>Brassica rapa</i>	Common mustard	Non-native	Brassicaceae
<i>Cardamine hirsuta</i>	Hairy bittercress	Non-native	Brassicaceae
<i>Raphanus raphinistrum</i>	Wild radish	Non-native	Brassicaceae

Natural Environment Study

Species Name	Common Name	Native	Family
<i>Centranthus ruber</i>	Red valerian	Non-native	Caprifoliaceae
<i>Dipsacus fullonum</i>	Teasel	Non-native	Caprifoliaceae
<i>Lonicera involucrata</i>	Twinberry	Native	Caprifoliaceae
<i>Cerastrium glomeratum</i>	Mouseear chickweed	Non-native	Caryophyllaceae
<i>Polycarpon tetraphyllum</i>	Four-leaved allseed	Non-native	Caryophyllaceae
<i>Stellaria media</i>	Chickweed	Non-native	Caryophyllaceae
<i>Convolvulus sp.</i>	Bindweed	Non-native	Convolvulaceae
<i>Crassula connata</i>	Pigmy weed	Native	Crassulaceae
<i>Sequoia sempervirens</i>	Redwood	Native	Cupressaceae
<i>Carex obnupta</i>	Slough sedge	Native	Cyperaceae
<i>Carex sp.</i>	Sedge	Native	Cyperaceae
<i>Cyperus eragrostis</i>	Tall flatsedge	Native	Cyperaceae
<i>Polystichum munitum</i>	Western sword fern	Native	Dryopteridaceae
<i>Equisetum arvense</i>	Common horsetail	Native	Equisetaceae
<i>Equisetum telmateia</i>	Great horsetail	Native	Equisetaceae
<i>Acmispon corniculatus</i>	Big trefoil	Non-native	Fabaceae
<i>Fumaria capreolata</i>	White-ramping fumitory	Non-native	Fabaceae
<i>Lathyrus latifolius</i>	Perennial sweet pea	Non-native	Fabaceae
<i>Lupinus bicolor</i>	Miniature lupine	Native	Fabaceae
<i>Lupinus rivularis</i>	Riverbank lupine	Non-native	Fabaceae
<i>Medicago polymorpha</i>	Burr clover	Non-native	Fabaceae
<i>Trifolium arvense</i>	Hare's foot clover	Non-native	Fabaceae
<i>Trifolium dubium</i>	Lesser trefoil	Non-native	Fabaceae
<i>Trifolium repens</i>	White clover	Non-native	Fabaceae
<i>Trifolium subterraneum</i>	Subterranean clover	Non-native	Fabaceae
<i>Vicia hirsuta</i>	Hairy vetch	Non-native	Fabaceae
<i>Vicia sativa</i>	Common vetch	Non-native	Fabaceae
<i>Quercus robur</i>	English oak	Non-native	Fagaceae
<i>Erodium cicutarium</i>	Redstem filaree	Non-native	Geraniaceae
<i>Erodium moschatum</i>	Whitestem filaree	Non-native	Geraniaceae
<i>Geranium dissectum</i>	Cutleaf geranium	Non-native	Geraniaceae
<i>Geranium molle</i>	Dove's foot geranium	Non-native	Geraniaceae
<i>Geranium robertianum</i>	Herb robert	Non-native	Geraniaceae
<i>Escallonia rubra</i>	Red claws	Non-native	Grossulariaceae
<i>Ribes sanguineum</i>	Red flowering currant	Native	Grossulariaceae
<i>Juncus bufonius</i>	Toad rush	Native	Juncaceae
<i>Juncus patens</i>	Spreading rush	Native	Juncaceae
<i>Lavendula stoechas</i>	Spanish lavender	Non-native	Lamiaceae
<i>Mentha pulegium</i>	Pennyroyal	Non-native	Lamiaceae
<i>Prunella vulgaris</i>	Common self-heal	Non-native	Lamiaceae
<i>Linum bienne</i>	Blue flax	Non-native	Linaceae
<i>Claytonia perfoliata</i>	Miner's lettuce	Native	Montiaceae
<i>Eucalyptus globulus</i>	Blue gum	Non-native	Myrtaceae
<i>Epilobium ciliatum</i>	Willowherb	Non-native	Onagraceae
<i>Oxalis articulata</i>	Pink wood sorrel	Non-native	Oxalidaceae
<i>Oxalis corniculata</i>	Creeping wood sorrel	Non-native	Oxalidaceae
<i>Pinus radiata</i>	Monterey pine	Non-native	Pinaceae

Natural Environment Study

Species Name	Common Name	Native	Family
<i>Bellardia trixago</i>	Mediterranean linseed	Non-native	Plantaginaceae
<i>Plantago coronopus</i>	Cutleaf plantago	Non-native	Plantaginaceae
<i>Plantago lanceolata</i>	Ribwort plantain	Non-native	Plantaginaceae
<i>Triphysaria pusilla</i>	Dwarf owl's clover	Native	Plantaginaceae
<i>Agrostis stolonifera</i>	Creeping bentgrass	Non-native	Poaceae
<i>Aira caryophylla</i>	Silver hairgrass	Non-native	Poaceae
<i>Aira praecox</i>	Early hair-grass	Non-native	Poaceae
<i>Anthoxanthum odoratum</i>	Vernal sweet grass	Non-native	Poaceae
<i>Avena barbata</i>	Slender wild oat	Non-native	Poaceae
<i>Briza maxima</i>	Rattlesnake grass	Non-native	Poaceae
<i>Briza minor</i>	Lesser quaking grass	Native	Poaceae
<i>Bromus catharticus</i>	Rescue grass	Non-native	Poaceae
<i>Bromus diandrus</i>	Ripgut brome	Non-native	Poaceae
<i>Bromus hordaceus</i>	Hairy brome	Non-native	Poaceae
<i>Cortaderia jubata</i>	Pampas grass	Non-native	Poaceae
<i>Cynosurus echinatus</i>	Bristly dogstail grass	Non-native	Poaceae
<i>Dactylis glomerata</i>	Orchard grass	Non-native	Poaceae
<i>Festuca arundinacea</i>	Reed fescue	Non-native	Poaceae
<i>Festuca bromoides</i>	Fescue	Non-native	Poaceae
<i>Festuca californica</i>	California fescue	Native	Poaceae
<i>Festuca myuros</i>	Rat-tail fescue	Non-native	Poaceae
<i>Festuca perennis</i>	Italian ryegrass	Non-native	Poaceae
<i>Holcus lanatus</i>	Soft chess	Non-native	Poaceae
<i>Hordeum murinum</i>	Foxtail barley	Non-native	Poaceae
<i>Hordeum sp.</i>	Barley	Non-native	Poaceae
<i>Paspalum sp.</i>	Dallis grass	Non-native	Poaceae
<i>Poa annua</i>	Annual bluegrass	Non-native	Poaceae
<i>Poa pratensis</i>	Kentucky bluegrass	Non-native	Poaceae
<i>Polypogon monspeliensis</i>	Rabbit's foot grass	Non-native	Poaceae
<i>Rumex acetosella</i>	Sheep sorrel	Non-native	Polygonaceae
<i>Rumex crispus</i>	Curly dock	Non-native	Polygonaceae
<i>Rumex occidentalis</i>	Western dock	Native	Polygonaceae
<i>Lysimachia arvensis</i>	Scarlet pimpernel	Non-native	Primulaceae
<i>Ranunculus bulbosus</i>	Bulbous buttercup	Non-native	Ranunculaceae
<i>Ranunculus repens</i>	Buttercup	Non-native	Ranunculaceae
<i>Rhamnus purshiana</i>	Cascara sagrada	Native	Rhamnaceae
<i>Cotoneaster sp.</i>	Cotoneaster	Non-native	Rosaceae
<i>Crataegus monogyna</i>	Common hawthorn	Non-native	Rosaceae
<i>Lyonothamnus floribundus</i>	Catalina ironwood	Non-native	Rosaceae
<i>Malus fusca</i>	Crab apple	Native	Rosaceae
<i>Photinia sp.</i>	Photinia	Non-native	Rosaceae
<i>Prunus avium</i>	Cherry tree	Non-native	Rosaceae
<i>Prunus laurocerasus</i>	Cherry laurel	Non-native	Rosaceae
<i>Prunus sp.</i>	Ornamental plum	Non-native	Rosaceae
<i>Rosa californica</i>	Ornamental rose	Non-native	Rosaceae
<i>Rubus armeniacus</i>	Himalayan blackberry	Non-native	Rosaceae
<i>Rubus parviflorus</i>	Thimbleberry	Native	Rosaceae

Natural Environment Study

Species Name	Common Name	Native	Family
<i>Rubus ursinus</i>	California blackberry	Native	Rosaceae
<i>Sanguisorba minor</i>	Salad burnet	Non-native	Rosaceae
<i>Galium aparine</i>	Cleavers	Non-native	Rubiaceae
<i>Populus trichocarpa</i>	Black cottonwood	Native	Salicaceae
<i>Salix lasiolepis</i>	Arroyo willow	Native	Salicaceae
<i>Acer macrophyllum</i>	Bigleaf maple	Native	Sapindaceae
<i>Scrophularia californica</i>	California figwort	Native	Scrophulariaceae
<i>Urtica dioica</i>	Nettle	Native	Urticaceae

Appendix H - Wildlife Species Observed

Table 13: Wildlife Species Detected During Site Visit on 3/8/2023

Species Name	Common Name	Special Status
Avian Species		
<i>Ardea herodias</i>	Great Blue Heron	MBTA/FGC/SAL
<i>Calypte anna</i>	Anna's Hummingbird	MBTA/FGC
<i>Cathartes aura</i>	Turkey Vulture	MBTA/FGC
<i>Colaptes auratus</i>	Northern Flicker	MBTA/FGC
<i>Corthylio calendula</i>	Ruby-crowned Kinglet	MBTA/FGC
<i>Corvus corax</i>	Common Raven	MBTA/FGC
<i>Haemorhous mexicanus</i>	House Finch	MBTA/FGC
<i>Megaceryle alcyon</i>	Belted Kingfisher	MBTA/FGC
<i>Melospiza melodia</i>	Song Sparrow	MBTA/FGC
<i>Molothrus ater</i>	Brown-headed Cowbird	MBTA/FGC
<i>Passer domesticus</i>	House Sparrow	FGC
<i>Poecile rufescens</i>	Chestnut-backed Chickadee	MBTA/FGC
<i>Setophaga coronata</i>	Yellow-rumped Warbler	MBTA/FGC
<i>Spinus psaltria</i>	Lesser Goldfinch	MBTA/FGC
<i>Streptopelia decaocto</i>	Eurasian Collared Dove	MBTA/FGC
<i>Sturnella neglecta</i>	Western Meadowlark	MBTA/FGC
<i>Sturnus vulgaris</i>	European Starling	FGC
<i>Turdus migratorius</i>	American Robin	MBTA/FGC
<i>Zonotrichia leucophrys</i>	White-crowned Sparrow	MBTA/FGC
Mammal Species		
<i>Odocoileus hemionus</i>	Mule Deer	None
<i>Thomomys bottae</i>	Botta's Pocket Gopher	None
Key: MBTA = federal Migratory Bird Treaty Act FGC = California Fish and Game Code, including the California Migratory Bird Protection Act SAL = CDFW Special Animal List		

Appendix E

Wetland Delineation



Wetland Delineation

12th Street Interchange Modernization Project

City of Fortuna

March 20, 2023



➔ The Power of Commitment

Wetland Delineation 12th Street Interchange Modernization Project

This document has been prepared for:



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March 20, 2023

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Appendix F NRCS Custom Soil Resource Report

1. Introduction

GHD prepared this report to delineate wetlands and Other Waters of the U.S. and/or State and accompanying appendices on behalf of The City of Fortuna, in support of the proposed Highway 101 and 12th Street Interchange Modernization Project (Project) in the City of Fortuna (City), in Humboldt County, California (**Appendix A, Figure 1**). This report supports the Project's environmental documentation, permitting, and construction planning as deemed appropriate. The proposed Project Area includes the proposed construction area and staging areas in the City (**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 City of Fortuna (City) is bisected by US 101, which parallels the Eel River, and separates the Eel River and the Riverwalk Area from the majority of the City. The existing intersection controls, roadway geometry, and the high volumes of local and regional traffic on 12th Street result in poor traffic operations around the interchange. Proposed project components include a 5-leg roundabout on 12th Street at the northbound US 101 ramps, modifications to the northbound US 101 on- and offramps, the realignment of Newburg Road, and widening the highway overcrossing bridge, or a new standalone structure to accommodate non-motorized facilities. The Project would simplify and improve navigation and traffic operations while reducing congestion and minimizing conflicts on 12th Street between Newburg Road and Riverwalk Drive, including the 12th Street/US 101 interchange. The Project would also create a gateway into central Fortuna that incorporates bicycle and pedestrian facilities, landscaping, and wayfinding.

1.2 Project Location

The Project is located in the City of Fortuna in Humboldt County, California, on the Fortuna USGS quadrangle (**Appendix A, Figures 1 and 2**). The Project Area spans both the north-bound and south-bound 12th Street-Highway 101 entrances and exits. The Project Area also includes approximately 870 feet of Newburg Road. The Project is not within the Coastal Zone.

1.3 Summary

GHD conducted the wetland delineation fieldwork on January 26, 2023. The delineation was completed within the Project Area (or Project Study Boundary [PSB]), as shown in **Appendix A, Figure 2**. The PSB is 612,895 ft² (14.1 acres). Based United States Army Corps of Engineers (USACE) parameters for wetlands, which include vegetation, hydric soils, and hydrology, no wetlands are present in the PSB.

Seven locations meeting one or two wetland parameters were investigated with soil pits and data collection; however, no area met all three parameters (**Appendix A, Figure 3; Appendix B**). There are also no waters of the U.S. or State within the PSB. Strongs Creek is southwest of the PSB, and Rohner Creek is north of the PSB; however neither creek is inside the PSB (**Appendix A, Figure 3**).

1.4 Regulatory Background

1.4.1 Federal

Waters of the United States

The Code of Federal Regulations (CFR), 33 CFR § 328.3 states the following:

*(a) **Jurisdictional waters.** For purposes of the Clean Water Act, 33 U.S.C. 1251 et seq. and its implementing regulations, subject to the exclusions in paragraph (b) of this section, the term “waters of the United States” means:*

(1) The territorial seas, and waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including waters which are subject to the ebb and flow of the tide;

(2) Tributaries;

(3) Lakes and ponds, and impoundments of jurisdictional waters; and

(4) Adjacent wetlands.

(b) Non-jurisdictional waters. The following are not “waters of the United States”:

(1) Waters or water features that are not identified in paragraph (a)(1), (2), (3), or (4) of this section;

(2) Groundwater, including groundwater drained through subsurface drainage systems;

(3) Ephemeral features, including ephemeral streams, swales, gullies, rills, and pools;

(4) Diffuse stormwater run-off and directional sheet flow over upland;

(5) Ditches that are not waters identified in paragraph (a)(1) or (2) of this section, and those portions of ditches constructed in waters identified in paragraph (a)(4) of this section that do not satisfy the conditions of paragraph (c)(1) of this section;

(6) Prior converted cropland;

(7) Artificially irrigated areas, including fields flooded for agricultural production, that would revert to upland should application of irrigation water to that area cease;

(8) Artificial lakes and ponds, including water storage reservoirs and farm, irrigation, stock watering, and log cleaning ponds, constructed or excavated in upland or in non-jurisdictional waters, so long as those artificial lakes and ponds are not impoundments of jurisdictional waters that meet the conditions of paragraph (c)(6) of this section;

(9) Water-filled depressions constructed or excavated in upland or in non-jurisdictional waters incidental to mining or construction activity, and pits excavated in upland or in non-jurisdictional waters for the purpose of obtaining fill, sand, or gravel;

(10) Stormwater control features constructed or excavated in upland or in non-jurisdictional waters to convey, treat, infiltrate, or store stormwater run-off;

(11) Groundwater recharge, water reuse, and wastewater recycling structures, including detention, retention, and infiltration basins and ponds, constructed or excavated in upland or in non-jurisdictional waters; and

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

Wetlands Definition

33 CFR § 328.3 states the following:

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

Wetlands Delineation Manual

The 1987 U.S. Army Corps of Engineers (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, USACE 2010).

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).

1.4.2 State

The State Water Resources Control Board’s (SWRCB) April 2021 *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 April 2020 Implementation Guidance for the State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State further clarifies as follows:

Human activity can cause changes to the surrounding landscape (e.g., grading activities, road construction, direct hydromodification) such that wetlands form where wetlands did not previously exist. Where such artificial wetlands are now a relatively permanent part of the natural landscape, and are not subject to ongoing operation and maintenance, they are waters of the state. By requiring that the wetlands are relatively permanent, the framework excludes wetlands that are temporary or transitory. That they are part of the natural landscape also indicates the relative permanence of the wetlands and suggests that the wetland is self-sustaining without ongoing operation and maintenance activities, and provides similar ecosystem services as natural wetlands. By way of example, this category of wetlands includes situations where water flow is permanently redirected as the result of human activity, such as grading in another area, such that new wetlands form in areas that were previously dry. These wetlands may not be natural wetlands because they result from human activity and they were not formed by modifying a water of the state (rather they were an indirect result), but nevertheless they take on the function of natural wetlands such that they should be considered waters of the state. This category would not include artificial wetlands constructed for specific purposes listed in section II.3.d because the construction of the artificial wetlands would be too recent to be deemed “historic” and the artificial wetland would likely require ongoing maintenance such that they would not be deemed “relatively permanent,” and/or the artificial wetland is not part of the “natural landscape” (SWRCB, 2020).

1.4.3 Local Jurisdiction

The PSB is entirely in the jurisdiction of the City of Fortuna General Plan 2030, adopted 2010.

City of Fortuna General Plan 2030

NCR-2.10 Wetland Identification and Protection.

In considering new development projects, the City shall conduct an initial screening, as described in Policy NCR-2.6 in order to determine whether the proposal would have the potential to impact wetlands. If the initial screening indicates the potential presence of wetlands, a wetland assessment/ delineation shall be prepared to determine the presence of jurisdictional wetlands. The assessment/delineation, with proposed mitigation, shall be submitted to the City, and appropriate state (CDF&G) and federal (USCOE) agencies for concurrence prior to permitting. Mitigation may include, but may not be limited to, avoidance, minimization of impacts, restoration, off-site replacement, and/or the use of buffers.

2. Methodology

2.1 Wetland Delineation Approach

GHD environmental scientists conducted the wetland delineation on January 26, 2023. To define a wetland, the USACE requires that vegetation, soil, and hydrology (three-parameters) all show wetland attributes (USACE 1987; USACE 2010). The wetland delineation used USACE criteria from the Regional Supplement to the Corps of Engineers

Wetland Delineation Manual: Western Mountains, Valleys and Coast Region (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 wetland areas, vegetation, soil, and hydrology data were collected in locations most likely to meet all three parameters; i.e. the lowest point of a drainage or locations with hydrophytic vegetation. Data collection points 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.

Each data collection point was designated with "Up" and a number (e.g., Up1, Up2). The sampling points were completed to confirm and document the absence of at least one wetland indicator (soils, hydrology, and/or vegetation). **Appendix B** contains all datasheets recorded during the delineation.

2.2 Vegetation

Vegetation data collection consisted of listing the dominant species in the herbaceous, shrub, vine, 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 wetland 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)

Species that do not appear on the list are considered to be in the upland category (USACE 2010). Standard procedures for documenting hydrophytic vegetation indicators were used per the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Version 2.0) (USACE 2010). 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 Technical Memorandum documents the location and extent of mapped vegetation alliances and Sensitive Natural Communities within the Project Area (GHD 2023).

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 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 2018).

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

2.4 Hydrology

Aerial photography and the National Wetland Inventory Mapper were referenced before conducting fieldwork (**Appendix A, Figure 3**) (NWI 2023). The flood hazard map is also included in **Appendix A, Figure 4** (FEMA 2023). Wetland hydrology indicators, such as drainage patterns, material deposits, soil saturation, high water table, or surface water presence, were recorded in the field. There are no streams or previously mapped aquatic resources within the PSB.

3. Existing Conditions

3.1 Landscape Setting

The PSB is in the Strongs Creek-Eel River watershed which is in the Klamath-Northern California Coastal hydrologic unit. The PSB includes both the northbound and southbound off and on-ramps around the 12th Street interchange on Highway 101 (**Appendix A, Figure 2**). Elevations in the PSB range from 42 to 50 feet above sea level.

The vegetation around the interchange is dominated by non-native annual grasses and forbs, landscaped trees including Monterey pine x knobcone pine hybrids (*Pinus attenuata* x *Pinus radiata*) and redwood (*Sequoia sempervirens*), small stands of willows (*Salix* spp.), alders (*Alnus rubra*), and blackberries (*Rubus* spp.) and large stands of California blackberry (*Rubus ursinus*).

3.2 Climate Conditions

GHD delineated wetlands within the PSB on January 26, 2023. Rainfall for the 2023 water year at the Scotia, California weather station approximately eight miles southeast of the PSB totaled 32.43 inches, which was well above average (25.88 inches) for the end of January (NOAA 2023). Mean annual precipitation in the Project Area ranges from 44 to 48 inches (USDA 2023). A WETS table showing climate data for Scotia, California (8 miles southeast of the PSB) is provided in **Appendix E**.

3.3 Existing Soils Information

The U.S. Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) identifies two soil units within the Project Area (**Appendix A, Figure 5** and NRCS report in **Appendix F**). A brief map unit description, as generated by the NRCS, is provided for each soil unit below (NRCS 2023). Although NRCS soil mapping is informative, the scale is generally too broad to definitively characterize potential wetlands. Please see the full report included as **Appendix F** for complete details.

Urban land-Friendlcity association, 0 to 2 percent slopes

The Urban land-Friendlcity association, 0 to 2 percent slopes map unit composition contains: 65% Urban land, residential, 25% Friendlcity and similar soils, and 10% minor components (consisting of 4% Canalschool, 3% Ferndale, and 3% Carlotta). This soil type comprises 93.5% of the PSB (**Appendix A, Figure 5** and **Appendix F**).

The Urban land-Friendlcity association can be found on alluvial fans and terraces, and the parent material is alluvium derived from metamorphic and sedimentary rock. The Urban land-Friendlcity association consists of silt loam in the top horizon (0-6 inches) above silty clay loam (6-55 inches), and loam on the bottom horizon (55-67 inches). The Urban land-Friendlcity association has a land capability classification (LCC) of 2s without irrigation and 1 with irrigation and is not rated as a hydric soil. The Urban land-Friendlcity association is moderately well drained, and the depth to water table is about 20 to 39 inches.

Ferndale, 0 to 2 percent slopes

The Ferndale, 0 to 2 percent slopes map unit composition contains: 85% Ferndale and similar soils, and 15% minor components (consisting of 4% Swainslough, 4% Worswick, 3% Russ, 2% Arlynda, and 2% Madriver). This soil type comprises 6.5% of the PSB and is located on the northern edge of the PSB (**Appendix A, Figure 5 and Appendix F**).

Ferndale soils can be found on flood-plain steps, and the parent material is alluvium derived from mixed sources. Ferndale soils consists of silt loam in all horizons (0-50 inches) except for fine sandy loam on the bottom horizon (50-60 inches). Ferndale soils has an LCC of 2s without irrigation and 1 with irrigation and is not rated as a hydric soil. Ferndale soils are well drained, and the depth to water table is 48 to 60 inches.

3.4 Known Hydrological Resources

The PSB is between the perennial Strong's Creek to the south, and the perennial Rohner Creek to the north (**Appendix A, Figure 3, NWI 2023**). Neither creek is within the PSB and no other known hydrological resources are present.

4. Results

The PSB does not contain any wetlands meeting all three parameters for hydrophytic vegetation, hydrology, and hydric soils (**Appendix A, Figure 3; Appendix B, Appendix D**). Soil pits data was collected from seven locations with drainage or vegetation indicators. However, all seven locations qualified as uplands.

5. Conclusions

The wetland delineation for the Fortuna 12th Street Interchange Project determined that no wetlands or aquatic resources are present, 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). Given that precipitation at the time of the delineation was well above normal, standing water and other wetland indicators would have been apparent. Data forms are attached showing sample plot data collected in seven upland locations (**Appendix B**).

6. Special Terms and Conditions

6.1 Purpose of this Report

GHD prepared this report for the City of Fortuna. The City of Fortuna may only use and rely on this report for the purpose agreed upon between GHD and the City of Fortuna, 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 City of Fortuna arising in connection with this report. GHD also excludes implied warranties and conditions, to the extent legally permissible.

6.2 Scope and Limitations

This report does not authorize any individuals to develop, fill, or alter the delineated wetlands. Verification of the delineation by jurisdictional agencies is necessary prior to the use of this report for planning and development

purposes. A USACE, 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 January 26, 2023. The opinions, conclusions, and any recommendations in this report are based on conditions encountered and information reviewed by the date of preparation of the report. Site conditions may change after the date of this report. GHD does not accept responsibility arising from, or in connection with, any change to the site conditions. GHD is also not responsible for updating this report if the site conditions change unless contracted to do so.

This report has been prepared by GHD for City of Fortuna and may only be used and relied on by City of Fortuna for the purpose agreed between GHD and City of Fortuna as set out in section 5.1 of this report.

GHD otherwise disclaims responsibility to any person other than City of Fortuna arising in connection with this report. GHD also excludes implied warranties and conditions, to the extent legally permissible.

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

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

The opinions, conclusions and any recommendations in this report are based on assumptions made by GHD described in this report (refer section(s) 5.1 of this report). GHD disclaims liability arising from any of the assumptions being incorrect.

7. References

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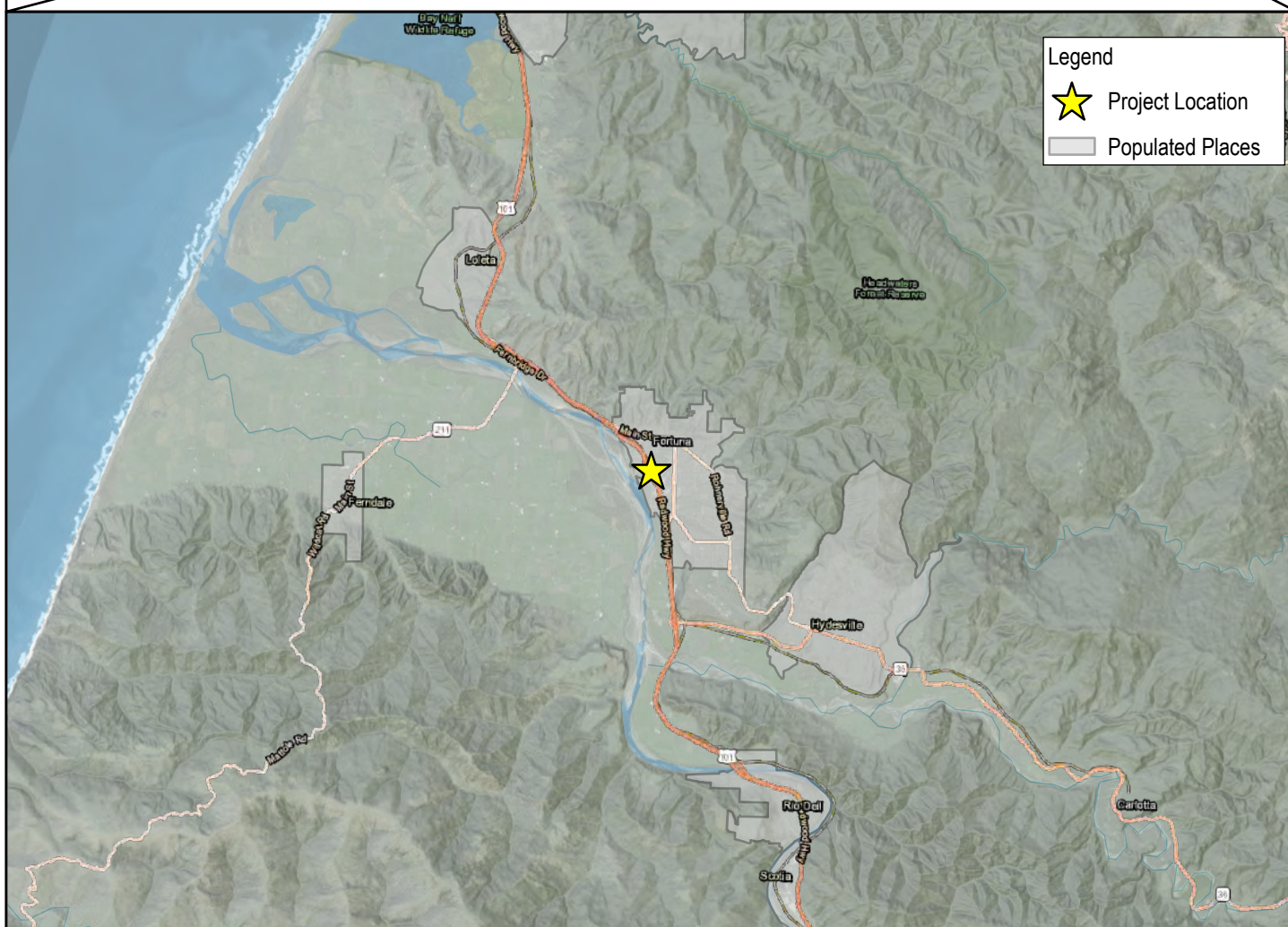
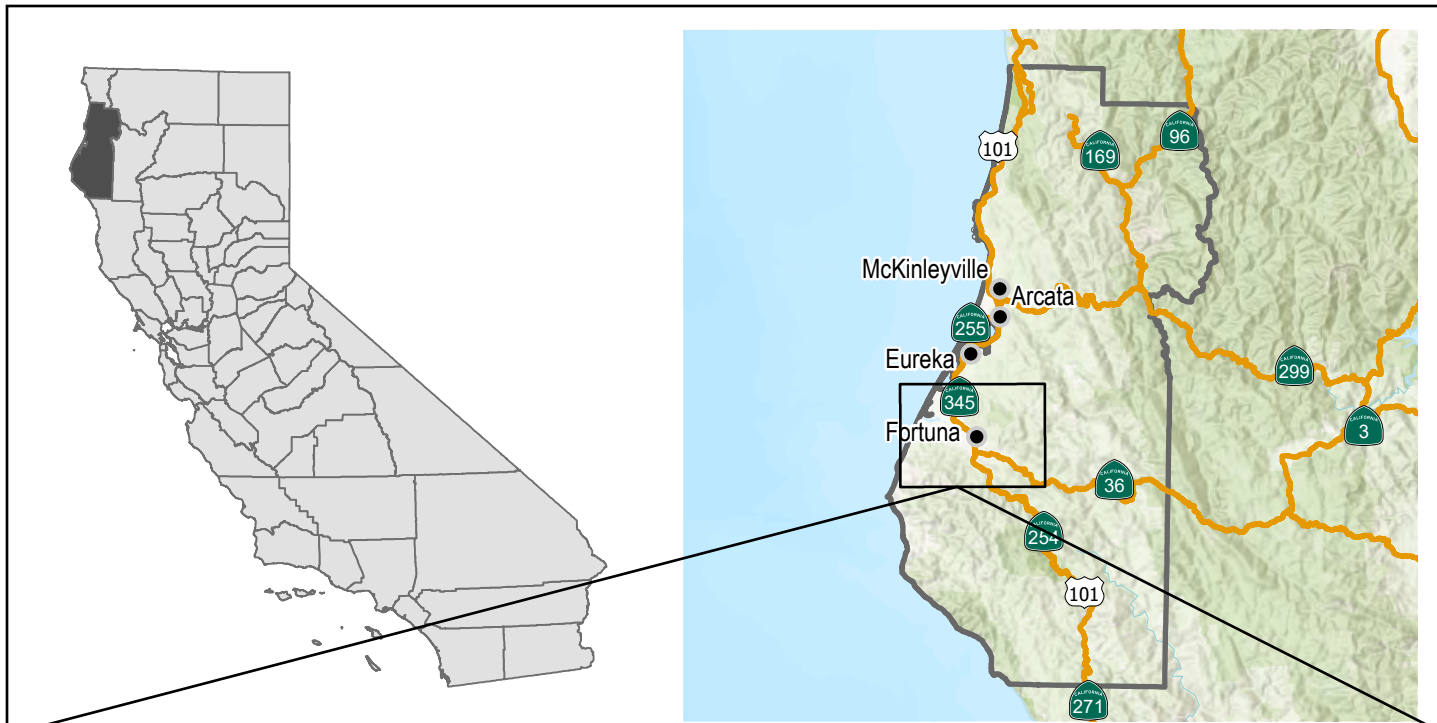
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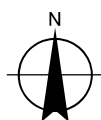
Appendices

Appendix A

Figures



Paper Size ANSI A
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 Miles
 Map Projection: Mercator Auxiliary Sphere
 Horizontal Datum: WGS 1984
 Grid: WGS 1984 Web Mercator Auxiliary Sphere



City of Fortuna
 US 101 & 12th St.
 Interchange

Project No. 12577017
 Revision No. -
 Date Feb 2023

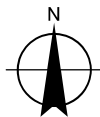
Vicinity Map

FIGURE 1



Paper Size ANSI A
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Feet

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

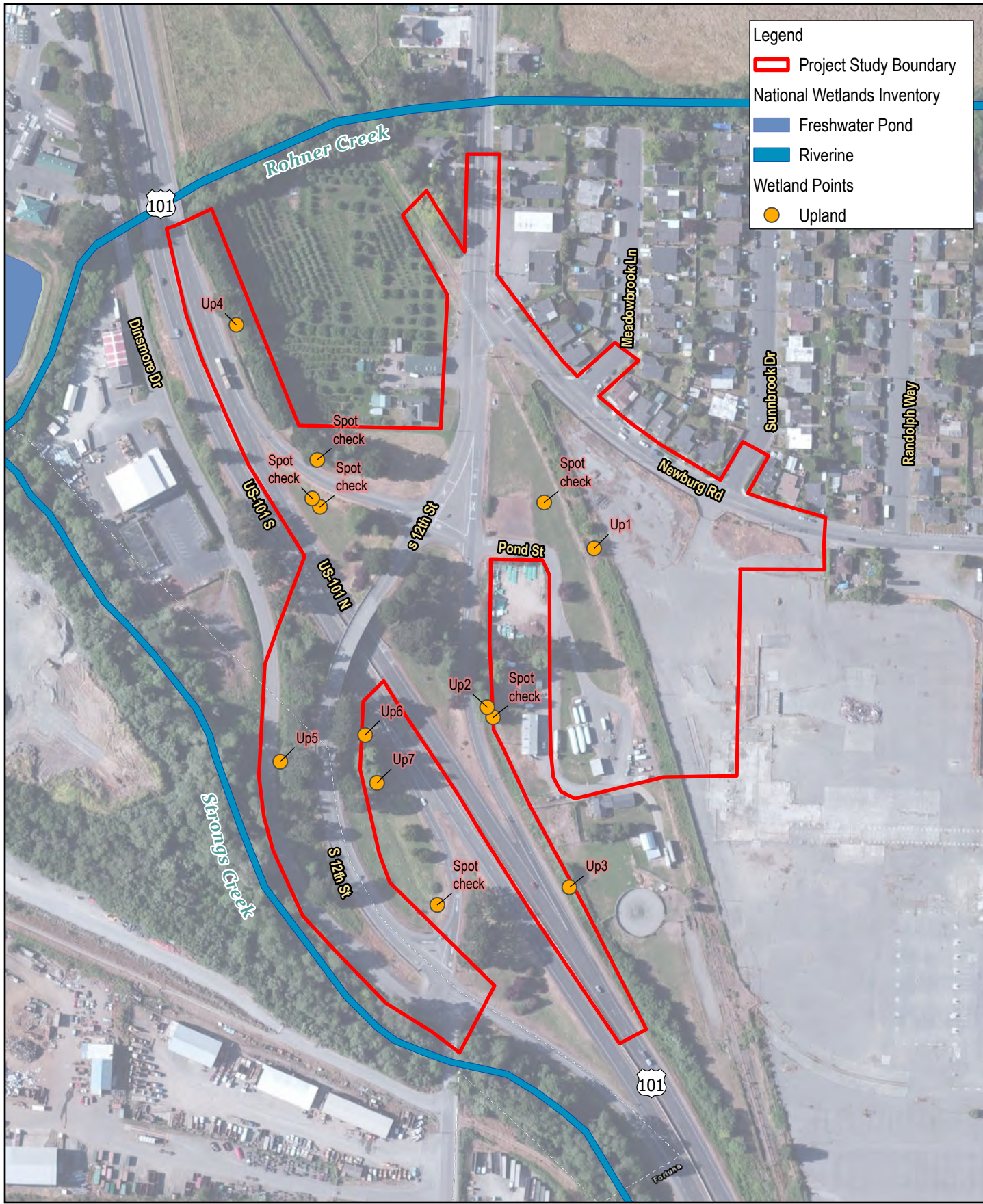


City of Fortuna
US 101 & 12th St.
Interchange

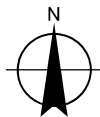
Project No. 12577017
Revision No. -
Date Mar 2023

Project Study Boundary

FIGURE 2



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

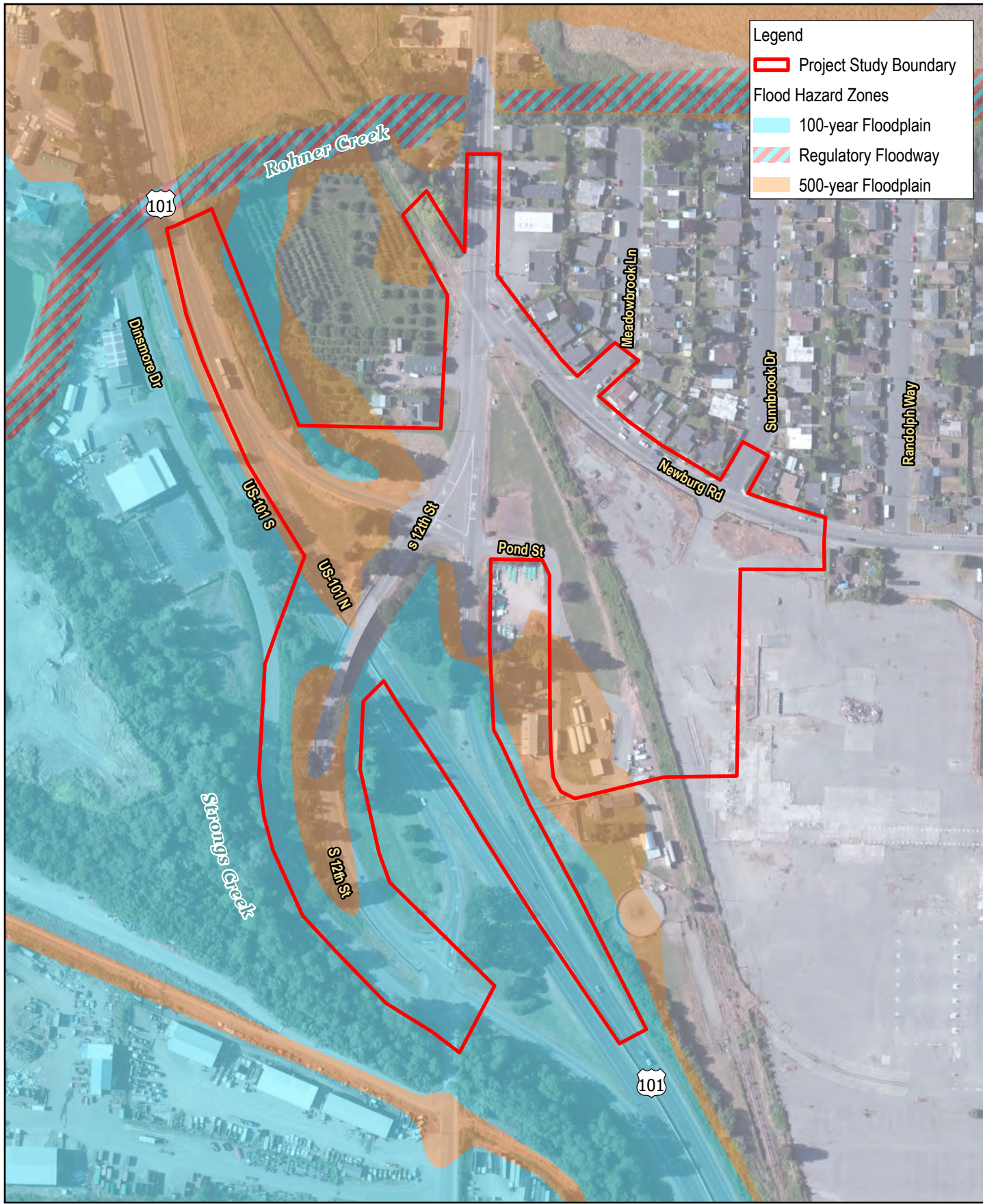


City of Fortuna
US 101 & 12th St.
Interchange

Project No. 12577017
Revision No. -
Date Mar 2023

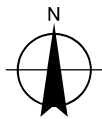
Aquatic Resources

FIGURE 3



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



City of Fortuna
 US 101 & 12th St.
 Interchange

Project No. 12577017
 Revision No. -
 Date Feb 2023

FEMA Floodplains

FIGURE 4



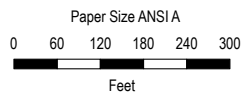
Legend

Project Study Boundary

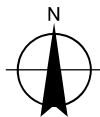
Soil Map Unit

1010- Urban land-
 Friendlycity association,
 0-2% slopes

220- Ferndale, 0-2%
 slopes



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



City of Fortuna
 US 101 & 12th St.
 Interchange

Project No. 12577017
 Revision No. -
 Date Feb 2023

NRCS Soils

FIGURE 5

Appendix B

Data Sheets

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

Project/Site: Fortuna 12th St Interchange City/County: Fortuna/Humboldt Sampling Date: 1/26/23
 Applicant/Owner: City of Fortuna State: CA Sampling Point: UPI
 Investigator(s): Jane Cipra + Kerry McNamee Section, Township, Range: T02 R01W
 Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): shallow cnvx Slope (%): 0
 Subregion (LRR): NW Forests + Coasts A Lat: _____ Long: _____ Datum: _____
 Soil Map Unit Name: Urban land-Friendlcity Association NWI classification: none
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No _____ (If no, explain in Remarks.) 112% of Normal
 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: <u>Soil is hard + gravelly. Shallow depression adjacent to railroad tracks</u>		

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>10 m</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. <u>Pinus sp.</u>	<u>10</u>	<u>yes</u>	<u>FACU</u>	
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata: <u>2</u> (B)
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>0%</u> (A/B)
4. _____	_____	_____	_____	Prevalence Index worksheet:
_____ = Total Cover				
_____ = Total Cover				
_____ = Total Cover				
_____ = Total Cover				
_____ = Total Cover				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 = _____
_____ = Total Cover				
_____ = Total Cover				
_____ = Total Cover				
_____ = Total Cover				
_____ = Total Cover				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.
_____ = Total Cover				
_____ = Total Cover				
_____ = Total Cover				
_____ = Total Cover				
_____ = Total Cover				Hydrophytic Vegetation Present? Yes _____ No ☒
_____ = Total Cover				
Woody Vine Stratum (Plot size: _____) 1. <u>Rubus ursinus</u> <u>30</u> <u>yes</u> <u>FACU</u> 2. <u>Hedera helix</u> <u>2</u> <u>yes</u> <u>FACU</u> _____ = Total Cover				Hydrophytic Vegetation Present? Yes _____ No ☒
% Bare Ground in Herb Stratum _____				
Remarks: <u>Few herbs. Dead litter of fennel + grass present</u>				

Sampling Point

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

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

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

Indicators for Problematic Hydric Soils :

☐ Histosol (A1)	☐ Sandy Redox (S5)	☐ 2 cm Muck (A10)
☐ Histic Epipedon (A2)	☐ Stripped Matrix (S6)	☐ Red Parent Material (TF2)
☐ Black Histic (A3)	☐ Loamy Mucky Mineral (F1) (except MLRA 1)	☐ Very Shallow Dark Surface (TF12)
☐ Hydrogen Sulfide (A4)	☐ Loamy Gleyed Matrix (F2)	☐ Other (Explain in Remarks)
☐ Depleted Below Dark Surface (A11)	☐ Depleted Matrix (F3)	
☐ Thick Dark Surface (A12)	☐ Redox Dark Surface (F6)	
☐ Sandy Mucky Mineral (S1)	☐ Depleted Dark Surface (F7)	
☐ Sandy Gleyed Matrix (S4)	☐ Redox Depressions (F8)	

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): 12

Hydric Soil Present? Yes ☐ No ☒

Remarks.

gravelly, low chroma soil. No redox present.
Likely historic fill material b/c adjacent to RR.

Wetland Hydrology Indicators:

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

Secondary Indicators (2 or more required)

☐ Surface Water (A1)	☐ Water-Stained Leaves (B9) (except	☐ Water-Stained Leaves (B9) (MLRA 1, 2,
☐ High Water Table (A2)	☐ MLRA 1, 2, 4A, and 4B)	☐ 4A, and 4B)
☐ Saturation (A3)	☐ Salt Crust (B11)	☐ Drainage Patterns (B10)
☐ Water Marks (B1)	☐ Aquatic Invertebrates (B13)	☐ Dry-Season Water Table (C2)
☐ Sediment Deposits (B2)	☐ Hydrogen Sulfide Odor (C1)	☐ Saturation Visible on Aerial Imagery (C9)
☐ Drift Deposits (B3)	☐ Oxidized Rhizospheres along Living Roots (C3)	☒ Geomorphic Position (D2)
☐ Algal Mat or Crust (B4)	☐ Presence of Reduced Iron (C4)	☐ Shallow Aquitard (D3)
☐ Iron Deposits (B5)	☐ Recent Iron Reduction in Tilled Soils (C6)	☐ FAC-Neutral Test (D5)
☐ Surface Soil Cracks (B6)	☐ Stunted or Stressed Plants (D1) (LRR A)	☐ Raised Ant Mounds (D6) (LRR A)
☐ Inundation Visible on Aerial Imagery (B7)	☐ Other (Explain in Remarks)	☐ Frost-Heave Hummocks (D7)
☐ Sparsely Vegetated Concave Surface (B8)		

Field Observations:

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

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

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

Wetland Hydrology Present? Yes _____ No X

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

Remarks:

In depression adjacent to RR. NO hydrologic indicators (except for geomorphic position)

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

Project/Site: Fortuna 12th St Interchange City/County: Fortuna / Humboldt Sampling Date: 1/26/23
 Applicant/Owner: City of Fortuna State: CA Sampling Point: LP2
 Investigator(s): Jane Cipra + Kerry McNamee Section, Township, Range: T02 R01W
 Landform (hillslope, terrace, etc.): Ditch Local relief (concave, convex, none): convex Slope (%): 3%
 Subregion (LRR): NW Forests + Coasts A Lat: _____ Long: _____ Datum: _____
 Soil Map Unit Name: Urban land-Friendly City Association NWI classification: none
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No _____ (If no, explain in Remarks.) 112% of Normal
 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: <u>Ditch with concrete culvert going under highway. Covered in ivy.</u>		

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>10 m</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>0%</u> (A/B)
1. <u>Sequoia sempervirens</u>	<u>30</u>	<u>yes</u>	<u>UPL</u>	
2. <u>Prunus sp.</u>	<u>10</u>		<u>FACU</u>	
3. _____				
4. _____				
_____ = Total Cover				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 = _____
Sapling/Shrub Stratum (Plot size: _____)				
1. _____				
2. _____				
3. _____				
4. _____				
5. _____				
_____ = Total Cover				
Herb Stratum (Plot size: <u>1 m</u>)				
1. <u>Cyperus eragrostis</u>	<u>2</u>		<u>OBL</u>	
2. _____				
3. _____				
4. _____				
5. _____				
6. _____				
7. _____				
8. _____				
9. _____				
10. _____				
11. _____				
_____ = Total Cover				
Woody Vine Stratum (Plot size: <u>5 m</u>)				
1. <u>Hedera helix</u>	<u>40</u>	<u>yes</u>	<u>FACU</u>	
2. <u>Rubus ursinus</u>	<u>5</u>			
_____ = Total Cover				
% Bare Ground in Herb Stratum _____				
Remarks:				

Hydrophytic Vegetation Present? Yes _____ No ☒

Sampling Point: Up-2

[illegible]²Location: PL=Pore Lining, M=Matrix.

Indicators for Problematic Hydric Soils³:

- | | | |
|--|---|---|
| ☐ Histosol (A1) | ☐ Sandy Redox (S5) | ☐ 2 cm Muck (A10) |
| ☐ Histic Epipedon (A2) | ☐ Stripped Matrix (S6) | ☐ Red Parent Material (TF2) |
| ☐ Black Histic (A3) | ☐ Loamy Mucky Mineral (F1) (except MLRA 1) | ☐ Very Shallow Dark Surface (TF12) |
| ☐ Hydrogen Sulfide (A4) | ☐ Loamy Gleyed Matrix (F2) | ☐ Other (Explain in Remarks) |
| ☐ Depleted Below Dark Surface (A11) | ☐ Depleted Matrx (F3) | |
| ☐ Thick Dark Surface (A12) | ☐ Redox Dark Surface (F6) | |
| ☐ Sandy Mucky Mineral (S1) | ☐ Depleted Dark Surface (F7) | |
| ☐ Sandy Gleyed Matrix (S4) | ☐ Redox Depressions (F8) | |
- ³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Hydric Soil Present? Yes _____ No ☒

Sticky, low chroma soil. High plasticity. No redox

Wetland Hydrology Indicators:		
<u>Primary Indicators (minimum of one required, check all that apply)</u>		<u>Secondary Indicators (2 or more required)</u>
☐ Surface Water (A1)	☐ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)	☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
☐ High Water Table (A2)	☐ Salt Crust (B11)	☒ Drainage Patterns (B10)
☐ Saturation (A3)	☐ Aquatic Invertebrates (B13)	☐ Dry-Season Water Table (C2)
☐ Water Marks (B1)	☐ Hydrogen Sulfide Odor (C1)	☐ Saturation Visible on Aerial Imagery (C9)
☐ Sediment Deposits (B2)	☐ Oxidized Rhizospheres along Living Roots (C3)	☒ Geomorphic Position (D2)
☐ Drift Deposits (B3)	☐ Presence of Reduced Iron (C4)	☐ Shallow Aquitard (D3)
☐ Algal Mat or Crust (B4)	☐ Recent Iron Reduction in Tilled Soils (C6)	☐ FAC-Neutral Test (D5)
☐ Iron Deposits (B5)	☐ Stunted or Stressed Plants (D1) (LRR A)	☐ Raised Ant Mounds (D6) (LRR A)
☐ Surface Soil Cracks (B6)	☐ Other (Explain in Remarks)	☐ Frost-Heave Hummocks (D7)
☐ Inundation Visible on Aerial Imagery (B7)		
☐ Sparsely Vegetated Concave Surface (B8)		
Field Observations:		
Surface Water Present?	Yes ☐ No ☒ Depth (inches): _____	
Water Table Present?	Yes ☐ No ☒ Depth (inches): _____	
Saturation Present?	Yes ☐ No ☒ Depth (inches): _____	
(includes capillary fringe)		
		Wetland Hydrology Present? Yes ☒ No ☐
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available		

in depression adjacent to roadside. Datapoint collected near
culvert. Drains adjacent uplands + road.

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

Project/Site: Fortuna 12th St Interchange City/County: Fortuna/Humboldt Sampling Date: 1/26/23
 Applicant/Owner: City of Fortuna State: CA Sampling Point: UP3
 Investigator(s): Jane Cipra + Kerry McNamee Section, Township, Range: T02 R01W
 Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): _____ Slope (%): _____
 Subregion (LRR): NW Forests + Coasts A Lat: _____ Long: _____ Datum: _____
 Soil Map Unit Name: Urban land - Friendly City Association NWI classification: none
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No _____ (If no, explain in Remarks.) 112% of Normal
 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: <u>Roadside ditch with willows,</u>		

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across All Strata: <u>4</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>50%</u> (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 = _____
1. <u>Salix hookerii</u>	<u>20</u>	<u>yes</u>	<u>FACW</u>	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
_____ = Total Cover				
Sapling/Shrub Stratum (Plot size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
_____ = Total Cover				
Herb Stratum (Plot size: _____)				
1. <u>Daucus carotta</u>	<u>7</u>	<u>yes</u>	<u>FACU</u>	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
_____ = Total Cover				
Woody Vine Stratum (Plot size: <u>5 m</u>)				
1. <u>Rubus armeniacus</u>	<u>5</u>	<u>yes</u>	<u>FAC</u>	
2. <u>Hedera helix</u>	<u>10</u>	<u>yes</u>	<u>FACU</u>	
_____ = Total Cover				
% Bare Ground in Herb Stratum _____				
Remarks:				Hydrophytic Vegetation Present? Yes _____ No ☒

Sampling Point:

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

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

Indicators for Problematic Hydric Soils³:

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

Hydric Soil Present? Yes _____ No ☒

Western Mountains, Valleys, and Coast – Version 2.0

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

Project/Site: Fortuna 12th St Interchange City/County: Fortuna / Humboldt Sampling Date: 1/26/23
 Applicant/Owner: City of Fortuna State: CA Sampling Point: UP4
 Investigator(s): Jane Cipra + Kerry McNamee Section, Township, Range: T02 R01W
 Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): _____ Slope (%): _____
 Subregion (LRR): NW Forests + Coasts A Lat: _____ Long: _____ Datum: _____
 Soil Map Unit Name: Urban land - Friendcity Association NWI classification: none
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No _____ (If no, explain in Remarks.) 112% of Normal
 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: <u>Roadside ditch with no water. Only one clump of Juncus is present.</u>		

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>50%</u> (A/B)
1. _____				
2. _____				
3. _____				
4. _____				
_____ = Total Cover				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 = _____
Sapling/Shrub Stratum (Plot size: _____)				
1. _____				
2. _____				
3. _____				
4. _____				
5. _____				
_____ = Total Cover				Hydrophytic Vegetation Indicators: ___ 1 - Rapid Test for Hydrophytic Vegetation ___ 2 - Dominance Test is >50% ___ 3 - Prevalence Index is ≤3.0' ___ 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.
Herb Stratum (Plot size: <u>1m</u>)				
1. <u>Juncus effusus</u>	<u>50</u>	<u>yes</u>	<u>FACW</u>	
2. <u>Dipsacus fullonum</u>	<u>2</u>	<u>no</u>	<u>FAC</u>	
3. <u>Equisetum telmateia (dead)</u>	<u>1</u>		<u>FACW</u>	
4. _____				
5. _____				
6. _____				
7. _____				
8. _____				
9. _____				
10. _____				
11. _____				
_____ = Total Cover				
Woody Vine Stratum (Plot size: <u>5m</u>)				Hydrophytic Vegetation Present? Yes _____ No ☒
1. <u>Rubus ursinus</u>	<u>20</u>	<u>yes</u>	<u>FACU</u>	
2. <u>Rubus armeniacus</u>	<u>1</u>	<u>no</u>	<u>FAC</u>	
_____ = Total Cover				
% Bare Ground in Herb Stratum _____				
Remarks: <u>Only one clump of Juncus is present in entire ditch. Plot was placed to include it.</u>				

Sampling Point: UP-4

[illegible]

Indicators for Problematic Hydric Soils³:

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

Hydric Soil Present? Yes ☐ No ☒

marks: Top horizon contained gravel; soil in both horizons sticky w/ high plasticity. No redox. Negative alpha alpha

Secondary Indicators (2 or more required)

Wetland Hydrology Present? Yes ☒ No ☐

Roadside drainage ditch

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

Project/Site: Fortuna 12th St Interchange City/County: Fortuna / Humboldt Sampling Date: 1/26/23
 Applicant/Owner: City of Fortuna State: CA Sampling Point: UP5
 Investigator(s): Jane Cipra + Kerry McNamee Section, Township, Range: T02 R01W
 Landform (hillslope, terrace, etc.): Ditch Local relief (concave, convex, none): concave Slope (%): 0
 Subregion (LRR): NW Forests + Coasts A Lat: _____ Long: _____ Datum: _____
 Soil Map Unit Name: Urban land - Friendcity Association NWI classification: none
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No _____ (If no, explain in Remarks.) 112% of Normal
 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: <u>Ditch in front of culvert, well drained</u>		

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>50%</u> (A/B)
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
_____ = Total Cover				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 = _____
Sapling/Shrub Stratum (Plot size: _____)	_____	_____	_____	
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
_____ = Total Cover				Hydrophytic Vegetation Indicators: ___ 1 - Rapid Test for Hydrophytic Vegetation ___ 2 - Dominance Test is >50% ___ 3 - Prevalence Index is ≤3.0' ___ 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.
Herb Stratum (Plot size: <u>1 m</u>)	_____	_____	_____	
1. <u>Agrostis stolonifera</u>	<u>15</u>	<u>yes</u>	<u>FAC</u>	
2. <u>Cyperus eragrostis</u>	<u>1</u>	<u>yes</u>	<u>OBL</u>	
3. <u>Alum. triguttellum</u>	<u>1</u>	<u>yes</u>	<u>UPL</u>	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
_____ = Total Cover				Hydrophytic Vegetation Present? Yes _____ No ☒
Woody Vine Stratum (Plot size: _____)	_____	_____	_____	
1. <u>Rubus ursinus</u>	<u>30</u>	<u>yes</u>	<u>FACU</u>	
2. _____	_____	_____	_____	
_____ = Total Cover				
% Bare Ground in Herb Stratum <u>83</u>	_____ = Total Cover			
Remarks:				

SOIL

Sampling Point: Up-5

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-14	10YR 3/1	100					silty clay loam	

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

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

Indicators for Problematic Hydric Soils³:

- | | | |
|--|---|---|
| ☐ Histosol (A1) | ☐ Sandy Redox (S5) | ☐ 2 cm Muck (A10) |
| ☐ Histic Epipedon (A2) | ☐ Stripped Matrix (S6) | ☐ Red Parent Material (TF2) |
| ☐ Black Histic (A3) | ☐ Loamy Mucky Mineral (F1) (except MLRA 1) | ☐ Very Shallow Dark Surface (TF12) |
| ☐ Hydrogen Sulfide (A4) | ☐ Loamy Gleyed Matrix (F2) | ☐ Other (Explain in Remarks) |
| ☐ Depleted Below Dark Surface (A11) | ☐ Depleted Matrix (F3) | |
| ☐ Thick Dark Surface (A12) | ☐ Redox Dark Surface (F6) | |
| ☐ Sandy Mucky Mineral (S1) | ☐ Depleted Dark Surface (F7) | |
| ☐ Sandy Gleyed Matrix (S4) | ☐ Redox Depressions (F8) | |

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

No redox present. Dark, low chroma soil.

HYDROLOGY

Wetland Hydrology Indicators:

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

Secondary Indicators (2 or more required)

- | | | |
|--|---|--|
| ☐ Surface Water (A1) | ☐ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B) | ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) |
| ☐ High Water Table (A2) | ☐ Salt Crust (B11) | ☒ Drainage Patterns (B10) |
| ☐ Saturation (A3) | ☐ Aquatic Invertebrates (B13) | ☐ Dry-Season Water Table (C2) |
| ☐ Water Marks (B1) | ☐ Hydrogen Sulfide Odor (C1) | ☐ Saturation Visible on Aerial Imagery (C9) |
| ☐ Sediment Deposits (B2) | ☐ Oxidized Rhizospheres along Living Roots (C3) | ☒ Geomorphic Position (D2) |
| ☐ Drift Deposits (B3) | ☐ Presence of Reduced Iron (C4) | ☐ Shallow Aquitard (D3) |
| ☐ Algal Mat or Crust (B4) | ☐ Recent Iron Reduction in Tilled Soils (C6) | ☐ FAC-Neutral Test (D5) |
| ☐ Iron Deposits (B5) | ☐ Stunted or Stressed Plants (D1) (LRR A) | ☐ Raised Ant Mounds (D6) (LRR A) |
| ☐ Surface Soil Cracks (B6) | ☐ Other (Explain in Remarks) | ☐ Frost-Heave Hummocks (D7) |
| ☐ Inundation Visible on Aerial Imagery (B7) | | |
| ☐ Sparsely Vegetated Concave Surface (B8) | | |

Field Observations:

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

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

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

Wetland Hydrology Present? Yes X No _____

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

Remarks:

Located at the outlet of a culvert.

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

Project/Site: Fortuna 12th St Interchange City/County: Fortuna / Humboldt Sampling Date: 1/26/23
 Applicant/Owner: City of Fortuna State: CA Sampling Point: UP6
 Investigator(s): Jane Cipra + Kerry McNamee Section, Township, Range: T02 R01W
 Landform (hillslope, terrace, etc.): Swale Local relief (concave, convex, none): concave Slope (%): 0%
 Subregion (LRR): NW Forests + Coasts A Lat: _____ Long: _____ Datum: _____
 Soil Map Unit Name: Urban land - Friendly City Association NWI classification: none
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No _____ (If no, explain in Remarks.) 112% of Normal
 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: <u>Boulder filled swale constructed for drainage to culvert</u>		

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: <u>10 m</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>50%</u> (A/B)	
1. <u>Scirpus sempervirens</u>	<u>10</u>	<u>yes</u>	<u>UPL</u>		
2. _____	_____	_____	_____		
3. _____	_____	_____	_____		
4. _____	_____	_____	_____		
= Total Cover				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 = _____	
Sapling/Shrub Stratum (Plot size: <u>5 m</u>)					
1. <u>Scirpus sempervirens</u>	<u>1</u>	_____	<u>UPL</u>		
2. <u>Salix lasioides</u>	<u>5</u>	<u>yes</u>	<u>FACW</u>		
3. <u>Baccharis pilularis</u>	_____	_____	_____		
= Total Cover					
Herb Stratum (Plot size: <u>1 m</u>)				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.	
1. <u>Juncus effusus</u>	<u>2</u>	_____	<u>FACW</u>		
2. <u>Festuca arundinacea</u>	<u>1</u>	_____	<u>FAC</u>		
3. <u>Plantago lanceolata</u>	<u>1</u>	_____	_____		
4. _____	_____	_____	_____		
5. _____	_____	_____	_____		
6. _____	_____	_____	_____		
7. _____	_____	_____	_____		
8. _____	_____	_____	_____		
9. _____	_____	_____	_____		
= Total Cover					
Woody Vine Stratum (Plot size: _____)				Hydrophytic Vegetation Present? Yes _____ No ☒	
1. <u>Rubus ursinus</u>	<u>1</u>	_____	<u>FACU</u>		
2. _____	_____	_____	_____		
= Total Cover					
% Bare Ground in Herb Stratum <u>96</u>					
Remarks: <u>Sparsely vegetated swale filled with stones + boulders.</u>					

Sampling Point: UD-60

[illegible]

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

Indicators for Problematic Hydric Soils³:

- | | | |
|--|---|---|
| ☐ Histosol (A1) | ☐ Sandy Redox (S5) | ☐ 2 cm Muck (A10) |
| ☐ Histic Epipedon (A2) | ☐ Stripped Matrix (S6) | ☐ Red Parent Material (TF2) |
| ☐ Black Histic (A3) | ☐ Loamy Mucky Mineral (F1) (except MLRA 1) | ☐ Very Shallow Dark Surface (TF12) |
| ☐ Hydrogen Sulfide (A4) | ☐ Loamy Gleyed Matrix (F2) | ☐ Other (Explain in Remarks) |
| ☐ Depleted Below Dark Surface (A11) | ☐ Depleted Matrix (F3) | |
| ☐ Thick Dark Surface (A12) | ☐ Redox Dark Surface (F6) | |
| ☐ Sandy Mucky Mineral (S1) | ☐ Depleted Dark Surface (F7) | |
| ☐ Sandy Gleyed Matrix (S4) | ☐ Redox Depressions (F8) | |
- ³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

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

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes No

No redox present. Boulders located w/in swale. Soil lower horizon contained higher clay content.

Wetland Hydrology Indicators:

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

Secondary Indicators (2 or more required)

- | | | |
|--|--|--|
| ☐ Surface Water (A1) | ☐ Water-Stained Leaves (B9) (except | ☐ Water-Stained Leaves (B9) (MLRA 1, 2, |
| ☐ High Water Table (A2) | ☐ MLRA 1, 2, 4A, and 4B) | ☐ 4A, and 4B) |
| ☐ Saturation (A3) | ☐ Salt Crust (B11) | ☒ Drainage Patterns (B10) |
| ☐ Water Marks (B1) | ☐ Aquatic Invertebrates (B13) | ☐ Dry-Season Water Table (C2) |
| ☐ Sediment Deposits (B2) | ☐ Hydrogen Sulfide Odor (C1) | ☐ Saturation Visible on Aerial Imagery (C9) |
| ☐ Drift Deposits (B3) | ☐ Oxidized Rhizospheres along Living Roots (C3) | ☒ Geomorphic Position (D2) |
| ☐ Algal Mat or Crust (B4) | ☐ Presence of Reduced Iron (C4) | ☐ Shallow Aquitard (D3) |
| ☐ Iron Deposits (B5) | ☐ Recent Iron Reduction in Tilled Soils (C6) | ☐ FAC-Neutral Test (D5) |
| ☐ Surface Soil Cracks (B6) | ☐ Stunted or Stressed Plants (D1) (LRR A) | ☐ Raised Ant Mounds (D6) (LRR A) |
| ☐ Inundation Visible on Aerial Imagery (B7) | ☐ Other (Explain in Remarks) | ☐ Frost-Heave Hummocks (D7) |
| ☐ Sparsely Vegetated Concave Surface (B8) | | |

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

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

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

Wetland Hydrology Present? Yes X No

Remarks

Located within a drainage swale at the outlet of a culvert

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

Project/Site: Fortuna 12th St Interchange City/County: Fortuna / Humboldt Sampling Date: 1/26/23
 Applicant/Owner: City of Fortuna State: CA Sampling Point: UP7
 Investigator(s): Jane Cipra + Kerry McNamee Section, Township, Range: T02 R01W
 Landform (hillslope, terrace, etc.): Ditch Local relief (concave, convex, none): concave Slope (%): 0%
 Subregion (LRR): NW Forests + Coasts A Lat: _____ Long: _____ Datum: _____
 Soil Map Unit Name: Urban land-Friendlycity Association NWI classification: none
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No _____ (If no, explain in Remarks.) 112% of Normal
 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: <u>Relatively new ditch dug between two culverts, small algal crust present.</u>		

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: <u>10 m</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>0%</u> (A/B)
1. <u>Sequoia sempervirens</u>	<u>50</u>	<u>yes</u>	<u>UPL</u>	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
_____ = Total Cover	_____	_____	_____	
Sapling/Shrub Stratum (Plot size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
_____ = Total Cover	_____	_____	_____	
Herb Stratum (Plot size: <u>1 m</u>)				Hydrophytic Vegetation Indicators: 1 - Rapid Test for Hydrophytic Vegetation 2 - Dominance Test is >50% 3 - Prevalence Index is ≤3.0' 4 - Morphological Adaptations' (Provide supporting data in Remarks or on a separate sheet) 5 - Wetland Non-Vascular Plants' Problematic Hydrophytic Vegetation' (Explain) 'Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic
1. <u>Cyperus eragrostis</u>	<u>3</u>	_____	<u>OBL</u>	
2. <u>Allium triquetellum</u>	<u>2</u>	_____	<u>UPL</u>	
3. <u>Helminthotheca echioides</u>	<u>1</u>	_____	<u>FAC</u>	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	Hydrophytic Vegetation Present? Yes _____ No _____
Woody Vine Stratum (Plot size: <u>5 m</u>)				
1. <u>Hedera helix</u>	<u>10</u>	<u>yes</u>	<u>FACU</u>	
2. <u>Rubus ursinus</u>	<u>3</u>	_____	<u>FACU</u>	
_____ = Total Cover	<u>13</u>	_____	_____	
% Bare Ground in Herb Stratum <u>94</u>				
Remarks: <u>Sparsely vegetated ditch, appears to have been dug within the last few years.</u>				

SOIL

Sampling Point:

Up-7

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-4	10YR 3/2	100					Setty clay	
4-14	10YR 4/1	98%	10YR 5/8	2%	C	M	clay loam	

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

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

Indicators for Problematic Hydric Soils³:

- | | | |
|--|---|---|
| ☐ Histosol (A1) | ☐ Sandy Redox (S5) | ☐ 2 cm Muck (A10) |
| ☐ Histic Epipedon (A2) | ☐ Stripped Matrix (S6) | ☐ Red Parent Material (TF2) |
| ☐ Black Histic (A3) | ☐ Loamy Mucky Mineral (F1) (except MLRA 1) | ☐ Very Shallow Dark Surface (TF12) |
| ☐ Hydrogen Sulfide (A4) | ☐ Loamy Gleyed Matrix (F2) | ☐ Other (Explain in Remarks) |
| ☐ Depleted Below Dark Surface (A11) | ☒ Depleted Matrix (F3) | |
| ☐ Thick Dark Surface (A12) | ☐ Redox Dark Surface (F6) | |
| ☐ Sandy Mucky Mineral (S1) | ☐ Depleted Dark Surface (F7) | |
| ☐ Sandy Gleyed Matrix (S4) | ☐ Redox Depressions (F8) | |

³Indicators 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:

Soil was smooth w/ moderately high plasticity. Redox present in lower horizon.

HYDROLOGY

Wetland Hydrology Indicators:

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

Secondary Indicators (2 or more required)

- | | | |
|--|---|--|
| ☐ Surface Water (A1) | ☐ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B) | ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) |
| ☐ High Water Table (A2) | ☐ Salt Crust (B11) | ☒ Drainage Patterns (B10) |
| ☐ Saturation (A3) | ☐ Aquatic Invertebrates (B13) | ☐ Dry-Season Water Table (C2) |
| ☐ Water Marks (B1) | ☐ Hydrogen Sulfide Odor (C1) | ☐ Saturation Visible on Aerial Imagery (C9) |
| ☐ Sediment Deposits (B2) | ☐ Oxidized Rhizospheres along Living Roots (C3) | ☒ Geomorphic Position (D2) |
| ☐ Drift Deposits (B3) | ☐ Presence of Reduced Iron (C4) | ☐ Shallow Aquitard (D3) |
| ☐ Algal Mat or Crust (B4) | ☐ Recent Iron Reduction in Tilled Soils (C6) | ☐ FAC-Neutral Test (D5) |
| ☐ Iron Deposits (B5) | ☐ Stunted or Stressed Plants (D1) (LRR A) | ☐ Raised Ant Mounds (D6) (LRR A) |
| ☐ Surface Soil Cracks (B6) | ☐ Other (Explain in Remarks) | ☐ Frost-Heave Hummocks (D7) |
| ☐ Inundation Visible on Aerial Imagery (B7) | | |
| ☐ Sparsely Vegetated Concave Surface (B8) | | |

Field Observations:

Surface Water Present? Yes ☐ No ☐ Depth (inches): _____Water Table Present? Yes ☐ No ☐ Depth (inches): _____Saturation Present? Yes ☐ No ☐ Depth (inches): _____
(includes capillary fringe)Wetland Hydrology Present? Yes ☒ No ☐

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

Remarks:

Located w/in drainage swale between two culverts
 Ditch appears to have been dug out recently - the sides are steep which are unlikely to form naturally due to high clay content in soil.

Appendix C

On-site Plant List

Scientific Name	Common Name	Status	Family	Status
<i>Allium triquetum</i>	three-cornered garlic	Non-native	Amaryllidaceae	UPL
<i>Daucus carota</i>	wild carrot	Native	Apiaceae	FACU
<i>Hedera helix</i>	English ivy	Non-native	Araliaceae	FACU
<i>Baccharis pilularis</i>	coyote brush	Native	Asteraceae	UPL
<i>Helminthotheca echioides</i>	prickly oxtongue	Non-native	Asteraceae	FAC
<i>Hypochaeris radicata</i>	rough cat's ear	Non-native	Asteraceae	FACU
<i>Sonchus oleraceus</i>	prickly lettuce	Non-native	Asteraceae	UPL
<i>Alnus rubra</i>	red alder	Native	Betulaceae	FAC
<i>Raphanus raphanistrum</i>	wild radish	Non-native	Brassicaceae	
<i>Dipsacus fullonum</i>	wild teasel	Non-native	Caprifoliaceae	FAC
<i>Cerastium glomeratum</i>	sticky mouse-ear chickweed	Non-native	Caryophyllaceae	FACU
<i>Sequoia sempervirens</i>	coast redwood	Native	Cupressaceae	UPL
<i>Cyperus eragrostis</i>	tall flatsedge	Native	Cyperaceae	FACW
<i>Equisetum telmateia</i>	great horsetail	Native	Equisetaceae	FACW
<i>Juncus effusus</i>	soft rush	Native	Juncaceae	FACW
<i>Pinus radiata</i> x <i>P. attenuata</i>	Monterey pine – knobcone hybrid	Non-native	Pinaceae	UPL
<i>Agrostis stolonifera</i>	creeping bentgrass	Non-native	Poaceae	FAC
<i>Festuca arundinacea</i>	tall fescue	Non-native	Poaceae	FAC
<i>Prunus</i> sp.	plum tree	Non-native	Rosaceae	
<i>Rubus armeniacus</i>	Himalayan blackberry	Non-native	Rosaceae	FAC
<i>Rubus ursinus</i>	California blackberry	Native	Rosaceae	FACU
<i>Salix hookeriana</i>	Hooker's willow	Native	Salicaceae	FACW
<i>Salix lasiolepis</i>	Arroyo willow	Native	Salicaceae	FACW

Appendix D

Site Photographs

1300–1398 Newburg Rd Fortuna CA

☉ 346°N (T) ● 40°35'19"N, 124°9'11"W ±13ft ▲ 49ft



Uplands
GHD

Fortuna 12th Street
26 Jan 2023, 08:58:37

Photo 1. Paved area south of Newburg Road and east of the railroad tracks.

100 Pond St Fortuna CA

☀ 0°N (T) ☉ 40°35'14"N, 124°9'13"W ±29ft ▲ 51ft



Photo 2. Mowed lawn with drainage grate at 100 Pond Street.

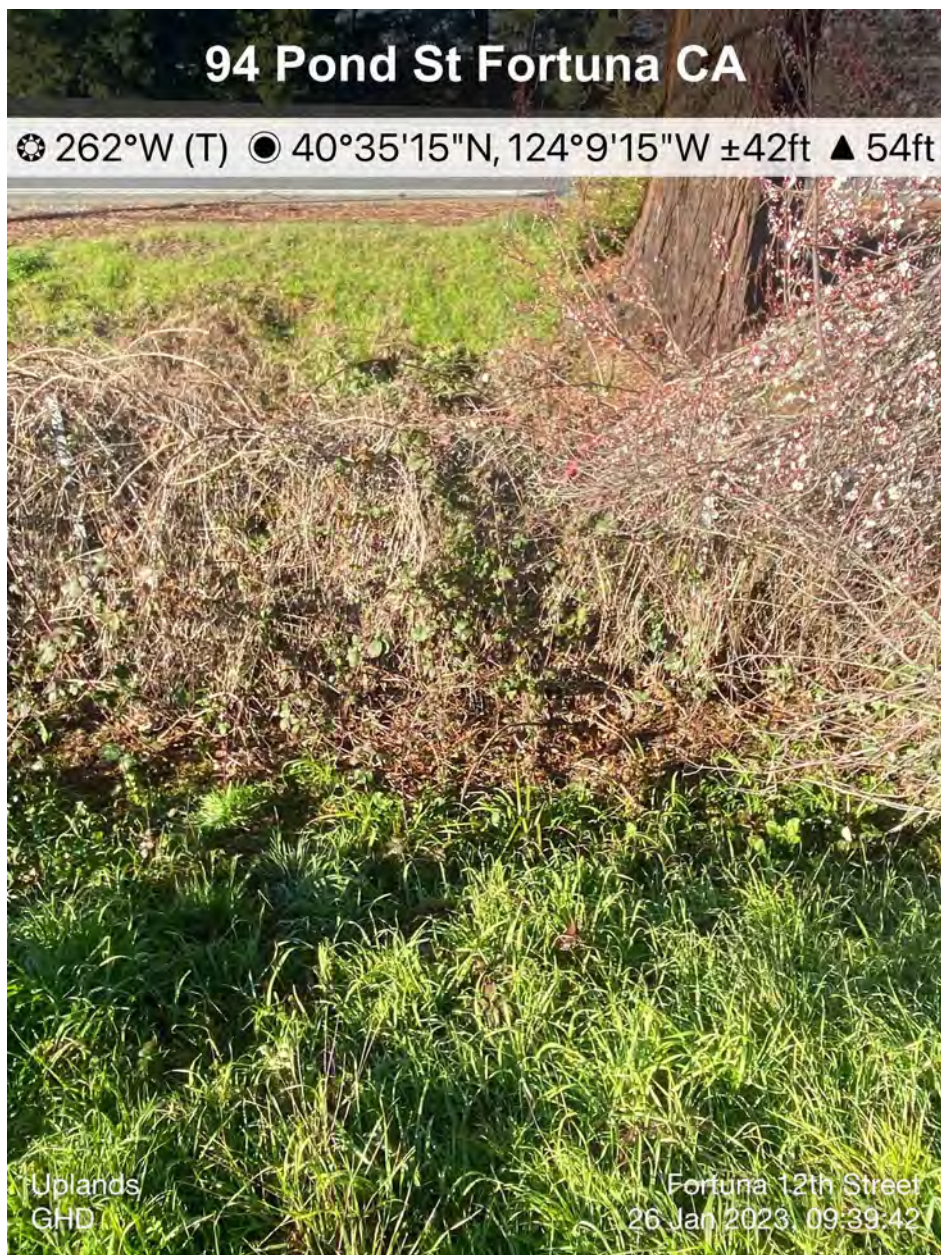


Photo 3. Non-wetland ditch at Upland 2 with California blackberries, redwood and plum tree.

98 Pond St Fortuna CA

☉ 343°N (T) ☉ 40°35'11"N, 124°9'13"W ±19ft ▲ 50ft



Roadside ditch
GHD

Fortuna 12th Street
26 Jan 2023 10:26:35

Photo 4. Willow thicket at Upland 3 adjacent to northbound off-ramp.

US-101 N Fortuna CA

☼ 147°SE (T) ● 40°35'14"N, 124°9'16"W ±39ft ▲ 54ft



Drainage point
GHD

Fortuna 12th Street
26 Jan 2023 10:28/08

Photo 5. Drainage in grassy area between northbound Highway 101 and northbound off-ramp.

96 12th St Fortuna CA

☉ 300°NW (T) ☉ 40°35'20"N, 124°9'20"W ±39ft ▲ 50ft



Drainage swale
GHD

Fortuna 12th Street
26 Jan 2023, 10:38:19

Photo 6. Spot check soil pit between northbound Highway 101 and northbound on-ramp.

96 12th St Fortuna CA

☉ 118°SE (T) ☉ 40°35'20"N, 124°9'20"W ±32ft ▲ 48ft



Drainage swale
GHD

Fortuna 12th Street
26 Jan 2023 10:38:30

Photo 7. Non-wetland ditch with culvert north of northbound on-ramp.

US-101 N Fortuna CA

☉ 346°N (T) ● 40°35'23"N, 124°9'22"W ±72ft ▲ 49ft



Photo 8. Location of Upland 4 in non-wetland ditch with California blackberries adjacent to northbound on-ramp.

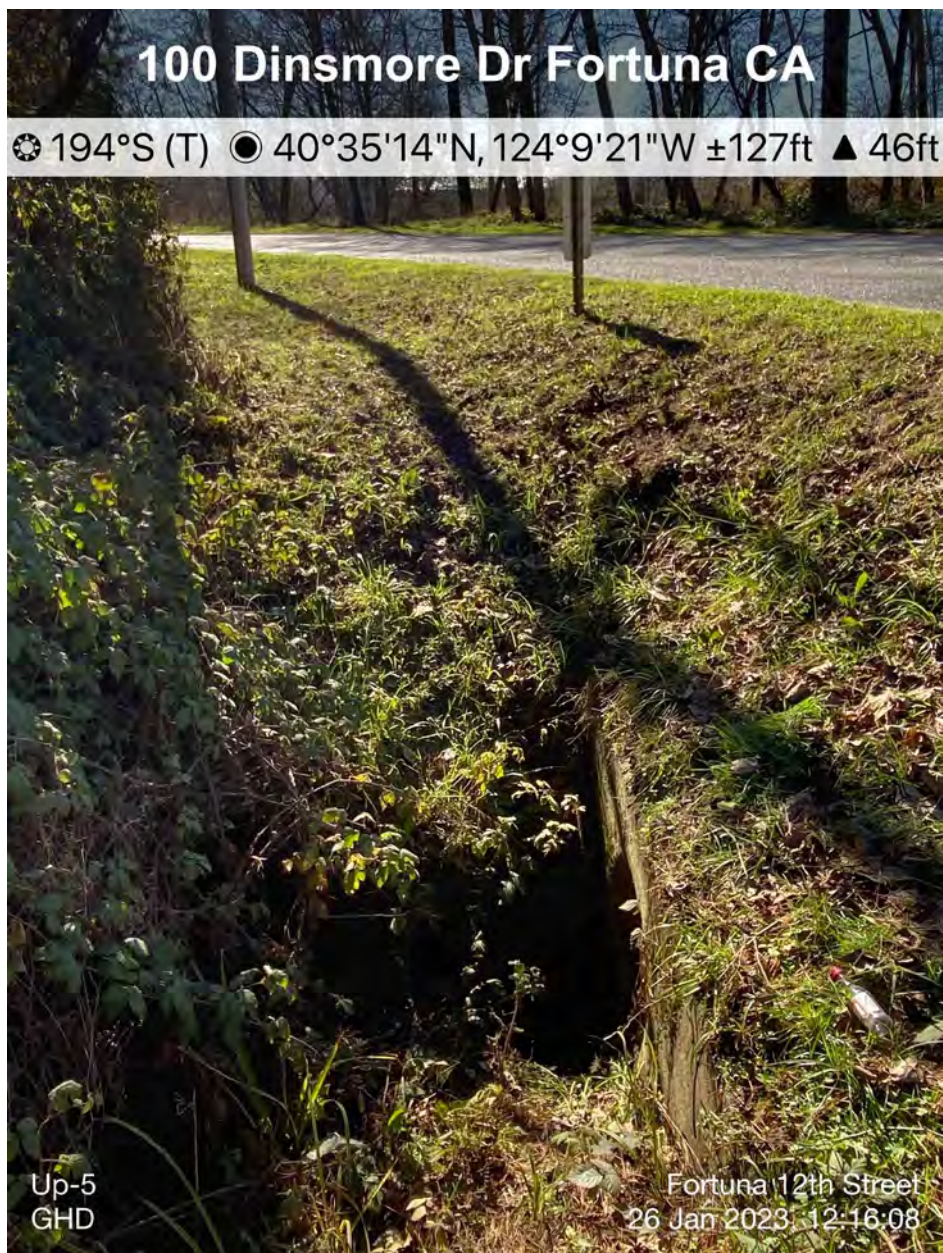


Photo 9. Location of Upland 5 in well-drained non-wetland ditch with culvert.



Photo 10. Location of Upland 6 in boulder filled swale with culvert.

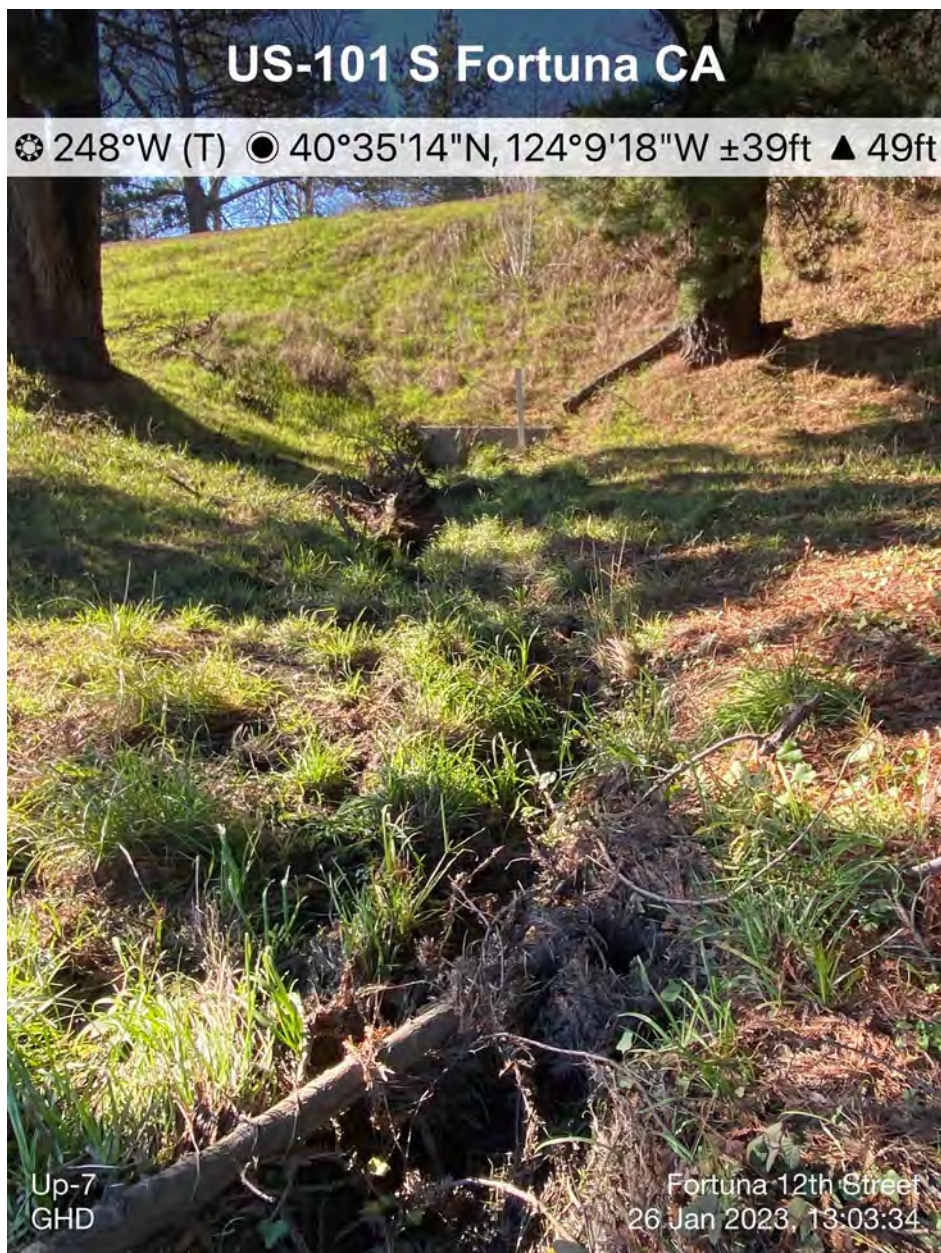


Photo 11. Location of Upland 7 in recently excavated non-wetland ditch between culverts.

Appendix E

**Record of Climatological Observations and
WETS Table**

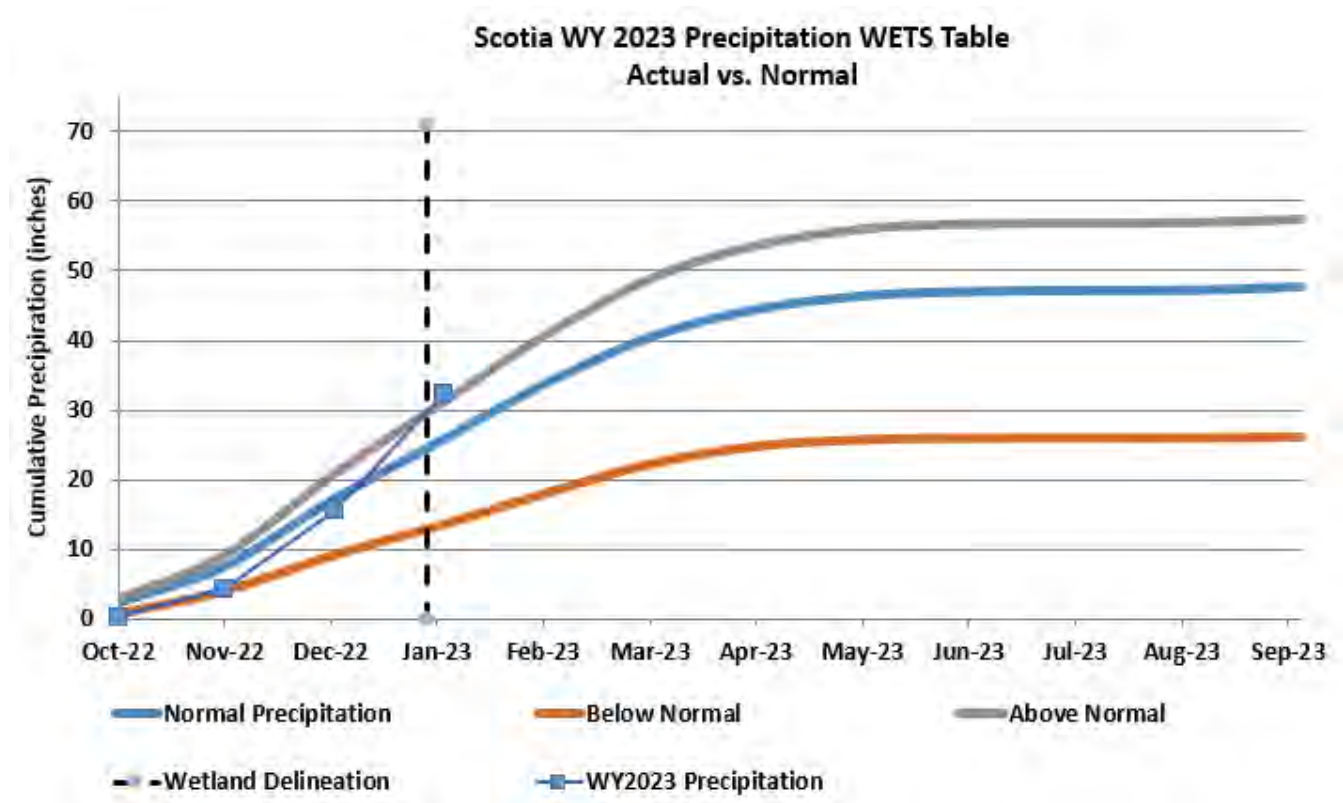
Scotia WETS Table

Name SCOTIA, CA US

Loc. (Lat/Lon): 40.4833°, -124.1038°

Monthly Precipitation (All values in inches)					Cumulative Precipitation (All values in inches)			
Month	Average	Below Normal	Above Normal	Actual WY 2023	Average	Below Normal	Above Normal	Actual WY 2023
31-Oct	2.38	0.77	2.78	0.26	2.38	0.77	2.78	0.26
30-Nov	5.23	3.29	6.35	4.10	7.61	4.06	9.13	4.36
31-Dec	9.68	5.17	11.69	11.13	17.29	9.23	20.82	15.49
31-Jan	8.59	4.38	10.42	16.94	25.88	13.61	31.24	32.43
28-Feb	7.83	4.37	9.40		33.71	17.98	40.64	
31-Mar	6.93	4.35	8.48		40.64	22.33	49.12	
30-Apr	3.89	2.49	4.67		44.53	24.82	53.79	
31-May	1.91	0.93	2.34		46.44	25.75	56.13	
30-Jun	0.57	0.18	0.64		47.01	25.93	56.77	
31-Jul	0.14	0.02	0.12		47.15	25.95	56.89	
31-Aug	0.05	0.00	0.08		47.20	25.95	56.97	
30-Sep	0.47	0.13	0.49		47.67	26.08	57.46	

From WETS Tables - SCOTIA, CA US - <http://agacis.rcc-acis.org/>



Appendix F

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**

12577017 Fortuna 12th St.



February 28, 2023

Preface

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

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

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

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

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

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

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How Soil Surveys Are Made

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

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

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

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

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

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

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

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

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

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

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

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

Custom Soil Resource Report

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



Custom Soil Resource Report

MAP LEGEND

Area of Interest (AOI)

 Area of Interest (AOI)

Soils

 Soil Map Unit Polygons

 Soil Map Unit Lines

 Soil Map Unit Points

Special Point Features

 Blowout

 Borrow Pit

 Clay Spot

 Closed Depression

 Gravel Pit

 Gravelly Spot

 Landfill

 Lava Flow

 Marsh or swamp

 Mine or Quarry

 Miscellaneous Water

 Perennial Water

 Rock Outcrop

 Saline Spot

 Sandy Spot

 Severely Eroded Spot

 Sinkhole

 Slide or Slip

 Sodic Spot

 Spoil Area

 Stony Spot

 Very Stony Spot

 Wet Spot

 Other

 Special Line Features

Water Features

 Streams and Canals

Transportation

 Rails

 Interstate Highways

 US Routes

 Major Roads

 Local Roads

Background

 Aerial Photography

MAP INFORMATION

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

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

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

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

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

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

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

Soil Survey Area: Humboldt County, Central Part, California
Survey Area Data: Version 9, Sep 1, 2022

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

Date(s) aerial images were photographed: Jun 1, 2022—Jun 19, 2022

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

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
220	Ferndale, 0 to 2 percent slopes	1.4	6.5%
1010	Urban land-Friendlcity association, 0 to 2 percent	20.6	93.5%
Totals for Area of Interest		22.0	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,

Custom Soil Resource Report

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

220—Ferndale, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: 2H2t
Elevation: 10 to 160 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: Prime farmland if irrigated

Map Unit Composition

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

Description of Ferndale

Setting

Landform: Flood-plain steps
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from mixed sources

Typical profile

Ap - 0 to 11 inches: silt loam
C1 - 11 to 16 inches: silt loam
C2 - 16 to 21 inches: silt loam
C3 - 21 to 50 inches: silt loam
C4 - 50 to 60 inches: fine sandy loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high
(0.20 to 2.00 in/hr)
Depth to water table: About 48 to 60 inches
Frequency of flooding: RareNone
Frequency of ponding: None
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: High (about 10.6 inches)

Interpretive groups

Land capability classification (irrigated): 1
Land capability classification (nonirrigated): 2s
Hydrologic Soil Group: B
Ecological site: F004B1100CA - Fluventic, salt-affected, rarely flooded, alluvial floodplains
Hydric soil rating: No

Minor Components

Swainslough

Percent of map unit: 4 percent
Landform: Salt marshes, flood-plain steps, depressions, backswamps
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Tread, talf
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: Yes

Worswick

Percent of map unit: 4 percent
Landform: Flood-plain steps, natural levees
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: Yes

Russ

Percent of map unit: 3 percent
Landform: Natural levees
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Tread
Down-slope shape: Convex
Across-slope shape: Linear
Hydric soil rating: No

Arlynda

Percent of map unit: 2 percent
Landform: Flood-plain steps, depressions, backswamps, meander scars
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Tread
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: Yes

Madriver

Percent of map unit: 2 percent
Landform: Natural levees
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

1010—Urban land-Friendlycity association, 0 to 2 percent

Map Unit Setting

National map unit symbol: 2w91d

Elevation: 20 to 160 feet

Mean annual precipitation: 44 to 48 inches

Mean annual air temperature: 50 to 55 degrees F

Frost-free period: 300 to 360 days

Farmland classification: Prime farmland if irrigated

Map Unit Composition

Urban land, residential: 65 percent

Friendlycity and similar soils: 25 percent

Minor components: 10 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Urban Land, Residential

Setting

Landform: Alluvial fans, terraces

Landform position (three-dimensional): Tread

Down-slope shape: Linear

Across-slope shape: Linear

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 8

Hydric soil rating: No

Description of Friendlycity

Setting

Landform: Terraces, alluvial fans

Landform position (two-dimensional): Backslope

Landform position (three-dimensional): Side slope, tread

Down-slope shape: Linear

Across-slope shape: Linear

Parent material: Alluvium derived from metamorphic and sedimentary rock

Typical profile

Ap - 0 to 6 inches: silt loam

A - 6 to 13 inches: silty clay loam

A/B - 13 to 24 inches: silty clay loam

Bw1 - 24 to 35 inches: silty clay loam

Bw2 - 35 to 55 inches: silty clay loam

C - 55 to 67 inches: loam

Properties and qualities

Slope: 0 to 2 percent

Depth to restrictive feature: More than 80 inches

Custom Soil Resource Report

Drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high
(0.20 to 2.00 in/hr)
Depth to water table: About 20 to 39 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: High (about 9.3 inches)

Interpretive groups

Land capability classification (irrigated): 1
Land capability classification (nonirrigated): 2s
Hydrologic Soil Group: C
Ecological site: R004BI201CA - Fine-loamy Uplands
Hydric soil rating: No

Minor Components

Canalschool

Percent of map unit: 4 percent
Landform: Flood-plain steps
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Ferndale

Percent of map unit: 3 percent
Landform: Flood-plain steps
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Carlotta

Percent of map unit: 3 percent
Landform: Terraces
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Convex
Hydric soil rating: No

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