

Humboldt  
County



RESOURCE  
CONSERVATION DISTRICT

# Russ Creek and Centerville Slough Restoration Project

Draft

Environmental Impact Report

Humboldt County Resource Conservation District

26 May 2023



# Draft Environmental Impact Report Russ Creek and Centerville Slough Restoration Project

SCH# 2022040559

## Prepared for:

Humboldt  
County



RESOURCE  
CONSERVATION DISTRICT

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## Acronyms and Abbreviations

AAI	all appropriate inquiries
AB	Assembly Bill
ACEP-WRE	Agricultural Conservation Easement Program - Wetland Reserve Easements
AE	Agriculture Exclusive
AG	Agriculture Grazing
AMP	Adaptive Management Program
APN	Assessor Parcel Number
ARG	Agricultural Supply
ASTM	American Society for Testing and Materials
ASTs	aboveground storage tanks
AUM	Animal Unit Months
BAAQMD	Bay Area Air Quality Management District
bgs	below ground surface
BMPs	Best Management Practices
CAA	Clean Air Act
CAAQS	California Ambient Air Quality Standards
CalEEMod	California Emissions Estimator Model
Cal/EPA	California Environmental Protection Agency
CAL FIRE	California Department of Forestry and Fire Protection
Cal/OSHA	California Occupational Safety and Health Administration
Caltrans	California Department of Transportation
CAPCOA	California Air Pollution Control Officers Association
CARB	California Air Resources Board
CBC	California Building Code
CCR	California Code of Regulations
CDFG	California Department of Fish and Game
CDFW	California Department of Fish and Wildlife
CDP	Coastal Development Permit
CE	Common Era
CERCLA	Comprehensive Environmental Response, Compensation and Liability
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CFCPA	California Farmland Conservancy Program Act
CFGC	California Fish and Game Code
CFR	Code of Federal Regulations
CGC	Centerville Gun Club
CGS	California Geological Survey
CH <sub>4</sub>	methane
CHP	California Highway Patrol
CHRIS	California Historical Resources Information System
CHSC	California Health and Safety Code
CIFF	California Important Farmland Finder
CNDDB	California Natural Diversity Database
CNEL	Community Noise Equivalent Level
CNPPA	California Native Plant Protection Act
CNPS	California Native Plant Society
CO	Carbon Monoxide

CO <sub>2</sub>	carbon dioxide
CO <sub>2e</sub>	carbon-dioxide-equivalent
COLD	Cold Freshwater Habitat
CRHR	California Register of Historical Resources
CRPR	California Rare Plant Rank
CUP	Conditional Use Permit
CUPA	Certified Unified Program Agency
CWA	Clean Water Act
CY	cubic yard
dB	decibel
dBA	A-weighted sound level
DOC	California Department of Conservation
DOT	U.S. Department of Transportation
DTSC	Department of Toxic Substances Control
DWR	California Department of Water Resources
EC	electrical conductivity
EDR	Environmental Data Resources
EIR	Environmental Impact Report
EO	Executive Order
EOC	County Emergency Operations Center
EOP	Emergency Operations Plan
EPA	U.S. Environmental Protection Agency
ERAP	Eel River Area Plan
EREP	Eel River Estuary Preserve
ERGC	Eel River Gun Club
ERWA	Eel River Waterfowl Association
ESA	Environmental Site Assessment
ESA	Federal Endangered Species Act
ESHA	Environmentally Sensitive Habitat Area
ESP	exchangeable sodium percentage
Fed/OSHA	Federal Occupational Safety and Health Administration
FEMA	Federal Emergency Management Agency
FFPD	Ferndale Fire Protection District
FMMP	Farmland Mapping and Monitoring Program
FPPA	Federal Farmland Protection Policy Act
FSZ	Farmland Security Zone
Ft/s	feet per second
FVFD	Ferndale Volunteer Fire Department
GHG	Greenhouse Gas
GIS	Geographic Information System
gpm	gallons per minute
GSA	groundwater sustainability agency
HAZWOPER	Hazardous Waste Operations and Emergency Response
HBSLRAP	Humboldt Bay Sea Level Rise Adaption Planning
HCAOG	Humboldt County Association of Governments
HCGP	Humboldt County General Plan
HCRC	Humboldt County Resource Conservation District
H <sub>2</sub> O	water vapor
HTA	Humboldt Transit Authority

LCC	Land capability classification
LCP	Local Coastal Program
Ldn	Day/Night Average Sound Level
Leq	Equivalent Noise Level
LESA	Land Evaluation and Site Assessment
Lmax	maximum A-weighted noise level
Lmin	minimum A-weighted noise level
LOS	Level of Service
LRA	Local Responsibility Area
MAR	marine
MBTA	Migratory Bird Treaty Act
ml	milliliter
MMT	million metric tons
msl	mean sea level
MTR	muted tidegate regulator
MUN	municipal supply
NAAQS	National Ambient Air Quality Standards
NAHC	Native American Heritage Commission
NCRWQCB	North Coast Regional Water Quality Control Board
NCUAQMD	North Coast Unified Air Quality Management District
NFIP	National Flood Insurance Program
NHPA	National Historic Preservation Act
NMFS	National Marine Fisheries Service
N <sub>2</sub> O	nitrous oxide
NO <sub>2</sub>	Nitrogen Dioxide
NOAA	National Oceanic Atmospheric Administration
NOP	Notice of Preparation
NO <sub>x</sub>	nitrogen oxides
NPDES	National Pollutant Discharge Elimination System
NR	Natural Resources
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
NSR	New Source Review
NWIC	Northwest Information Center
O <sub>3</sub>	ozone
OES	Office of Emergency Services
OHV	Off-highway vehicle
OMR	Office of Mine Reclamation
ORF	O'Rourke Foundation
ORV	off road vehicle
PDM	Production of Dry Residual Matter
PEIR	Programmatic Environmental Impact Report
PGA	peak ground acceleration
PG&E	Pacific Gas & Electric
PM	Particulate Matter
PPM	parts per million
PPT	part per thousand
PPV	Peak Particle Velocity
PRC	Public Resources Code

RCAA	Russ Creek Avulsion Area
RCD	Resource Conservation District
REC-1	Contact Water Recreation
RECs	recognized environmental conditions
RMS	Root Mean Square
ROG	reactive organic gases
RR&T	Russ Ranch & Timber
RTP	Regional Transportation Plan
RTPA	Regional Transportation Planning Agency
RWQCB	Regional Water Quality Control Board
SAA	Streambed Alteration Agreement
SAL	saline
SAR	sodium adsorption ratio
SARA	Superfund Amendment and Reauthorization Act
SCC	State Coastal Conservancy
SGMA	Sustainable Groundwater Management Act
SHELL	Shellfish Harvesting
SLR	Sea Level Rise
SMAO	Streamside Management Area Ordinance
SMARA	Surface Mining and Reclamation Act
SMGB	State Mining and Geology Board
SREP	Salt River Ecosystem Restoration Project
SRWC	Salt River Watershed Council
SWPPP	Storm Water Pollution Prevention Plan
SWRCB	State Water Resources Control Board
TP	Timber Production
TDS	Total Dissolved Solids
THPO	Tribal Historic Preservation Officer
TMDL	total maximum daily loads
TWC	The Wildlands Conservancy
UBC	Uniform Building Code
USACE	U.S. Army Corps of Engineers
USDA	United State Department of Agriculture
U.S. EPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
UST	underground storage tank
VdB	velocity decibels
WARM	Warm Freshwater Habitat
WBWG	Western Bat Working Group
WDD	Western Drainage Ditch
WLMP	Water Level Management Plan
WRE	Wetland Reserve Easement



# 1. Introduction

## 1.1 California Environmental Quality Act

The California Environmental Quality Act (CEQA) requires that discretionary decisions by public agencies be subject to environmental review. The purpose of an Environmental Impact Report (EIR) is to identify the significant effects of the Project on the environment, to identify alternatives to the Project, and to indicate the manner in which those significant effects can be mitigated or avoided (Section 21002.1[a]). Each public agency is required to mitigate or avoid the significant effects on the environment of projects it approves or carries out whenever it is feasible. Environmental effects of the Project that must be addressed include the significant effects of the Project, growth-inducing effects of the Project, and significant cumulative effects of past, present, and reasonably anticipated future projects.

This Draft EIR has been prepared by the Humboldt County Resource Conservation District (HCRCD) for the proposed Russ Creek and Centerville Slough Restoration Project (Project) pursuant to the CEQA of 1970 (Public Resources Code Section 21000 et seq.) and the CEQA Guidelines (California Code of Regulations Section 15000 et seq.). The purpose of an EIR is not to recommend either approval or denial of a Project. CEQA requires decision-makers to balance the benefits of a Project against its unavoidable environmental effects in deciding whether to carry out a Project. The lead agency will consider the Draft EIR, comments received on the Draft EIR, and responses to those comments before making a final decision. If significant environmental effects are identified, the lead agency must adopt “Findings” indicating whether feasible mitigation measures or alternatives exist that can avoid or reduce those effects. If significant environmental impacts are identified as significant and unavoidable after proposed mitigation, the lead agency may still approve the Project if it determines that the social, economic, or other benefits outweigh the unavoidable impacts. The lead agency would then be required to prepare a “Statement of Overriding Considerations” that discusses the specific reasons for approving the Project, based on information in the EIR and other information in the administrative record.

## 1.2 Type of Environmental Impact Report

This EIR is a Project EIR, pursuant to State CEQA Guidelines Section 15161. A Project EIR is the most common type of EIR, examining the environmental impacts of a specific development project. This type of EIR focuses on the changes in the environment that would result from the construction, development, and ultimate operation of a Project.

## 1.3 Intended Uses of the EIR

The purpose of an EIR is to provide a clear understanding of the environmental impacts associated with the construction and operation of a Project that is proposed by a public agency or private interest. EIRs are prepared to meet the requirements of the CEQA when a proposed Project may have a “significant” impact on the physical environment. An EIR is defined by the State CEQA Guidelines as “... a detailed statement prepared to describe and analyze significant environmental effects of a Project and discuss ways to mitigate or avoid the effects.” An EIR must include a description of the physical environmental conditions in the vicinity of the Project, as they exist at the time the Notice of Preparation (NOP) is published, from both a local and regional perspective. This environmental setting normally constitutes the baseline physical conditions by which the lead agency determines whether an impact is significant. The EIR is used by

decision-makers, responsible and trustee agencies, and the public to understand and evaluate Project proposals and assist in making decisions on Project approvals and required permits.

An EIR is an informational document used in the planning and decision-making process by the lead agency and responsible and trustee agencies. EIRs are prepared under the direction of a lead agency. The lead agency is the decision-making body that will ultimately certify the adequacy of the EIR and approve the implementation of a Project. The lead agency for the proposed Project is the HCRCD.

In addition to the lead agency, other responsible and trustee agencies may need to use this document in approving permits or providing recommendations for the Project. These agencies include, but are not limited to:

- County of Humboldt – Conditional Use Permit and Grading Permit
- California Coastal Commission – Coastal Development Permit or Federal Consistency Determination
- California Department of Fish & Wildlife – Lake and Streambed Alteration Agreement, Incidental Take or Federal Consistency Determination
- North Coast Regional Water Quality Control Board – 401 Water Quality Certification
- U.S. Army Corps of Engineers – Clean Water Act Section 404
- Formal Consultation – USFWS and NOAA Fisheries
- California State Lands Commission – Lease of State Lands

## **1.4 Public Scoping Process**

On April 27, 2022, the HCRCD issued the NOP for the Project. The NOP was issued in accordance with the State CEQA Guidelines (14 California Code of Regulations [CCR] Section 15082) with the intent of informing agencies and interested parties that an EIR would be prepared for the above-referenced Project. The NOP was circulated between April 27, 2022 and May 26, 2022. A public scoping meeting for the proposed Project was held in Eureka May 20, 2022 at 2:00 P.M. The HCRCD received five comment letters on the proposed Project. The comments received did not warrant reissuance of the NOP or rescoping. Comments provided in response to the NOP have been considered and addressed in this Draft EIR and are included in Appendix A.

## **1.5 Effects Found Not to be Significant**

To provide more meaningful public disclosure, reduce the time and cost required to prepare an EIR, and focus on potentially significant effects on the environment of a proposed Project, lead agencies shall, in accordance with Section 21100, focus the discussion in the EIR on those potential effects on the environment of a proposed Project which the lead agency has determined are or may be significant. Lead agencies may limit discussion on other effects to a brief explanation as to why those effects are not potentially significant (Public Resources Code Section 21002.1 (e); CEQA Guidelines Sections 15128 and 15143). Each resource category section in Chapter 3 includes a section titled “Areas of No Project Impact” where applicable. Information used to determine which impacts would be potentially significant was derived from a review of the Project, field work, feedback from agency consultation and input, and comments received on the NOP.

## **1.6 Availability of the Draft EIR and Public Comment Period**

The Draft EIR will be circulated for 45 days, from May 26, 2023 to July 10, 2023, to allow interested individuals and public agencies to review and comment on the document. The document is available for

review at the HCRCD, located at 5630 South Broadway, Eureka, California and available on the HCRCD's website: <http://humboldtrcd.org/>. Written comments on the Draft EIR will be accepted by the HCRCD (Lead Agency) until 5:00 p.m. on July 10, 2023. Public agencies, interested organizations and individuals are encouraged to submit comments on the Draft EIR for consideration by the HCRCD. All written comments should be addressed to:

Jill Demers, Executive Director  
 Humboldt County Resource Conservation District, Lead Agency  
 5630 South Broadway  
 Eureka, CA 95503  
 Email: [jillhcrd@gmail.com](mailto:jillhcrd@gmail.com)

To facilitate understanding of the comments, please provide a separate sentence or paragraph for each comment and note the page and chapter/section of the Draft EIR to which the comment is directed. This approach to commenting will help the HCRCD to provide a clear and meaningful response to each comment. The Draft EIR is available for review at the address above.

At the end of the public review period, written responses will be prepared for comments received on the Draft EIR during the circulation period. The comments and responses will then be included in the Final EIR and will be considered by the lead agency prior to consideration of the adequacy of the EIR. Prior to approval of the Project, the lead agency must certify that the EIR has been completed in compliance with CEQA.

A public hearing to receive comment from the public and agencies has been scheduled for June 8th, 2023 at 8:00 a.m. A HCRDC Board Meeting is scheduled to consider certification of the EIR and adoption of the Project on or after August 10, 2023 at or after 8:00 a.m.

Both meetings will occur at the Humboldt County Agriculture Center, 5630 South Broadway, Eureka, 95503 California. The hybrid meetings can also be attended via Zoom at the following link:

<https://us02web.zoom.us/j/86397595187?pwd=TnR6dldzVWJ6WUZQdmF1Y0ZuM1IPdz09>

- Meeting ID: 863 9759 5187
- Passcode: 1987
- If accessing from a telephone, you can listen to the meeting live by calling: 1 669 900 6833.
- Enter Meeting ID: 863 9759 5187 when prompted Enter Passcode: 1987 when prompted.
- To mute or unmute yourself on a telephone, press \*6.
- To raise your hand on a telephone, press \*9.

## 1.7 Organization of this Environmental Impact Report

This Draft EIR is organized into chapters, as identified and briefly described below. Chapters are further divided into sections (e.g., Section 3.1, Aesthetics).

- **Chapter 1, Introduction and Summary.** Chapter 1 describes the purpose and organization of the Draft EIR, context, and terminology used in the Draft EIR. This chapter also identifies the key issues to be resolved in the EIR and summarizes the environmental impacts, and mitigation measures to reduce or eliminate those impacts.
- **Chapter 2, Project Description.** Chapter 2 describes the Project overview and objectives, Project location and setting, background, overall concept, proposed Project activities, and anticipated permits and approvals.

- **Chapter 3, Environmental Setting, Impacts and Mitigation Measures.** For each environmental resource area, this chapter describes the existing environmental and regulatory setting, discusses the environmental impacts associated with the proposed Project, identifies feasible mitigation measures to reduce or eliminate those impacts, and provides conclusions on significance.
- **Chapter 4, Alternatives.** This chapter describes the alternatives to the proposed Project that are being considered and attempts to lessen the Project’s environmental impacts while meeting most of the Project’s objectives.
- **Chapter 5, Other CEQA Related Impacts.** This chapter describes the unavoidable significant impacts, growth-inducing, and irreversible impacts of the proposed Project.
- **Chapter 6, Report Preparation.** This chapter identifies the Draft EIR authors and consultants who provided analysis in support of the Draft EIR’s conclusions.
- **Appendices.** The appendices contain various technical reports, and publications that have been summarized or otherwise used for preparation of the Draft EIR.

## 1.8 Areas of Controversy and Key Issues to be Resolved

Section 15123 of the CEQA Guidelines requires an EIR to identify areas of controversy known to the Lead Agency, including issues raised by agencies and the public. The comment letters received on the NOP are included in Appendix A of this document. The following provides a brief summary of the comments/issues raised in comment letters and emails received on the NOP and during the public scoping meeting.

- Potential flooding of Centerville Road and drainage in the southern Project Area
- Identification and mitigation of any unknown cultural resources underground and submerged under water, and the inclusion of a records search and cultural resources investigation
- Well reabandonment responsibilities, no known oil or gas wells were identified
- Request to consult with the State Lands Commission
- Reminder of Clean Water Act (CWA) Section 401 Water Quality Certification and/or Waste Discharge Requirements (Dredge/Fill Projects) and consultation request with the North Coast Regional Water Quality Control Board

All of the substantive environmental issues raised in the NOP comment letters and emails have been addressed in this Draft EIR.

## 1.9 Summary of Impacts and Proposed Mitigation Measures

Table 1-1 identifies, by resource category, the significant Project impacts and proposed mitigation measures, and post-mitigation significance. Additional information about the impacts and mitigation measures can be found in Chapter 3 of this EIR, as referenced for each resource category.

**Table 1-1 Summary of Impacts and Mitigation Measures**

Impact	Project Significance	Mitigation Measure	After-mitigation significance
<b>Aesthetics</b>			
Impact AES-1: Would the Project have a substantial adverse effect on a scenic vista?	Less than Significant	n/a	n/a



Impact	Project Significance	Mitigation Measure	After-mitigation significance
Impact AES-2: Would the Project substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	No Impact	n/a	n/a
Impact AES-3: In a non-urbanized area, would the Project substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from a publicly accessible vantage point).	Less than Significant	n/a	n/a
Impact AES-4: Would the Project create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	No Impact	n/a	n/a
Impact AES-C-1: Would the Project contribute to a cumulatively significant impact to visual resources?	Less than Significant	n/a	n/a
<b>Agricultural Resources</b>			
Impact AG-1: Would the Project convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance, as shown on the maps for the Farmland Mapping and Monitoring Program by the California Resources Agency, to non-agricultural use?	Less than Significant	n/a	n/a
Impact AG-2: Would the Project conflict with existing zoning for agricultural use or a Williamson Act contract?	Less than Significant	n/a	n/a
Impact AG-3: Would the Project conflict with existing zoning for, or cause rezoning of, forest land, timberland, or timberland zoned Timberland Production?	No Impact	n/a	n/a
Impact AG-4: Would the Project result in the loss of forest land or conversion of forest land to non-forest use?	No Impact	n/a	n/a
Impact AG-5: Would the Project involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?	Less than Significant	n/a	n/a
Impact AG-C-1: Would the Project contribute to a cumulatively significant impact to agricultural resources?	Less than Significant	n/a	n/a

Impact	Project Significance	Mitigation Measure	After-mitigation significance
<b>Air Quality</b>			
Impact AQ-1: Would the Project conflict with or obstruct implementation of the applicable air quality plan?	Potentially Significant	Mitigation Measure AQ-1: Dust Control Measures during Construction	Less than Significant
Impact AQ-2: Would the Project result in a cumulatively considerable net increase of any criteria pollutant for which the Project region is non-attainment under an applicable federal or state ambient air quality standard?	Less than Significant	n/a	n/a
Impact AQ-3: Would the Project expose sensitive receptors to substantial pollutant concentrations?	Less than Significant	n/a	n/a
Impact AQ-4: Would the Project result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?	Less than Significant	n/a	n/a
Impact AQ-C-1: Would the Project contribute to a cumulatively significant impact to air quality?	Potentially Significant	Mitigation Measure AQ-1: Dust Control Measures during Construction	Less than Significant
<b>Biological Resources</b>			
Impact BIO-1: Would the Project have a substantial adverse effect, either directly or through habitat modification, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by CDFW, USFWS or NMFS?	Potentially Significant	Mitigation Measure BIO-1: Avoidance, Minimization, and Mitigation for Tidewater Goby Mitigation Measure BIO-2: Conduct pre-construction Avian Surveys for Nesting Passerine Birds and Avian Species of Special Concern Mitigation Measure BIO-3: Avoid, Minimize, and Mitigate for Potential Impacts to Western Snowy Plover Mitigation Measure BIO-4: Mitigate for Potential Impacts to Northern Red-legged Frog and Western Pond Turtle Mitigation Measure BIO-5: Mitigate for Potential Impacts to Salmonid Species Mitigation Measure BIO-6: Mitigate Impacts to Sensitive-Listed Plant Species Mitigation Measure BIO-7: Mitigate Impacts to Beach Layia	Less than Significant

Impact	Project Significance	Mitigation Measure	After-mitigation significance
Impact BIO-2: Would the Project have a substantial adverse effect on any riparian habitat or other Sensitive Natural Community identified in local or regional plans, policies, regulations or by the CDFW or USFWS?	Potentially Significant	Mitigation Measure BIO-8: Mitigate Impacts to Sensitive Listed Habitats Through Avoidance and Re-establishment Mitigation Measure BIO-9: Mitigate Impacts to Sensitive Listed Habitats Through Control of Invasive Species	Less than Significant
Impact BIO-3: Would the Project have a substantial adverse effect on state or federally protected wetlands (including but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	Potentially Significant	Mitigation Measure BIO-10: Mitigate Temporary and Short-term Impacts to Wetlands Through Construction Minimization and Avoidance Measures	Less than Significant
Impact BIO-4: Would the Project interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	Less than Significant	n/a	n/a
Impact BIO-5: Would the Project conflict with any local policies or ordinances protecting biological resources such as a tree preservation policy or ordinance?	Less than Significant	n/a	n/a
Impact BIO-6: Would the Project conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	Less than Significant	n/a	n/a
Impact BIO-C-1: Would the Project contribute to a cumulatively significant impact to biological resources?	Less than Significant	n/a	n/a
<b>Cultural Resources</b>			
Impact CR-1: Would the Project cause a substantial adverse change in the significance of a historical resource pursuant to §15064.5?	Less than Significant	n/a	n/a
Impact CR-2: Would the Project cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	Potentially Significant	Mitigation Measure CR-1: Protocols for Inadvertent Discovery of Cultural Resources	Less than Significant
Impact CR-3: Would the Project disturb any human remains, including those interred outside of formal cemeteries?	Potentially Significant	Mitigation Measure CR-2: Protocols for Inadvertent Discovery of Human Remains	Less than Significant

<b>Impact</b>	<b>Project Significance</b>	<b>Mitigation Measure</b>	<b>After-mitigation significance</b>
Impact CR-C-1: Would the Project contribute to a cumulatively significant impact to cultural resources?	Less than Significant	n/a	n/a
<b>Energy</b>			
Impact ER-1: Would the Project result in potentially significant environmental impacts due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?	Less than Significant	n/a	n/a
Impact ER-2: Would the Project conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	Less than Significant	n/a	n/a
Impact ER-C-1: Would the Project contribute to a cumulatively significant impact to energy resources?	Less than Significant	n/a	n/a
<b>Geology and Soils</b>			
Impact GEO-1: Would the project directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault?	No Impact	n/a	n/a
Impact GEO-2: Would the Project directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving strong seismic ground shaking, including on or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?	Potentially Significant	Mitigation Measure GEO-1: Implement Recommendations in the Geotechnical Report	Less than Significant
Impact GEO-3: Would the Project directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving seismic-related ground failure, including liquefaction, landslides, or otherwise unstable or expansive soils?	Potentially Significant	Mitigation Measure GEO-1: Implement Recommendations in the Geotechnical Report	Less than Significant



Impact	Project Significance	Mitigation Measure	After-mitigation significance
Impact GEO-4: Would the Project result in Substantial Soil Erosion or Loss of Topsoil.	Potentially Significant	Mitigation Measure GEO-1: Implement Recommendations in the Geotechnical Report Mitigation Measure HWQ-1: Manage Construction Storm Water Mitigation Measure HWQ-2: Implement Contractor Training for Protection of Water Quality Mitigation Measure HWQ-3: In-Stream Erosion and Water Quality Control Measures During Channel Excavation and Operations Mitigation Measure Spartina PEIR WQ-6: Designate Ingress/Egress Routes	Less than Significant
Impact GEO-5: Would the Project have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water.	No Impact	n/a	n/a
Impact GEO-6: Would the Project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature.	Potentially Significant	Mitigation Measure GEO-2: Protect Paleontological Resources during Construction Activities	Less than Significant
Impact GEO-C-1: Would the Project contribute to a cumulatively significant impact to geology and soils?	Less than Significant	n/a	n/a
<b>Greenhouse Gas Emissions</b>			
Impact GHG-1: Would the Project generate greenhouse gas (GHG) emissions, either directly or indirectly, that may have a significant impact on the environment?	Less than Significant	n/a	n/a
Impact GHG-2: Would the Project conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs?	No Impact	n/a	n/a
Impact GHG-C-1: Would the Project contribute to a cumulatively significant impact relative to GHG emissions?	No Impact	n/a	n/a

Impact	Project Significance	Mitigation Measure	After-mitigation significance
<b>Hazards and Hazardous Materials</b>			
Impact HAZ-1: Would the Project create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	Potentially Significant	Mitigation Measure Spartina PEIR HHM-1: Worker Injury from Accidents Associated with Use of Manual and Mechanical Equipment Mitigation Measure Spartina PEIR HHM-3: Worker Health Effects from Herbicide Application Mitigation Measure Spartina PEIR HHM-4: Avoid Health Effects to the Public and Environment from Herbicide	Less than Significant
Impact HAZ-2: Would the Project create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	Potentially Significant	Mitigation Measure Spartina PEIR HHM-1: Worker Injury from Accidents Associated with Use of Manual and Mechanical Equipment Mitigation Measure Spartina PEIR HHM-3: Worker Health Effects from Herbicide Application Mitigation Measure Spartina PEIR HHM-4: Avoid Health Effects to the Public and Environment from Herbicide Mitigation Measure HWQ-3: In-Stream Erosion and Water Quality Control Measures During Channel Excavation and Operations	Less than Significant
Impact HAZ-3: Would the Project emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	No Impact	n/a	n/a
Impact HAZ-4: Would the Project be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	No Impact	n/a	n/a

Impact	Project Significance	Mitigation Measure	After-mitigation significance
Impact HAZ-5: For a Project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the Project result in a safety hazard or excessive noise for people residing or working in the Project Area?	No Impact	n/a	n/a
Impact HAZ-6: Would the Project impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	Less than Significant	n/a	n/a
Impact HAZ-7: Would the Project expose people or structures to a significant risk of loss, injury, or death involving wildland fires?	Less than Significant	n/a	n/a
Impact HAZ-C-1: Would the Project result in a cumulatively significant impact from increased exposure of the public or environment to hazards or hazardous substances?	Less than Significant	n/a	n/a
<b>Hydrology and Water Quality</b>			
Impact HWQ-1: Would the Project violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality?	Potentially Significant	Mitigation Measure HWQ-1: Manage Construction Storm Water Mitigation Measure HWQ-2: Implement Contractor Training for Protection of Water Quality Mitigation Measure HWQ-3: In-Stream Erosion and Water Quality Control Measures During Channel Excavation and Operations Mitigation Measure Spartina PEIR WQ-1: Managed Herbicide Control Mitigation Measure Spartina PEIR WQ-2: Minimize Herbicide Spill Risks Mitigation Measure Spartina PEIR WQ-3: Minimize Fuel and Petroleum Spill Risks Mitigation Measure Spartina PEIR WQ-6: Designate Ingress/Egress Routes Mitigation Measures Spartina PEIR WQ-7: Removal of Wrack Mitigation Measure Spartina PEIR HHM-4: Avoid Health Effects to the Public and Environment from Herbicide	Less than Significant

Impact	Project Significance	Mitigation Measure	After-mitigation significance
Impact HWQ-2: Would the Project substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the Project may impede sustainable groundwater management of the basin?	Less than Significant	n/a	n/a
Impact HWQ-3: Would the Project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces in a manner which would result in substantial erosion or siltation on- or off-site?	Potentially Significant	Mitigation Measure HWQ-1: Manage Construction Stormwater Mitigation Measure HWQ-2: Implement Contractor Training for Protection of Water Quality Mitigation Measure HWQ-3: In-Stream Erosion and Water Quality Control Measures During Channel Excavation and Operations	Less than Significant
Impact HWQ-4: Would the Project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?	Less than Significant	n/a	n/a
Impact HWQ-5: Would the Project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	Potentially Significant	Mitigation Measure HWQ-1: Manage Construction Stormwater Mitigation Measure HWQ-2: Implement Contractor Training for Protection of Water Quality Mitigation Measure HWQ-3: In-Stream Erosion and Water Quality Control Measures During Channel Excavation and Operations Mitigation Measure Spartina PEIR WQ-6: Designate Ingress/Egress Routes Mitigation Measures Spartina PEIR WQ-7: Removal of Wrack Mitigation Measure Spartina PEIR HHM-4: Avoid Health Effects to the Public and Environment from Herbicide	Less than Significant
Impact HWQ-6: Would the Project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would impede or redirect flood flows?	Less than Significant	n/a	n/a

<b>Impact</b>	<b>Project Significance</b>	<b>Mitigation Measure</b>	<b>After-mitigation significance</b>
Impact HWQ-7: Would the Project, in flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?	Less than Significant	n/a	n/a
Impact HWQ-8: Would the Project conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	Less than Significant	n/a	n/a
Impact HWQ-C1: Would the Project contribute to a cumulatively significant impact to hydrology and water quality?	Less than Significant	n/a	n/a
<b>Land Use and Planning</b>			
Impact LU-1: Would the Project physically divide an established community?	No Impact	n/a	n/a
Impact LU-2: Would the Project cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?	Less than Significant	n/a	n/a
Impact: LU-C-1: Would the Project result in cumulatively considerable contribution to a significant cumulative impact related to land use and planning.	Less than Significant	n/a	n/a
<b>Noise</b>			
Impact NOI-1: Would the Project result in generation of a substantial temporary or permanent increase in ambient noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	Less than Significant	n/a	n/a
Impact NOI-2: Would the Project result in the generation of excessive vibration or groundborne noise levels?	Less than Significant	n/a	n/a
Impact NOI-3: For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the Project Area to excessive noise levels?	No Impact	n/a	n/a

Impact	Project Significance	Mitigation Measure	After-mitigation significance
Impact NOI-C-1: Would the Project result in a cumulatively considerable contribution to cumulative impacts from noise.	Less than Significant	n/a	n/a
<b>Public Services</b>			
Impact PS-1 and Impact PS-2: Would the Project create substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services: Fire Protection? Police Protection?	Less than Significant	n/a	n/a
Impact PS-3, Impact PS-4, Impact PS-5: Would the Project create substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services: Schools? Parks? Other Public Facilities?	No Impact	n/a	n/a
Impact PS-C-1: Would the Project result in a cumulatively considerable contribution to cumulative impacts related to public services.	Less than Significant	n/a	n/a
<b>Recreation</b>			
Impact REC-1: Would the Project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	Less than Significant	n/a	n/a
Impact REC-2: Would the Project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	Less than Significant	n/a	n/a

Impact	Project Significance	Mitigation Measure	After-mitigation significance
Impact REC-C-1: Would the Project result in a cumulatively considerable contribution to cumulative impacts related to recreational resources?	Less than Significant	n/a	n/a
<b>Transportation</b>			
Impact TR-1: Would the Project conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities?	Less than Significant	n/a	n/a
Impact TR-1: Would the Project conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)?	Less than Significant	n/a	n/a
Impact TR-1: Would the Project substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	Less than Significant	n/a	n/a
Impact TR-1: Would the Project result in inadequate emergency access?	Less than Significant	n/a	n/a
Impact TR-C-1: Would the Project result in a cumulatively considerable contribution to cumulative impacts related to transportation?	Less than Significant	n/a	n/a
<b>Tribal</b>			
Impact TCR-1: Would the project cause a substantial adverse change in the significance of a tribal cultural resource, and that is: Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k)?	No Impact	n/a	n/a
Impact TCR-1: Would the Project cause a substantial adverse change in the significance of a tribal cultural resource, and that is: A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code § 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code § 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe?	Potentially Significant	Mitigation Measure CR-1: Protocols for Inadvertent Discovery of Cultural Resources Mitigation Measure CR-2: Protocols for Inadvertent Discovery of Human Remains	Less than Significant

Impact	Project Significance	Mitigation Measure	After-mitigation significance
Impact TCR-C-1: Would the Project result in a cumulatively considerable contribution to cumulative impacts related to tribal cultural resources?	Less than Significant	n/a	n/a
<b>Wildfire</b>			
Impact WDF-1: Would the Project substantially impair an adopted emergency response plan or emergency evacuation plan?	No Impact	n/a	n/a
Impact WDF-2: Would the Project due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose Project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?	Less than Significant	n/a	n/a
Impact WDF-3: Would the Project require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?	No Impact	n/a	n/a
Impact WDF-4: Would the Project expose people or structures to significant risks, including downslope or downstream flooding or landslides as a result of runoff, post-fire slope instability, or drainage changes?	Less than Significant	n/a	n/a
Impact WDF-C-1: Would the Project result in a cumulatively considerable contribution to cumulative impacts related to wildfire?	Less than Significant	n/a	n/a



## 2. Project Description

### 2.1 Project Location and Setting

The Project Area, defined on the figures as the Project Boundary, is approximately 1,480-acres, located four miles west of the City of Ferndale, in Humboldt County, California (Figure 2-1 – Vicinity Map). The Project Area includes the Eel River Estuary Preserve (EREP) owned by The Wildlands Conservancy (TWC) and various parcels privately owned by Russ Ranch and Timber, L.L.C. (RR&T), the Linda S Russ Revocable Trust, Harville Ranch L.L.C. and the O'Rourke Foundation (ORF) (Figure 2-2 – Ownership and Zoning). Assessor parcel numbers (APNs) included in the Project Area are included in Figure 2-2. Within the Project Area, the Natural Resources Conservation Service (NRCS) has worked cooperatively with the private landowners to acquire three Agricultural Conservation Easement Program - Wetland Reserve Easements (ACEP-WRE) on EREP totaling 1,078 acres and two easements on Russ property totaling 155-acres. These are perpetual conservation easements that seek to protect and restore wetland habitat while allowing limited livestock grazing in suitable habitat types. NRCS will be serving as the federal cooperating agency for this Project (Figure 2-3 – NRCS Easement Boundaries).

Historically, much of the Project Area was comprised of estuarine salt marsh and a network of tidal channels including Centerville Slough, which extended from the mouth of the Eel River to base of the Wildcat Hills. Beginning in the 1860's, the Russ Family began developing the area for agricultural purposes. This development included draining, diking and channelizing the existing sloughs and channels. An extensive system of dikes and floodgates was installed to achieve flood protection and different variations occurred over the last 150 years. The Project Area comprises a portion of the historically diked area that protected over 2,500 acres. The current flood control infrastructure includes a dike extending from the sand dunes in the northern portion of the Project Area extending east and finally ending approximately three miles to the southeast. Properties protected by the dike system include those listed above plus additional properties shown on Figure 2-4 – Existing Conditions.

The conversion from estuarine salt marsh to agricultural land resulted in a reduction in tidal prism, and in combination with sedimentation from freshwater tributaries, including Russ Creek and Shaw Creek, contributed to the infilling and narrowing of Centerville Slough to its present-day extent. Within the Project Area, a complex system of dikes, tide gates and drainage ditches enable multiple land managers to graze livestock in pastures. Tributaries and tidal channels drain northward across numerous APNs. EREP includes agricultural (grazing) land, tidal salt marsh, brackish marsh, riparian scrub, sloughs/open water channels, freshwater ponds and ditches, and nearshore dune ridges and swales. Russ Ranch and Timber, LLC, and the Linda S Russ Revocable Trust, own the parcels immediately south of EREP, which include grazing land with managed ditches, open water channels and mixed freshwater and brackish marsh and dunes.

The west side of the Project Area encompasses the near shore dunes extending from Centerville Beach to the mouth of the Eel River (Figure 2-4 – Existing Conditions). East of the dunes, the Project Area supports a system of sloughs and pastures that comprise a portion of the Salt River watershed, itself a tributary to the Eel River estuary. The northern Project Area borders the Eel River. The southern half of the Project Area includes several perennial tributary streams draining from the Wildcat Hills including Russ Creek, Shaw Creek, a seasonal drainage referred to as Creamery Ditch, and an unnamed tributary. Much of the southern half of the Project east of the former Centerville Slough was reclaimed and has been converted to

pasture for agricultural purposes. The Project Area also includes diked former tidelands that are separated from the estuarine wetlands by a series of dikes and the Cutoff Slough tide gate.

The proposed Project restoration approach includes an overall landward retreat from the coastal shoreline that would restore tidal wetlands and protect vulnerable agricultural lands within and east of the Project Area that have been impacted from recent overwash events. Restoration activities include reestablishing Centerville Slough to reconnect the Eel River Estuary with former tidal wetlands and Russ and Shaw Creeks. A combination of back dune berms, restored tidal channels and set-back berms will increase resiliency of the restored habitats and adjacent agricultural lands from projected increasing sea levels and wave over-wash events.

There are two private roads that provide access into the Project Area. The primary access to the TWC EREP is gained from Russ Lane via Centerville Road. Extending from Centerville Road to approximate post mile (PM) 0.41, Russ Lane is within County jurisdiction. North of PM 0.41, the road is private and TWC has an easement for use with the underlying property owned by Harville Ranch L.L.C. The other private road used to access the Project Area is via Centerville Road located on the Linda S Revocable Trust properties. Centerville Road and the southern 0.41-mile portion of Russ Lane are maintained by Humboldt County. Several structures occur on the Project site; which include: two barns near Russ Lane (referred to as the Potato/Headquarters Barn and Quonset Hut), one barn (North Barn) located between Cutoff Slough and the near shore dunes, approximately midway between the north and south property lines, and another barn (South Barn) located in the southwest corner of the EREP. The North and South barns are not in use and the South Barn was severely damaged during a recent overwash event.

The climate is Mediterranean and influenced by coastal fog. Precipitation is most abundant in the winter months. The Project Area ranges in elevation from below sea level to an approximate elevation of 30 feet. Unless noted otherwise, all elevations presented in this EIR are referenced to North American Vertical Datum 1988 (NAVD-88).

Humboldt County General Plan land use for the Project Area is Natural Resources (NR/R) and Agriculture Exclusive (AE). Primary uses are limited to the production of food, fiber, plants, timber, timber agriculturally related uses, and agriculture related recreational uses. Very-low intensity residential uses may be allowed if they are incidental to the property and if they support agricultural activities or are necessary for the enhancement and protection of the natural resources of the area. Minimum parcel size is 60 acres, except divisions to 20 acres may be permitted where the parcel is subject to an agricultural preserve contract or agreement, such as the Williamson Act. Zoning for the Project Area is NR/R and AE-60/W,F,R,T, which is consistent with the land use designation. Combining zones include Coastal Wetland Areas (W), Flood Hazard Areas (F), Streams and Riparian Corridors Protection (R), and Transitional Agricultural Lands (T). A large portion of the Project Area is enrolled in Williamson Act contracts, which are further discussed in Section 3.2 – Agriculture and Forestry Resources.

A recorded drainage easement dated October 20, 2008 allows the grantees (various Russ property owners, collectively “Russ”) to cross and maintain the drainage facilities on the grantors (TWC and ORF) property. In general, this easement allows the grantees to enter and maintain drainage facilities on the EREP and O-Rourke Foundation property, to the extent that these are legally permissible. Key actions under the drainage easement include maintenance of the Western Drainage Ditch when it becomes clogged, Cutoff Slough tide gate, and perimeter dike in order to facilitate drainage when conditions in the Eel River estuary permit and as environmental regulations allow. The proposed Project modifications to these features defined in the drainage easement would provide an overall drainage benefit as described in Section 3.10 – Hydrology and Water Quality. Amendment to the drainage easement is allowable and supported by the

parties of the easement agreement to accommodate the proposed Project components and habitat restoration goals.

## 2.2 Previous CEQA Analyses

A previous project (Eel River Estuary and Centerville Slough Enhancement Project, formerly referred to as the Eel River Estuary Preserve Ecosystem Enhancement Project, SCH#2014122040) was proposed for a similar Project Area. The EIR was circulated in September 2016. The EIR was then amended and recirculated in December 2016. The recirculated EIR was certified by the CEQA Lead Agency (California Coastal Conservancy) in February 2017. While the project was not implemented, public access components on EREP that were assessed in the CEQA document included a floodproof vault toilet, 30 stall gravel parking area (both located adjacent to the Headquarters Barn), interpretative signs, and entrance gate with lighting. In 2021 TWC obtained a Conditional Use and Coastal Development Permit (CUP/CDP) from Humboldt County to install these components. Only the vault toilet has been constructed as of 2022. The 2021 CUP/CDP also approved an increase from zero to three days per week the EREP would be open to the general public. While the overall goals of the previous project and current Project remain largely the same, the Project components and site conditions have changed. For example, due to recent over-wash events, geomorphic conditions and vegetation composition have changed. Additionally, the previously proposed muted tidal system is now proposed to be a full tidal system, resulting in greater salt marsh restoration area. The location and dimensions of the set-back berm have adjusted relative to the previous project. Given the scale of changes between baseline site conditions and proposed Project components, the updated Project has been described in this EIR.

## 2.3 Project Goals and Objectives

The goal of the Project is to improve geomorphic and ecosystem function that would enhance habitats for native fisheries and aquatic species, support water bird and wildlife species, and protect agricultural land and resiliency to changing geomorphological and climatic conditions. The Project would enhance existing tidal wetlands and restore marginal diked pasture land to a mosaic of natural habitats, including estuarine and tidal slough channels, freshwater streams, and agricultural pastures, all within the context of promoting the resilience of the Project Area and viability of adjacent agricultural lands outside of the Project Area.

Specific objectives of the Project include:

- Restore natural functions and processes of tidal cycles, riverine inundation and sedimentation, tidal channel connectivity, and wetlands maintenance by removing or modifying existing infrastructure and reestablishing historic tidal channels
- Increase resiliency of existing agricultural lands to sea level rise by reconfiguring dikes and enhancing dune function that promotes natural dune formation processes that reduce over wash during extreme high tides and storm events
- Improve access for agricultural land management, maintenance, outdoor recreation, and nature study compatible with existing land uses and the ACEP-WRE conservation easements
- Enhance native plant communities and expansion of rare plant habitat through active and passive habitat development, control and eradication of invasive non-native species, and establishment of native species
- Improve access to restored aquatic habitats for salmonids and other aquatic-dependent species by increasing migratory access between estuarine and inland waters and by restoring overwintering and rearing habitat for juvenile salmonids

- Improve drainage efficiency and sediment transport while enhancing tidal processes by reestablishing connectivity of Russ Creek and Shaw Creek to a restored Centerville Slough
- Implement long-term maintenance and operation activities for the Project

## 2.4 Project Overview

The Project would restore a landscape of mostly diked agricultural land to a mosaic of pasture and natural habitats, including estuarine and tidal slough channels, freshwater streams, freshwater ponds and agricultural pastures. Restoration of tidal flow and an enhancement in tidal flushing to restore wetland functions is critical to achieve Project objectives. Reestablishing the connection of Centerville Slough to the Eel River and removing and reconfiguring dikes would restore the tidal prism into Centerville Slough, reestablishing historic tidal slough channels that have been filled and degraded due to reclamation efforts, sedimentation, and tectonic activity. Improvements to tidal channels and the tidal prism would restore the quality and extent of aquatic habitat from the Eel River to Centerville Slough, Shaw Creek and Russ Creek, while improving drainage and sediment transport.

Pasture lands within and adjacent to the Project Area have degraded and become less productive due to increase in frequency of wave overwash and/or saltwater inundation creating brackish marsh or brackish pasture conditions. To reduce vulnerability and continued degradation to agricultural land from frequent dune over-wash events and projected sea level rise, set-back berms would be constructed to increase resiliency to geomorphic and climactic changes. The Project would also include new gated culverts to serve inboard ditches for agricultural drainage. This would increase reliability and efficiency of the drainage system and reduce saltwater intrusion of surrounding pasture lands, contributing to the improvement of agricultural productivity. These Project elements would help protect and enhance agricultural land, including prime farmland, while also restoring tidal marsh and wetland areas.

## 2.5 Project Components

The Project would result in enhanced tidal channels, salt marsh, and dunes (Figure 2-5 – Proposed Project Components). Much of the existing dike/levee/berm network within the Project Area would be reconfigured or removed. New berms would protect agricultural land uses from tidal inundation. Sediment excavated during construction would be beneficially reused within the Project Area and would not be hauled off-site. Key metrics are summarized in Table 2.1 and shown in Figure 2-5.

**Table 2.1 Summary of Key Project Enhancements and Components**

Component	Description
Barn Demolition	Remove existing South and North Barns
Levee Lowering and Removal	Lower approximately 3,000 linear feet existing levee that currently separate the Outer and Inner Marshes. The levee would be lowered to approximate high marsh elevation and removed where bisected by restored Centerville Slough.
Restore Centerville Slough	Excavate approximately 4 miles of Centerville Slough to re-connect the Eel River Estuary to the restored tidal wetlands and tributary streams
Restore and Enhance Tidal Wetlands, Tidal Channels and Habitat Ridges	Reconnect full tidal exchange to approximately 500 acres of former estuarine habitat and construct inter-tidal lagoons with habitat ridges and inter-tidal channels to create diverse sub-, inter- and supra-tidal habitats

Component	Description
Reconstruct and Construct New Set-back Berm	Elevate existing and construct new earthen set-back berm approximately 4 miles in length to separate tidal wetlands from agricultural lands
Enhanced Back Dune Berms	Construct approximately 8,000 linear feet of back dune berms with onsite sands to enhance dune building processes
Existing Cutoff Slough Tide Gate Repairs	Repair existing tide gate structure including gate replacement
Construct New Gated Culverts (flood gates)	Construct approximately four new gated culverts along set-back berm alignment for Russ Creek, Shaw Creek, Angel's Camp and adjacent agricultural drainage
Restore Russ Creek and Riparian Corridor	Excavate and realign approximately 1,500 linear feet of Russ Creek and establish adjacent riparian corridor
Total Sediment Cut and Beneficial Reuse	Approximately 750,000 cubic yards, to be beneficially reused within the Project Area
Agricultural Wetland Creation	Lower up to 40 acres of existing agricultural uplands 1-3 feet to create agricultural wetlands as-needed to offset fill impacts from new set-back berm
Dense-flowered Cordgrass (Spartina) Control	Continued control of dense-flowered cordgrass (Spartina) in Outer Marsh using mowing, grinding, excavation, flaming, and/or herbicide application methods to support current Regional Eradication efforts
Access Improvements	Improve existing and new access roads
Public Access Improvements	Public access improvements include the following: <ul style="list-style-type: none"> <li>– Kayak launches (EREP)</li> <li>– Interpretative signs (EREP)</li> </ul>
Management and Maintenance	Post construction management to maintain Project function

## 2.5.1 Barn Demolition

The North and South barns, located on the western border of the Project Area, would be demolished. The South Barn was severely damaged during a recent winter storm and is no longer usable. The North Barn would require expensive retrofits for continued use and the Project design modifies access to the Barn, therefore it would no longer be used post Project. Material from the demolished barns will be hauled offsite for disposal. Following demolition, the site would be restored to surrounding conditions.

## 2.5.2 Lower Existing Levees

Sections of the perimeter levee separating the Inner Marsh from the Outer Marsh would either be left intact or lowered. Sections of the perimeter levee left intact would be used to maintain upland refugia and roosting habitat for shorebirds and waterfowl and to provide wave refraction during flood events. Portions lowered to a marsh plain elevation would be recontoured with varying flat, gradual slopes to provide transitional habitat and offset impacts to wetlands filled by construction of the new set-back berm. Large wood would be placed along some sections of lowered levee to provide high tide refugia for wildlife and a break from wind generated waves coming from the north.

### 2.5.3 Restore Centerville Slough

Historically, Centerville Slough extended south from the Salt River, parallel to the dune network to the community of Centerville at the base of the Wildcat Mountains. Reclamation and the associated reduction in the tidal prism, coupled with actively directed Russ Creek avulsions, resulted in a significant reduction in hydraulic capacity. The Western Drainage Ditch is all that remains as a remnant drainage feature. Russ Creek and Shaw Creek, which once flowed into Centerville Slough, now terminate with avulsion and overland sheet flow over existing pastures, creating large areas of sediment deposition that impact agricultural uses and degrade habitat values.

The Project proposes to realign and expand Centerville Slough along former tidal channels and reestablish the Centerville Slough connection to Eel and Salt Rivers in order to increase the tidal prism within the Project Area. The Centerville Slough channel would be approximately four miles in length with an increasing depth and width in the northerly direction which will increase tidal exchange to restored tidal wetlands. The increased tidal prism would increase sediment transport throughout the system.

The new Centerville Slough channel would convey full tidal exchange as well as runoff from Russ Creek, Shaw Creek and the Creamery Ditch. It would also improve the opportunity for fish passage to the tributary creeks and increase the stream-estuary ecotone. The Western Drainage Ditch would be routed to Centerville Slough. Because Centerville Slough is further inland than the existing Western Drainage Ditch, it is less susceptible to filling from dune over-wash sand. Material excavated from Centerville Slough would be reused on site to construct the set-back berm and other Project elements.

### 2.5.4 Restore and Enhance Tidal Wetlands, Channels and Habitat Ridges

Portions of the Project Area previously diked and drained for agricultural purposes are currently below the current tidal marsh elevations due in part to ground subsidence from tectonic activity and oxidation. The lack of frequent tidal and river flooding has also minimized sediment accretion in these disconnected areas. Other portions of the Project Area have elevated over time due to deposition of sediment from Shaw and Russ Creeks. The disequilibrium of sediment exchange across the Project Area has reduced the footprint and capacity of Centerville Slough and associated historic tidal channels.

The Project would restore and enhance the Centerville Slough marsh network. The marsh network would include four hydraulically re-connected and enhanced tidal wetland areas, — Outer Marsh, Inner Marsh, Russ Creek Marsh, and Angel's Camp Marsh (Figure 2-5). In addition to the restored four-mile-long Centerville Slough, the marsh restoration would include creation of approximately one mile of new and enhanced dendritic tidal channel network, construction of tidal habitat ridges along tidal channels to improve sediment transport processes, restoration and enhancement of approximately 500 acres of estuarian habitat.

Marsh areas would be graded to provide habitat variability and increased complexity, promoting sediment accretion in subsided areas through a network of inter-tidal lagoons and hummocks. The network of sloughs and terminal ponds would provide diverse sub-, inter- and supra-tidal habitats. New brackish water ponds for overwintering juvenile salmonids would also be created by deepening other existing depressions in the floodplain of Centerville Slough. A number of new small terminal ponds, side channels and wood habitat structures would be integrated into the final design to improve upon and diversify the existing channel network complexity providing low energy perennial ponding areas that emulate desirable habitat structure for the tidewater goby and juvenile salmonids. The lagoons would passively evolve into inter-tidal salt marshes with sediment accretion from the Eel River and Russ Creek over time, providing diverse

habitats of mudflat, salt marsh, and subtidal channels. Native planting and invasive species removal would occur as a part of the restoration work and ongoing site management.

### 2.5.5 New and Reconstructed Set-back Berm

An approximate four-mile-long agricultural protection and access set-back berm would be located on the eastern side of the Centerville Slough marsh network to prevent inundation of adjacent agricultural lands from tidal inundation and wave overwash. The set-back berm top would have a gravel surface to provide site access. Onsite sediment would be used to construct the earthen berm. The portion of the existing berm on the east side of Inner Marsh would be elevated whereas the balance of the four-mile berm would be new. The berm top elevation is subject to final design and anticipated to be elevation 14 feet (NAVD88) for the exception of the east-west segment adjacent to Angel's Camp Marsh which is anticipated to have a top elevation of 14 feet (NAVD88) which is the equivalent to the existing dike top elevation separating the Outer and Inner Marshes. This elevation would prevent tidal inundation on adjacent agricultural lands and provide an equivalent level of riverine flood protection as existing conditions (See Section 3.10 – Hydrology and Water Quality), similar to the existing levee separating the Inner Marsh from the Outer Marsh. Based on recent property boundary surveys, short segments of the existing berm adjacent to the Inner Marsh are located on the ORF property. While ORF does not rely on this berm to access their property, the berm in combination with Cutoff Slough creates a physical separation between TWC and ORF land management and will prevent tidal inundation onto ORF.

### 2.5.6 Enhance Back Dune Berms

Significant disturbance from off-road vehicle use and dune over-wash has occurred to the dune field west of the Project Area. Dune over-wash currently impacts drainage in the Project Area, under existing conditions, including the function of the Western Drainage Ditch (Figure 2-4). Dune breach and wave over-wash events have inundated agricultural pastures within the Project Area with saltwater, impacting their agricultural productivity and causing conversion to brackish vegetation types.

The Project would include passive and active techniques to prevent further dune loss and migration of existing dunes into Centerville Slough. This would occur through the construction of approximately 8,000 feet of back dune berms to reduce wave over-wash, direct drainage, and capture sand to passively build up the foredune (Figure 2-5). European beach grass (*Ammophila*) located within the back dune berm footprint will be buried. Native dune species would be planted along with construction of sand fencing to capture sand to prevent migration inland. The Project would focus on back dune enhancements outside of designated Snowy Plover Critical Habitat.

### 2.5.7 Repair Existing Cutoff Slough Tide Gate

The existing tidal control structure in Cutoff Slough currently provides the only anthropogenic conduit of drainage from the Project Area and adjacent agricultural areas into the Eel River. The structure is equipped with six top-hinge tide gates that leak and limit aquatic organism passage to/from the Eel River. The existing tidal control structure in Cutoff Slough is a tide gate structure first built in the late 1800's and replaced in 1979. The accompanying dikes are approximately two miles in length and include the aforementioned tide gate. This system protects an estimated 2,000 acres of productive agricultural lands. To increase resiliency of the agricultural lands, minor repairs to the existing structure would be made as part of the Project and include gate replacement and structural retrofits. The gate replacements will likely

include a combination of both top- and side-hinge style gates and will be subject to the final retrofit design. Relative to top-hinge gates, side-hinge gates are generally desirable for aquatic organism and debris passage.

## 2.5.8 Install New Gated Culverts (Flood Gates)

New culverts with fish friendly flood gates would be constructed through the new set-back berm to accommodate drainage and aquatic organism passage between Russ Creek, Shaw Creek, Angel's Camp and Creamery Ditch. The culverts would vary in size and be equipped with side and/or top hinge gates. The gates would prevent tidal and river flood inundation landward and would open when the inboard water levels are higher relative to outboard which would typically occur daily, providing aquatic organism passage and drainage from adjacent agricultural land.

## 2.5.9 Restore Russ Creek and Riparian Corridor

Approximately 1,500 linear feet of Russ Creek extending north of the RR&T-TWC property boundary to the new tide gate would be widened and deepened to meet the hydraulic and habitat objectives. A riparian corridor would be established adjacent to the restored Russ Creek channel. The overall flow capacity through this reach will be increased so the frequency of overbank flooding is anticipated to be reduced. During extreme Russ Creek flow events that are coincident with a high Eel River stage, overbank flooding will flow across TWC's property east of Russ Creek and into Cut-off Slough, similar to current conditions. Remnant swales and channels currently present on TWC's property east of Russ Creek could be re-purposed in the future to capture and convey overbank flow and sediment during extreme events to low lying areas on the landscape for beneficial reuse. Russ Creek improvements are not proposed on the RR&T property.

## 2.5.10 Beneficial Re-use of Sediment

Project construction requires approximately 750,000 cubic yards of balanced excavation and sediment placement. The Project would balance the cuts and fill volume on-site through beneficial reuses. Excavated sediment would be reused on site and would not be hauled off-site for disposal. Proposed onsite reuses include construction of back dune berms and construction of new set-back berm, rehabilitation of the existing berms and permanent access roads, and construction of tidal ridges and marsh plain fill.

Sediment reuse would consider the salinity of excavated sediments. The majority of the sediments are comprised of silty fine sands, sandy silts and clay, and are suitable for proposed construction activities. Laboratory analytical results indicate that soils within the Centerville Slough excavation have relatively high electrical conductivity (EC), exchangeable sodium percentage (ESP) and sodium adsorption ratio (SAR) values, indicating that they are saline-sodic (LACO 2022). In general, the salinity of the soil increases with depth. Reuse of saline-sodic soils for agricultural purposes is not recommended due to the potential for soluble salts within the excavated material to leach into the soil and impede vegetative growth. Graded areas requiring immediate establishment of non-salt marsh vegetation would be capped with either low- or non-saline-sodic soils derived from the surficial soils within the Project Area.



## 2.5.11 Agricultural Wetland Creation

The proposed set-back berm will result in filling of wetlands that is anticipated to exceed the area of wetlands created by lowering the existing dike separating the Outer and Inner Marshes. A portion of uplands within the Project Area may be converted to agricultural wetlands (lowered 1-3 feet) in order to balance wetland fills associated with construction of the new set-back berms (Figure 2-5). The available agricultural upland to agricultural wetland conversion area is over 40 acres; however, the actual area needed is approximately 19 acres and would be subject to the Project's final design.

## 2.5.12 Treatment of Dense-Flowered Cordgrass

Through the Regional Eradication Program, Dense-flowered Cordgrass (*Spartina*) is currently being treated in the Outer Marsh using top mowing and grinding techniques. Additional removal is anticipated in the Outer Marsh as part of the Project in addition to long-term follow-up treatment/maintenance. The methods utilized to control dense-flowered cordgrass would be carried out using a series of treatments implemented over time based on seasonality, weather, tides, labor availability, and other factors. Proposed treatment methods are generally consistent with those outlined in the Humboldt Bay Regional *Spartina* Eradication Plan (H.T. Harvey 2013). The descriptions of these methods below are derived, in part, from the Programmatic Final EIR for the Humboldt Bay Regional *Spartina* Eradication Plan (H.T. Harvey 2013, H.T. Harvey and GHD 2013).

### Top Mowing

Top-mowing would involve cutting above-ground stems, leaves, and flowering stalks, typically using handheld gas-powered equipment (e.g., tri-bladed brushcutter, corded weedwhacker) or heavy equipment (e.g., Marshmaster outfitted with mowing attachment). Examples of handheld and heavy equipment are depicted on Image 2-1 – Representative Vegetation Removal Equipment. Biomass generated during and as a result of mowing would be left in place to decompose or to be washed away by the tide, tilled into the soil as mulch during grinding, and/or raked into piles and burned. This has been an acceptable practice that was analyzed in the PEIR.



**Image 2-1 – Representative Vegetation Removal Equipment. Handheld brushcutter/grinding method (left) used to remove above-ground vegetation. Marshmaster (right) used to mow larger areas and grind (via rototiller) dense-flowered cordgrass rhizomes. Photo credit: A. Pickart (USFWS 2017).**

Mowing would be used to clear above ground vegetation in preparation for other treatments, such as grinding or herbicide application, or could be used as a seed suppression measure. In general, handheld equipment would be used to mow areas with low to moderate cordgrass density, limited access, or for seed suppression where handheld equipment can readily remove seedlings without compacting or disturbing too much soil. Heavy equipment would be used to treat larger areas, or areas supporting dense stands of dense-flowered cordgrass.

## **Grinding**

Grinding involves the use of gas-powered hand tools (e.g., brushcutter), or heavy equipment (e.g., Marshmaster outfitted with a rototiller attachment), to target dense-flowered cordgrass rhizomes below the soil surface. After aboveground vegetation has been removed, the blades of the brushcutter or rototiller are advanced vertically or diagonally into the substrate to grind (macerate) the root crown and rhizomes into small fragments. Grinding depths typically extend three to six inches below the ground surface, with precise depths depending on site conditions and the maturity and density of the dense-flowered cordgrass stand. Follow-up treatments, which are less intensive than the initial grinding, are typically required to address re-sprouts that regenerate from rhizome fragments remaining in the soil.

## **Tilling**

An alternative to grinding is tilling, where a mini-tiller may be used to macerate rhizomes. Mini-tillers, if utilized, are most advantageous when dense-flowered cordgrass cover is less than 50 percent (H.T. Harvey and GHD 2013).

## **Excavation**

Excavation involves complete removal of the plant, including rhizomes, either by hand or using heavy equipment. Excavated material would subsequently be stockpiled and buried onsite or chipped onsite using brush cutters and used for mulch. In addition, dense-flowered cordgrass that is excavated during construction activities may also be buried with suitable cover (e.g., in high marsh or habitat ridge areas), as appropriate.

## **Flaming**

Flaming is a form of weed control in which a flame is passed over a plant until it wilts, causing the fluid in the plant's cells to expand and rupture and ultimately killing the plant (H.T. Harvey and GHD 2013). Flaming would utilize handheld propane torches to deliver a small, controlled flame to a targeted plant. Since flaming is not an effective method to kill mature dense-flowered cordgrass plants, it would only be used to treat dense-flowered cordgrass seedlings under the Project.

## **Herbicide Application**

Eradication of non-native plants can be achieved through the application of herbicide, typically sprayed on plant leaves during the active growing season. The herbicide Imazapyr, in conjunction with mechanical treatments (e.g., mowing, grinding), could be used to control dense-flowered cordgrass where other methods have proven ineffective, or where treatment costs would be substantially reduced. Herbicide applications would be performed by a Qualified Applicator, or under the supervision of a Qualified Applicator, in accordance with the manufacturer's recommendations for aquatic use and application. Herbicide would be applied by workers moving through the marsh on foot using backpack sprayers or wick applicators. Alternatively, herbicide would be applied from spray equipment mounted on boats, trucks, or

amphibious tracked vehicles. This Project would not include aerial applications of herbicide, such as broadcasting herbicide from helicopters or airplanes.

### 2.5.13 Existing and Future Uses

Properties that are privately owned by RR&T and the Linda S Revocable Trust properties are managed for livestock grazing. TWC property is managed for livestock grazing, habitat, and for outdoor recreation and education opportunities. TWC currently leases hunting rights to a private waterfowl hunting club, welcomes scheduled and docent-led small group site visits, and uses the site to educate elementary school children about wetland and estuary systems and agriculture as practiced in the coastal zone. TWC will continue to manage public access on the EREP consistent with the conservation values of the NRCS WRE and remain compatible with the grazing operations.

Since 2008, TWC has recorded the number of EREP visitors annually which has ranged from the lowest annual total of 405 visitors in 2009 to the highest of 745 in 2014; 72% of which are hunters associated with the private duck hunting club (see annual visitation levels and type in Recreation Section). The types of visitors have been diverse and include but not limited to conservation groups, contractors, hunting club members, students and the general public. TWC obtained a Humboldt County Conditional Use Permit (PLN-2017-1 3564) and Coastal Development Permit (PLN-2020-1 6306) in 2021 (“Permits”) which approved public access on the EREP for three days per week while TWC staff is on duty. Since approval of the three days per week of public access was conditioned on certain improvements being made which have not yet been completed. EREP is still open only on a reservation basis and therefore has not experienced an increase in visitation. The Project proposes to expand public access to seven days per week, with the intent of maintaining hunting and increasing public visitation rates, resulting in an overall increase in visitation on EREP only. Public access would be limited to designated locations such as the existing parking area at the Headquarters Barn, established footpaths, access roads, berm tops and kayak launches (Figure 2-5). Interpretative signs in combination with TWC full-time staff would educate the public on the ecological setting and compatible agricultural uses.

EREP is currently only open on a reservation basis but is permitted to be open three days a week. Baseline for visitation is based on the permitted condition of being open three days per week for visitation. For purposes of comparison to visitation and recreation in other areas, the Humboldt Bay National Wildlife Refuge (Refuge) in Loleta conveniently located adjacent to Highway 101, averages approximately 24,500 visitors for the entire complex, and approximately 13,000 for the visitor center in Loleta alone. The complex includes the Salmon Creek, Hookton Slough, and Dunes Units. Friends of the Dunes on Manilla near Highway 255 estimates 6,000-7,000 visitors per year to their public access locations on the coast of Humboldt Bay. Friends of the Dunes has a visitor center, a series of hiking trails open seven days/week, and they provide school and education tours as well as hosts events and fundraisers. EREP is likely to be different from these other locations is partially due to the proximity to heavily travelled areas. The EREP has a greater relative distance from a major thoroughfare, such as Highway 101 and 255. The remoteness of EREP and travel time from Highway 101, would require the average tourist at least half a day. The Refuge and Friends of the Dunes properties also have more visitor serving infrastructure including visitor centers, signage on major highways, as well as established marketing networks.

Comparing these locations to EREP, it is reasonable to assume EREP could receive up to 7,500 visitors per year were it open seven days a week. Current entitlements allow for being open three days per week, or up to approximately 4,300 annual visitors. TWC expects increases in visitation would slowly increase annually, as more people learn about the EREP’s increased hours of operation. Scenarios of increased visitation and associated assumptions are illustrated in Table 2.2 below.

**Table 2.2: Estimated Average Visitor Scenarios for EREP**

	Permitted baseline	Proposed visitation	Expected change between permitted baseline and proposed visitation
Days open annually	156.4	365.0	208.6
Daily visitation rate	27.4	20.5	Daily visitation reduced
Average annual visitors	4,286.0	7,500.0	3,214.0
Daily vehicle trips*	36.5 total trips (18.3 one-way trips)	27.4 total trips (13.7 one-way trips)	Daily trips reduced

**Notes:** \*Assuming 1.5 people per vehicle. This number does not include staff vehicle trips which are anticipated to remain similar to current conditions.

School groups are likely to have a higher carpool rate; therefore, reducing the number of daily trips.

Number of visitors are based on annual averages; however, non-hunting visitors are likely to increase in the summer and decrease in the winter, resulting in higher or lower actual daily rates.

No access for recreation or public education is proposed outside of the EREP portion of the Project Area.

## 2.5.14 Access Improvements

The following access improvements are proposed that will improve operational and management needs of the proposed Project.

### Access Roads

In order to ensure the viability of continued agricultural operations and management within and around the Project Area and maintain the intent of the drainage easement agreements, a variety of minor access improvements are proposed to existing access roads which will include small drainage culvert replacements, re-graveling existing access roads, placement of signs and fencing. These improvements would be compatible with NRCS ACEP-WRE and also used for ongoing and future habitat management and enhancement work. Additionally, given the anticipated increase in EREP visitors as described above, improvements to the private access road extending beyond the County maintained portion of Russ Lane are proposed to minimize disturbance to existing agricultural uses. This portion of the private drive is located on Harville Ranch L.L.C. and is approximately 12-foot-wide gravel road with a straight line of sight to the EREP entrance gate. Multiple signs will be installed along this stretch to direct visits to stop and proceed when clear, to use the delineated turnout, and to reduce vehicle speed. Stop and proceed signs and gates would be located at both ends of the roadway. Informational signs would improve wayfinding for visitors and shared road use with Harville Ranch L.L.C. agricultural operations. The existing road and turnout would be improved with gravel.

### Kayak Launches

Up to three kayak launches would be installed near the restored Centerville Slough and Cutoff Slough tide gates both on the EREP to support post-Project monitoring and maintenance, aquatic educational programs, and limited recreational use by visitors (Figure 2-5). The kayak launches would be approximately ten feet wide with all-weather graveled slopes extending from the bank of the slough to the slough channel to facilitate launching of kayaks and small non-motorized watercraft. Interpretative signage would be installed at each put in and take out informing visitors of appropriate kayaking locations and tidal conditions.

## 2.6 Project Implementation

Construction activities would be conducted in compliance with applicable local, state and federal requirements and in a manner that minimizes disturbance to adjacent properties and disruption to traffic. Minimal traffic control is expected for this Project because the vast majority of the Project Area has no roads, is not drivable due to wetlands and topography, and the property owners limit vehicle use. Some limited traffic control in the form of temporary construction-related vehicle exclusion zones would likely be required for public safety.

### 2.6.1 Construction Schedule and Duration

Project construction would be phased into two to four construction seasons based on available funding, site conditions, and sequencing for earthwork with construction water management. Each season would span approximately May through the end of October, as feasible with dry weather and allowable permitting windows. Construction would generally occur between the hours of 6:00 AM and 6:00 PM, Monday through Friday. Construction during the weekends would be subject to approval by the landowners and construction manager. It is anticipated that between 15 and 25 construction workers would be present at any given time. The number of motor vehicles is anticipated to be up to 30 per day.

### 2.6.2 Construction Activities and Equipment

Multiple sediment reuse areas coupled with the extent of Project excavation are anticipated to necessitate multiple active staging and excavation sites within the Project footprint. Each phase may include the equipment listed below (Table 2.3).

**Table 2.3 Estimate of Equipment Needed for Project Construction**

Equipment Type	Estimated Quantity
Excavators (Conventional and/or Amphibious)	4-6
Scrapers	1-3
Dozers	2-4
Loaders	1-3
Dump Trucks	6-12
Small Tractors	1-3
Compactors	1-2
Graders	1-2
Water Trucks	1-2
Hydraulic Dredge	1
Pumps	2-4

### 2.6.3 Construction Access, Stockpile, and Staging

Primary access to the EREP portion of the Project Area during construction and operation would occur via the private drive extending beyond Russ Lane off of Centerville Road. Centerville Road is a two-lane paved County road. The private drive extending beyond the County maintained portion of Russ Lane is a single lane gravel road with shoulders whereas the County maintained portion is paved. Access to the RR&T portion of the Project Area during construction and operation would occur via the graveled private drive off

of Centerville Road. Construction equipment and materials would be transported to the work areas via these ingress and egress locations. Signage notifying construction workers of max speed and use of the private roads during construction would be necessary to minimize conflicts between agricultural and construction uses. During construction activities at specific locations, unimproved haul roads on top of dikes, and areas of pasture nearby, would be utilized for the duration of those specific work tasks. Temporary haul roads would have a width of ten feet in most locations. In limited areas, the width of haul roads would be as much as 20 feet. Following construction, all temporary haul roads would be restored to an estuary or agricultural conditions. Construction equipment would not be stored in inundation areas or in sloughs. Construction staging and stockpile areas would occur throughout the Project Area. All areas disturbed by temporary staging and stockpiling would be de-compacted and naturalized as needed prior to Project completion.

Within the Project Area, internal private roadways may be closed or restricted for a discrete portion of the Project during construction. Short-term, temporary lane closures or delays along the first 0.4 miles of Russ Lane, a public roadway, may occur but emergency access would not be restricted.

## 2.6.4 Utilities and Public Services

There are no public water or sewer utilities within the Project Area. Pacific Gas & Electric (PG&E) supplies power to structures in the Project Area including the Potato/Headquarters Barn, Quonset Hut, and a well. There are overhead power poles near the barn as well. There are no known public utility easements through the Project Area for utilities, and there are no anticipated changes to utilities. The contractor would be responsible for supplying electrical power if needed for any construction activities via a portable generator. There are no anticipated changes to public services such as law enforcement and fire protection.

## 2.6.5 Surface Water and Groundwater Management

During excavation, management of surface water from upstream tributaries, including Russ Creek, Shaw Creek, and Creamery Ditch, would be required through the construction period. Surface water management (both tidal and freshwater) would be required to reduce nuisance water within the active work area. Inflow management would also reduce the moisture content in excavated soils and prevent aquatic and non-aquatic organisms from entering the construction area. Cofferdams would be used to isolate instream work areas that would be dewatered and stream flow bypassed downstream.

The cofferdams would be comprised of native material or washed gravel encased with an impermeable geotextile or visqueen liner in combination with ecology blocks and/or temporary sheet piles pushed into the subsurface. A combination of pumped and/or gravity diversion pipes would be used to route flow around the active work areas. Fish screens would be installed immediately upstream from the cofferdams to prevent aquatic organisms from being entrained.

Groundwater dewatering is generally not expected but may be required. If needed, temporary groundwater dewatering would involve pumping water out of a trench or excavation area. Groundwater would typically be pumped to a settling pond, settling tank, or into a dewatering bag. Dewatering water may also be percolated back into the ground. Discharge to regulated waters would not occur.

Excavation of Centerville Slough through the Outer Marsh would occur using either a hydraulic dredge or excavators. The hydraulic dredge would be mounted on a barge and likely mobilized to the work area from the boat launch at Cock Robin Island Road. The hydraulic dredge would utilize a cutter head and pump to excavate a new tidal channel moving the slurry of water and soil to the disposal sites along the back dune

or Inner Marsh using an aboveground pipeline. Temporary berms would be constructed to contain and decant the slurry. Decanted water would be allowed to flow through a series of weirs, where it would ultimately be discharged to the estuary.

If it is cost prohibitive or technically infeasible to mobilize a hydraulic dredge to the site, an alternative method would use excavators and dump trucks to excavate the new tidal channel through the Outer Marsh. Equipment would use the remnant dikes and back dune to access the channel excavation area. A temporary road built on wetland mats would be used to allow equipment access over the salt marsh, where an excavator would offload sediment to dump trucks for disposal throughout the Project Area. Portions of the channel may need to be excavated with an amphibious excavator. Silt curtains may be installed to limit the delivery of turbid water outside the immediate work area, if feasible.

## 2.6.6 Site Stabilization and Revegetation

Following construction, the contractor would demobilize and remove equipment, supplies, and construction wastes. The disturbed areas would be restored to pre-construction conditions or stabilized with a combination of grass seed (broadcast or hydroseed), straw mulch, rolled erosion control fabric, and other plantings/revegetation. If required, revegetation would include replanting and any potential compliance monitoring in support of mitigation required by resource agencies for impacts to regulated habitats, such as wetlands or Sensitive Natural Communities.

## 2.6.7 Management and Maintenance

Ongoing management and maintenance activities may be necessary to assure the long-term hydraulic and ecological functions of the Project. Appendix D includes the proposed Monitoring and Maintenance Plan which describes the anticipated actions and roles/responsibilities. In summary, the following maintenance actions are anticipated after the Project is constructed:

- Setback Berm
  - Observations of physical character (annually and following extreme storms)
  - Mowing to discourage growth of woody vegetation and invasives species (annually)
  - Repair from erosion or borrowing animal damage (as needed)
  - Grading and/or resurfacing portions of the access roads (approximately once in ten years)
- Cleaning debris and sediment from channels, drainage ditches and tide / flood gates (annually and following extreme storms)
- Removing invasive vegetation and re-planting native species (semi-annually)
- Reconfiguring back dune berms and sand fencing (annually and following extreme storms)
- Tide and flood gates
  - Observation of physical performance (annually and following extreme storms)
  - Adjustments to hinges and seals (as needed)
- Access Roads
  - Grading and/or resurfacing (as needed)

The property owners will conduct regular observations to monitor the Project Area response relative to the restoration design intent. The above maintenance activities will be prioritized and implemented based on the monitoring outcome. Monitoring activities are considered a subcomponent of Project maintenance.

Specific monitoring activities are to be determined but would generally include observations of physical character of the site and plant species to determine whether the Project has been successful. The frequency of monitoring will be determined during Project permitting and will be subject to available funding. The impacts associated with the anticipated operational and maintenance activities would be infrequent and short-term in nature. In addition, they are anticipated to be no greater than the traditional maintenance historically performed on these lands under existing conditions.

## 2.7 Required Permits and Approvals

The Project would likely require the following permits/approvals:

- County of Humboldt – Conditional Use Permit for off easement activities and Grading Permit
- California Coastal Commission – Coastal Zone Management Act (CZMA) Federal Consistency Determination or Coastal Development Permit
- California Department of Fish & Wildlife – Lake and Streambed Alteration Agreement and CESA compliance for off-easement activities
- North Coast Regional Water Quality Control Board – Clean Water Act Section 401 Water Quality Certification
- California State Historic Preservation Office – National Historic Preservation Act (NHPA) Section 106 Review
- U.S. Army Corps of Engineers – Clean Water Act Section 404 Permit. As part of the 404 permit the USACE will complete NEPA, and the Natural Resources Conservation Services (NRCS) will act as the federal cooperating agency.
- NOAA Fisheries – Endangered Species Act (ESA) Section 7 Formal Consultation Magnuson-Stevens Fishery Conservation Management Act Essential Fish Habitat Assessment
- USFWS – ESA Consultation
- State Lands Commission – Lease

The Project is being funded in part by the Natural Resources Conservation Services (NRCS). NRCS will serve as the federal cooperating agency and as the lead federal agency responsible for compliance with the CZMA, NHPA, and ESA.

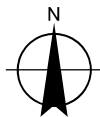
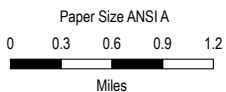
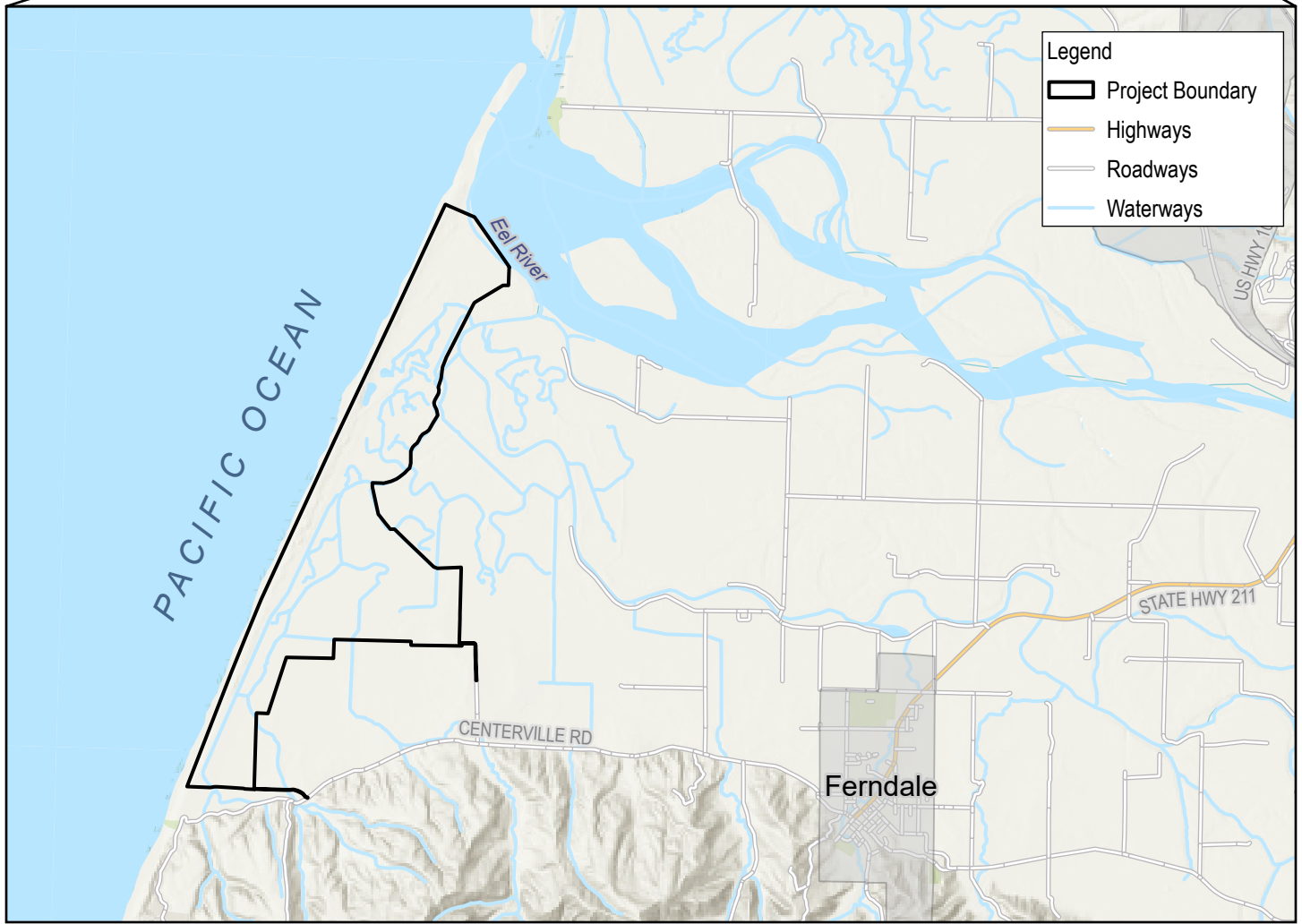
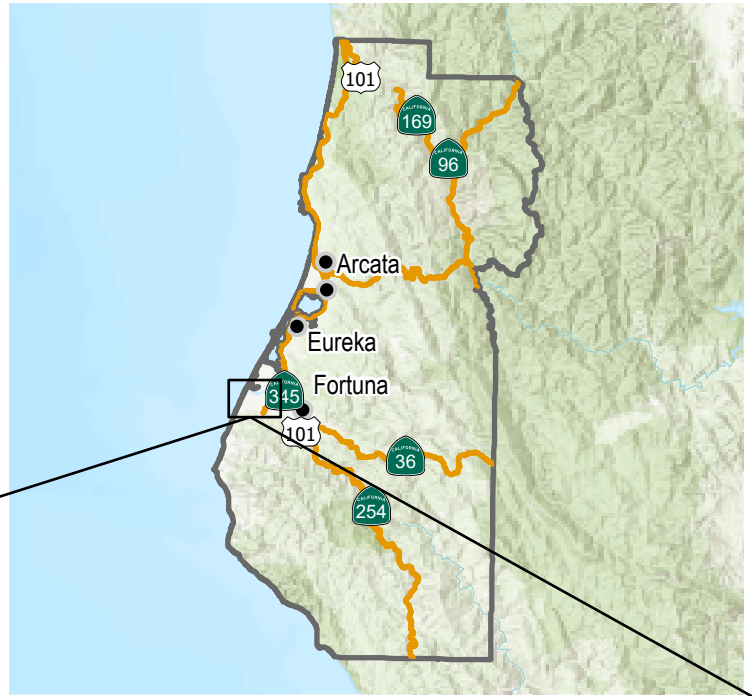
## 2.8 References

H.T. Harvey & Associates. 2013. *Humboldt Bay Regional Spartina Eradication Plan*.

H.T. Harvey & Associates and GHD. 2013. *Final Programmatic Environmental Impact Report for the Humboldt Bay Regional Spartina Eradication Plan*.

LACO. 2022. *Geotech addendum report for Centerville Slough and Russ Creek Restoration Project*.





**Humboldt County Resource Conservation District  
Russ Creek and Centerville Slough Restoration Project**

Project No. 11187323  
Revision No. -  
Date Apr 2023

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

**FIGURE 2-1**



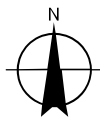
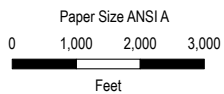
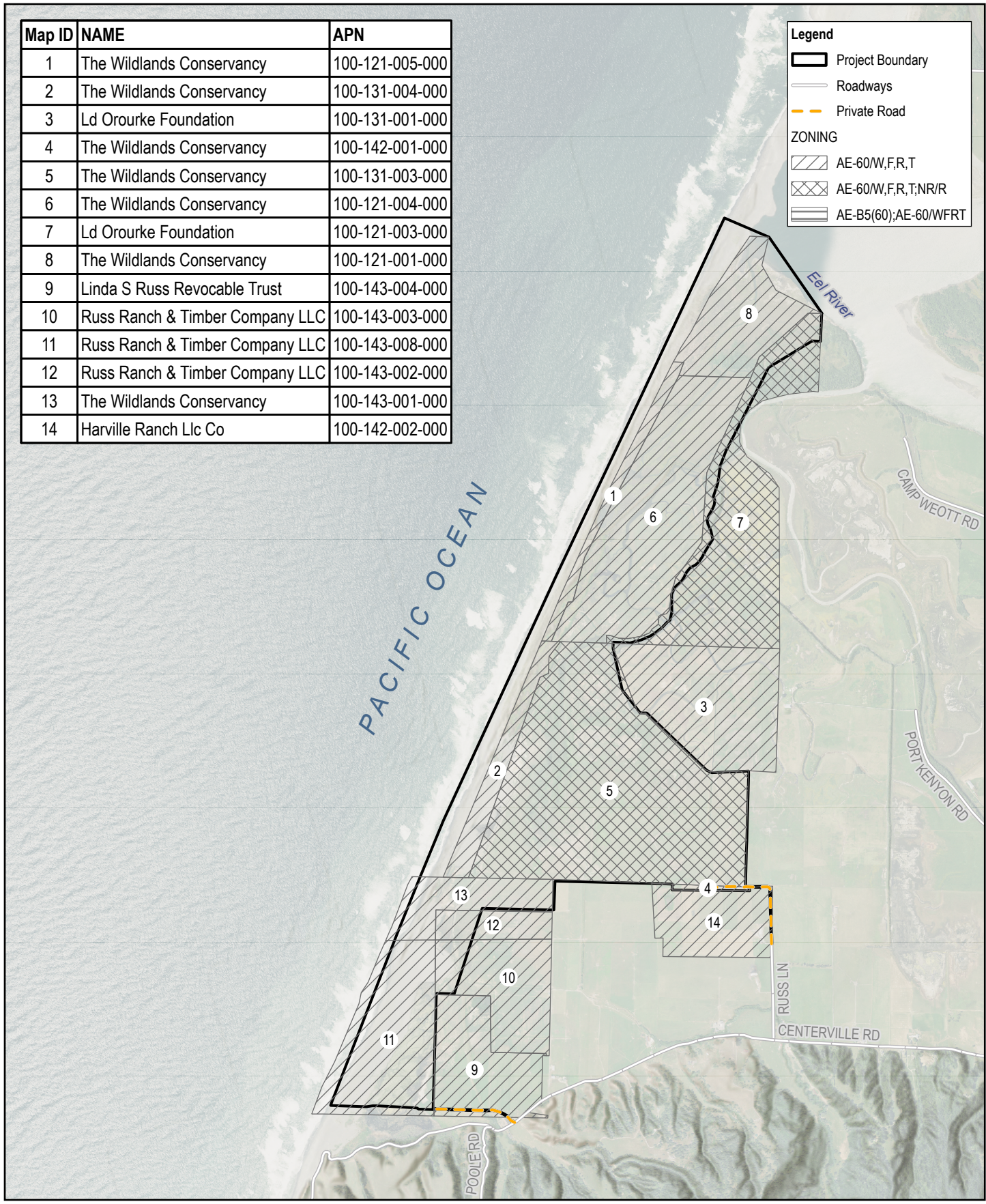
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3	Ld Orourke Foundation	100-131-001-000
4	The Wildlands Conservancy	100-142-001-000
5	The Wildlands Conservancy	100-131-003-000
6	The Wildlands Conservancy	100-121-004-000
7	Ld Orourke Foundation	100-121-003-000
8	The Wildlands Conservancy	100-121-001-000
9	Linda S Russ Revocable Trust	100-143-004-000
10	Russ Ranch & Timber Company LLC	100-143-003-000
11	Russ Ranch & Timber Company LLC	100-143-008-000
12	Russ Ranch & Timber Company LLC	100-143-002-000
13	The Wildlands Conservancy	100-143-001-000
14	Harville Ranch Llc Co	100-142-002-000

**Legend**

- Project Boundary
- Roadways
- Private Road

**ZONING**

- AE-60/W,F,R,T
- AE-60/W,F,R,T;NR/R
- AE-B5(60);AE-60/WFRT



Humboldt County Resource Conservation District  
 Russ Creek and Centerville Slough Restoration Project

Project No. 11187323  
 Revision No. -  
 Date May 2023





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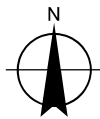
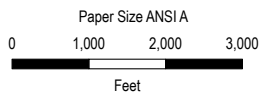
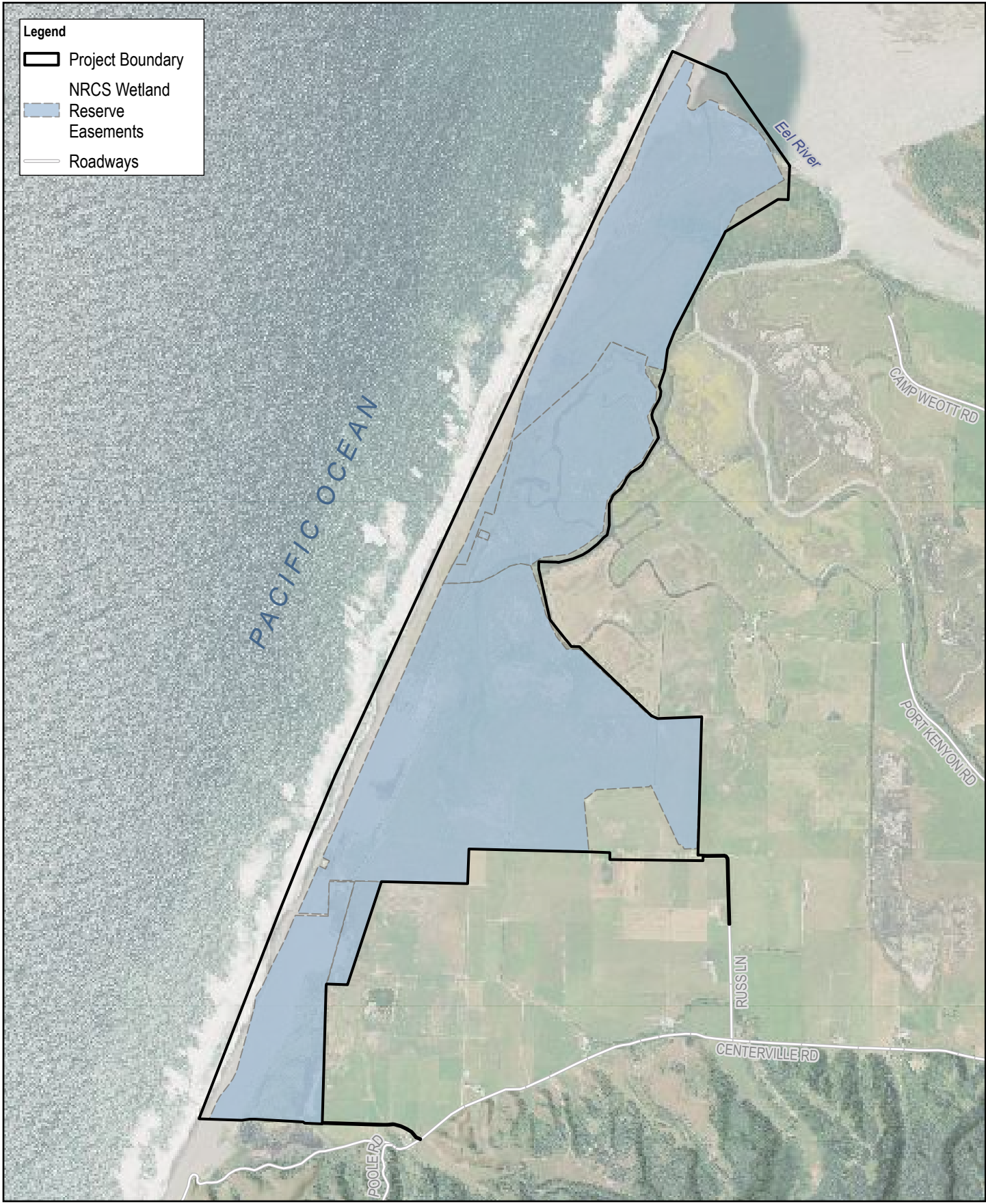
**Ownership and Zoning**

**FIGURE 2-2**



**Legend**

-  Project Boundary
-  NRCS Wetland Reserve
-  Easements
-  Roadways



Humboldt County Resource Conservation District  
Russ Creek and Centerville Slough Restoration Project

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Grid: NAD 1983 StatePlane California 1 FIPS 0401 Feet

**NRCS Easement Boundaries**

**FIGURE 2-3**

**Parcels adjacent to Project Area that are north of Centerville Road and within the diked basin**

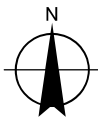
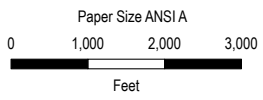
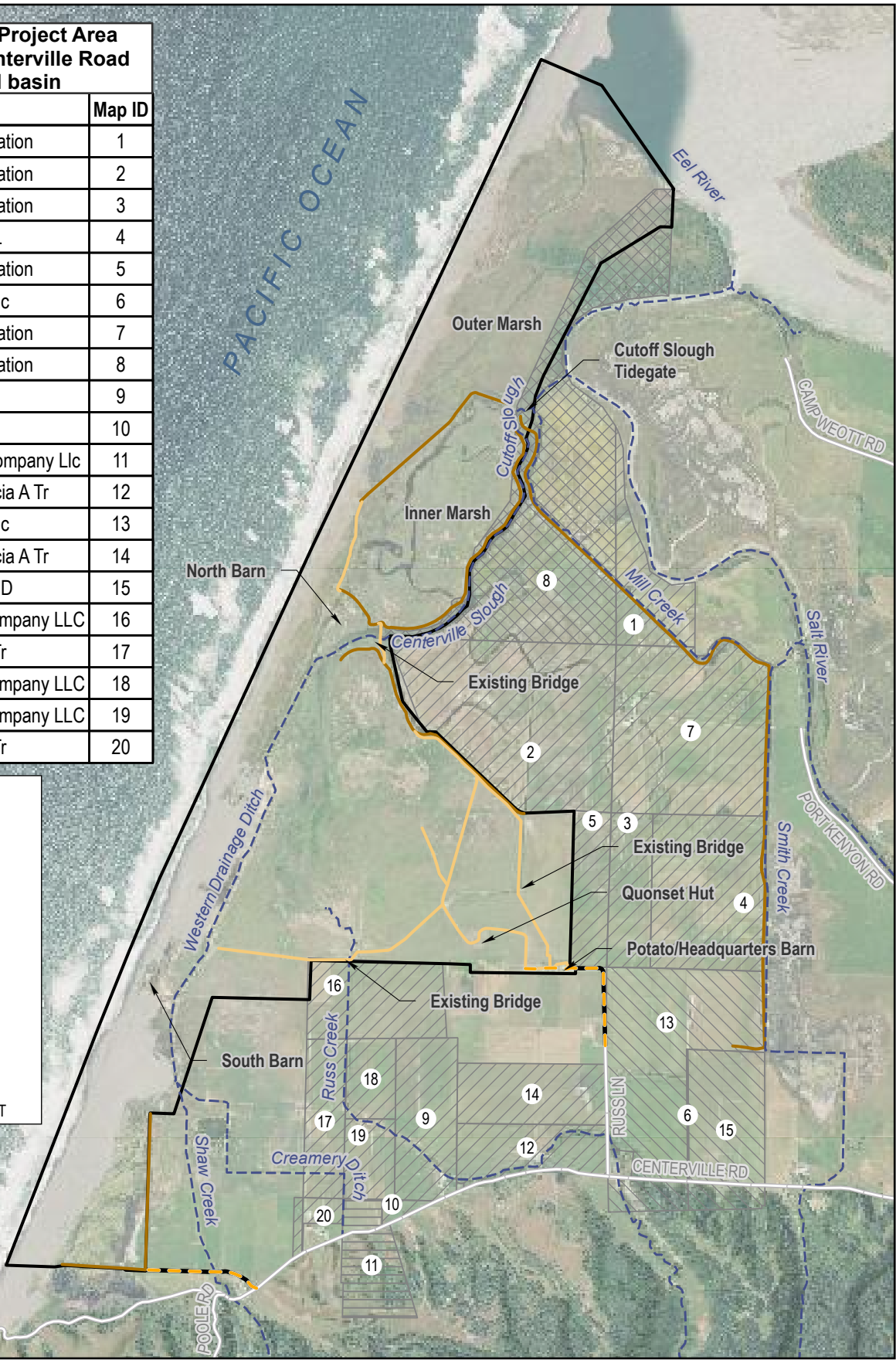
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Ld Orourke Foundation	2
Ld Orourke Foundation	3
Russ Joseph L	4
Ld Orourke Foundation	5
Fern Cottage Inc	6
Ld Orourke Foundation	7
Ld Orourke Foundation	8
Russ Jack P	9
Russ Jack P	10
Russ Ranch & Timber Company Llc	11
Belli Gary W & Patricia A Tr	12
Fern Cottage Inc	13
Belli Gary W & Patricia A Tr	14
Machado Mario D	15
Russ Ranch & Timber Company LLC	16
Russ Linda S Tr	17
Russ Ranch & Timber Company LLC	18
Russ Ranch & Timber Company LLC	19
Russ Linda S Tr	20

**Legend**

- Project Boundary
- Existing Waterways
- County Roads
- Private Road
- Existing Access Roads
- Existing Berms/Dikes

**Adjacent Parcels Zoning**

- AE-60/W,F,R,T
- AE-60/W,F,R,T;NR/R
- AE-60/W,F,R,T;U
- AE-B5(60);AE-60/WFRT



Humboldt County Resource Conservation District  
Russ Creek and Centerville Slough Restoration Project

Project No. 11187323  
Revision No. -  
Date Apr 2023

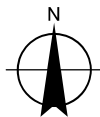
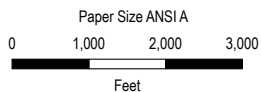
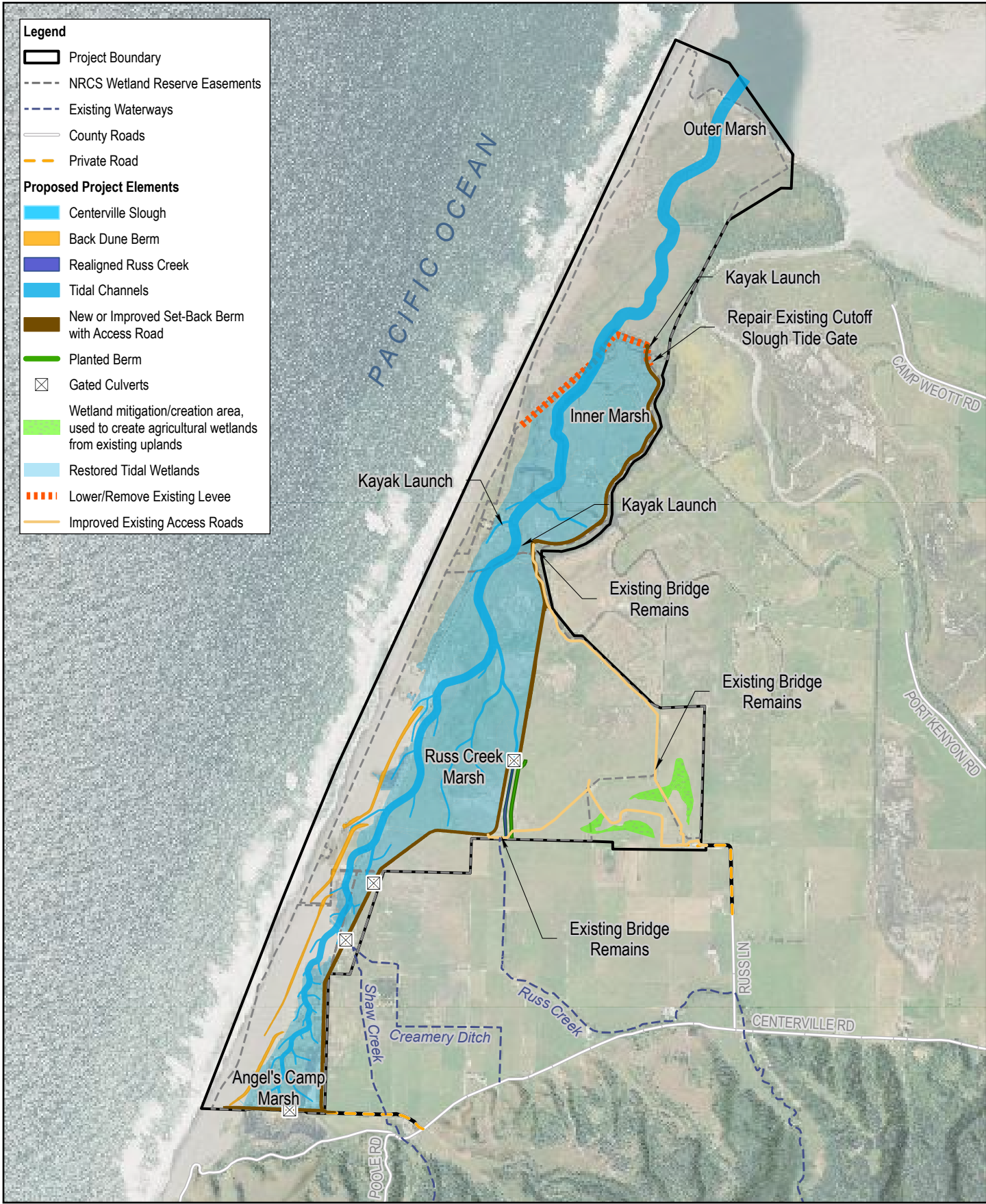
Map Projection: Lambert Conformal Conic  
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**Existing Conditions**

**FIGURE 2-4**

\\ghdnet\ghd\US\Eureka\Projects\1111187323 HCRCD USDA-NRCS ACEP-WRE\08-GIS\Maps\Deliverables\11187323\_EIR.aprx - 11187323\_002-4\_ExistingConditions\_RevH  
Print date: 27 Apr 2023 - 10:02

Data source: Project Boundary, GHD 4/14/22; Waterways NHD and GHD, 2022; Humboldt County roads, edited by GHD, 3/11/2021; NAIP 2020; World Hillshade: Esri, NASA, NGA, USGS, FEMA. Created by: Jlopez4



Humboldt County Resource Conservation District  
Russ Creek and Centerville Slough Restoration Project

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Date Apr 2023

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

**Proposed Project Components**

**FIGURE 2-5**

## 3. Environmental Setting, Impacts, and Mitigation Measures

### Scope of Analysis

This Draft EIR analyzes the potential effects of the proposed Project on the environment under the applicable environmental resource categories listed in the CEQA Initial Study Checklist (Appendix G of the CEQA Guidelines).

Each environmental resource area potentially impacted by the Project is addressed in the following sections numbered as follows:

- 3.1 Aesthetics
- 3.2 Agriculture and Forestry Resources
- 3.3 Air Quality
- 3.4 Biological Resources
- 3.5 Cultural Resources
- 3.6 Energy
- 3.7 Geology and Soils
- 3.8 Greenhouse Gas Emissions
- 3.9 Hazards and Hazardous Materials
- 3.10 Hydrology and Water Quality
- 3.11 Land Use and Planning
- 3.12 Noise
- 3.13 Public Services
- 3.14 Recreation
- 3.15 Transportation
- 3.16 Tribal Cultural Resources
- 3.17 Wildfire

Mineral Resources, Population and Housing, and Utilities and Service Systems are evaluated in Section 5 (Other CEQA Sections / Environmental Issues Determined Not to be Significant). Otherwise, each section of Chapter 3 contains the following elements:

**Setting.** This subsection presents a description of the existing physical environmental conditions in the Project Area, also referred to as the Project Boundary, with respect to each resource area at an appropriate level of detail to understand the impact analysis. It describes existing conditions and provides a baseline by which to compare the potential impacts of the proposed Project.

**Regulatory Framework.** This subsection provides a brief discussion of applicable federal, State, and local regulations and policies that are relevant to the resource category.



**Evaluation Criteria and Significance Thresholds.** This subsection provides the significance thresholds for evaluation of environmental impacts. The significance thresholds are based on State CEQA Guidelines Appendix G.

**Methodology.** The methodology subsection discusses the approach to the analysis.

**Impacts and Mitigation Measures.** This subsection evaluates the potential for the Project to significantly affect the physical environment described in the setting. Potential impacts are identified and characterized, and where feasible, mitigation measures are identified to avoid or reduce significant impacts to a less-than-significant level.

**Cumulative Impacts.** Cumulative impacts are discussed in each environmental resource section following the description of the Project-level impacts and mitigation measures. The cumulative impact analysis is based on the same setting, regulatory framework, and significance thresholds presented in each resource category section. Additional mitigation measures are identified if the analysis determines that the Project's contribution to an adverse cumulative impact would be cumulatively considerable and, therefore, significant.

## Significance Determinations

The significance thresholds for each environmental resource category are presented in each section of Chapter 3. For the impact analyses, the following categories are used to identify impact significance:

**No Impact.** This determination is made if a resource is absent or if a resource exists within the Project area, but there is no potential that the Project could affect the resource.

**Less-than-Significant Impact.** This determination applies if there is a potential for some limited impact on a resource, but the impact is not significant under the significance threshold.

**Less-than-Significant Impact after Mitigation Incorporated.** This determination applies if there is the potential for a substantial adverse effect in accordance with the significance threshold, but mitigation is available to reduce the impact to a less-than-significant level.

**Significant and Unavoidable Impact.** This determination applies to impacts that are significant, and mitigation has been incorporated, but the mitigation does not reduce the impact to less-than-significant and there appears to be no additional feasible mitigation available to reduce the impact to a less-than-significant level. Environmental impacts are numbered throughout this EIR, using the section number followed by sequentially numbered impacts.

## Cumulative Impacts

Cumulative impacts are defined as “two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts” (CEQA Guidelines Section 15355). Cumulative impacts can result from individually minor, but collectively significant, actions taking place over a period of time.

The cumulative impact analysis for each environmental resource category is described in the appropriate subsections of this Chapter, following the description of direct Project impacts and identified Mitigation Measures.

## Approach to Cumulative Impact Analysis

Two approaches to the definition of the cumulative Project scenario are discussed in CEQA Guidelines Section 15130(b). The first approach is a list of past, present, and probable future Projects producing

related or cumulative impacts. The second approach is a summary of Projections contained in an adopted local, regional or statewide plan, such as a general plan or related planning document, or in an adopted or certified environmental document, which describes or evaluates conditions contributing to cumulative effects.

For this EIR, the cumulative Project scenario has been evaluated using the list approach. Table 3-1 lists relevant Projects used in the cumulative impacts analysis for each environmental resource topic.

To identify projects to be considered for cumulative impacts, outreach was conducted to the following agencies and organizations:

- Humboldt County Resources Conservation District
- Humboldt County Planning and Building Department
- Humboldt County Department of Public Works
- California Coastal Commission

Large scale restoration projects on properties owned by the California Department of Fish and Wildlife (CDFW) were also included in Table 3-1.

## List of Relevant Projects

Table 3-1 (Projects Considered for Cumulative Impacts) provides a list of the past (within two years), present, and reasonably foreseeable future Projects within and near the Project Area, including a brief description of the Projects and their anticipated construction schedules (if known). Single-family homes and other similar small-scale uses were not included because of their negligible cumulative effects.

Identified projects included two near or adjacent to the Project Area (Centerville Road Post Mile 4.62 Storm Damage Repair and Ongoing Maintenance Outside the Project Area but Within the Shared Dike Basin), in addition to ongoing maintenance within the Project Area. Other identified projects include landscape scale estuary restoration efforts in the Ocean Ranch Unit, Cannibal Island, and throughout the Salt River watershed. Combined with smaller-scale efforts to reduce sedimentation and improve drainage in the lower Eel River valley and contributing small tributaries, all projects listed in Table 3-1 are cumulatively beneficial to the Eel River estuary and ecosystems. At the watershed level, anticipated changes to the Potter Valley Project required by Federal Energy Regulatory Commission (FERC) relicensing are also expected to improve streamflow management to benefit anadromous fisheries in the Eel River. Relevant projects summarized in Table 3-1 are analyzed within each resource category of this Environmental Impact Report.



**Table 3-1 Projects Considered for Cumulative Impacts**

<b>Project Name</b>	<b>Project Description</b>	<b>Estimated Construction Schedule</b>	<b>Project Location</b>
Centerville Road Post Mile 4.62 Storm Damage Repair Project	Storm damage repair and sea level rise resiliency improvements at Centerville Beach County Park and along Centerville Road.	2023 or 2024.	Located along Centerville Road (Post Mile 4.62) directly adjacent to the beach fronting the Pacific Ocean at Centerville Beach County Park.
Project Area Maintenance Prior to Construction	Storm damage maintenance of existing facilities such as sediment removal from drainages, culvert and tide gate repairs. Spartina removal ongoing in the Project Area via the Programmatic Spartina EIR (H.T. Harvey and GHD 2013).	Ongoing until completion of the Project.	Throughout the Project Area.
Ongoing Maintenance or other activities outside the Project Area but within the Shared Dike Basin	Specific activities are currently unknown but could include existing berm and tide gate/culvert repairs/replacement.	Ongoing	Outside the Project Area but within the shared diked sub-basin.
Eel River Estuary Preserve Public Access Improvements	Construct barn renovations, vault toilet, parking and ADA access improvements. Increase public access to 3 days per week.	2022	Within Project Area at Potato/Headquarters Barn
Cannibal Island Restoration Project	Restoration of estuarine functions, including tidal channel excavation; culvert removals, modifications, and additions; dike repair; marsh grading; roadway elevating; and public access improvements.	TBD, pending funding.	Located on the opposite side of the Eel River, in the Eel River estuary.
Salt River Ecosystem Restoration Project, Phase 1	Wetland and upland restoration on the 444-acre-Riverside Ranch property owned by the CDFW (Riverside Ranch).	Completed in 2013.	Located in the Eel River estuary along the Salt River.
Riverside Ranch Modifications	Wetland restoration completed in 2013. Planning for project modifications, including adjustments to the berm to improve drainage and development of public access, is underway.	2023 or 2024, if funded.	Located on the opposite side of the Salt River near the Project Area, in the Eel River estuary.
Salt River Ecosystem Restoration Project, Phase 2	Final portion of the Salt River Ecosystem Restoration Project, to be constructed concurrent with the Williams Creek Restoration Project.	Partially completed in 2019. Remaining portion TBD, pending landowner approvals.	Located upstream of the Eel River estuary between Highway 211 and Perry Slough.
Williams Creek Restoration Project	Fisheries restoration and flood reduction project to improve habitat and sediment loading in Williams Creek. To be constructed concurrent with final one mile of Phase 2 of the Salt River Ecosystem Restoration Project.	TBD, pending landowner approvals.	Located upstream of the Eel River estuary, east of the City of Ferndale.

Project Name	Project Description	Estimated Construction Schedule	Project Location
CDFW Eel River Wildlife Area Ocean Ranch Unit Restoration Project (ORU)	Tidal and dune restoration of the Ocean Ranch Unit, including invasive plant removal, wetland enhancement, and aquatic habitat improvement. Project will restore and enhance approximately 473 acres of salt marsh and 279 acres of coastal dunes.	2022	Located on the opposite side of the Eel River, in the Eel River estuary and includes the North Spit of the Eel River.
Upslope Sediment Reduction	Sediment reduction/erosion control actions in the Salt River watershed, including, Russ Creek and Shaw Creek watersheds, are ongoing with landowners. Includes improving road drainage as well as channel restoration, riparian planting, bank stabilization, livestock fencing, and modification and removal of fish barriers. Primarily intended to improve water quality in the Salt River, while enhancing the hydrologic function to reduce turbidity or sediment load and resulting sediment deposition in the lower watersheds. Most projects are landowner led with technical and cost share assistance from the Natural Resources Conservation Service (NRCS).	Ongoing	Salt River watershed, including Russ Creek and Shaw Creek watersheds.
Ferndale Drainage Improvement Project	Drainage improvements in the City of Ferndale, near the fairgrounds, to reduce local flooding.	TBD, pending funding.	Included in the Francis Creek watershed, within the City of Ferndale.
Ferndale Wastewater Treatment Plant Improvements	Improvements to the berm surrounding the Ferndale wastewater treatment ponds to improve separation with Francis Creek during high flow events and local flood conditions.	TBD, pending funding.	Included in the Francis Creek watershed, within the City of Ferndale.
Potter Valley Project Modifications	Potential decommissioning or modification of the Potter Valley Project, which may result in fisheries and water quality benefits to the downstream Eel River, including the estuary.	Major project modifications or decommissioning unlikely to occur before 2030 or later.	Upper Eel River basin, inclusive of Van Arsdale Dam, Scott Dam, and the Potter Valley Diversion to Sonoma County, California.
Smith Creek Tide Gate Replacement and Wetland Enhancement Project	Potential tide gate relocation and wetland enhancements on the NRCS Wetland Reserve Easement, approximately 50 acre in size.	TBD, pending funding and landowner approvals.	Located outside and adjacent to the Shared Diked Basin. Located outside of the Project Area.

## References

H.T. Harvey & Associates and GHD. 2013. *Final Programmatic Environmental Impact Report for the Humboldt Bay Spartina Eradication Plan, Volume 1*. Prepared for the California State Coastal Conservancy. Oakland, California.

## 3.1 Aesthetics

This section evaluates the potential impacts related to aesthetics and visual resources during construction and operation of the proposed Project activities. To provide the basis for this evaluation, the Setting section describes the existing scenic resources and visual character for the Project Boundary, which is synonymous with the Project Area. The Regulatory Framework section describes the regulatory background that applies to the Project. Aesthetic issues addressed include scenic vistas, scenic resources, visual character and quality, and light and glare.

### 3.1.1 Study Area

The aesthetics study area extends beyond the Project Area boundary and includes views of the Project Area from Eel River to the north, Centerville Road to the south, Centerville Beach to the west and south, and views of the Project Area from public roads to the east.

### 3.1.2 Setting

The following text describes the existing visual character of the Project Area and surrounding land. The descriptions of existing conditions are accompanied by photographs of representative views taken during multiple site visits over several years. The locations and viewpoints of each image are shown in Figure 3.1-1 – Photo Viewpoint Locations, and Image 3.1-1 through Image 3.1-5.

#### Visual Character of the Project Area

The Project Area includes views of salt marsh lands (i.e., Inner Marsh) from the central portion of the area north to the Eel River. Cut-Off slough, Centerville Slough, Russ Creek, Western Drainage Ditch, Shaw Creek, and Creamery Ditch are visible from within the Project Area. The Project Area includes broad views of pasture land adjacent to Centerville Slough to the east. Multiple barns in the Project Area are connected by unimproved roads to the Potato/Headquarters Barn at the Eel River Estuary Preserve (EREP) entrance. Watering troughs and fencing are also visible throughout the Project Area.

Dunes are visible along the Project Area's western boundary from the mouth of the Eel River south to Angels Camp. There are multiple areas within the dunes where overwash of ocean waves from storm events have compromised dune stabilities. These areas are known as overwash areas or "blowout sites." There is a northern dune blowout site and central dune blowout site that are within the EREP portion of the Project. The largest dune blowout site is within the Russ property portion of the Project just west of Angels Camp and north of Centerville Beach. During recent winters, storm surges resulted in large overwash events that removed protective foredune vegetation and flooded the inland pastures.

#### Visual Character of the Surrounding Area

The Project Area is surrounded by a working landscape of pasturelands with the Wildcat Hills to the south, the hills of Loleta and Table Bluff to the north, the coast range to the east and the Pacific Ocean to the west. Surrounding vistas include agricultural pasture land immediately to the east, forested hillsides farther to the south and east, the Eel River corridor to the north, and flat bottomlands surrounding and adjacent to the Project Area. In the distance, rural residential homes, and agricultural operations and ancillary buildings are visible. Rural roads are also visible in the distance to the east of the Project Area.

## Study Area Photographs

Image 3.1-1 through Image 3.1-5 shows various viewpoints from within the study area taken during the summer of 2022. Figure 3.1-1 shows the general location and direction of each image.



*Image 3.1-1 View from Russ Lane, Looking Northwest Towards Potato/Headquarters Barn.*



*Image 3.1-2 View of Project Area from Centerville Road, Looking North.*





***Image 3.1-3 View from Centerville Road Looking Northwest Towards Angels Camp and Centerville Beach.***



***Image 3.1-4 View looking East Toward the Project Area from Centerville Beach near Angels Camp.***



*Image 3.1-5 View looking East Toward the Project Area from Centerville Beach.*

### 3.1.3 Regulatory Framework

#### **Federal**

There are no federal regulations that apply to the proposed Project related to visual resources in Humboldt County.

#### **State**

##### ***California Coastal Act***

The California Coastal Act was enacted by the State Legislature in 1976 and is the primary law that governs the decisions of the Coastal Commission. The Coastal Zone encompasses 1.5 million acres of land and stretches from three miles at sea to an inland boundary that varies from several blocks in urban areas to as much as five miles in less developed areas. Covering 1,100 miles of California coastline from Oregon to Mexico, including 287 miles of shoreline surrounding nine off-shore islands, the Coastal Zone extends into federal waters under the Federal Coastal Zone Management Act. The California Coastal Act includes standards for development within the Coastal Zone.

Section 30251 (Scenic and Visual Qualities) under Article 6 (Development) of the California Coastal Act, states, “the scenic and visual qualities of coastal areas shall be considered and protected as a resource of public importance. Permitted development shall be sited and designed to protect views to and along the ocean and scenic coastal areas, to minimize the alteration of natural land forms, to be visually compatible with the character of surrounding areas, and, where feasible, to restore and enhance visual quality in visually degraded areas.”

## Regional and Local

### ***Humboldt County Eel River Area Local Coastal Plan***

The *Eel River Area Plan* of the *Humboldt County Local Coastal Program* contains policies related to protecting existing visual resources. Views of the Project Area are available from areas adjacent to the Project Area, within the *Eel River Area Plan*'s jurisdiction. The following policies related to scenic resources are applicable to the Project:

#### 3.42 Visual Resource Protection

*30251. The scenic and visual qualities of coastal areas shall be considered and protected as a resource of public importance. Permitted development shall be sited and designed to protect views to and along the ocean and scenic coastal areas, to minimize the alteration of natural landforms, to be visually compatible with the character of surrounding areas, and, where feasible, to restore and enhance visual quality in visually degraded areas. New development in highly scenic areas such as those designated in the California Coastline Preservation and Recreation Plan prepared by the Department of Parks and Recreation and by local government shall be subordinate to the character of its setting.*

#### 30253. New Development shall:

- (5) *Where appropriate, protect special communities and neighborhoods which, because of their unique characteristics, are popular visitor destination points for recreational uses.*

#### 3.42 B. Protection of Natural Landforms

1. *Natural contours, including slope, visible contours of hilltops and tree lines, bluffs and rock outcroppings, shall suffer the minimum feasible disturbance compatible with development of any permitted use, and the following standards shall at a minimum secure this objective:*
  - a. *Under any permitted alteration of natural landforms during construction, mineral extraction or other approved development, the topography shall be restored to as close to natural contours as possible, and the area planted with attractive vegetation to the region.*
  - b. *In permitted development, landform alteration for access roads and public utilities shall be minimized by running hillside roads and utility corridors along natural contours where feasible, and the optional waiving of minimum street width requirements, where proposed development densities or use of one-way circulation patterns make this consistent with public safety, in order that necessary hillside roads may be as narrow as possible.*

#### 3.42 E. Natural Features

*Significant natural features within the Eel River Planning Area, and specific protection measures for retention of these resources are as follows:*

##### Area

*Eel River and associated riparian vegetation*

*Eel River Delta bottomlands*

##### Scenic Protection

*Eel River and riparian protection policies (Sec. 3.41F regarding Environmentally Sensitive Habitats on the Eel River)*

*Designated Agriculture Exclusive which encourages continuation of current agricultural activities and prohibits conversion to non-resource dependent activities.*

### 3.1.4 Evaluation Criteria and Significance Thresholds

Except as provided in Public Resources Code Section 21099, under criteria based on Appendix G of the CEQA Guidelines, the Project was evaluated for the following:

Evaluation Criteria	Significance Thresholds	Sources
Would the Project have a substantial adverse effect on a scenic vista?	Major alteration of a view from a scenic vista or major obstruction in viewed area towards a scenic vista	CEQA Guidelines Appendix G, Checklist Item I (a)  Eel River Area Plan Policies 3.42 (B) and (E)
Would the Project substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	Non-conformance with the five required elements of corridor protection	CEQA Guidelines Appendix G, Checklist Item I (b)
In non-urbanized areas, would the Project substantially degrade the existing visual character or quality of public view of the site and its surroundings? (Public Views are those that are experienced from publicly accessible vantage point). If the Project is in an urbanized area, would the Project conflict with applicable zoning and other regulations governing scenic quality?	High visual contrast or change from a publicly accessible vantage point	CEQA Guidelines Appendix G, Checklist Item I (c)  Eel River Area Plan Policies 3.42 (B) and (E)
Would the Project create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	New source of light or glare that impedes views	CEQA Guidelines Appendix G, Checklist Item I (d)

### 3.1.5 Methodology

The visual impact analysis below evaluates the physical changes that would occur at the Project Area using the standards of quality and consistency typically used for a visual assessment. The potential for changes to views from visually sensitive land uses also is evaluated. The visual impacts are compared against the thresholds of significance discussed above.

### 3.1.6 Impacts and Mitigation Measures

**Impact AES-1: Have a substantial adverse effect on a scenic vista.**

A scenic vista can generally be defined as a view that has remarkable scenery or a broad or outstanding view of the natural landscape. These conditions do exist at the Project Area and in the surrounding area and include pasture (grazing) land, tidal salt marsh, brackish marsh, riparian areas, sloughs/open water channels, freshwater ponds and nearshore dunes. The Project would have short-term impacts to these aesthetic and visual resources due to channel, culvert and gated culvert construction and repair, wetland



restoration or enhancement, berm improvements, back dune berm construction, removal of non-native vegetation, and expansion of the tidal prism in the marsh complex.

Short-term impacts to the visual character of the Project Area would result from the presence of heavy equipment, soil excavation/exposed soil, soil stockpiles, temporary roads for transporting construction material, removal of vegetation and potential damage to the existing vegetation. Sediment disposal on agricultural lands would temporarily change their visual character, but that change would be consistent with typical agricultural operations and therefore would not be significant. Construction activity, such as the operation of heavy equipment and material storage, would temporarily change the visual character of the area; however, these effects would be temporary. Areas disturbed by construction activities would either revegetate naturally or be seeded with a pasture mix. Back dune berm construction would occur at equal heights of the existing surrounding dunes at the EREP blowouts and a lower berm on the east side of the blowout within the Russ property would be visually inconceivable from adjacent properties and Centerville Road due to the distance, existing vegetation and height similarity to surrounding dunes.

Revegetation of other habitat types such as riparian or scrub shrub either passively or actively would be visually similar to those habitats that currently exist along Russ Creek and Cut-off Slough within the Project Area. Therefore, construction would not cause a permanent effect on the aesthetic quality of the area.

The community of Ferndale is approximately four miles east of the Project Area. Construction activities would only be visible from a few residences in the Project vicinity, along Russ Lane, Centerville Road, or from Centerville Beach. Therefore, development of the proposed Project activities would not have a substantial adverse effect on a scenic vista. Operational impacts, such as excavating sediment from drainages, road/berm repair and other site maintenance, management, and monitoring activities, would not result in substantial adverse visual effects. The impact to scenic vistas would be less than significant.

**Mitigation Measures:** No mitigation is necessary

**Level of Significance:** Less than significant

**Impact AES-2:** **Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway.**

There are no officially designated state scenic highways within Humboldt County within the Project vicinity (Caltrans 2019). Highway 101 throughout Humboldt County is eligible but not officially designated. Therefore, the significance criterion related to substantially damaging scenic resources within a State scenic highway is not applicable to the proposed Project and no impact will occur.

**Mitigation Measures:** No mitigation is necessary

**Level of Significance:** No impact

**Impact AES-3:** **In non-urbanized areas, substantially degrade the existing visual character or quality of public view of the site and its surroundings (Public Views are those that are experienced from publicly accessible vantage point).**

The existing visual character of the Project Area is discussed in Section 3.1.2. The Project Area is located on the coast, within a rural setting, with agricultural pasture land and ancillary buildings, agricultural wetlands, levees, and the open expanse of undeveloped landscape just east of a sand dune complex and the Pacific Ocean. As discussed under Impact AES-1 above, aesthetic impacts that may potentially occur

during construction would be temporary and only visible from limited public locations (e.g., Centerville Road, Russ Lane, Centerville Beach). There are few publicly accessible rural roadways in the Project vicinity. Those rural roadways are not heavily utilized.

Once constructed, recreational amenities such as the kayak launches, would not substantially degrade the existing visual character or quality of the Project Area as they would be limited in scope and generally low profile. Recreational use of the Project Area would be comparable to existing conditions (school educational walks, bird watching, hunting), and would not substantially change views of or from the Project Area.

The characteristics of the tidal and intertidal wetland restoration would be comparable to existing conditions after salt marsh vegetation re-establishes. Removal of invasive *Spartina* would continue; this activity is ongoing. Therefore, no change is proposed in regard to the short-term or long-term visual quality associated with *Spartina* removal.

Channel construction, modification of levees and berms, and construction or repair of culverts and gated culverts would be consistent with existing agricultural features in the Project Area. Construction of back dune berms would raise areas approximately four to eight feet, consistent with the elevation of surrounding dunes. Post-construction, these sites would be visually inconceivable from adjacent properties, Centerville Road, Russ Lane, and Centerville Beach due to the distance, existing vegetation and height similarity to surrounding dunes. The berms would promote the back dune building process to support natural processes of sand accretion, ultimately creating a dune typical of a pre-storm size and maintaining the visual aesthetics of the coastal dune system. Given the temporary nature of construction activities, the fact that the Project Area would revegetate relatively quickly to comparable conditions, construction would promote natural processes consistent with existing processes in the Project Area and vicinity, and limited change to the current non-intrusive nature of the public access amenities, construction of the Project would not substantially degrade the visual character or quality of public views of the Project Area and its surroundings. Operational site maintenance and management activities would be consistent with current site maintenance and management. Post-construction site maintenance and management would not result in a significant change to the visual quality of the Project Area. Therefore, the Project would have a less-than-significant impact on the short-term and long-term visual quality of the Project Area.

**Mitigation Measures:** No mitigation is necessary

**Level of Significance:** Less than significant

**Impact AES-4:** **Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area.**

The Project would not include any new lighting or reflective surfaces that would cause glare. Nighttime construction work would not occur. No lighted structures would be developed as part of any of the Project components. The existing minimal light and glare from the Potato/Headquarters Barn and Quonset Hut would remain unchanged with Project conditions. Therefore, the proposed Project would have no impacts from light and glare.

**Mitigation Measures:** No mitigation is necessary

**Level of Significance:** No impact

### 3.1.7 Cumulative Impacts

**Impact AES-C-1:**        **Would the Project plus cumulative projects contribute to a cumulatively considerable contribution to cumulative impacts related to visual resources.**

The impacts from construction and operation of the Project to scenic vistas, visual character, and light/glare are not cumulatively considerable because, as discussed above, only negligible offsite visual impacts would occur. Additionally, the projects considered in Table 3-1 are visually independent of the proposed Project. The Project Area and surrounding viewsheds primarily consist of vast agricultural and natural landscapes. Project elements would be consistent with existing aesthetics and would be visually inconceivable from adjacent properties and Centerville Road due to the distance, existing landscape, and height similarity of the Project and surrounding features. A significant portion of the Project Area is surrounded by private lands, further limiting the public view of the Project Area. Project implementation is not expected to occur concurrent with other nearby projects listed in Table 3-1, negating temporary cumulative impacts due to construction equipment.








Impacts to a scenic vista or visual character would be dependent upon Project- and site-specific variables, including proximity to visually sensitive receptors, the visual sensitivity of the respective development sites, and the operational characteristics of each development site. The potential impacts of other Projects on a scenic vista or visual character of a development site and its surroundings would be evaluated on a project-by-project basis. It is assumed that cumulative development would progress in accordance with the Zoning/Development Code of the respective jurisdictions. Each project would be analyzed in order to ensure that the construction-related Zoning/Development Code restrictions are consistently upheld. Due to the lack of visual connectivity between projects and the individual evaluation that would occur for each project, cumulative impacts to a scenic vista or visual character would not be cumulatively considerable and a less than significant impact would occur.

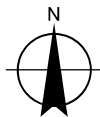
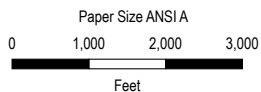
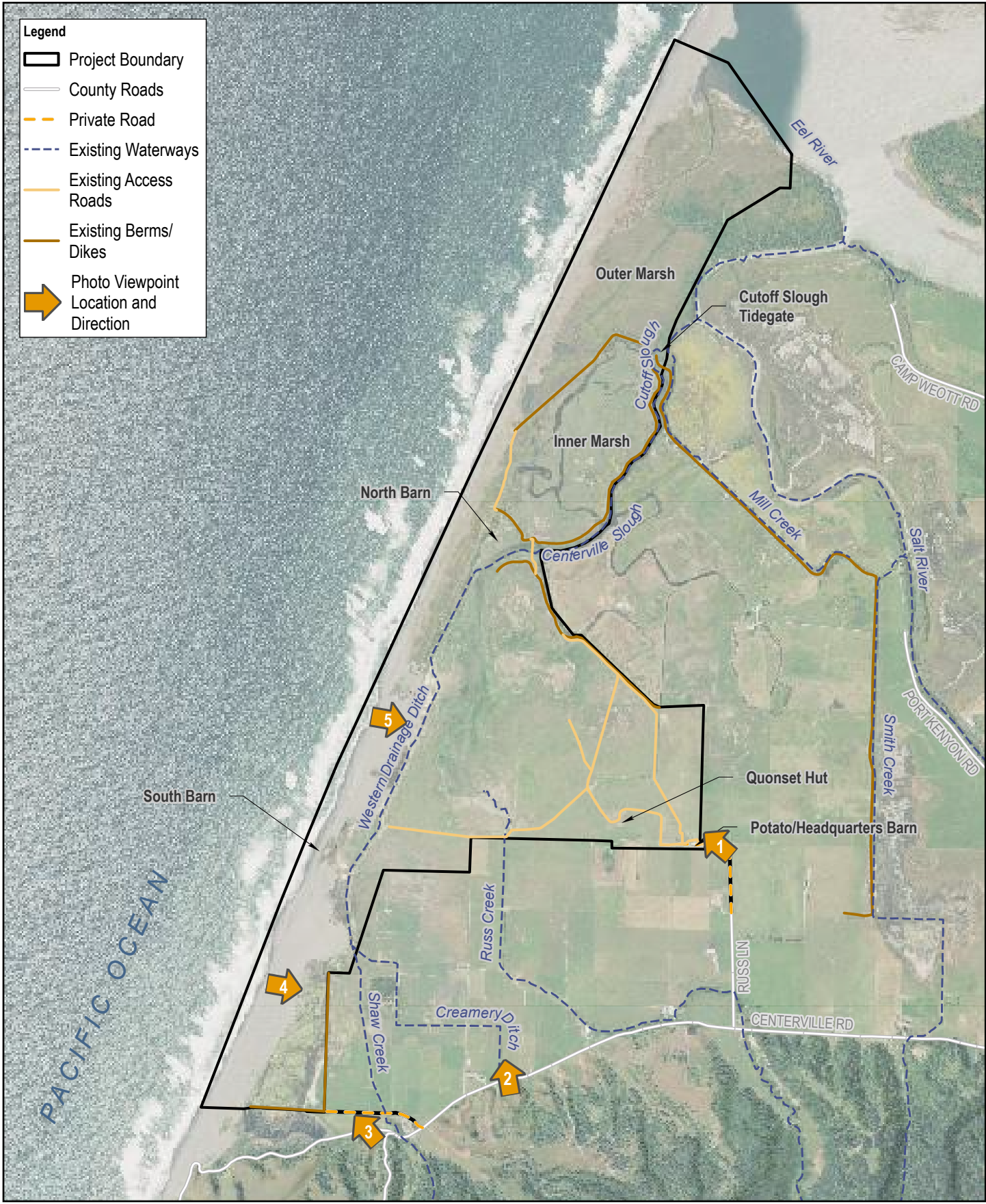
**Mitigation Measures:**        No mitigation is necessary

**Level of Significance:**        Less than significant

### 3.1.8 References

California Department of Transportation (Caltrans). 2019. *California State Scenic Highway Mapping System*. Access on June 14, 2022.  
<https://caltrans.maps.arcgis.com/apps/webappviewer/index.html?id=465dfd3d807c46cc8e8057116f1aaca>

- Legend**
-  Project Boundary
  -  County Roads
  -  Private Road
  -  Existing Waterways
  -  Existing Access Roads
  -  Existing Berms/Dikes
  -  Photo Viewpoint Location and Direction



Humboldt County Resource Conservation District  
Russ Creek and Centerville Slough Restoration Project

Project No. 11187323  
Revision No. -  
Date Apr 2023

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

**Photo Viewpoint Locations**

**FIGURE 3.1-1**

## 3.2 Agriculture and Forestry Resources

This section evaluates the potential impacts related to agricultural resources during construction and operation of the Project. To provide the basis for this evaluation, the Setting section describes the physical context, historical context, existing agricultural uses, current agricultural challenges, prime farmland and agricultural land evaluation and prospective agricultural production following Project construction for the study area. The study area includes the Project Area (also referred to as the Project Boundary) and adjacent lands (further defined below in section 3.2.1). Analysis in this section is based on a variety of sources including habitat classification surveys, soil studies, vegetation studies, livestock stocking rate records, forage production rate records, and reviews of published information, reports, and plans regarding agricultural resources. The Regulatory Framework section describes the applicable federal, state and local regulations affecting the proposed Project. The Evaluation Criteria and Significance Thresholds section establish the thresholds of significance and methods of analysis, and the Impacts and Mitigation Measures section evaluate potential impacts to agricultural resources, and identifies the significance of impacts and feasible mitigation measures if necessary.

Several key resources informed the development of this section including habitat classification mapping (completed in 2021 and 2022) which was conducted in response to wave overwash and saltwater inundation in portions of the study area particularly located immediately east of the Western Drainage Ditch (see Figure 3.2-1 – Existing Habitat Classification Overview). The 2021 and 2022 habitat classification mapping served as the baseline conditions assessment of the study area given habitat types previously mapped had shifted in response to the wave overwash and saltwater inundation. Baseline agricultural productivity potential was determined by comparing the 2021 habitat classifications to the former agricultural productivity analysis completed in 2016. No changes to productivity potential were proposed in areas where the habitat classification remained unchanged between 2016 and 2021, rather changes to the valuation of agricultural productivity only occurred in areas where habitat classification transitioned, which often resulted in less productive land due to wave overwash and/or saltwater inundation (i.e., natural conversion to brackish marsh, or brackish pasture). Specifically, all study areas that transitioned to either ruderal, dune swales, open sand or open water, were assigned a “0 lbs/acre” production valuation, and all areas that transitioned to brackish pasture, brackish marsh or muted tidal wetlands were assigned a “250 lbs/acre” production valuation. All other areas that did not transition to another habitat type due to wave overwash were assigned the same valuation as was presented in the 2016 agricultural productivity analysis.

The 2016 agricultural productivity analysis quantified the existing soil conditions in 2013, and utilized a spreadsheet based quantitative tool entitled the Eel River Estuary Preserve Agricultural Analysis, and GIS based estimates of the range of productivity across the study area. The spreadsheet and GIS tools set general productivity rates for the study area based on stocking rate records, production rate records, interviews, soil maps, vegetation maps and other sources and was utilized in the previous EIR analysis. Additionally, the Agricultural Impact Analysis of the Salt River Ecosystem Restoration Project (SRERP) (HCRCD 2011) was utilized to confirm assumptions and inform the previous agricultural impact analysis. The downstream portion of the Salt River Ecosystem Restoration Project abuts the Outer Marsh to the east of the proposed Project.

The Technical Memorandum of Soil and Vegetation Data Collection (GHD 2013) included widespread sampling locations which were selected with three goals in mind. First, the sites were broadly distributed across The Wildlands Conservancy (TWC) property in order to validate Natural Resources Conservation Service (NRCS) soil maps (see Figure 3.2-2 – NRCS Soil Map Units) and accurately characterize the

diversity of soil types, vegetation types and productivity on the site. Second, sites were located in order to compare and contrast the soil qualities of reclaimed areas (i.e., agricultural lands) with sites that reflect historic conditions (i.e., remnant slough channels). Third, sites were distributed to characterize areas potentially impacted by Project elements, and to provide data sufficient to help avoid or diminish impacts to agricultural resources.

As mentioned, the technical memorandum was augmented by the quantitative spreadsheet and GIS spatial analytical tools. The spreadsheet-based quantitative tool had served as the baseline agricultural assessment and was utilized to determine probable Project impacts/benefits to agricultural land resources within the study area while providing supporting information for the EIR. The GIS tool was utilized to validate the findings of the spreadsheet. This analysis made use of the aforementioned 2013 technical memorandum, stocking records, production rate records, interviews, soil maps and other sources in order to evaluate potential impacts of the proposed Project.

It should be noted that due to a lack of data in lands south of the EREP (including the Russ Ranch and Timber, L.L.C [RR&T] and the Linda S Russ Revocable Trust), assumptions about productivity in these locations were made including:

- a. the range of values for dry matter production expressed in the Salt River analysis were a reasonable and helpful starting point for evaluating the study area;
- b. using vegetation as a primary indicator of productivity, then validating or testing that finding secondarily with soil type evaluations and other sources is prudent;
- c. agricultural conditions on the southern portion of the EREP were comparable and suitable for extrapolation to those of the RR&T and Russ properties;
- d. the agricultural analysis of property south of EREP would be best served by treating Angels Camp as one area devoid of agricultural productivity, capacity or potential, and;
- e. remaining RR&T and Russ land would be considered highly productive, with the exception of areas inundated by wave overwash, saltwater inundation, existing swales or ditches experiencing ponding and thus lower productivity.

This approach was utilized in the 2016 agricultural impact analysis, after being reviewed and discussed at length with landowners, the State Coastal Conservancy and GHD, at an agricultural resources meeting on January 14, 2016. As mentioned above, the only changes in existing productivity between this current analysis and the 2016 analysis occurred in areas where habitat classification shifted due to wave overwash and associated saltwater inundation. Otherwise, the 2016 productivity values were carried forward to the 2022 analysis.

Portions of the study area are enrolled in Williamson Act contracts (see Figure 3.2-3 – Williamson Act Contracts). As of the date of this EIR, the EREP contains approximately 886 acres under Williamson Act contract entitled “Wildlands Conservancy Agricultural Preserve No. 09-05” and the RR&T or Russ ownership contain approximately 595 acres under Williamson Act contract entitled “Centerville Ranch Agricultural Preserve No. 87-28.” Parcels within the current Wildlands Conservancy Agricultural Preserve No. 09-05 include: APNs 100-121-004, 100-131-003, 100-143-001. The Centerville Ranch Agricultural Preserve No. 87-28 was originally recorded on February 27, 1987 and was amended in 2008. There are now eleven parcels included in that contract including APNs: 100-143-008, 100-143-003, 100-143-004, 101-011-014, 100-142-021, 100-143-002, 100-142-011, 100-142-008, 100-142-009, 101-011-016, and 101-011-005. The contract does not specify which portions of the property under contract are “Areas In Grazing.”

### 3.2.1 Study Area

The study area for this Project includes the entire area within the 1,480-acre Project Boundary and an additional approximate 410-acre area to the east, as shown in Figure 3.2-1. The study area is located four miles west of the City of Ferndale, in Humboldt County, California (see Figure 2-1 – Vicinity Map). The area is bounded by the Pacific Ocean, the Eel River, Cut-off Slough, Centerville Slough, access roads, parcel boundaries and the base of the Wildcat Hills. The study area is within the Coastal Zone. Specifically the majority of the Project is within the State-jurisdictional area of the Coastal Zone which is regulated by the California Coastal Commission under the California Coastal Act (Coastal Act), and a small portion of the southern study area is within the Appeal-jurisdictional area meaning it is regulated by the local government's Local Coastal Program (i.e. Humboldt County's Eel River Area Plan [ERAP]) and appealable to the Coastal Commission (see Figure 3.11-1 – Coastal Zone Jurisdiction). The Project Area includes the EREP owned by TWC and various parcels privately owned by RR&T, the Linda S Russ Revocable Trust (see Figure 2-2 – Ownership and Zoning). Figure 2-2 also lists the APNs included in the Project.

### 3.2.2 Setting

#### Physical Context

Within the study area, a complex system of dikes, tide gates and drainage ditches enable multiple land managers to operate successful agricultural operations, specifically livestock grazing. The EREP is located in the northern portion of the Project Area and includes agricultural (grazing) land, tidal salt marsh, brackish marsh, riparian scrub, sloughs/open water channels, freshwater ponds and ditches, and nearshore dune ridges and swales. RR&T and the Linda S Russ Revocable Trust own the parcels immediately south of EREP, which include grazing land with managed ditches, open water channels and mixed freshwater and brackish marsh and dunes.

#### Historical Context

The entire Eel River Estuary including the study area was extensively altered over the last 150 years in order to expand agricultural production in the region. Nineteenth and early 20th century reclamation efforts converted the study area from salt marsh to productive pastures. Levees, tide gates, dikes, and berms were installed to reduce tidewater volume, to reclaim wetlands for agricultural conversion, and to better manage high water events. The network of levees and tide gates in the Eel River estuary blocked the ebb and flow of the ocean tides and reduced the volume of water that is exchanged during a tidal cycle (tidal prism). In 1870, the tidal area of the Eel River Delta was estimated to be 6,525 acres. By 1970, the estuary, inclusive of sloughs and side channels, was reduced by thousands of acres to 2,200 acres, or 3.4 square miles (CDFG 1997). In 1989, the NRCS estimated that the Eel River Estuary was 40 percent of its original size. A significant portion of this reclamation occurred in the study area, specifically on the EREP. The accompanying 60 percent reduction in overall tidal prism in the Eel River Delta dramatically influenced the landscape of the area.

The Centerville Slough/Salt River watershed was a focal point of the reclamation and associated changes that accelerated in the late 19th century. A historic and controversial tide gate was built on Cut-off Slough in the late 1800's, was replaced with a more durable structure in 1916, and was most recently replaced in 1979. It has deteriorated since, exhibiting some leaking and structural decline. Due to the placement of various tide control structures within the Salt River/Centerville Slough complex, tidal influence was significantly diminished as early as the 1870s but accelerated towards the end of the 19th century. With the replacement of the Cut-off Slough tide gate in 1916, tidal exchange south of the tide gate was almost

completely eliminated, and any navigation of Centerville Slough and the slough channels to the south was terminated. This series of actions promoted and accelerated deposition of material within and along the historic Centerville Slough network, just as it had in the Salt River slough network. This trend facilitated reclamation of former tidelands but created drainage problems through the reduction of channels for overland flow.

Exacerbating drainage challenges, the tributaries to the Centerville Slough complex and Salt River contributed large quantities of sediment, associated with road building, timber harvest, grazing practices, unstable geology, highly erodible soils and high rainfall levels. Historically, this sediment load from the Wildcat Hills was effectively managed to maximize the agricultural potential of the area. In recent decades this management entailed establishment of “cells” approximately 40 acres in size which were constructed via small berms of 1-2’ in height, and involved directing Russ Creek flow into the cell where sediment could settle. This practice of actively extending the alluvial fan appears to have been practiced throughout the study area and continued on the former Connick Ranch (now known as the EREP) until transfer of the property to TWC in 2008.

The direct manipulation of the alluvial fan of Russ Creek had three major effects. First, Russ Creek was entirely channelized, manipulated, straightened, and altered from its historic configuration. Second, Centerville Slough, once the primary extension of the Salt River was entirely filled, leaving only a remnant swale where the historic channel once existed. The Centerville Slough channel, once approximately 300 feet wide and over 20-feet deep became non-existent, and probably contains at least one million cubic yards of aggraded sediment. Third, and most important to the Project and to drainage patterns in the area today, an area extending east to west along the boundary of EREP and RR&T within the study area was elevated high enough to bifurcate the Russ Creek drainage.

By directly manipulating the flow and sediment load of Russ Creek in a controlled fashion, pasture managers successfully and visibly elevated pastures many feet over a broad area and increased the agricultural productivity of the area with improved soils and drainage. The approximate area of this alluvial fan manipulation is detectable through elevation changes and soil chemistry. The altered area appears to be approximately 900 acres in size with an average depth of three feet, but relative elevation increases ten feet in places. This suggests that an originally anthropomorphically established alluvial fan avulsion area has been extensively augmented artificially for a total volume of approximately 3.6 million cubic yards of material. From an agricultural perspective, this approach was a huge success; by steadily extending the alluvial fan northwards with soil eroding from the Wildcat Hills, land managers decreased susceptibility to flooding by raising pasture elevation, decreased the risk of storm damage to adjacent seeded pastures by containing and decanting high flows within cells, and harnessed natural forces for the benefit of agricultural production in a challenging environment. However, since not all parcels participated uniformly in this management strategy, this approach failed to provide equal benefit to the entire area.

Certain parcels south and east of the EREP that did not benefit from the pasture raising approach are now at significantly lower elevation than the southern portion of the EREP and parts of RR&T property. Similarly, the northern portions of the O’Rourke Foundation (ORF) property are at elevations ranging from 15 to 18 feet, while the majority of the property ranges from one to four feet elevation, rendering most of the property highly susceptible to flooding and bathtub-like ponding under existing conditions, particularly when storm events combine with high water surface elevations in the Eel River Delta. This condition presents substantial flood routing challenges. These areas include a significant low-lying part of the RR&T property south of the EREP, most of the ORF property and the northerly portion of the EREP where directed alluvial deposits were not possible.

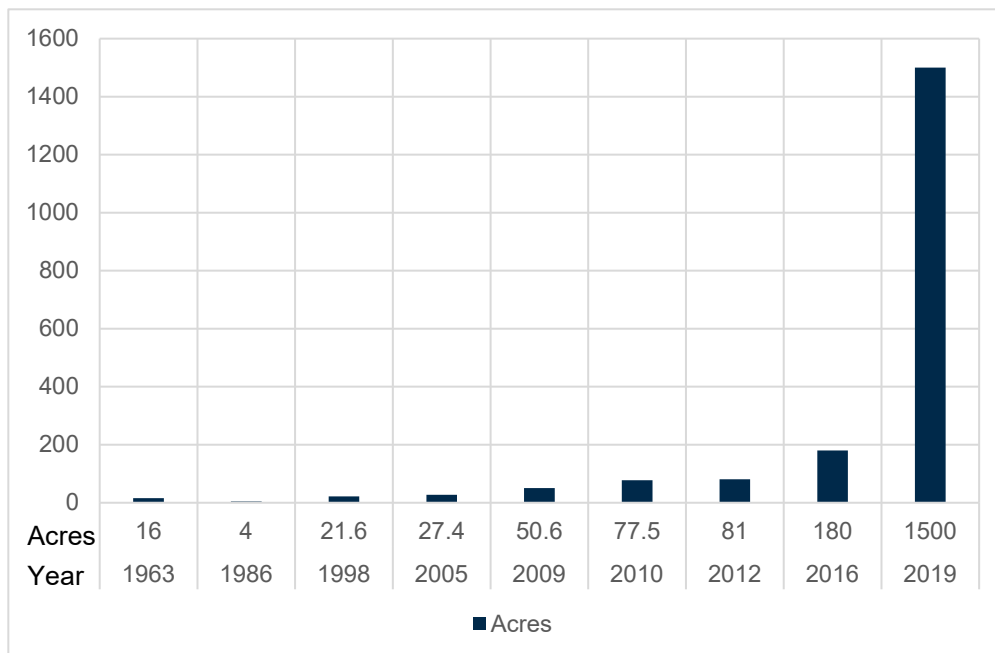


The current elevations pose a significant challenge for land managers seeking to route the flows of Russ Creek, Shaw Creek and Creamery Ditch north towards the Eel River. Drainage challenges within the RR&T and EREP properties are now compounded by more frequent wave overwash events from the Pacific Ocean, associated deposition of sand onto agricultural lands and into key drainage components such as the Western Drainage Ditch, levee deterioration and ultimately sea level rise. Maintenance of the Western Drainage Ditch has proven to be critical for flow and sediment management from Russ Creek, Shaw Creek and the Creamery Ditch.

### Wave Overwash and Habitat Conversions

Wave overwash, inundation and saltwater intrusion are by far the most immediate and pressing problems facing the southern and central portions of the study area, particularly RR&T properties. Dune systems are inherently unstable, and wave overwash/breach events have been a feature of the landscape for a long time, but with the elimination of a salt marsh behind the dunes, and livestock grazing up to the back of the dunes, protecting agricultural land from those events is increasingly challenging and of increasing urgency.

Some historically reclaimed features (i.e., agricultural lands) have returned to near original condition (i.e., tidal marsh) due to natural wave overwash events. Aerial evidence of dune overwash dates back to at least 1963, and such events undoubtedly always occurred, but the frequency appears to have increased in the last 10 years, as shown in Image 3.2-1, below. So, too, has the adverse impact on agricultural land (Figure 3.2-1 – Existing Habitat Classification Overview). Since 1963 there have been at least nine dune overwash events in the study area. These events range from 4 acres to 1,500 acres since 1963. Based on aerial imagery (Google Earth 2019) foredune and nearshore vegetation have been removed by overwash events over 1.7 linear miles north of Centerville Beach since 2004 (GHD 2022). The size of affected area appears to be increasing over time (Image 3.2-1).



**Image 3.1-1 Inundation Acreage by Year Resulting from Wave Overwash**

In the winters of 2016 and 2019, particularly large overwash events removed protective foredune vegetation and flooded the inland freshwater pastures, causing vegetation community conversion from freshwater wetlands to brackish marshes and brackish pasture. The most prominent historical example of this trend is

within RR&T property (notably the Angels Camp area) which includes at least 200 acres located between pasture and the Pacific Ocean, which has completely reverted to brackish pasture along the historic alignment of Centerville Slough following numerous wave overwash events. Although NRCS subsequently purchased a WRE over the marsh, the effect was still economically devastating. Storm surges in 2015 exacerbated the situation, causing the Western Drainage Ditch to fill with sand, drain slowly, and necessitating the landowners to seek emergency maintenance permits on a routine basis. In 2019, wave overwash events affected the Project causing approximately 1,500 acres of additional land to become inundated, of which approximately 200 acres within the study area reverted to brackish pasture (see Figure 3.2-1 – Existing Habitat Classification Overview), and approximately 650 acres of neighboring property experienced productivity degradation.

The dune exterior appears to be eroding and developing steep slopes less capable of withstanding heavy surf. Reasons for this are complex and described in detail in the Hydrology and Water Quality section of this EIR (Section 3.9) and the hydrology report prepared by Kamman Hydrology and Engineering (Kamman 2015), but absent dune stabilization and planned retreat planning for the future, future agricultural productivity in the study area appears to be threatened. Upon factoring in sea level rise at recently revised rates, the need for prompt action to protect agricultural property in the study area is urgent.

## Soil Mapping

A Soil Summary Map denoting soil types was created based on current NRCS soil map units mapped and previous salinity measurements conducted in the study area (see Figure 3.2-2 – NRCS Soil Map Units). Extensive soil sampling was conducted on EREP in November 2014. Additional sampling took place on Russ properties by NRCS in 2015, and during the upland delineation and habitat characterization in 2022 (concentrated along levees). The results provide guidance for inferring soil and productivity results throughout the study area. Soil sampling locations and findings (conducted in 2014) show that the majority of saline soils were in the southwest and northern portions of the study area, as well as intermittently within the southwest portion of the EREP (GHD 2014). It's anticipated that the areas affected by wave overwash, including the western portion of RR&T and Russ properties and the southwestern EREP, now contain an increased amount of saline and saline-sodic soils based on vegetative community composition.

Soil analytical results from this phase of sampling generally align with several of the soil map units, but even more so with topography and vegetation characteristics. As was expected, higher elevation areas afford better agricultural use/productivity (according to production records, stocking rate records and land lessee interviews). Where Arlynda, Loleta, Weott, and Worswick series are mapped within Quonset, Williams, and Western 40 pastures, and Russ pastures to the south, soil results from these areas generally are classified as less saline and quite productive. Conversely, the lower elevation areas susceptible to inundation, particularly those including Occidental soils, are either fully converted to non-agricultural use (Angels Camp) or are indicated by site managers or lessees as being limited for grazing to only portions of the year on a semi-annual basis due to soil moisture, salinity, access issues, and vegetation species composition. Many of the soil samples from these latter locations exhibited saline or saline-sodic conditions that result in low productivity.

## Vegetation Mapping

To accurately capture the most up-to-date habitat within the study area, vegetation characterization surveys were completed in 2021 and 2022 to inventory vegetative conditions at the areas of recent overwash (GHD 2022). In areas of wave overwash, vegetation communities in grazed areas shifted from freshwater pasture, dominated by creeping bentgrass (*Agrostis stolonifera*), rye grass (*Festuca perennis*), strawberry clover (*Trifolium fragiferum*), and tall fescue (*Festuca arundinacea*), to brackish pasture which included the

presence of salt grass (*Distichlis spicata*) and brass-buttons (*Cotula coronopifolia*) in addition to the creeping bentgrass (GHD 2022). Forage quality declines with increased brackish pasture conditions.

The vegetation of the study area was originally mapped in great detail in 2013, revisited for updated mapping in 2015 and selectively re-mapped in 2021 in areas of overwash that occurred in 2019. The results are not characterized by vegetation alliance, rather are characterized by habitat classification type and the vegetative species that occurred within each habitat. See Figure 3.2-1 – Existing Habitat Classification Overview for spatial distribution of habitat classifications according to updated 2021 mapping, and Table 3.2-1 for the associated vegetative characteristic species associated with each habitat classification.

**Table 3.2-1. Habitat Types and Indicator Vegetation Mapped in 2021**

2021 Habitat	Acres	Characteristic species
Brackish Marsh	106.5	<b>Argentina egedii</b> (a.k.a. <b>Potentilla anserina ssp. pacifica</b> ), <b>Bolboschoenus maritimus</b> , <b>Distichlis spicata</b> , <b>Schoenoplectus pungens</b> , <i>Atriplex prostrata</i> , <i>Polypogon sp.</i> , <i>Parapholis incurva</i>
Dunes	123.5	<i>Ammophila arenaria</i> , <b>Abronia latifolia</b> , <b>Ambrosia chamissonis</b>
Dune Swales	45.6	<b>Abronia latifolia</b> , <b>Ambrosia chamissonis</b> , <b>Juncus breweri</b>
Open Sand	169.4	NA
Open Water	87.3	NA
Pasture – Brackish	298.0	<b>Distichlis spicata</b> , <i>Cotula coronopifolia</i> , <i>Agrostis stolonifera</i> , <i>Festuca perennis</i> , <i>Festuca arundinacea</i> , <i>Trifolium fragiferum</i>
Pasture - Freshwater	433.5	<i>Agrostis stolonifera</i> , <i>Festuca perennis</i> , <i>Festuca arundinacea</i> , <i>Trifolium fragiferum</i>
Pasture - Upland	37.4	<i>Holcus lanatus</i> , <i>Anthoxanthum odoratum</i>
Riparian Forest	1.1	<b>Alnus rubra</b> , <b>Salix hookeriana</b>
Riparian Scrub	26.0	<b>Baccharis pilularis</b> , <b>Salix hookeriana</b>
Ruderal / Developed	13.9	NA
Tidal wetlands – full tidal influence	164.3	<b>Sarcocornia pacifica</b> , <b>Distichlis spicata</b> , <b>Bolboschoenus maritimus</b> , <b>Spergularia marina</b> , <b>Carex lyngbyei</b> , <b>Deschampsia caespitosa</b> , <i>Spartina densiflora</i> , <i>Atriplex prostrata</i> ,
Muted Tidal wetlands	294.8	<b>Argentina egedii</b> (a.k.a. <b>Potentilla anserina ssp. pacifica</b> ), <b>Eleocharis macrostachya</b> , <b>Juncus effusus</b> , <b>Scirpus microcarpus</b>

Note: California native species are in bold.

## Agricultural Productivity

As mentioned, baseline agricultural productivity potential was determined by comparing the 2021 habitat classifications to the former agricultural productivity analysis completed in 2016. Changes in productivity valuation occurred in areas where wave overwash caused a modification in habitat, resulting in a decrease in agricultural productivity due to the decrease in forage (i.e. pasture grasses) and increase in tidal wetland species (i.e. salt grass and brass buttons) and likely saline-sodic soils. The following factors were considered when determining productivity.

**Salt influence:** Areas with dominant brackish species composition appear to have low to moderate productivity from an agricultural/grazing perspective due to species composition and/or limiting soil conditions for vegetative growth of pasture species. This would include the following habitat types: Pasture – Brackish, Brackish Marsh, Tidal Wetlands and Muted Tidal Wetlands.

**Wetness:** Seasonal elevated soil moisture (saturation) and above ground surface ponding limit accessibility of equipment, diminish implementation of management techniques such as plowing and seeding, cause reduction in plant growth when saturated or flooded, modify plant species composition and presence of forage species, limit the duration of cattle grazing on some portions of the site for significant parts of the year and limit use of some pastures to only seasonal productivity once areas dry out and/or access is possible. Areas mapped as Brackish Marsh, Open Water, Pasture – Brackish, Pasture – Freshwater, Tidal Wetlands, and Muted Tidal Wetlands appear to have low and/or unpredictable productivity for a portion of the year, and moderate productivity (depending on species composition) for several months of the year once portions of the site dry.

**Soil texture:** The non-dune, northern portion of the study area contains the following soil types: Occidental and Wigi complex. These are fine, silty soils hosting multiple vegetation types with low to moderate productivity. The non-dune southern portion of the study area contains Occidental, Worswick, Weott, Loleta and Swainslough-Occidental complex soil types. These soils are increasingly loamy and more fertile compared to soils in the northern portion of the Project. Areas mapped with dune species composition, and other areas of sand dominated substrate, are lacking in nutrients, water retention, and in general have low to no productivity due to an absence of mineral soil substrate.

**Other Conditions:** Some areas are determined to be non-productive from an agricultural perspective, including bare ground, development features such as buildings, ditches, roads, open water, sloughs, and mudflats. These areas have limited agricultural productivity due to seasonal or long-term inaccessibility to equipment or livestock, and/or absence of pasture forage. The possible exception is levees which can support some limited pasture species on the edges and side slopes and therefore may have low to moderate productivity for grazing, though no viability for haying.

## Existing Agricultural Uses

Within the study area, the NRCS has worked cooperatively with the private landowners to acquire three Agricultural Conservation Easement Program - Wetland Reserve Easements (ACEP-WRE) on EREP totaling 528 acres and two easements on RR&T property totaling 155 acres. These are perpetual conservation easements that seek to protect and restore wetland habitat while allowing limited livestock grazing in suitable habitat types. The EREP Grazing Management Plan completed by Point Blue in partnership with NRCS (2019) describes the baseline conditions, grazing management objectives and approaches, and monitoring requirements within the 528-acre portion of the EREP under the ACEP-WRE program. The primary goal of this Grazing Management Plan is to maintain wildlife habitat by varying the timing, frequency and duration of grazing (NRCS and Point Blue 2019). The Plan identifies the grazing intensity for the pastures as either: heavy-use paddock, light-use paddock, or deferment paddock (NRCS and Point Blue 2019). Soil saturation and grass stubble height are indicators used to indicate when grazing should cease depending on the management goal per grazing intensity (NRCS and Point Blue 2019). The stubble within the light-use paddock is intended to be longer (with target stubble heights between 6-18 inches) and in a patchy, non-uniform distribution, than the heavy-use paddock designation. The deferment paddock does not allow grazing between April 1 – July 15 to accommodate ground nesting habitat (NRCS and Point Blue 2019). There are a total of six paddocks within the EREP's ACEP-WRE area, and two paddocks fall into each of the three grazing intensity categories. Annual monitoring is required to ensure the

grazing management objectives are met which include (at a minimum): date livestock are moved in and out of each paddock, number and class of animals, and average stubble height upon livestock entering and exiting each paddock (NRCS and Point Blue 2019). Additionally, as mentioned above, numerous parcels are included in active Williamson Act contracts, including three parcels within the EREP, and either the entirety or portions of eleven parcels under RR&T or Russ family ownership (see Figure 3.2-3 – Williamson Act Contracts)

Existing agricultural uses within the study area center around livestock grazing under all ownerships: EREP, RR&T, and Russ properties. Overall, most pastures in the Project footprint offer fair to excellent forage for livestock – with the dominance of “fair” forage occurring in areas of wave overwash and habitat conversion, and the dominance of “excellent” forage occurring in the southeast (see Figure 3.2-4 – Existing Habitat within Agricultural Lands and Figure 3.2-5 – Existing Productivity of Agricultural Lands). As with the rest of the Ferndale area, the ample rainfall and mild climate create cost-effective pastureland with good growth rates of grass and little need for heat or air-conditioning for the cows and goats. However, unlike other areas of the Ferndale Bottom where dairies predominate, there is less irrigation, somewhat poorer soils, higher soil salinity rates, lower fertility, and other factors that reduce overall productivity levels in the study area below the regional average.

In response to the challenges caused by floods, erosion and general degradation, TWC, grazing lessees, neighbors and the local duck club have worked collectively to maintain and improve existing agricultural operations and the property in general since acquisition of the property in 2008. Maintenance included repair of the Potato Barn, replacement of the collapsed Cut-off Slough tide gate culvert, replacement of the Russ Creek bridge, and relocation of the north-south road (which leads to the Cut-off Slough tide gate). Through management and investment by TWC and its lessees, the EREP’s agricultural productivity has improved since 2008 (with the exception of areas of wave overwash).

As mentioned, portions of the EREP, RR&T and Russ properties are enrolled in Williamson Act contracts. The EREP property is managed for both agricultural uses and tidal wetland habitat. EREP is currently leased to Jay Russ for rotational grazing. Prior lessees in the recent past (up to approximately three years prior to the date of this EIR) have utilized the property for harvest of hay and silage, and rotational grazing. TWC also conducts educational outreach that emphasizes ecological restoration and agriculture as practiced in the Coastal Zone. RR&T and Russ properties are managed by a Russ family member, who is a fifth generation livestock operator. The RR&T and Russ properties have been grazed actively for years raising organic grass-fed beef cattle marketed under the brand name Humboldt Grassfed Beef. Rapid rotational flash grazing on numerous small pastures is the style of grazing implemented. The pasture sizes and configurations change for rotational grazing management purposes. The portions of RR&T properties within the WRE program are not grazed due to recent overwash conditions.

The portion of the Project area where Russ Creek periodically avulses out of any definite channel into nearby pastures is known as the Russ Creek Avulsion Area (RCAA). It is approximately 115 acres and is located at the downstream extent of Russ Creek as shown on Figure 2-4 – Existing Conditions. The RCAA frequently and currently possesses little agricultural productivity due to unpredictable sediment deposition, water sheet flow, ponding, and vegetation response to avulsionary disturbance. At best, and for purposes of a highly conservative approach to this analysis, the avulsion area is assumed to possess a dry matter productivity level of 225 lbs/acre/month. Prolonged flooding, inundation, sediment deposition and resulting shifts in vegetation communities in the avulsion area have resulted in substantial agricultural and ecological losses for the landowner as well as their lessees. With an average of 115 acres out of production each year due to the avulsion, and assuming a minimum production capacity loss of 225 lbs/acre/month for nine months of the year, annual losses in the avulsion area based on surrounding pasture production rates are

substantial. The RCAA is one example of areas within the Project boundary where agricultural productivity has substantially declined due to drainage challenges.

In sum, agricultural operations face risks increasingly compounded by wave overwash, sea level rise, saltwater intrusion, channel aggradation, increasing flood risk and decreasing drainage capacity of the area. Accordingly, owners and lessees in the study area have consistently communicated two priorities and concerns for future operations: 1) saltwater intrusion and sea level rise adaptation planning, and; 2) drainage improvements across the study area. Since existing conditions already pose serious challenges to agricultural operations in the study area, climate change and sea level rise projections dictate that the status quo at the study area is not a desirable trajectory for the property owners, their lessees or surrounding property owners who depend upon drainage through the study area.

### ***Drainage***

Drainage is a pressing concern with respect to maintaining and improving agricultural productivity in the study area. Drainage for the entire study area is dependent upon a north-south channel, a functional tide gate and sufficient elevation. At present, the Western Drainage Ditch is serving in inadequate fashion for the north-south drainage, the tide gate is in a state of deferred maintenance and elevation of the landscape is unable to keep pace with sea level rise. Upon review of the history of the Russ Creek avulsion area and communication with current land managers, predictable management of Russ Creek and associated drainages through the EREP is vital for improving agricultural productivity in the entire study area.

## **3.2.3 Regulatory Framework**

### **Federal**

#### ***Federal Farmland Protection Policies***

Loss of farmland is an important concern that is captured by the development of federal, state and local policies calling for protection of Prime, Unique or Farmland of Statewide Importance. Under the Federal Farmland Protection Policy Act (FPPA), projects are subject to FPPA requirements if they may irreversibly convert farmland (directly or indirectly) to non-agricultural use and are completed by, or with the assistance of, a federal agency. The NRCS is charged with oversight of the FPPA. The proposed Project is funded with federal funds, and occurs on historic pastureland, warranting consideration under the FPPA.

NRCS uses a Land Evaluation and Site Assessment (LESA) system to establish a farmland conversion impact rating score on proposed sites of federally funded and assisted projects. The assessment is conducted on the Farmland Conversion Impact Rating form. According to this form, if the site does not contain Prime, Unique, Statewide or Local Important Farmland, then the FPPA does not apply. In California, maps of these different farmland types are prepared by the Department of Conservation (DOC) through the Farmland Mitigation and Monitoring Program (FMMP). The study area has not been mapped through FMMP, however it has been mapped by the Natural Resources Conservation Service (NRCS) which contains a prime farmland designation. Due to the federal funding associated with this Project and NRCS prime farmland designations, it is anticipated that the FPPA applies to this Project.

It was determined that a Land Evaluation and Site Assessment (LESA) evaluation was not appropriate for this Project to generally assess potential impacts, as LESA evaluations are designed for residential and commercial development projects, not for ecological restoration projects that provide significant agricultural enhancement components.

## State

### ***State Farmland Conservancy Program Act***

State farmland protection policy is described in the California Farmland Conservancy Program Act (CFCPA), (Public Resources Code 10201-10202). The CFCPA recognizes the importance of the state's agricultural lands economically, culturally, and in terms of food security, as well as the threat to those lands from urban development. The agricultural conservation strategy established by the CFCPA involves appropriating state funds for the voluntary purchase of agricultural easements, together with restrictions on development through local planning and zoning.

The Important Farmland Inventory System initiated in 1975 by the U.S. Soil Conservation Service (now NRCS) classifies land based on 10 soil and climatic characteristics, and the DOC started the FMMP in 1980. The California Important Farmland Finder (CIFF) is an online web map of the entire FMMP survey area, however it hosts no data for Humboldt County. Data exists for the neighboring county to the south, Mendocino County, which shows areas along the north coast of Mendocino classified as "Nonagricultural and Natural Vegetation" which consists of "heavily wooded, rocky or barren areas, riparian and wetland areas, grassland which do not qualify for Grazing Land due to their size or land management restrictions, and small water bodies. Constructed wetlands are also included in this category." However, the majority of Mendocino County (including some portions of the coast to the south) is considered "Grazing Land" which is described as "Land on which the existing vegetation is suited to the grazing of livestock."

### ***California Environmental Quality Act (CEQA)***

Pursuant to CEQA, agricultural land may be mapped through the FMMP (and displayed via the CIFF) and designated as Prime Farmland, Unique Farmland, or Farmland of Statewide Importance. The DOC identifies and maps these areas, as defined below, based on water availability, soil temperature range, acid-alkali balance, water table location, soil sodium content, flooding, erodibility, permeability, rock fragment content, and rooting depth.

Prime Farmland: Farmland with the best combination of physical and chemical features able to sustain long term agricultural production. This land has the soil quality, growing season, and moisture supply needed to produce sustained high yields. Prime Farmland must have been used for the production of irrigated crops at some time during the two update cycles (or four years) prior to the mapping date.

Unique Farmland: Farmland with the special combination of soil quality, location, growing season, and moisture supply needed to produce sustained high quality and/or high yields of a specific crop when treated and managed according to current farming methods. This land is usually irrigated, but may include non-irrigated orchards or vineyards as found in some climatic zones in California. For land to be classified Unique Farmland, the crop grown on the land must have qualified for the "California Agriculture" list at some time during the two update cycles (or four years) prior to the mapping date.

Farmland of Statewide Importance: Farmland other than Prime Farmland which has a good combination of physical and chemical characteristics for the production of crops but with minor shortcomings, such as greater slopes or less ability to store soil moisture. Farmland of Statewide Importance must have been used for the production of irrigated crops at some time during the two update cycles (or four years) prior to the mapping date.

Currently, the DOC hosts no mapping data for Humboldt County via the FMMP. Therefore, referring to the Public Resources Code (PRC) which is a compilation of environmental laws and specifically to PRC Section 21060.1:

*Lands which have not been surveyed and classified through the FMMP can be considered “agricultural land” if they meet the requirements of “prime agricultural land” as defined in paragraphs 1, 2, 3 or 4 of subdivision (c) of Section 51201 of the Government Code.*

According to Section 51201(c) of the Government Code:

*“Prime Agricultural Land” means any of the following:*

1. *All land that qualifies for rating as class I or class II in the NRCS land use capability classifications.*
2. *Land which qualifies for rating 80 through 100 in the Storie Index Rating.*
3. *Land which supports livestock used for the production of food and fiber and which has an annual carrying capacity equivalent to at least one animal unit per acre as defined by the United States Department of Agriculture.*
4. *Land planted with fruit- or nut-bearing trees, vines, bushes, or crops which have a nonbearing period of less than five years and which will normally return during the commercial bearing period on an annual basis from the production of unprocessed agricultural plant production not less than two hundred dollars (\$200) per acre.*
5. *Land which has returned from the production of unprocessed agricultural plant products an annual gross value of not less than two hundred dollars (\$200) per acre for three of the previous five years.*

The NRCS inventories soil across the United States, and assigns whether it is considered Prime Farmland utilizing the same abiotic factors (i.e. water availability, soil temperature range, acid-alkali balance, water table location, soil sodium content, flooding, erodibility, permeability, rock fragment content, and rooting depth) as the DOC under the FMMP. Therefore, due to the absence of FMMP data, this CEQA impact analysis assessed potential impacts to lands considered Prime Farmland as determined by the NRCS, and lands considered Prime Agricultural Land per PRC Section 21060.1(b) as determined by Government Code 51201(c). See Impact AG-1 of Section 3.2.5 for this analysis.

Under CEQA, an impact on an agricultural resource is considered potentially significant if a Project would result in an impact to or conversion of Prime Farmland, Unique Farmland, or Farmland of Statewide Importance.

### **California Coastal Act**

The entire study area is within the Coastal Zone, and approximately 1,495 acres are within the State-jurisdictional area which is regulated by the Coastal Commission under the Coastal Act. The remaining approximately 395 acres is within the appeal-jurisdictional area which is regulated by Humboldt County through the ERAP (which is further described below), see Figure 3.11-1 – Coastal Zone Jurisdiction. The Coastal Act contains the Government Code policies relevant to the conversion of agricultural land in the Coastal Zone to natural resource uses. The following Coastal Act sections are germane to this impact analysis:



Section 30113

*"Prime Agricultural Land" means those lands defined in paragraph (1), (2), (3), or (4) of subdivision (c) of Section 51201 of the Government Code (as listed above).*

Section 30241.5

*Agricultural land; determination of viability of uses; economic feasibility evaluation*

*(a) If the viability of existing agricultural uses is an issue pursuant to subdivision (b) of Section 30241 as to any local coastal program or amendment to any certified local coastal program submitted for review and approval under this division, the determination of "viability" shall include, but not be limited to, consideration of an economic feasibility evaluation containing at least both of the following elements:*

- (1) An analysis of the gross revenue from the agricultural products grown in the area for the five years immediately preceding the date of the filing of a proposed local coastal program or an amendment to any local coastal program.*
- (2) An analysis of the operational expenses, excluding the cost of land, associated with the production of the agricultural products grown in the area for the five years immediately preceding the date of the filing of a proposed local coastal program or an amendment to any local coastal program.*

*For purposes of this subdivision, "area" means a geographic area of sufficient size to provide an accurate evaluation of the economic feasibility of agricultural uses for those lands included in the local coastal program or in the proposed amendment to a certified local coastal program.*

*(b) The economic feasibility evaluation required by subdivision (a) shall be submitted to the commission, by the local government, as part of its submittal of a local coastal program or an amendment to any local coastal program. If the local government determines that it does not have the staff with the necessary expertise to conduct the economic feasibility evaluation, the evaluation may be conducted under agreement with the local government by a consultant selected jointly by local government and the executive director of the commission.*

- (2) An analysis of the operational expenses, excluding the cost of land, associated with the production of the agricultural products grown in the area for the five years immediately preceding the date of the filing of a proposed local coastal program or an amendment to any local coastal program.*

Section 30242

*All other lands suitable for agricultural use shall not be converted to nonagricultural uses unless (1) continued or renewed agricultural use is not feasible, or (2) such conversion would preserve prime agricultural land or concentrate development consistent with Section 30250. Any such permitted conversion shall be compatible with continued agricultural use on surrounding lands.*

## **California Resources Agency Policies**

### **California Department of Conservation**

The DOC administers and supports a number of highly successful programs, including the Williamson Act, the California Farmland Conservancy Program, the Williamson Act Easement Exchange Program, and the FMMP. These programs are designed to preserve agricultural land and provide data on conversion of

agricultural land to urban use. The DOC is responsible for approving Williamson Act Easement Exchange Program agreements.

### **Williamson Act**

The California Land Conservation Act of 1965, commonly referred to as the Williamson Act, has been the State's primary agricultural land protection program since its enactment. It is a non-mandated state program administered by counties and cities to preserve agricultural land and discourage the premature conversion of agricultural land to urban uses. The act authorizes local governments and property owners to (voluntarily) enter into contracts to commit agricultural land to specified uses for 10 or more years. Once restricted, the land is valued for taxation based on its agricultural income rather than unrestricted market value, resulting in a lower tax rate for owners. In return, the owners guarantee that these properties remain under agricultural production for an initial 10-year period. The contract is renewed automatically unless the owner files a notice of nonrenewal, thereby maintaining a constant 10-year contract. Currently, approximately 70 percent of the state's Prime Agricultural Land is protected under this Act. Participation is on a voluntary basis by both landowners and local governments and is implemented through the establishment of agricultural preserves and the execution of Williamson Act contracts.

Termination of a Williamson Act contract through the nonrenewal process is the preferred method to remove the enforceable restriction of a contract. In order to approve tentative cancellation, a board or council must make specific findings based on substantial evidence that a cancellation is consistent with the purposes of the Act or in the public interest.

As mentioned above, parcels within the EREP, RR&T and Russ properties are currently enrolled in the Williamson Act program (see Figure 3.2-3 – Williamson Act Contracts).

### **California Land Evaluation and Site Assessment (LESA) Model**

Under California Public Resources Code Section 21095 (a), the California Resources Agency was required to develop optional methodology that considers the impacts on the environment from the conversion of agricultural land to non-agricultural uses. The DOC developed a LESA model in 1997 to evaluate agricultural conversions. This model was incorporated into the CEQA guidelines as an optional tool under the law. LESA was designed based on the federal LESA system and can be used to rank the relative importance of farmland and the potential significance of its conversion on a site-by-site basis. The California LESA model considers the following factors: land capability, Storie index soil rating system, water availability (drought and non-drought conditions), land uses within one-quarter mile, and "protected resource lands" (e.g., Williamson Act lands) surrounding the property. A score can be derived and used to determine if the conversion of a property would be significant under CEQA. The LESA model provides a broad range of scores and other factors that can be considered in determining impact significance.

However, an analysis conducted by the California Resources Agency found the LESA model poorly suited to evaluating impacts to agriculture from habitat projects because "wildlife habitat and other open space lands are specifically considered consistent with agricultural land uses in the model" (Resources Agency 2006). A LESA analysis appears to be inadequate and inappropriate for use for the proposed Project. In addition, some of the factors required for the LESA evaluation, such as Storie index soil ratings, are not available for all of the soil types in the study area.

## Regional and Local: Humboldt County

### ***County Administration of the Williamson Act***

Humboldt County Board of Supervisors first adopted guidelines for the Williamson Act locally on June 24, 1969. The Board, in June of 2002, adopted the first comprehensive update to the local Guidelines since 1978 to reflect major changes to the Williamson Act, including the 1998 adoption of Government Code Section 51296, otherwise known as the Farmland Security Zone (FSZ). The FSZ allowed property owners enrolled in this program to have the option of extended contracts, from 10 years to a 20-year term, and in exchange, receive an additional 35% tax reduction. The FSZ is designed for Prime Agricultural Lands or lands designated on the Important Farmland Series Maps and applies to lands lying within three miles of the adopted Sphere of Influence of incorporated cities. The Board's most recent update to the guidelines was in 2016. According to the section F (4) of the guidelines:

*Lands under contract within an agricultural preserve shall be used for the producing of agricultural commodities for commercial purposes and uses compatible with agriculture. The majority of the land area of any property under the contract must be devoted to agricultural pursuits consistent with the purpose of the preserve in which the property is located.*

From 1972 to 1981, nearly 243,000 acres were put under Williamson Act contracts in the County. In 2001 there were approximately 273,000 acres in the program (in 145 established preserves), indicating that participation had not significantly increased in over 20 years.

As of May 2023, given the net agriculture benefit, the Humboldt County Williamson Act Committee finds the proposed Project is consistent with the Williamson Act Guidelines and Land Conservation Contract with the stipulation that the Land Conservation Contract be partially non-renewed (Humboldt County 2023).

### ***Humboldt County Eel River Area Local Coastal Program***

The proposed Project is in the Coastal Zone, and approximately 20 percent of the study area is within the Appeal jurisdiction which is regulated by Humboldt County via the Local Coastal Program (LCP) Eel River Area Plan (ERAP) (Humboldt County 2007), see Figure 3.11-1 (Coastal Zone Jurisdiction). The remainder of the study area is under the jurisdiction of the Coastal Commission. The portion of the Project within the Appeal jurisdiction would get a Consistency Determination resulting in both jurisdictional areas being considered under one Coastal Development Permit. Because of this, the ERAP is only advisory. The ERAP was certified by the Coastal Commission in 1982 and last updated in 2014. The ERAP outlines numerous policies pertaining to the preservation and restoration of sensitive coastal habitat, as well as strong provisions in support of agriculture. All of these policies have influenced the development of the proposed Project designs intended to address agricultural preservation and habitat restoration within the Coastal Zone. The ERAP defines "Prime Agricultural Land" to include any of the five provisions of Government Code Section 51201 as defined above under the CEQA heading.

#### 3.34 Agriculture

##### Section 30241

*The maximum amount of Prime Agricultural Land shall be maintained in agricultural production to assure the protection of the areas' agricultural economy and conflicts shall be minimized between agricultural and urban land uses through all of the following: ... (c). by developing available lands not suited for agriculture prior to the conversion of agricultural lands.*

Section 30242

*All other lands suitable for agricultural use shall not be converted to nonagricultural uses unless (1) continued or renewed agricultural use is not feasible, or (2) such conversion would preserve Prime Agricultural Land or concentrate development consistent with Section 30250. Any such permitted conversion shall be compatible with continued agricultural use on surrounding lands.*

3.34 A. Agriculture: Identification of Agricultural Lands – Prime/Non-Prime

1. *Lands outside Urban Limit Lines that are Prime Agricultural Lands based on the adopted definition of prime lands of the State of California shall be planned for continued agricultural use, and no division or development of such lands shall be approved which would lower the economic viability of continued agricultural operations on them.*
2. *Lands outside Urban Limit Lines that are not Prime Agricultural Land, but are in agricultural use, have present or future potential for significant agricultural production, and/or are contiguous or intermixed smaller parcels on which non-compatible uses could jeopardize the agricultural use of adjacent agricultural lands shall be planned or continued agriculture.*
3. *Non-Prime Agricultural Land may be converted to other types of land use only when the long-term economic infeasibility of continued agricultural operation is shown to exist; and no division of or development of such lands shall be permitted which would lower the viability of continued agricultural operations on adjacent agricultural lands.*

3.40.D. Grazing Lands – Centerville Beach to Guthrie Creek

1. *Non-prime grazing lands located between Centerville Beach and Guthrie Creek, within the Eel River Planning Area, shall be designated for agricultural use to insure the continuation of large acreage grazing operations....*

3.41 B. Agriculture: Wetlands Identification and Development PoliciesSection 30233

*(a) The diking, filling, or dredging of open coastal waters, wetlands, estuaries, and lakes shall be permitted in accordance with other applicable provisions of this division, where there is no feasible less environmentally damaging alternative, and where feasible mitigation measures have been provided to minimize adverse environmental effects, and shall be limited to the following:*

7. *Restoration purposes*
8. *Nature study, aquaculture, or similar resource-dependent activities.*

3.41 C. Agriculture: Transitional Agricultural Wetlands Identification and Development Policies

1. *Transitional Agricultural lands are wetlands as defined in Chapter 6 (Definitions) of this Plan.*
2. *Allowable uses in Transitional Agricultural Lands: Within transitional agricultural lands planned for Agriculture Exclusive, agriculture is the principal use in these areas but shall maintain long-term protection by ensuring new development is consistent with the provisions of this policy....”*
  - b) *Diking and filling for new development in transitional agricultural lands shall be limited to...the principal uses in agricultural exclusive designation, including construction of spillways and modification or repair of existing dikes threatened by erosion.*

- c) *Dredging in transitional agricultural lands shall be limited to...maintenance and repair of existing tide gates, floodgates, dikes, levees and other drainage works, including replacement of drainage works damaged by flood or tidal surges.*
- e) *Mitigation for these uses by restoration of tidal action or removal of fill...is not feasible and shall not be required. Mitigation should where feasible take place in the Eel River Planning Area and where practicable as close as possible to the development.”*

With regard to the protection and enhancement of natural resources, Section 3.34 B states that management for watershed and fish and wildlife is a compatible use with agriculture.

In addition to the above guidelines, the following ERAP policies are applicable to the proposed Project.

Policy 3.41

*Environmentally sensitive habitat areas shall be protected against any significant disruption of habitat values, and only uses dependent on such resources shall be allowed within such areas.*

Policy 3.41 F.1.a.2

*The County shall continue to pursue opportunities to restore or enhance, if possible, in-stream flows...*

Policy 3.41 F.6.a

*...long-term protection of riparian vegetation . . . should be provide... To achieve these objectives, the County should work with property owners and affected State and Federal agencies*

Policy 3.41 G.9

*Natural drainage courses . . . shall be retained and protected from development which would impede the natural drainage pattern or have a significant adverse effect on water quality or wildlife habitat.*

### **Humboldt County Zoning Regulations**

The Humboldt County Zoning Regulations provide guidance on allowable uses in the study area. In particular, Section 313-35 defines combining zone designations for Transitional Agricultural Lands:

35.1.1 Purpose

*The purpose of these regulations is to permit agricultural use as a principal permitted use while providing that development in transitional agricultural lands is conducted in such a manner as to maintain long-term wetland habitat values and minimize short-term habitat degradation within these environmentally sensitive habitat areas.*

35.1.2 Applicability

*These regulations shall apply to land containing transitional agricultural land designated “T” on the Zoning Maps, and to unmapped areas as defined in this Chapter, Section C....”*

35.1.3 Determination of Transitional Agricultural Land Boundary.

*The following criteria shall be used to determine the upland boundary of transitional agricultural land:*

*35.1.3.1. Either the boundary of a clearly defined slough which is periodically covered with standing water; or*

*35.1.3.2. The boundary of the area which would be below tidal elevations (plus five feet (+5') above mean sea level) if tide gates, dikes, or other drainage works were not in place;...*

35.1.5 Areas Excluded from Transitional Agricultural Lands.

*Notwithstanding the Determinations of Transitional Agricultural Land Boundary or the Transitional Agricultural Land Boundary Adjustment Regulations (Sections 35.1.3 and 35.1.4), any areas with drained or filled hydric soils that are no longer capable of supporting a predominance of hydrophytes shall not be considered transitional agricultural lands and such areas are exempt from the requirements of this section.*

35.1.9 Permitted Diking and Filling.

*Permitted diking and filling shall be limited to the following developments:*

*35.1.9.1. Principal permitted uses in the AE Agricultural Exclusive zone.*

*35.1.9.2. Construction of spillways and modification and repair of existing dikes threatened by erosion. Modification of dikes includes minor relocation....provided, however, that there is no significant increase in gross acreage under cultivation.*

*35.1.9.5. Wetland Restoration*

35.1.10 Permitted Dredging

*Dredging in Transitional Agricultural land shall be limited to:*

*35.1.10.2 Maintenance or replacement of levees, roads, fences, dikes, drainage channels, floodgates, and tide gates;*

*35.1.10.3 Maintenance dredging for flood control and drainage purposes; and*

*35.1.10.4 Wetlands, fishery and wildlife enhancement, and restoration projects.*

35.1.12 Findings Required

*Prior to approval of new development within Transitional Agricultural Lands, the applicable Resource Protection Impact Findings of Chapter 2, Procedures, Supplemental Findings, shall be made.*

### 3.2.4 Evaluation Criteria and Significance Thresholds

The evaluation criteria (based on Appendix G of the current CEQA Guidelines) and significance thresholds, as shown below, guide whether the Project would have a significant impact on agricultural resources.

Evaluation Criteria	Significance Thresholds	Sources
Would the Project convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps for the Farmland Mapping and Monitoring Program by the California Resources Agency, to non-agricultural use?	In the absence FMMP maps, the significance threshold is considered a net conversion of "Prime Farmland" as defined by NRCS, or a net conversion of "Prime Agricultural Land" (as defined by Government Code Section 51201 (c)) to non-Prime Agricultural Land.	CEQA Guidelines Appendix G, Checklist Item II (a) NRCS Soil Mapping PRC Section 21060.1 GOV Section 51201 (c)
Would the Project conflict with existing zoning for agricultural use or a Williamson Act contract?	Conflict with existing zoning for agricultural use or a Williamson Act contract.	CEQA Guidelines

Evaluation Criteria	Significance Thresholds	Sources
		Appendix G, Checklist Item II (b) Humboldt County Zoning
Would the Project conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code Section 12220(g)), timberland (as defined by Public Resources Code Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104(g))?	Conflict with existing zoning for, or cause rezoning of, forest land (as defined in PRC Section 12220(g)), timberland (as defined by PRC Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104(g)).	CEQA Guidelines Appendix G, Checklist Item (c) Humboldt County Zoning Regulations PRC Section 12220(g) PRC Section 4526 GOV Section 51104(g)
Would the Project result in the loss of forest land or conversion of forest land to non-forest use?	Loss or conversion of forest land to non-forest use.	CEQA Guidelines Appendix G, Checklist Item II (d) PRC Section 12220(g)
Would the Project involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?	Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland to non-agricultural use or conversion of forest land to non-forest use.	CEQA Guidelines Appendix G, Checklist Item II (e)

### 3.2.5 Methodology

The following sections describe the anticipated environmental impacts on agricultural production due to implementation of the proposed Project. The study area used to analyze potential impacts to agricultural resources contains pastures (both brackish and freshwater), coastal dunes, tidal lands and submerged lands. A significant impact would occur if implementation of the proposed Project would result in conversions, inconsistencies or conflicts in accordance with the significance thresholds as shown in the table above. The impact analysis included in this section is based on both the potential conversion of Prime Farmland as defined by the NRCS soil map units, and Prime Agricultural Land as defined by subdivisions 1 through 4 of Government Section 51201 (c) (per the guidance listed in Section 21060.1 regarding how to assess agricultural land that hasn't been classified through the FMMP). The impact analysis was also determined by various field studies and agricultural resources investigations and analyses conducted for the Project by GHD Inc., and others as described above.

The analytical approach used for the assessment of impacts and benefits to agricultural resources was to assign estimated productivity levels based upon a comparison of nearby forage rates with site specific conditions including soil chemistry, salinity, vegetation characteristics, stocking rates, and irrigation



availability. Estimated existing productivity levels throughout the study area are shown in Figure 3.2-5 – Existing Productivity of Agricultural Lands and anticipated post-Project productivity levels are shown in Figure 3.2-6 – Proposed Productivity of Agricultural Lands.

The premise of this approach is that if agricultural production levels on currently impaired or non-agriculturally developed areas can be improved by the Project and managed for more consistent agricultural production, than those gains will offset losses resulting elsewhere on the property due to Project components that result in the modification of agricultural grazing land to uses that complement and enhance agricultural productivity elsewhere on the preserve. The benefit of this approach is to provide an assessment of the net overall change to agricultural productivity as a result of the Project.

The evaluation of productive status was based on Government Code definitions of Prime Agricultural Land as referenced in the Coastal Act (PRC Section 30113) and ERAP. The two sources define Prime Agricultural Land almost in the same way: the Coastal Act considers Prime Agricultural Land as meeting any of subdivisions (1) through (4) below, and the ERAP considers Prime Agricultural Land as meeting any of the subdivisions (1) through (5) below. The Project would get a Consistency Determination from the Coastal Commission and therefore the Coastal Act (which references subdivisions 1 through 4 below) governs the determination of Prime Agricultural Land and productive status.

Government Code Section 51201 (c):

1. *Land which qualifies for rating as Class I or Class II in LCC as determined/rated by the United States Department of Agriculture's Natural Resource Conservation Service (NRCS).*
2. *Storie Index Rating 80 to 100.*
3. *Land that supports livestock used for the production of food and fiber and which has an annual carrying capacity equivalent to at least one animal unit per acre.*
4. *Land planted with fruit or nut bearing trees, vines, bushes, or crops which have a non-bearing period of less than five years and which will normally return during the commercial bearing period on an annual basis from the production of unprocessed agricultural plant production not less than \$200 per acre.*
5. *Land which has returned from the production of unprocessed agricultural plant products an annual gross value of not less than two hundred dollars (\$200) per acre for three of the previous five years.*

Project features are proposed on land that overall does not meet subdivisions 1, 2 or 3 of the definition of Prime Agricultural Land or Prime Farmland designation. However, due to the superior growing conditions present in the Eel River Delta, much land that does not possess Prime Agricultural Land designations referenced in subdivisions 1, 2, and 3 above, may nonetheless exhibit Prime Agricultural Land characteristics (i.e. subdivision 4) and notably high production levels. For example, although Swainslough-Occidental soil is “not Prime Farmland” by NRCS standards, parts of the study area with this soil type would be “[land] which will normally return during the commercial bearing period on an annual basis from the production of unprocessed agricultural plant production not less than \$200 per acre” thus achieving Prime Agricultural Land status per subdivision 4.

Under the prior lessee (which had leased the property for numerous years up to approximately three years prior of the date of this EIR) the property was harvested for hay which can be considered a processed agricultural plant production, as well as rotationally grazed. Under management by the current lessee, rotational grazing is the predominant use of the property and although hay is not harvested, the forage grown at the property can be considered production of an unprocessed agricultural plant (i.e., subdivision

4). The forage grown at the Project has been harvested as hay in recent years and can be monetarily evaluated similar to hay because it is providing the same function as harvested hay.

Therefore, for purposes of this analysis, hay is assumed to be valued at \$150/ton. This value is somewhat conservative and attempts to compensate for the volatility of a product whose price varies due to a variety of factors such as shipping costs, climate, weather conditions and demand. In order for pasture to meet the Prime Agricultural Land value under section (4), it must produce in excess of 1.33 tons per acre per year over the course of three of the last five years. As measured in pounds/acre/month, this equates to 297 pounds/acre of dry matter being produced monthly and fully utilized nine months out of the year for three of the last five years, achieving a per acre value of \$200.27. This is a generous evaluation of the true status of pasture and its productivity in such a dynamic environment. First, it assumes a dry weight matter value that is typically measured in terms of hay as a delivered product. Second, it assumes that the material is dry in an area characterized by foggy summers, salt-breeze off the ocean and ample precipitation. Third, the probability of most pastures within the study area achieving full production levels for nine months of the year is extremely low, since the peak growing season is primarily April-September. Nonetheless, for purposes of this analysis, it is assumed that grazing productivity at this level might be achieved under optimum conditions for this period of time, and thus less Prime Agricultural Land likely exists within the study area footprint. In summary, the designation of Prime Agricultural Land (i.e. the production of agricultural forage crop valued not less than \$200 an acre throughout the growing season for three of the five previous years) is based upon prior analyses, interviews, stocking rates, soil types, soil chemistry and vegetation characteristics.

Therefore, per GOV Section 51201 (c) subdivision (4), all areas that produce at least 297 pounds/acre of dry matter can be considered Prime Agricultural Land because these areas normally return, on an annual basis, not less than \$200 per acre. Therefore, areas considered Prime Agricultural Land corresponds to all areas with a monthly productivity of at least 297 pounds/acre which correspond to areas shown in yellow, and the various shades of green on Figure 3.2-5, and amounts to 449 acres.

As shown in Figure 3.2-4 – Existing Habitat within Agricultural Lands, and Figure 3.2-5 – Existing Productivity of Agricultural Lands, areas considered Prime Agricultural Land trend uniformly and similarly from north to south regardless of property boundaries, with higher productivity lands to the south and east, and less productive and reliable land (at least partially due to wave overwash and conversion to saline-sodic conditions) occur in the north and west. The most promising areas for future agricultural management fall in the southeast and eastern portions of the study area.

## 3.2.6 Impacts and Mitigation Measures

**Impact AR-1: Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland) as shown on the maps for the Farmland Mapping and Monitoring Program by the California Natural Resources Agency, to non-agricultural uses.**

As mentioned under the CEQA heading within Section 3.2.3, due to absence of FMMP data, this impact assessment considers potential impacts to lands considered Prime Farmland as determined by the NRCS, and also considers potential impacts to lands considered Prime Agricultural Land per Section 21060.1(b) as determined by Government Code 51201(c).

NRCS-mapped soil types within the study area are shown on Figure 3.2-2 – NRCS Soil Map Units and displayed in tabular format below in Table 3.2-2.

**Table 3.2-2. NRCS Soil Units and Prime Farmland Designations**

Soil Unit	Slopes	Irrigated and drained?	NRCS Prime Farmland Designation
100 – Water and Fluvents	0-2%	No	Not Prime Farmland
105 – Worswick	0-2%	No	Prime Farmland if irrigated and drained
110 – Weott	0-2%	No	Prime Farmland if irrigated and drained
116 – Swainslough, 0-2% slopes	0-2%	No	Not Prime Farmland
117 – Swainslough-Occidental complex	0-2%	No	Not Prime Farmland
119 – Arlynda	0-2%	No	Prime Farmland if irrigated and drained
126 – Loleta	2-5%	No	Prime Farmland if irrigated and drained
140 – Occidental	0-2%	No	Not Prime Farmland
141 – Wigi complex	0-2%	No	Not Prime Farmland
155 – Samoa-Clambeach complex	0-50%	No	Not Prime Farmland
157 – Oxyaquic Udipsamments-Samoa complex	0-50%	No	Not Prime Farmland
231 – Hookton-Tablebluff-Cannonball complex	9-15%	No	Not Prime Farmland
232 – Tablebluff-Cannonball-Lepoil complex	15-30%	No	Not Prime Farmland
233 – Cannonball-Candymountain-Lepoil complex	30-50%	No	Not Prime Farmland
262 – Hookton	2-9%	No	Prime Farmland if irrigated and drained
371 – Fiedler consociation	15-30%	No	Not Prime Farmland
372 – Fiedler-Petellen-Nanningcreek complex	30-50%	No	Not Prime Farmland
373 – Petellen-Oeschger-Nanningcreek complex	50-75%	No	Not Prime Farmland

No portions of the study area are both irrigated and drained. Therefore, no portions of the study area contain Prime Farmland according to the NRCS. And no impact to Prime Farmland would occur.

Under existing conditions and in accordance with subsection 4 of Government Code Section 51201 (c), per definition of Prime Agricultural Land per Section 21060.1(b) of the PRC and in accordance with the definition in the Coastal Act, the study area contains 449 acres of Prime Agricultural Land, shown as areas that produce greater than 297 lbs/acre per month which is colored yellow or the various shades of green in Figure 3.2-5 – Existing Productivity of Agricultural Lands. Implementation of the Project would either create or enhance tidal wetlands and slough channel habitat within the western portion of the study area (west of the proposed berm, which would separate the western portion of the study area from the agriculturally productive eastern portion of the study area). The Project also includes the creation of approximately 14.6

acres of agricultural wetlands in an area of uplands located within the central eastern extent of the study area (see Figure 2-5 – Proposed Project Components). The productivity of this area is not anticipated to significantly change post Project due to the freshwater nature of the proposed wetlands and similar rate of growth of pasture grasses under existing and proposed conditions and proposed to be grazed as currently is occurring. Implementation of the Project would result in the conversion of 28 acres of Prime Agricultural Land to become tidal marsh or slough channel. However, additionally, 274 acres of land considered not prime would be converted to Prime Agricultural Land, resulting in a net increase of 246 acres of Prime Agricultural Land due to Project implementation. In total, following Project implementation, there would be approximately 695 acres of Prime Agricultural Land. See Figure 3.2-7 – Net Prime Agricultural Lands for the locations of the loss of Prime Agricultural Land (maroon polygons), and net gain of Prime Agricultural Land (dark green polygons) following Project implementation.

Due to the substantial net increase in Prime Agricultural Land (246 acres), the impacts associated with conversion of Prime Agricultural Land to non-prime (28 acres) can be considered minor and inconsequential. Furthermore, the Project would substantially improve agricultural productivity throughout the study area east of the proposed berm by protecting it from wave overwash and tidal inundation and improving drainage within the Centerville Slough complex. The area east of the berm would consistently support agricultural operations at a greater frequency and greater productivity compared to existing conditions (225 pounds per acre vs 750 pounds per acre in some parts of the study area), see Figure 3.2-5 – Existing Productivity of Agricultural Lands and Figure 3.2-6 – Proposed Productivity of Agricultural Lands. A less than significant impact during both construction and operation would occur.

**Mitigation Measures:** No mitigation is necessary

**Level of Significance:** Less than significant

**Impact AR-2:** Conflict with existing zoning for agricultural use, or a Williamson Act contract.

Numerous parcels within the study area are under Williamson Act contracts (see Figure 3.2-3 – Williamson Act Contracts). As of the date of this EIR, the EREP contains approximately 886 acres under Williamson Act contract entitled “Wildlands Conservancy Agricultural Preserve No. 09-05” and the RR&T or Russ ownership contain approximately 595 acres under Williamson Act contract entitled “Centerville Ranch Agricultural Preserve No. 87-28.”

### **Eel River Estuary Preserve Lands**

The Project would restore natural hydrology, enhance tidal marsh and improve drainage within APN 100-121-004 and within the western portions of APNs 100-131-003, and 100-143-001 which are under Williamson Act contract The Wildlands Conservancy Agricultural Preserve No. 09-05. Currently approximately 48% of APN 100-121-004 (northern parcel), 2% of APN 100-131-003 (central parcel), and 39% of APN 100-143-001 (southern parcel) are not typically grazed due to the presence of unsuitable grazing conditions, including the presence of standing water, high soil saturation (and associated unsteady ground), and/or an absence of forage (see white and hatched areas on Figure 3.2-5 – Existing Productivity of Agricultural Lands). The remaining portions of the EREP parcels under Williamson Act contract (amounting to 80% of the total) are grazed, however the quality of forage produced on these lands has declined considerably in the last few years due to wave overwash and habitat conversion. Therefore, the associated stocking has also declined due to insufficient forage. Continued degradation of these lands for grazing is anticipated absent the Project.

In summary, of the total 886 acres of EREP lands under Williamson Act contract, 707 acres (80%) are currently used for grazing in predominantly brackish pastures, and 180 acres (20%) are not grazed due to unsuitable environmental conditions. Per Humboldt County's Williamson Act guidelines (Resolution N. 16-144 dated December 13, 2016, Section F, 4) states:

*The majority of the land area of any property under the contract must be devoted to agricultural pursuits consistent with the purpose of the preserve in which the property is located.*

Grazing within unsuitable conditions (i.e. saturated lands) can cause degradation of said areas and potentially of adjacent lands and waterways due to gullyng, muddy conditions, caused by hoof-related deep depressions and subsequent ponding, as well as erosion.

Implementation of the Project would result in approximately 413 acres of tidal marsh and 292 acres of improved pastoral lands under EREP ownership. Given the current state of lands within the study area (i.e. low-quality forage in much of the study area due to wave overwash and predominant saturation of far northern and westerly lying lands), the proposed tidal marsh areas are considered a component of effective agricultural production due to the wave overwash capture, drainage improvements, and limitation to forage conversion the Project would achieve. The tidal marsh area and berm complements and improves long-term agricultural production and would reduce the strain on agricultural lands to the east by creating a clear division between tidal marsh and agricultural lands via the proposed berm. It should be noted that tidal marsh habitat has been establishing in the far northern and western portions of EREP lands under existing conditions due to wave overwash and, absent the Project, will continue to degrade and threaten agricultural productivity for the entire EREP lands. Further, this trend is not anticipated to cease given current climate change and sea level rise projections. Thus, the Project would protect and enhance agricultural lands via the berm, and establish tidal marsh habitat to complement and improve the productivity of agricultural lands. Specifically, even assuming the EREP agricultural lands maintained their existing productivity—which trends show is unlikely due to the continued degradation—the productivity on post-Project EREP agricultural lands would exceed existing productivity as shown in Table 3.2-3 and Table 3.2-4 and on Figure 3.2-5 – Existing Productivity, and Figure 3.2-6 – Proposed Productivity.

Additionally, the Humboldt County Williamson Act Committee found that the proposed Project is consistent with the Williamson Act Guidelines and Land Conservation Contract with the stipulation that the Land Conservation Contract be partially non-renewed (Humboldt County 2023), keeping APN 10013103 in the contract and removing through non-renewal APNs 10012104 and 10014301.

**Table 3.2-3. EREP Productivity by Parcel under Existing and Proposed Conditions**

EREP Property	Existing Conditions			Acreage of Productivity under Existing Conditions							
	Total Acreage	Acres Grazed	Acres Not Grazed	0 lbs/ac	50 lbs/ac	225 lbs/ac	300 lbs/ac	350 lbs/ac	450 lbs/ac	700 lbs/ac	750 lbs/ac
100-121-004 (north)	284	147	138	22		125					
100-131-003 (central)	528	515	13	26	2	312		7	114	3	52
100-143-001 (south)	74	45	29	10		23					
<b>Subtotal (existing):</b>	<b>886</b>	<b>707</b>	<b>180</b>	<b>57</b>	<b>2</b>	<b>460</b>	<b>0</b>	<b>7</b>	<b>114</b>	<b>3</b>	<b>52</b>
EREP Property	Proposed Conditions			Acreage of Productivity under Proposed Conditions							
	Total Acreage	Acres Grazed	Acres Not Grazed	0 lbs/ac	50 lbs/ac	225 lbs/ac	300 lbs/ac	350 lbs/ac	450 lbs/ac	700 lbs/ac	750 lbs/ac
100-121-004 (north)	284	0	284	-	-	-	-	-	-	-	-
100-131-003 (central)	528	270	257	-	-	-	3	3	140	49	62
100-143-001 (south)	74	22	52	-	-	-	-	-	-	-	20
<b>Subtotal (proposed):</b>	<b>886</b>	<b>292</b>	<b>593</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>3</b>	<b>3</b>	<b>140</b>	<b>49</b>	<b>82</b>
<b>Percent Change:</b>	<b>0%</b>	<b>-142%</b>	<b>229%</b>	<b>-100%</b>	<b>-100%</b>	<b>-100%</b>	<b>100%</b>	<b>-57%</b>	<b>23%</b>	<b>1,533%</b>	<b>58%</b>

**Table 3.2-4. EREP Productivity per Acre under Existing and Proposed Conditions**

	<b>Total lbs of Productivity</b>	<b>Acres Grazed</b>	<b>Productivity per Acre</b>
EREP (existing)	198,450	707	281 lbs/ac
EREP (proposed)	160,750	292	550 lbs/ac

Therefore, although less than the majority of EREP property would be grazed, the productivity per acre on remaining grazing lands would nearly double. This increase in productivity is a result of the berm and tidal marsh creation, making them complementary components of agricultural pursuits. Thus, the majority of EREP property (tidal marsh and grazing land) will be utilized for agricultural pursuits and conforms to Humboldt County Williamson Act guidelines. Therefore, a less than significant impact would occur on EREP lands during both construction and operation of the Project.

This conclusion is further and independently supported by the fact that the Williamson Act specifically defines “agricultural land” to include, among other items, “a wildlife habitat area, a salt pond, a managed wetland, or a submerged area.” (Gov. Code, § 51205.) The Williamson Act also names three factors for determining whether a use is compatible with a contract, namely that:

- (1) The use will not significantly compromise the long-term productive agricultural capability of the subject contracted parcel or parcels or on other contracted lands in agricultural preserves.
- (2) The use will not significantly displace or impair current or reasonably foreseeable agricultural operations on the subject contracted parcel or parcels or on other contracted lands in agricultural preserves. Uses that significantly displace agricultural operations on the subject contracted parcel or parcels may be deemed compatible if they relate directly to the production of commercial agricultural products on the subject contracted parcel or parcels or neighboring lands, including activities such as harvesting, processing, or shipping.
- (3) The use will not result in the significant removal of adjacent contracted land from agricultural or open-space use. (Gov. Code, § 51238.1.)

The Project meets these factors in that its implementation (1) will benefit—not compromise—the long-term productive agricultural capability of the lands in the preserve by improving long-term sustainability and per acre production; (2) will not significantly displace reasonably foreseeable agricultural operations on the preserve lands because the berm and tidal marsh creation result in a barrier that will protect and enhance agricultural production for the preserve as whole as compared to the existing conditions under which continued agricultural production is threatened; and (3) will enhance the agricultural productivity of adjacent contracted land by protecting it from wave overwash and sea-water degradation.

Moreover, the Williamson Act also explicitly states that improvements, such as “flood control works, including channel rectification and alteration,” “public works required for fish and wildlife enhancement and preservation,” and “improvements for the primary benefit for the lands within the preserve,” are “hereby determined [by the Legislature] to be compatible with or to enhance land within an agricultural preserve.” (Gov. Code, § 51293(e).) As explained above, the Project will enhance the lands within the preserve by ensuring long-term, sustainable agricultural productivity versus the existing trend of degradation and loss of agricultural productivity. Indeed, under existing conditions, future agricultural productivity in the study area appears to be threatened. The Project also involves flood control works and channel rectification via the berm and the restored four-mile-long Centerville Slough, marsh restoration, creation of approximately one mile of a new and enhanced dendritic tidal channel network, and construction of tidal habitat ridges along



tidal channels to improve sediment transport processes. The marsh restoration will also enhance fish and wildlife preservation. Thus, for these reasons, independently, a less than significant impact would occur on EREP lands during both construction and operation of the Project

### **RR&T and Russ Properties**

Similarly to the EREP lands, the western portion of the RR&T parcels under Williamson Act contract Centerville Ranch Agricultural Preserve No. 87-28 would be constructed to become tidal marsh and slough channel. A berm would surround this area, thereby enhancing the agricultural productivity in the eastern portion of the RR&T and Russ properties. Currently, the western portion of the RR&T and Russ study area contains muted tidal wetlands, brackish marsh, brackish pasture and freshwater pasture (see Figure 3.2-4 – Existing Habitat within Agricultural Lands) and is not as productive as it historically was due to wave overwash and subsequent saline-sodic soil establishment. The acreage of grazing lands within RR&T and Russ properties would not decrease as substantially as EREP grazing lands, however productivity would increase in remaining grazed lands similar to as within the EREP (see Table 3.2-5, and Figure 3.2-5 – Existing Productivity and Figure 3.2-6 – Proposed Productivity).

**Table 3.2-5. RR&T and Russ Properties Productivity by Parcel under Existing and Proposed Conditions**

RR&T and Russ Property	Existing Conditions			Acreage of Productivity under Existing Conditions							
	Total Acreage	Acres Grazed	Acres Not Grazed	0 lbs/ac	50 lbs/ac	225 lbs/ac	300 lbs/ac	350 lbs/ac	450 lbs/ac	700 lbs/ac	750 lbs/ac
100-143-008	182	146	35	114	-	22	-	-	-	-	-
100-143-003	119	119	0	6	-	102	-	-	-	-	11
100-143-004	121	115	6	6	-	39	-	-	-	-	69
101-011-014 <sup>1</sup>	7	0	0	-	-	-	-	-	-	-	6
100-142-021 <sup>1</sup>	45	45	0	2	-	1	-	-	1	-	41
100-143-002	40	40	0	4	-	29	-	-	-	-	7
100-142-011 <sup>1</sup>	70	69	1	-	-	2	-	-	1	-	66
100-142-008 <sup>1</sup>	26	24	2	1	-	-	-	-	-	-	23
100-142-009 <sup>1</sup>	27	25	2	-	-	-	-	-	-	-	25
101-011-016 <sup>1</sup>	5	0	5	-	-	-	-	-	-	-	-
101-011-005 <sup>1</sup>	44	5	39	-	-	-	-	-	-	-	5
<b>Subtotal (existing):</b>	<b>685</b>	<b>595</b>	<b>89</b>	<b>134</b>	<b>0</b>	<b>196</b>	<b>0</b>	<b>0</b>	<b>2</b>	<b>0</b>	<b>252</b>

<sup>1</sup> Parcel is located outside the Project Boundary but within the Study Area

Table 3.2-5 (continued)

RR&T and Russ Property	Proposed Conditions			Acreage of Productivity under Proposed Conditions							
	Total Acreage	Acres Grazed	Acres Not Grazed	0 lbs/ac	50 lbs/ac	225 lbs/ac	300 lbs/ac	350 lbs/ac	450 lbs/ac	700 lbs/ac	750 lbs/ac
100-143-008	182	15	166	14	-	-	-	-	1	-	-
100-143-003	119	110	9	5	-	-	-	-	5	-	100
100-143-004	121	115	6	7	-	-	-	-	2	-	106
101-011-014 <sup>1</sup>	7	7	0	-	-	-	-	-	-	-	7
100-142-021 <sup>1</sup>	45	45	0	3	-	-	-	-	-	-	42
100-143-002	40	28	12	1	-	-	-	-	1	-	26
100-142-011 <sup>1</sup>	70	69	1	2	-	-	-	-	-	-	67
100-142-008 <sup>1</sup>	26	24	2	1	-	-	-	-	-	-	23
100-142-009 <sup>1</sup>	27	25	2	-	-	-	-	-	-	-	25
101-011-016 <sup>1</sup>	5	0	5	-	-	-	-	-	-	-	-
101-011-005 <sup>1</sup>	44	5	39	-	-	-	-	-	-	-	5
<b>Subtotal (proposed):</b>	<b>685</b>	<b>443</b>	<b>241</b>	<b>33</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>9</b>	<b>0</b>	<b>401</b>
<b>Percent Change:</b>	0%	<b>-25%</b>	<b>171%</b>	-75%	0%	-100%	0%	0%	<b>350%</b>	0%	<b>59%</b>

<sup>1</sup> Parcel is located outside the Project Boundary but within the Study Area

**Table 3.2-6. RR&T and Russ Properties Productivity per Acre under Existing and Proposed Conditions**

	<b>Total lbs of Productivity</b>	<b>Acres Grazed</b>	<b>Productivity per Acre</b>
RR&T and Russ (existing)	234,000	595	393 lbs/ac
RR&T and Russ (proposed)	304,800	443	688 lbs/ac

The majority of RR&T and Russ properties would remain grazed, and similarly to the EREP property the productivity per acre on remaining grazing lands would nearly double. As mentioned above, this increase in productivity is a result of the berm and tidal marsh creation, which are complementary components of agricultural pursuits on the property. Due to the majority of lands remaining grazed and the tidal marsh providing a complementary agricultural function, the majority of RR&T and Russ properties are being utilized for agricultural pursuits and conforms to Humboldt County Williamson Act guidelines. Therefore, a less than significant impact would occur on RR&T and Russ properties during both construction and operation of the Project.

Further, for the same independent reasons discussed above for the EREP lands regarding language in the Williamson Act, a less than significant impact would occur on the RR&T and Russ properties during both construction and operation of the Project.

**Mitigation Measures:** No mitigation is necessary

**Level of Significance:** Less than significant

**Impact AR-3:** **Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?**

There are no lands within the study area zoned for forest land or timberland, and no rezoning is proposed under the Project. Therefore, no forest land or timberland would be converted to non-forest use. No impact would occur.

**Mitigation Measures:** No mitigation is necessary

**Level of Significance:** No impact

**Impact AR-4:** **Result in the loss of forest land or conversion of forest land to non-forest use?**

There are no forest lands within the study area; therefore, no forest land would be converted to non-forest use. No impact would occur.

**Mitigation Measures:** No mitigation is necessary

**Level of Significance:** No impact

**Impact AR-5:           Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?**

No additional conversions out of agricultural productivity, aside from the direct conversion of 28 acres of Prime Agricultural Land to tidal marsh and slough channel discussed above in Impact AR-1, are proposed. Additionally, 274 acres of land considered not prime would be converted to Prime Agricultural Land, resulting in a net increase of 246 acres of Prime Agricultural Land due to Project implementation. This conversion is based upon an increase in productivity of lands after Project implementation, i.e., 246 acres of land that has been producing less than 297 pounds per acre of dry matter on an annual basis (under existing conditions) is expected to produce at least 297 pounds per acre of dry matter on an annual basis (under proposed conditions). Portions of the study area located east of the proposed berm would experience the greatest increase in productivity, the southern portion (RR&T lands) would increase from producing approximately 225 pounds per acre to 750 pounds per acre annually, and the northern portion (EREP) would increase from 225 pounds per acre to 450 pounds per acre annually, and 450 pounds per acre to 700 pounds per acre annually. Additionally, while not quantified in this analysis, productivity on the adjacent O'Rourke Foundation property would improve due to the reduction in wave overwash inundation occurring east of the proposed berm.

The Project would result in a beneficial effect on agricultural productivity east of the proposed berm due to decreased frequency and duration of saltwater inundation in this area. Furthermore, extensive input on the Project design has been solicited from adjacent landowners throughout Project development to guide design. Construction and operation of the Project would result in a net increase in Prime Agricultural Land (i.e. conversions of non-Prime Agricultural Lands to Prime Agricultural Land) and overall increase in productivity across the entire study area. However, some Prime Agricultural Land would be converted to tidal wetlands and slough channel in order to increase productivity at the Project level. This amount is not considered substantial due to the net gain in Prime Agricultural Land. Therefore, a less than significant impact would occur.

**Mitigation Measures:**           No mitigation is necessary

**Level of Significance:**       Less than significant

### 3.2.7 Cumulative Impacts

**Impact AR-C-1:           Cumulative Impacts to Agricultural Resources.**

As mentioned in AR-1, the Project would result in a net increase of 246 acres of Prime Agricultural Land, which accounts for the conversion of 28 acres of Prime Agricultural Land out of the prime designation, and overall improved agricultural productivity and drainage throughout the study area. Multiple projects have been recently completed or are underway in the Eel River Delta that individually and collectively have a comparable potential to impact and benefit agricultural resources. These include the Salt River Ecosystem Restoration Project, Ocean Ranch Restoration Project, Cannibal Island Restoration Project, Williams Creek Restoration Project, restoration and enhancement of Cock Robin Island, and multiple projects underway by the NRCS and U.S. Fish and Wildlife Service (USFWS –Partners Program). Most of these projects share the common goal of restoring tidal wetlands habitat while improving drainage on agricultural properties in the area.

As described in this EIR, appropriate studies were undertaken to ensure that agricultural resources that could be impacted by the Project were identified, that no net loss of Prime Agricultural Lands occurred, and that Project-level agricultural productivity would be improved, resulting in a less-than-significant impact. Therefore, the Project's incremental effect to agricultural resources is not cumulatively considerable and would not contribute to any significant impacts to agricultural resources that may be caused by other cumulative projects. Furthermore, the Project may provide an incremental benefit to the Salt River Ecosystem Restoration Project, in that the increase in post-Project tidal prism and flow energy through lower Cut-Off Slough and Salt River is anticipated to increase the sediment transport capacity through downstream reaches of the Salt River. This change would enhance and better sustain a primary objective of enhanced sediment transport for the Salt River Ecosystem Restoration Project. Enhanced water and sediment flow through the downstream reaches would also better maintain the restoration efforts associated with the Eel River Estuary and Centerville Slough Restoration Project.

**Mitigation Measures:** No mitigation is necessary

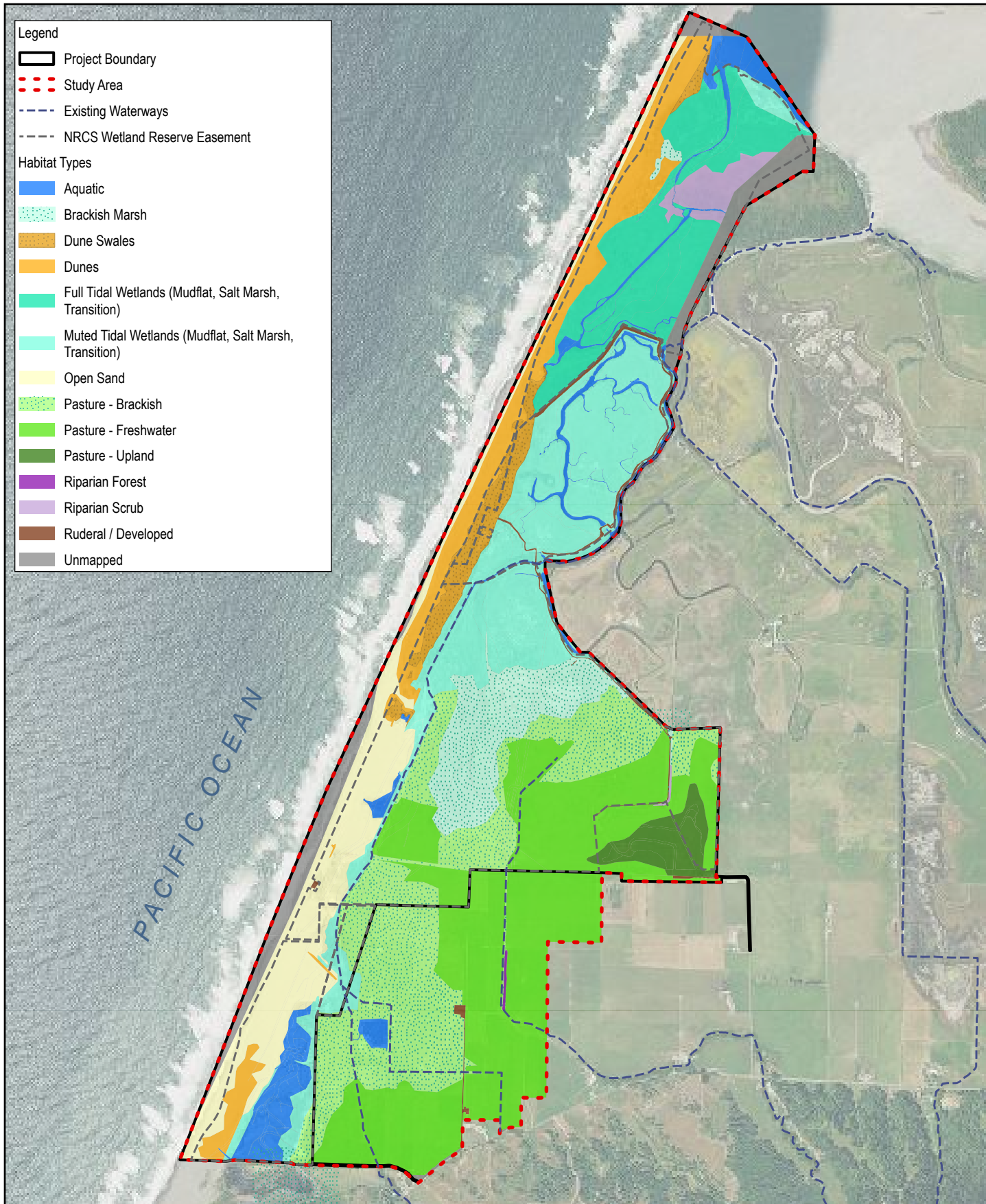
**Level of Significance:** Less than significant

### 3.2.8 References

- California Department of Fish and Game (CDFG). 1997. Stream Inventory Report, Cave Creek, Eel River. Salmon and Steelhead Restoration and Enhancement Program. North Coast Watershed Planning and Coordination Project.
- GHD. 2013. *Technical Memorandum of Soil and Vegetation Data Collection in Support of EREP Agricultural Analysis*, prepared for CalTrout.
- GHD. 2014. *Eel River Estuary Preserve (EREP) Ecosystem Enhancement Project: Delineation of uplands*. July 2014.
- GHD. 2014. *Special-Status Species Evaluation and Special-Status Plant and Animal Surveys for Eel River Estuary Preserve (EREP), Ferndale, California: Special-status plant and animal survey*. October 10, 2014.
- GHD. 2015. *Russ Ranch and Timber: Delineation of uplands*. September 2015.
- GHD. 2015. *Special-Status Plant Survey for Russ Ranch and Timber component of the Eel River Estuary Preserve Ecosystem Enhancement Project: Rare plant survey*. August 6, 2015.
- GHD. 2018. *Coastal Dune Vulnerability and Adaptation Study; Eel River Shoreline Trends*. June 25, 2018.
- GHD. 2022. *Russ Creek & Centerville Slough Enhancement Project – Sensitive Natural Communities, Rare Plants and Upland Delineation*. Prepared for the Humboldt County Resource Conservation District.
- Google Earth. 2019. *Most recent public aerial imagery of the Project Area*. Accessed April 19, 2022.
- Humboldt County. 2007. *Eel River Area Plan of the Humboldt County Local Coastal Program*.
- Humboldt County. 2016. *Humboldt County Board of Supervisors Resolution No. 16-144, Meeting December 13, 2016*.
- Humboldt County. 2017. *Humboldt County General Plan. Chapter 4 – Land Use Element*.
- Humboldt County. 2023. *Williamson Act Committee, May 10, 2023 Draft Meeting Minutes*. Planning and Building Department.

- Humboldt County Resource Conservation District (HCRCDC). 2011. *Agricultural Impact Analysis: Salt River Ecosystem Restoration Project*; SCH# SD2007-05-6. Prepared in association with the State Coastal Conservancy. April.
- Kamman Hydrology & Engineering, Inc. (KHE). 2015. *Eel River Coastal Plain Dunes Assessment and Restoration Feasibility Analysis, Humboldt County, California*. September 2015.
- Natural Resources Conservation Service and Point Blue (NRCS and Point Blue). 2019. *Grazing Management Plan. Prepared for The Wildland's Conservancy*. Humboldt County, California Wetland Reserve Easement Grazing Reserved Rights. NEST # 54-9107-17-01LCP. Prepared by Kate Howard, Point Blue Partner Biologist.
- Soil Survey Staff, Natural Resources Conservation Service, United States Department of Agriculture. 2022 *Web Soil Survey*. Available online at <http://websoilsurvey.nrcs.usda.gov/>.





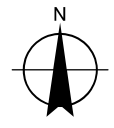
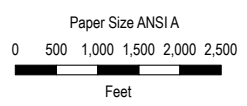
**Legend**

- Project Boundary
- Study Area
- Existing Waterways
- NRCS Wetland Reserve Easement

**Habitat Types**

- Aquatic
- Brackish Marsh
- Dune Swales
- Dunes
- Full Tidal Wetlands (Mudflat, Salt Marsh, Transition)
- Muted Tidal Wetlands (Mudflat, Salt Marsh, Transition)
- Open Sand
- Pasture - Brackish
- Pasture - Freshwater
- Pasture - Upland
- Riparian Forest
- Riparian Scrub
- Ruderal / Developed
- Unmapped

PACIFIC OCEAN

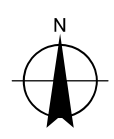
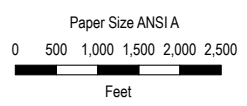
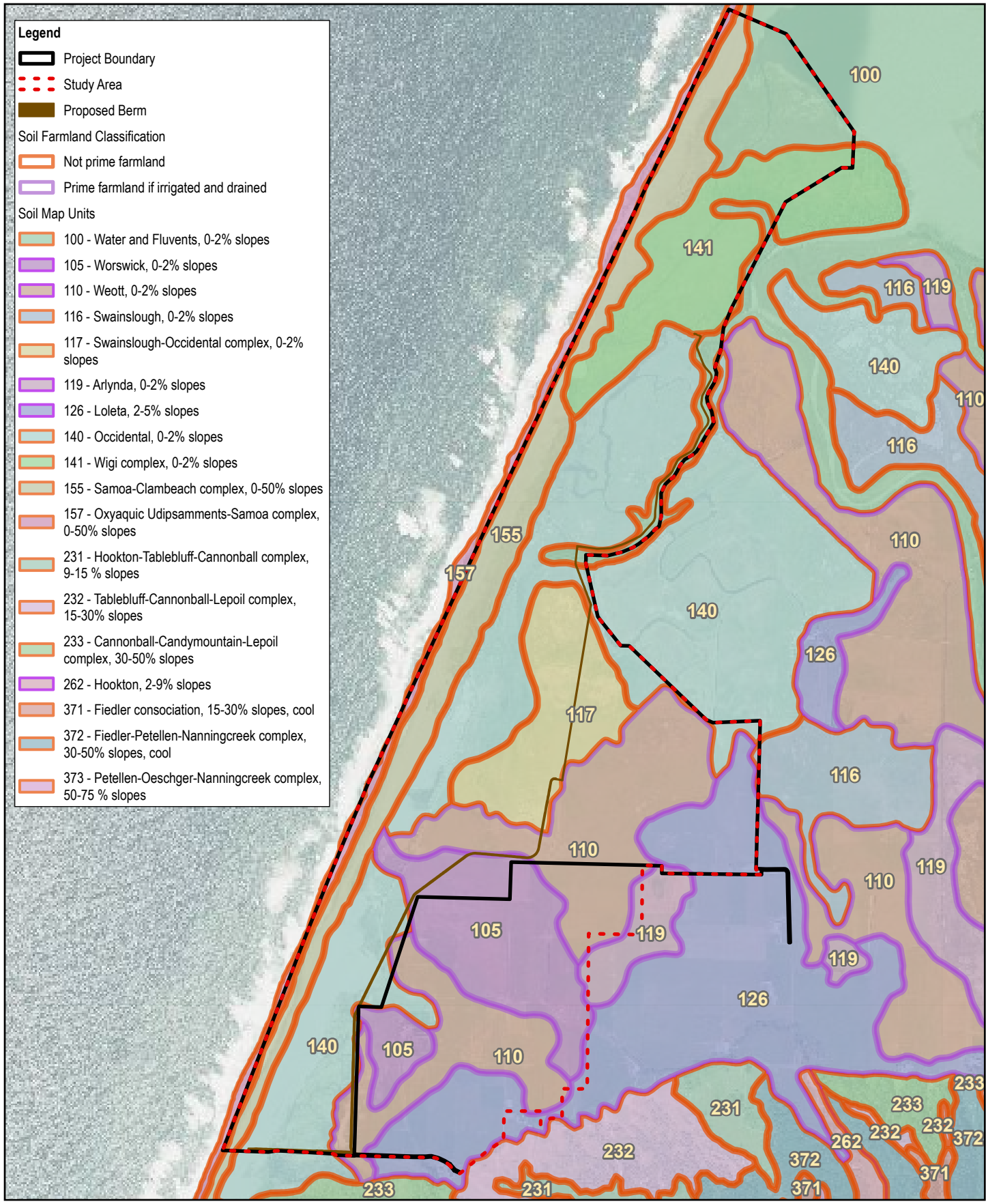


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**Existing Habitat  
Classification Overview**

**FIGURE 3.2-1**








CalTrout  
 Russ Creek and Centerville Slough Restoration Project

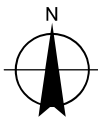
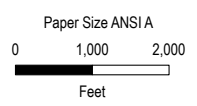
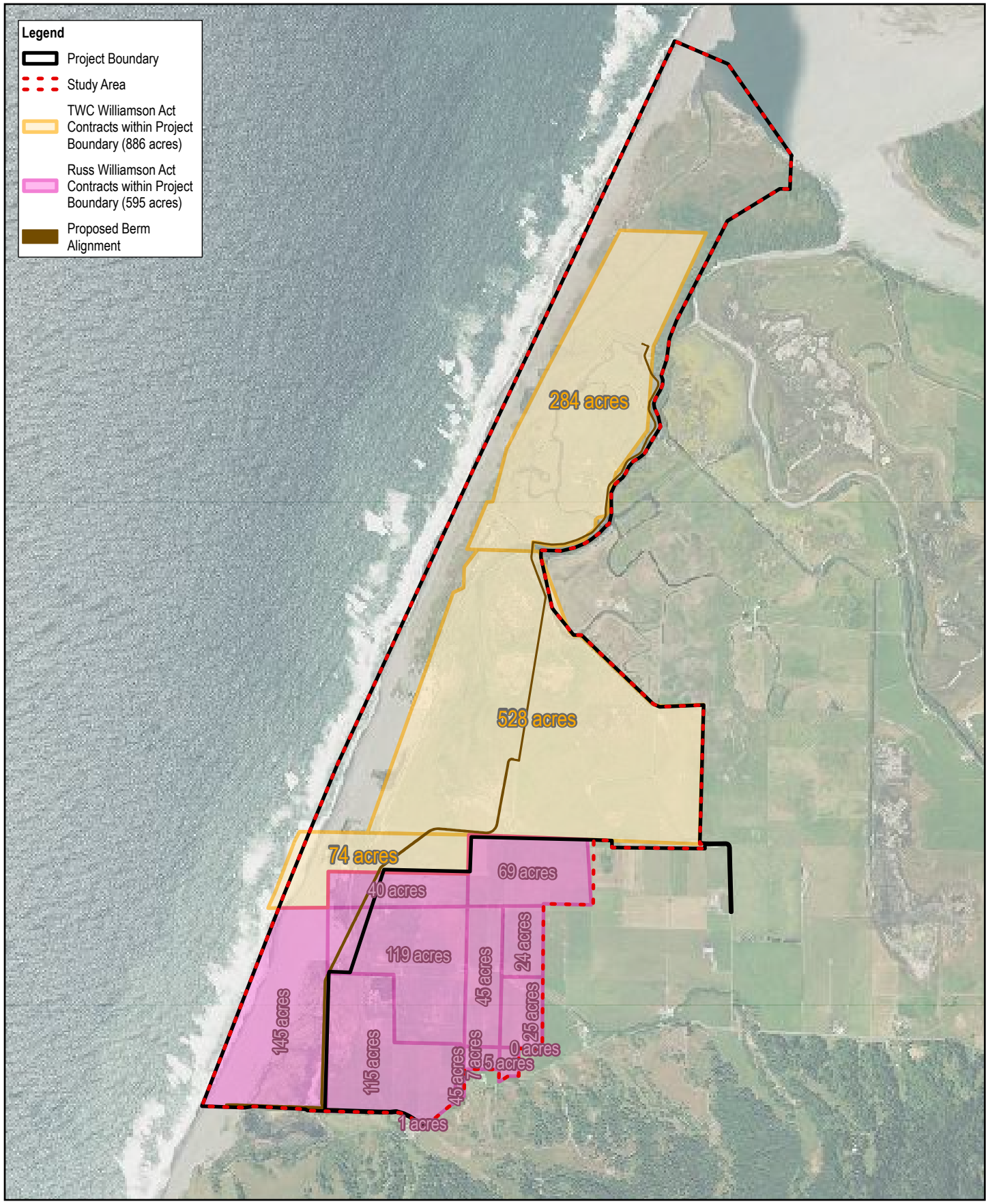
Project No. 11187323  
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Map Projection: Lambert Conformal Conic  
 Horizontal Datum: North American 1983  
 Grid: NAD 1983 StatePlane California I FIPS 0401 Feet

NRCS Soil Map Units

**FIGURE 3.2-2**

- Legend**
-  Project Boundary
  -  Study Area
  -  TWC Williamson Act Contracts within Project Boundary (886 acres)
  -  Russ Williamson Act Contracts within Project Boundary (595 acres)
  -  Proposed Berm Alignment



Humboldt County Resource Conservation District  
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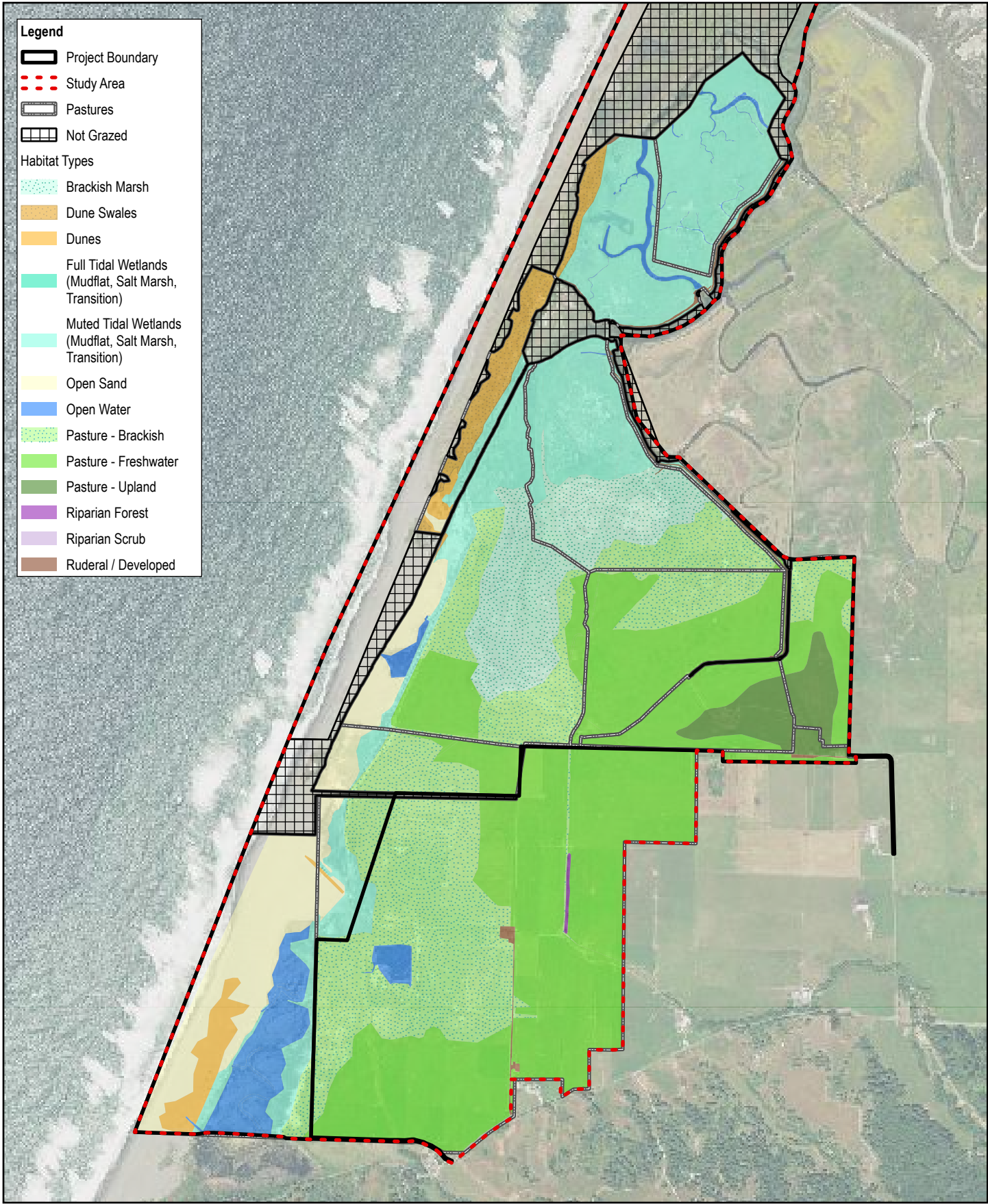
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Revision No. -  
Date Apr 2023

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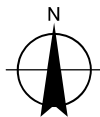
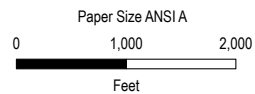
**Williamson Act Contracts**

**FIGURE 3.2-3**





- Legend**
- Project Boundary
  - Study Area
  - Pastures
  - Not Grazed
- Habitat Types**
- Brackish Marsh
  - Dune Swales
  - Dunes
  - Full Tidal Wetlands (Mudflat, Salt Marsh, Transition)
  - Muted Tidal Wetlands (Mudflat, Salt Marsh, Transition)
  - Open Sand
  - Open Water
  - Pasture - Brackish
  - Pasture - Freshwater
  - Pasture - Upland
  - Riparian Forest
  - Riparian Scrub
  - Ruderal / Developed



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

**Existing Habitat  
within Agricultural Lands**

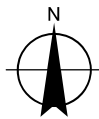
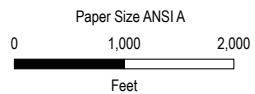
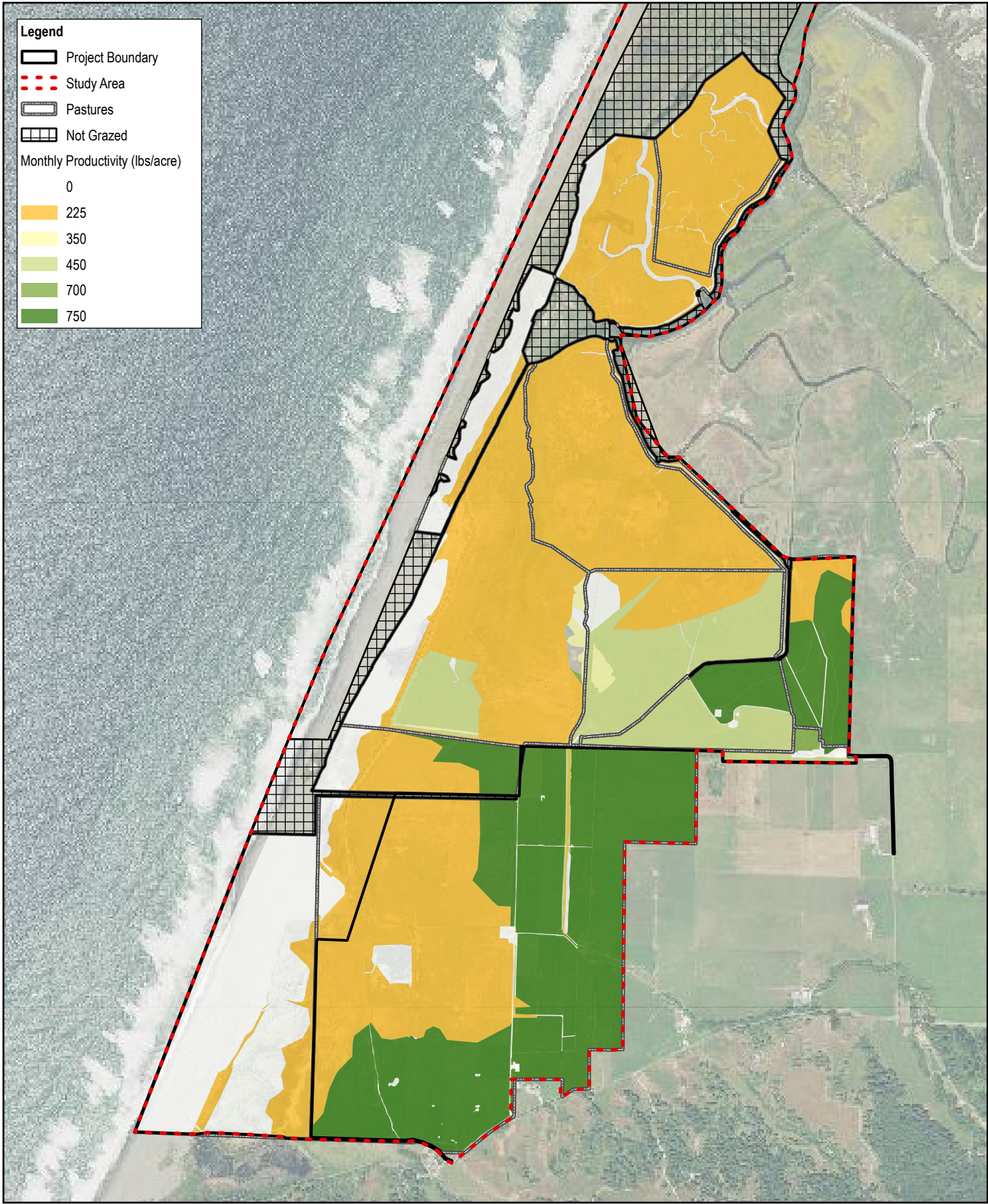
**FIGURE 3.2-4**

**Legend**

- Project Boundary
- Study Area
- Pastures
- Not Grazed

Monthly Productivity (lbs/acre)

- 0
- 225
- 350
- 450
- 700
- 750



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

**Existing Productivity  
of Agricultural Lands**

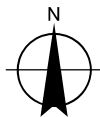
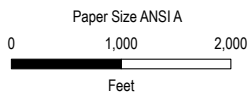
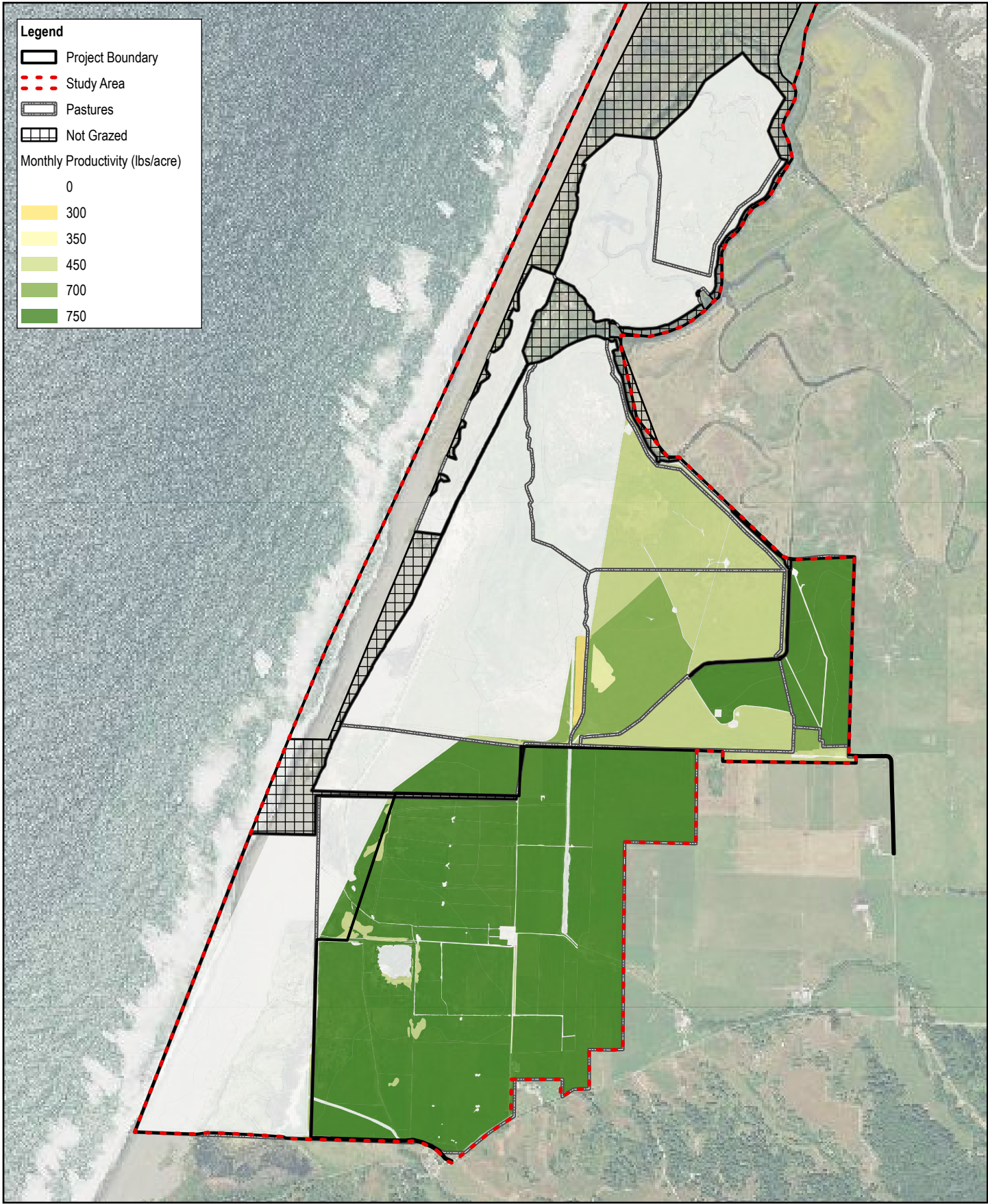
**FIGURE 3.2-5**

**Legend**

- Project Boundary
- Study Area
- Pastures
- Not Grazed

Monthly Productivity (lbs/acre)

- 300
- 350
- 450
- 700
- 750



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**Proposed Productivity  
of Agricultural Lands**

**FIGURE 3.2-6**



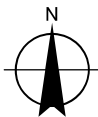
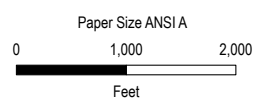
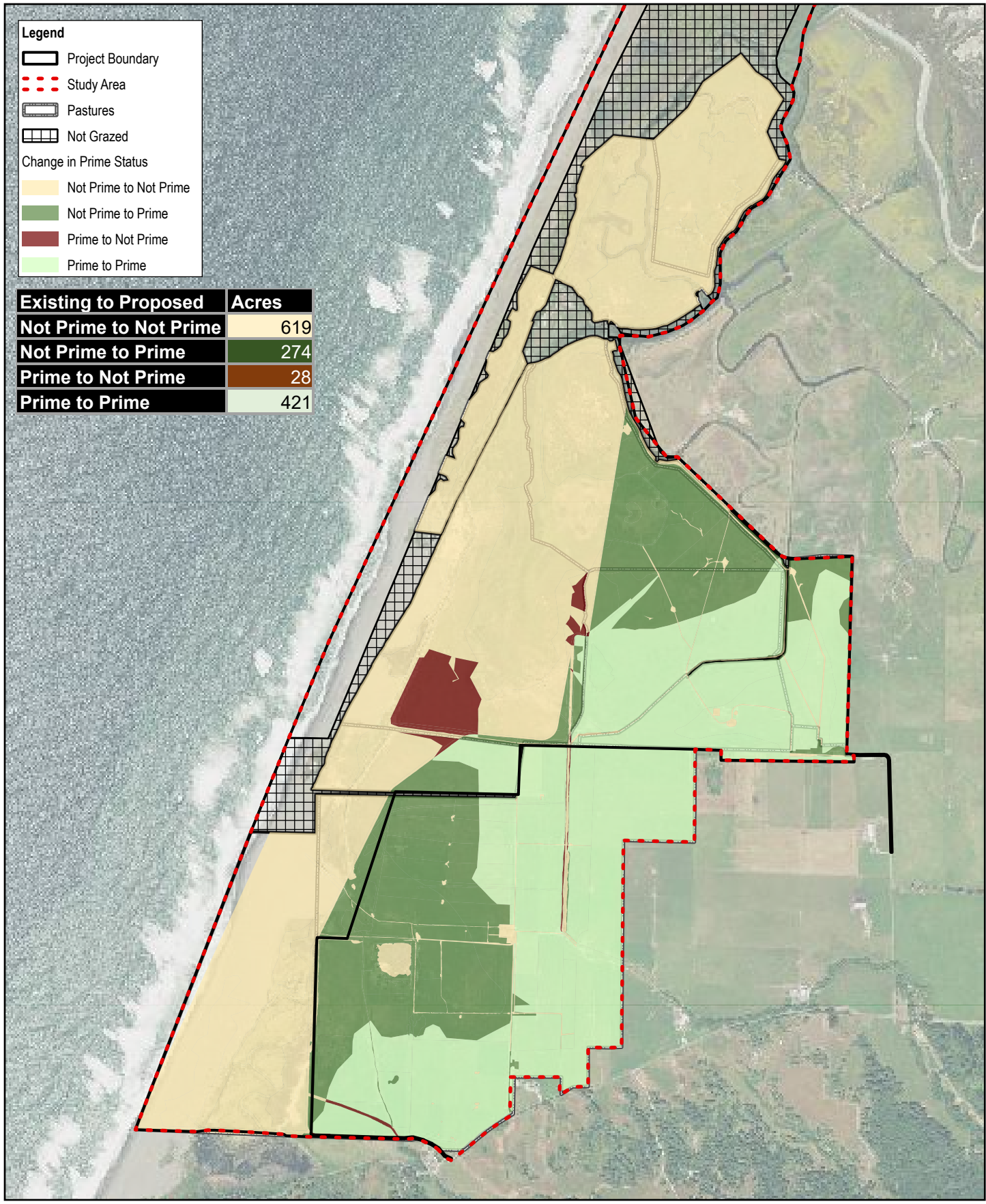
**Legend**

- Project Boundary
- Study Area
- Pastures
- Not Grazed

**Change in Prime Status**

- Not Prime to Not Prime
- Not Prime to Prime
- Prime to Not Prime
- Prime to Prime

Existing to Proposed	Acres
Not Prime to Not Prime	619
Not Prime to Prime	274
Prime to Not Prime	28
Prime to Prime	421



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

**Net Prime Agricultural Lands**

**FIGURE 3.2-7**



### 3.3 Air Quality

This section includes a summary of applicable regulations, existing air quality conditions and an analysis of potential impacts related to air quality during construction and operation of the Project. The impacts and mitigation measures section establish the thresholds of significance, evaluates potential air quality impacts, identifies the significance of impacts, and where appropriate, presents mitigation to reduce impacts to less-than-significant levels.

#### 3.3.1 Study Area

The study area for air quality impacts includes the Project Area and Humboldt County.

#### 3.3.2 Setting

##### North Coast Air Basin

The Project Area, synonymous with Project Boundary, is located in Humboldt County in the North Coast Air Basin, which is comprised of Del Norte, Humboldt, Mendocino, and Trinity Counties as well as the northern portion of Sonoma County (as defined by the California Code of Regulations). The local climates, or sub-climates, within the North Coast Air Basin are affected by elevation and proximity to the Pacific Ocean. Humboldt County, like the North Coast Air Basin, contains sub-climates that are created by local topography and proximity to the ocean. The Project Area is located in the Eel River Delta Area.

##### Climate

The local climates, or sub-climates, within the North Coast Air Basin are affected by elevation and proximity to the Pacific Ocean. Humboldt County (County) contains sub-climates that are created by local topography and proximity to the ocean. The study area is located proximal to the Pacific Ocean and is influenced by coastal fog throughout the year. Precipitation within Humboldt County is seasonal, with 90 percent of the annual precipitation occurring between October and April. During the winter, moderate temperatures, frequent fog, and moderate to heavy precipitation cause inversions, which impact air quality. Inversions are created when warm air traps cool air near the ground surface and hinders vertical dispersion. Humboldt County commonly experiences two types of inversions, vertical and horizontal, that affect the vertical depth of the atmosphere through which pollutants can be mixed. Vertical air movement is important in spreading pollutants through a thicker layer of air. Horizontal movement is important in spreading pollutants over a wider area. Upward dispersion of pollutants is hindered wherever the atmosphere is stable; that is, where warm air overlies cooler air below (Humboldt County 2017).

##### Sensitive Receptors

Sensitive receptors are people who are particularly susceptible to the adverse effects of air pollution. The California Air Resources Board (CARB) has identified the following people who are most likely to be affected by air pollution: children, the elderly, the acutely ill, and the chronically ill, especially those with cardio-respiratory diseases. Residential areas are also considered sensitive receptors to air pollution because residents (including children and the elderly) tend to be at home for extended periods of time, resulting in sustained exposure to any pollutants present. The Project Area is located in an undeveloped, agricultural area. The closest schools to the Project area are in Ferndale, approximately four miles to the west. Ferndale is also the closest significant residential area to the Project Area. There are no residential

communities near the Project Area. However, there are approximately 4 residences within 1,000 feet of the Project Area, all of which are outside the Project Area. Two residences are directly adjacent to the Project Area; the nearest residence is located approximately 300 feet from the Project Area.

### Existing Air Quality – Criteria Air Pollutants

California and the federal government (i.e., U.S. Environmental Protection Agency [EPA]) have established ambient air quality standards for several pollutants. Most standards have been set to protect public health, but standards for some pollutants have other purposes, such as to protect crops, protect materials, or avoid nuisance conditions. Table 3.3-1 summarizes relevant state and federal ambient air quality standards.

**Table 3.3-1 Relevant California and National Ambient Air Quality Standards and Attainment Status**

Pollutant	Averaging Time	California Standard	Humboldt County Status	National Standard	Humboldt County Status
Ozone	8-hour	0.070 ppm (137 µg/m <sup>3</sup> )	Attainment	0.070 ppm (137 µg/m <sup>3</sup> )	Unclassified/ Attainment
	1-hour	0.09 ppm (180 µg/m <sup>3</sup> )	Attainment	None	NA
Carbon Monoxide	1-hour	20 ppm (23 mg/m <sup>3</sup> )	Attainment	35 ppm (40 mg/m <sup>3</sup> )	Unclassified/ Attainment
	8-hour	9.0 ppm (10 mg/m <sup>3</sup> )	Attainment	9 ppm (10 mg/m <sup>3</sup> )	
Nitrogen Dioxide	1-hour	0.18 ppm (339 µg/m <sup>3</sup> )	Attainment	0.100 ppm (188 µg/m <sup>3</sup> )	Unclassified/ Attainment
	Annual	0.030 ppm (57 µg/m <sup>3</sup> )	Status not reported	0.053 ppm (100 µg/m <sup>3</sup> )	
Sulfur Dioxide	1-hour	0.25 ppm (655 µg/m <sup>3</sup> )	Attainment	0.075 ppm (196 µg/m <sup>3</sup> )	Unclassified
	3-hour	None	NA	0.5 ppm (1300 µg/m <sup>3</sup> )	
	24-hour	0.04 ppm (105 µg/m <sup>3</sup> )		0.14 ppm	
	Annual	None	NA	0.03 ppm (56 µg/m <sup>3</sup> )	
Respirable Particulate Matter (PM <sub>10</sub> )	24-hour	50 µg/m <sup>3</sup>	Nonattainment	150 µg/m <sup>3</sup>	Unclassified
	Annual	20 µg/m <sup>3</sup>	Nonattainment	None	
Fine Particulate Matter (PM <sub>2.5</sub> )	24-hour	None	NA	35 µg/m <sup>3</sup>	Unclassified/ Attainment
	Annual	12 µg/m <sup>3</sup>	Attainment	12 µg/m <sup>3</sup>	

Source: CARB (2016 and 2020)

Notes: ppm = parts per million  
 mg/m<sup>3</sup> = milligrams per cubic meter  
 µg/m<sup>3</sup> = micrograms per cubic meter

Of pollutants that may be generated by the proposed Project, those of greatest concern are emitted by motor vehicles. These pollutants include fine particulate matter (PM) less than 2.5 microns in diameter (PM<sub>2.5</sub>) and particulate matter less than 10 microns in diameter (PM<sub>10</sub>). Other pollutants that are less

problematic to the region include ozone precursors (nitrogen oxides [NO<sub>x</sub>] and reactive organic gases [ROG]) and carbon monoxide.

### ***Particulate Matter***

Particulate matter is a complex mixture of small particles that consists of dry solid fragments, solid cores with liquid coatings, and small droplets of liquid. These particles vary greatly in shape, size, and chemical composition, and can be made up of many different materials such as metals, soot, soil, and dust. Particles 10 microns or less in diameter are defined as "respirable particulate matter" or "PM<sub>10</sub>." Fine particles are 2.5 microns or less in diameter (PM<sub>2.5</sub>) and, while also respirable, can contribute significantly to regional haze and reduction of visibility. Inhalable particulates come from smoke, dust, aerosols, and metallic oxides. Although particulates are found naturally in the air, most particulate matter found in the Project vicinity is emitted either directly or indirectly by motor vehicles, agricultural activities, and wind erosion of disturbed areas. Most PM<sub>2.5</sub> is comprised of combustion products such as smoke. Extended exposure to PM can increase the risk of chronic respiratory disease. PM exposure is also associated with increased risk of premature deaths, especially in the elderly and people with pre-existing cardiopulmonary disease. In June 2002, the CARB adopted new ambient air quality standards for PM<sub>10</sub> and PM<sub>2.5</sub>, resulting from an extensive review of the health-based scientific literature. The U.S. EPA adopted a more stringent 24-hour PM<sub>2.5</sub> standard of 35 micrograms per cubic meter (µg/m<sup>3</sup>) in September 2006 (BAAQMD 2017).

### ***Ozone***

Ground-level ozone is the principal component of smog. Ozone is not directly emitted into the atmosphere, but instead forms through a photochemical reaction of ROG and NO<sub>x</sub>, which are known as ozone precursors. Ozone levels are highest from late spring through autumn when precursor emissions are high and meteorological conditions are warm and stagnant. Motor vehicles create the majority of ROG and NO<sub>x</sub> emissions in California. Exposure to levels of ozone above current ambient air quality standards can lead to human health effects such as lung inflammation and tissue damage and impaired lung function. Ozone exposure is also associated with symptoms such as coughing, chest tightness, shortness of breath, and the worsening of asthma symptoms (BAAQMD 2017). The greatest risk for harmful health effects belongs to outdoor workers, athletes, children, and others who spend greater amounts of time outdoors during periods of high ozone levels, typically during the summer.

### ***Carbon Monoxide***

Carbon monoxide, known as CO, is a public health concern because it combines readily with hemoglobin in the bloodstream, reducing the amount of oxygen transported by blood. State and federal CO standards have been set for both 1-hour and 8-hour averaging times. The state 1-hour standard is 20 parts per million (ppm) by volume, and the federal 1-hour standard is 35 ppm. Both the state and federal standards are 9 ppm for the 8-hour averaging period. Motor vehicles are the dominant source of CO emissions in most areas. High CO levels develop primarily during winter, when light winds combine with ground-level temperature inversions (typically between evening and early morning). These conditions result in reduced dispersion of vehicle emissions. Also, motor vehicles emit CO at higher rates when air temperatures are low. The health threat from elevated ambient levels of CO is most serious for those who suffer from heart disease, like angina, clogged arteries, or congestive heart failure; however, high levels of CO can affect even healthy people. People who breathe high levels of CO can develop vision problems, reduced ability to work or learn, reduced manual dexterity, and difficulty performing complex tasks. At extremely high levels, CO is poisonous and can cause death.

### ***Nitrogen Dioxide***

Nitrogen dioxide (NO<sub>2</sub>) is an essential ingredient in the formation of ground-level ozone pollution. NO<sub>2</sub> is one of the nitrogen oxides (NO<sub>x</sub>) emitted from high-temperature combustion processes, such as those occurring in trucks, cars, and power plants. Home heaters and gas stoves also produce NO<sub>2</sub> in indoor settings. Besides causing adverse health effects, NO<sub>2</sub> is responsible for the visibility reducing reddish-brown tinge seen in smoggy air in California. NO<sub>2</sub> is a reactive, oxidizing gas capable of damaging cells lining the respiratory tract. Studies suggest that NO<sub>2</sub> exposure can increase the risk of acute and chronic respiratory disease. Due to potential health effects at or near the current air quality standard, the CARB recently revised the state ambient air quality standard for NO<sub>2</sub>. The U.S. EPA recently adopted a new 1-hour NO<sub>2</sub> standard of 0.10 ppm.

### ***Sulfur Dioxide***

Sulfur dioxide is a colorless gas with a strong odor. It can damage materials through acid deposition. It is produced by the combustion of sulfur-containing fuels, such as oil and coal. Refineries, chemical plants, and pulp mills are the primary industrial sources of sulfur dioxide emissions. Sulfur dioxide concentrations in Humboldt County are well below the ambient standards. Adverse health effects associated with exposure to high levels of sulfur dioxide include irritation of lung tissue, as well as increased risk of acute and chronic respiratory illness (BAAQMD 2017).

### ***Lead***

Lead occurs in the atmosphere as particulate matter. It was primarily emitted by gasoline-powered motor vehicles, although the use of lead in fuel has been virtually eliminated. As a result, levels throughout the state have dropped dramatically.

### **Attainment Status**

Areas that do not violate ambient air quality standards are considered to have attained the standard. Violations of ambient air quality standards are based on air pollutant monitoring data and are judged for each air pollutant, using the most recent three years of monitoring data. The North Coast Air Basin as a whole does not meet state standards for PM<sub>10</sub>. The air basin is considered attainment or unclassified for all other air pollutants. Unclassified typically means the region does not have concentrations of that pollutant that exceed ambient air quality standards.

### **Ambient Air Quality – Monitoring Station Data and Attainment Designations**

Table 3.3-2 summarizes air quality data for the Eureka-Jacobs monitoring station in Humboldt County is approximately 13 miles north of the Project Area. It is the closest monitoring station to the Project Area that continuously collected data during the most recent years. Data from 2021 are the most recent available. The data reported in Table 3.3-2 show that PM<sub>10</sub> and PM<sub>2.5</sub> ambient air quality standards were exceeded over the 2018-2020 period. The 24-hour PM<sub>10</sub> was exceeded in 2018 and 2020 on the state level and in 2020 on the federal level. The annual PM<sub>10</sub> was exceeded in each year based on state standards. For PM<sub>2.5</sub>, the federal 24-hour threshold was exceeded in 2020 and 2018. Carbon monoxide, nitrogen dioxide, sulfur dioxide, and lead are not measured in the county at the Eureka-Jacobs monitoring station. These pollutants have been measured at very low levels in the past.

**Table 3.3-2 Ambient Air Pollutant Monitoring Data in Humboldt County**

Pollutant	Average Time	Highest Measured Concentration		
		2018	2019	2020
Ozone	8-Hour	0.041 ppm	0.049 ppm	0.042 ppm
	1-Hour	0.045 ppm	0.051 ppm	0.046 ppm
Respirable Particulate Matter (PM <sub>10</sub> )	24-Hour	71.0 µg/m <sup>3</sup>	49.3 µg/m <sup>3</sup>	171.5 µg/m <sup>3</sup>
	Annual	18.6 µg/m <sup>3</sup>	15.1 µg/m <sup>3</sup>	21.3 µg/m <sup>3</sup>
Fine Particulate Matter (PM <sub>2.5</sub> )	24-Hour	39.6 µg/m <sup>3</sup>	18.7 µg/m <sup>3</sup>	38.8 µg/m <sup>3</sup>
	Annual (average)	7.7 µg/m <sup>3</sup>	6.7 µg/m <sup>3</sup>	* µg/m <sup>3</sup>

Source: CARB 2022

Notes: All data from the Eureka-Jacobs ambient monitoring station

\* There was insufficient (or no) data available to determine the value.

### Toxic Air Contaminants

Toxic Air Contaminants (TACs) are a broad class of compounds known to cause morbidity or mortality (usually because they cause cancer or serious illness) and include, but are not limited to, the criteria air pollutants listed above in Table 3.3-1. TACs are found in ambient air, especially in urban areas, and are caused by industry, agriculture, fuel combustion, and commercial operations (e.g., dry cleaners). TACs are typically found in low concentrations, even near their source (e.g., diesel particulate matter near a freeway). Because chronic exposure can result in adverse health effects, TACs are regulated at the regional, state, and federal level. The identification, regulation, and monitoring of TACs is relatively new compared to that for criteria air pollutants that have established ambient air quality standards. TACs are regulated or evaluated on the basis of risk to human health rather than comparison to an ambient air quality standard or emission-based threshold.

Diesel exhaust is the predominant TAC in urban air with the potential to cause cancer. It is estimated to represent about two-thirds of the cancer risk from TACs (based on the statewide average). According to the CARB, diesel exhaust is a complex mixture of gases, vapors, and fine particles. This complexity makes the evaluation of health effects of diesel exhaust a complex scientific issue. Some of the chemicals in diesel exhaust, such as benzene and formaldehyde, have been previously identified as TACs by the CARB, and are listed as carcinogens either under the state's Proposition 65 or under the federal Hazardous Air Pollutants programs. California has adopted a comprehensive diesel risk reduction program, and recently adopted new regulations requiring the retrofit and/or replacement of construction equipment, on-highway diesel trucks, and diesel buses in order to lower PM<sub>2.5</sub> emissions and reduce statewide cancer risk from diesel exhaust. See Section 3.3.3, below.

### 3.3.3 Regulatory Framework

The federal Clean Air Act of 1977 (CAA) governs air quality in the United States. In addition to being subject to federal requirements, air quality in California is also governed by more stringent regulations under the California Clean Air Act. At the federal level, the U.S. EPA administers the CAA. The California Clean Air Act is administered by the CARB and by the Air Quality Management Districts at the regional and local levels.

Because chronic exposure can result in adverse health effects, TACs are regulated at the regional, state, and federal level. The identification, regulation, and monitoring of TACs is relatively new compared to that

for criteria air pollutants that have established ambient air quality standards. Specifically, TACs are regulated or evaluated on the basis of risk to human health rather than comparison to an ambient air quality standard or emission-based threshold.

## **Federal**

The U.S. EPA is responsible for enforcing the federal CAA. The U.S. EPA is also responsible for establishing the National Ambient Air Quality Standards (NAAQS) for the following six 'criteria' air pollutants: ozone, particulate matter (PM<sub>10</sub> and PM<sub>2.5</sub>), nitrogen dioxide, carbon monoxide, lead, and sulfur dioxide. The NAAQS are required under the CAA and subsequent amendments. The U.S. EPA regulates emission sources that are under the exclusive authority of the federal government, such as aircraft, ships and certain types of locomotives. The U.S. EPA has jurisdiction over emission sources outside state waters (e.g., beyond the outer continental shelf) and establishes various emission standards, including those for vehicles sold in states other than California. Automobiles sold in California must meet the stricter emission standards established by the CARB.

## **State**

In addition to being subject to federal requirements, air quality in California is also governed by more stringent regulations under the California Clean Air Act. The California Clean Air Act is administered by the CARB, which is part of the California Environmental Protection Agency, and by the Air Quality Management Districts at the regional and local levels. The CARB is responsible for meeting the state requirements of the federal CAA, administering the California Clean Air Act, and establishing the California Ambient Air Quality Standards (CAAQS) which include the six NAAQS criteria pollutants listed above as well as visibility-reducing particulates, hydrogen sulfide, sulfates, and vinyl chloride. The CARB regulates mobile air pollution sources, such as motor vehicles. It is responsible for setting emission standards for vehicles sold in California and for other emission sources, such as consumer products and certain off-road equipment.

## **Regional and Local**

### ***North Coast Unified Air Quality Management District***

The North Coast Unified Air Quality Management District (NCUAQMD), one of 35 air districts in California, has jurisdiction over Humboldt, Del Norte, and Trinity counties. The NCUAQMD's primary responsibility is for controlling air pollution from stationary sources and is committed to achieving and maintaining healthful air quality throughout the tri-county jurisdiction. The NCUAQMD has permit authority over most types of stationary emission sources and can require stationary sources to obtain permits, impose emission limits, set fuel or material specifications, or establish operational limits to reduce air emissions. The NCUAQMD monitors air quality; enforces local, State and federal air quality regulations for counties within its jurisdiction; inventories and assess the health risks of TACs, and adopts rules that limit pollution.

As noted earlier, the Humboldt County is listed as "attainment" or "unclassified" for all the federal and state ambient air quality standards except for the state 24-hour particulate (PM<sub>10</sub>) standard. In 1995, the NCUAQMD provided a study to identify the contributors of PM<sub>10</sub> which is summarized in the Particulate Matter PM<sub>10</sub> Attainment Plan draft report. The NCUAQMD's website cautions the reader when referencing the report as it "is not a document that is required in order for the NCUAQMD to come into attainment for the state standard" and that the NCUAQMD is planning to update the document.

For construction emissions, the NCUAQMD has indicated that emissions are not considered regionally significant for projects whose construction would be of relatively short in duration, lasting less than one

year. For project construction lasting more than one year or that involves above average construction intensity in volume of equipment or area disturbed, construction emissions may be compared to the stationary source Best Available Control (BACT) thresholds.

Pursuant to Rule 104 Section D, the handling, transporting, or open storage of materials in such a manner, which allows or may allow unnecessary amounts of particulate matter to become airborne, shall not be permitted. Reasonable precautions shall be taken to prevent particulate matter from becoming airborne, including, but not limited to covering open bodied trucks when used for transporting materials likely to give rise to airborne dust and the use of water during the grading of roads or the clearing of land.

For operational activities, Rule 110 - New Source Review (NSR) And Prevention of Significant Deterioration establishes the pre-construction review requirements for new and modified stationary sources of air pollution and to provide mechanisms by which authorities to construct for such sources may be granted without interfering with the attainment or maintenance of ambient air quality standards (NCUAQMD 2015).

### ***Humboldt County General Plan***

The Humboldt County General Plan is not applicable in the Coastal Zone. Referenced policies have been provided for guidance purposes only.

#### ***AQ-1. Improved Air Quality***

*Air quality that meets state and federal ambient air quality standards.*

#### ***AQ-2. Particulate Emissions***

*Successful attainment of CAAQS for PM.*

#### ***AQ-G3. Other Criteria Pollutants***

*Maintain attainment of CAAQS for ozone and other criteria pollutants which may be subject to tightening standards.*

#### ***AQ-P2. Reduce Localized Concentrated Air Pollution***

*Reduce or minimize the creation of hot spots or localized places of concentrated automobile emissions.*

#### ***AQ-P4. Construction and Grading Dust Control***

*Dust control practices on construction and grading sites shall achieve compliance with NCUAQMD fugitive dust emission standards.*

#### ***AQ-P7. Interagency Coordination***

*Coordinate with the NCUAQMD early in the permit review process to identify expected regulatory outcomes and minimize delays for projects involving:*

- A. *CEQA environmental review;*
- B. *Building demolition projects that may involve removal of asbestos-containing material subject to National Emission Standards for Hazardous Air Pollutants; and*
- C. *Grading and mining operations subject to State Airborne Toxic Control Measures for naturally occurring asbestos. Rely on the air quality standards, permitting processes, and enforcement capacity of the NCUAQMD to define thresholds of significance and set adequate mitigations under CEQA to the maximum extent allowable.*



### **Humboldt County Eel River Area Local Coastal Plan**

Portions of the study area are subject to local oversight and compliance with the Eel River Area Local Coastal Program. No air quality regulations are listed or discussed in the Eel River Area Local Coastal Program.

## **3.3.4 Evaluation Criteria and Significance Thresholds**

Where available, the significance criteria established by the applicable air quality management district or air pollution control district may be relied upon to make the following determinations.

<b>Evaluation Criteria</b>	<b>Significance Thresholds</b>	<b>Sources</b>
Would the Project conflict with or obstruct implementation of the applicable air quality plan?	Compliance with NCUAQMD Rule 104 – Prohibitions, Subsection D (Fugitive Dust Emissions)	CEQA Guidelines Appendix G, Checklist Item III (a)  NCUAQMD Rules and Regulations
Would the Project result in a cumulatively considerable net increase in any criteria pollutant for which the Project region is non-attainment under an applicable federal or state ambient air quality standard?	Exceed NCUAQMD Rule 110 – New Source Review & Prevention of Significant Deterioration Section E, Best Available Control Technology, Table 1.0 Significance Thresholds	CEQA Guidelines Appendix G, Checklist Items III (b)  NCUAQMD Rule and Regulations, Rule 110 - New Source Review (NSR) & Prevention of Significant Deterioration (PSD), Section E.1 – BACT  NCUAQMD Air Quality Planning & CEQA: Environmental Review Guidelines
Would the Project expose sensitive receptors to substantial pollutant concentrations?	Increased cancer risk of greater than 10.0 in a million  Increased non-cancer risk of greater than 1.0 Hazard Index (Chronic or Acute)	CEQA Guidelines Appendix G, Checklist Item III (c)  California Air Resource Board's Air Toxic Control Measures (ATCMs)
Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?	Creation of a new substantial odor or dust source near existing sensitive receptors	CEQA Guidelines Appendix G, Checklist Item III (d)

## **3.3.5 Methodology**

Project-related air pollutant emissions are anticipated to be almost exclusively short-term construction-related emissions. Short-term construction emissions for the Project were calculated using the latest version of the California Emissions Estimator Model, CalEEMod (Version 2020.4.0) and compared against the stationary source BACT thresholds.

The construction emissions modeling was based on the construction equipment inventories and schedule developed for the Project. The modeled construction phases include channel excavation and levee lowering, berm fill and gated culvert placement, vegetation control, and berm road base placement. The mobile equipment emissions during construction, include excavators, scrapers, rubber-tired dozers, graders, dumpers/tenders, off-highway trucks, tractors/loaders/backhoes, generator sets, rollers, and worker trips. For the purpose of this analysis, the modeling conservatively assumed that construction would occur in a two construction seasons.

Appendix B includes the CalEEMod model output and emissions computations.

### 3.3.6 Impacts and Mitigation Measures

#### **Impact AQ-1: Conflict with or obstruct implementation of the applicable air quality plan?**

This impact relates to consistency with an adopted attainment plan. Within the Project vicinity, the NCUAQMD is responsible for monitoring and enforcing local, state, and federal air quality standards.

As noted above, Humboldt County is designated 'attainment' for all National Ambient Air Quality Standards. With regard to the California Ambient Air Quality Standards, Humboldt County is designated attainment for all pollutants except PM<sub>10</sub>. Humboldt County is designated as "non-attainment" for the state's PM<sub>10</sub> standard. Therefore, any use or activity that generates airborne particulate matter may be of concern to the NCUAQMD.

As discussed previously, the NCUAQMD has published the Particulate Matter Attainment Plan in 1995, representing the most current applicable air quality plan for the county. This plan was prepared to present available information about the nature and causes of exceedances of the PM<sub>10</sub> standards, and to identify cost-effective control measures which can be implemented to bring ambient PM<sub>10</sub> levels down to levels that will meet the California Ambient Air Quality Standards for PM<sub>10</sub>. This document is designed to serve as a summary of the NCUAQMD's current status, a long-range planning tool and a roadmap for future NCUAQMD policy. Consistency with this plan is the basis for determining whether the proposed Project would conflict with or obstruct implementation of an applicable air quality plan.

#### **Construction**

Rule 104, Section D – Fugitive Dust Emissions is used by the NCUAQMD to address non-attainment for PM<sub>10</sub>. Pursuant to Rule 104 Section D, the handling, transporting, or open storage of materials in such a manner, which allows or may allow unnecessary amounts of particulate matter to become airborne, shall not be permitted. Reasonable precautions shall be taken to prevent particulate matter from becoming airborne, including, but not limited to covering open bodied trucks when used for transporting materials likely to give rise to airborne dust and the use of water during the grading of roads or the clearing of land.

During earth moving activities, fugitive dust (PM<sub>10</sub>) would be generated throughout the Project Area, including Russ Lane. The amount of dust generated would be highly variable and is dependent on the size of the area disturbed at any given time, amount of activity, soil conditions, and meteorological conditions. Unless controlled, fugitive dust emissions during construction of the proposed Project could be a significant impact, therefore, Mitigation Measure AQ-1 (Dust Control Measures during Construction) will be incorporated to reduce emissions associated with earth moving activities.

## Operation

Operation of the Project will typically not include the handling, transporting or open storage of materials in which particulate matter may become airborne with the exception of invasive vegetation management, which may include disturbance and excavation of earth resulting in exposed soil. However, excavations will not be significant in size, as it will only be utilized for invasive vegetation management when appropriate. Operation of the Project may include burning vegetation piles as a means to manage vegetation which will cause a momentary increase in the amount of airborne particulate matter. Due to the limited handling, transport or open storage of materials, in which particulate matter may become airborne, operation of the Project is not expected to conflict with NCUAQMD's Rule 104 Section D. Potential dust generated by operational traffic traveling on Russ Lane would be minimized by the access road improvements described in Section 2.5.14 of the Project Description, including speed control and maintained gravel surfacing. A less than significant impact from operation of the Project will occur.

### Mitigation Measure AQ-1: Dust Control Measures during Construction

The contractor shall implement the following BMPs during construction; the BMPs shall be included as notes on final construction plans:

- All exposed surfaces (e.g., parking areas, staging areas, soil piles, active graded areas, excavations, and unpaved access roads) shall be watered in areas of active construction or as necessary in conjunction with other dust suppression methods (such as gravel application) to appropriately control dust. The County or NCUAQMD may require additional treatment in periods of high wind or other circumstances causing visible dust to be generated by the construction site.
- All vehicle speeds on unpaved roads shall be limited to 15 mph, unless the unpaved road surface has been treated for dust suppression with water, rock, wood chip mulch, or other dust prevention measures.
- All haul trucks transporting soil, sand, or other loose material off-site on public roads shall clean all side boards and headboards of material and be adequately wetted and covered.
- Use of mud rumblers mats will be required to reduce off-site tracking of mud and dirt. All visible mud or dirt track-out onto adjacent paved public roads shall be removed using wet power vacuum street sweepers at least once per day, as necessary. The use of dry power sweeping is prohibited.
- All roadways, driveways, and sidewalks to be paved shall be completed as soon as possible.
- Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to five minutes. Clear signage shall be provided for construction workers at all access points.
- All construction equipment shall be maintained and properly tuned in accordance with the manufacturer's specifications.
- Post a publicly visible sign with the telephone number and person to contact at the Lead Agency regarding dust complaints. This person shall respond and take corrective action within 48 hours. The NCUAQMD's phone number shall also be visible to ensure compliance with applicable regulations.

**Level of Significance:**        Less than significant with mitigation

With implementation of Mitigation Measure AQ-1, the Project will not conflict with applicable air plans. Therefore, Impact AQ-1 would be reduced to less than significant with implementation of Mitigation Measure AQ-1.

**Impact AQ-2: Result in a cumulatively considerable net increase in any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?**

The Project's potential to generate criteria pollutants of concern during construction and operation is assessed in this Section. As noted above, Humboldt County is designated nonattainment of the State's PM<sub>10</sub> standard. The County is designated attainment for all other state and federal standards. Potential impacts of concern will be exceedances of state or federal standards for PM<sub>10</sub>. Localized PM<sub>10</sub> is of concern during construction because of the potential to emit fugitive dust during earth-disturbing activities

## **Construction**

### ***Localized PM<sub>10</sub>***

The Project includes excavation, grading, embankment work, and construction of kayak launch. Generally, the most substantial air pollutant emissions would be dust generated from site clearing and grubbing, grading, and excavation. These emissions could lead to both health and nuisance impacts. Construction activities would also temporarily generate emissions of equipment exhaust and other air contaminants. The Project's potential impacts from equipment exhaust are assessed separately in below.

The NCUAQMD does not have formally adopted thresholds of significance for fugitive, dust-related PM emissions above and beyond Rule 104, Section D which does not provide quantitative standards. For the purposes of analysis, this document uses the Bay Area Air Quality Management District (BAAQMD) approach to determining significance for fugitive dust emissions from Project construction. The BAAQMD bases the determination of significance for fugitive dust on a consideration of the control measures to be implemented. If all appropriate emissions control measures recommended by BAAQMD are implemented for a project, then fugitive dust emissions during construction are not considered significant. BAAQMD recommends a specific set of Basic Construction Measures to reduce emissions of construction generated PM<sub>10</sub> to less than significant. Without incorporation of these Basic Construction Measures, the Project's construction-generated fugitive PM<sub>10</sub> (dust) would result in a potentially significant impact.

The Basic Construction Measure controls recommended by the BAAQMD are incorporated into Mitigation Measure AQ-1. These controls are consistent with NCUAQMD Rule 104 Section D for Fugitive Dust Emission and provide supplemental control of fugitive dust emissions beyond that which would occur with Rule 104 Section D compliance alone. Therefore, with implementation of Mitigation Measure AQ-1 the Project would result in a less than significant impact for construction-related PM<sub>10</sub> generation and would not violate or substantially contribute to an existing or projected air quality violation.

### ***Construction Criteria Pollutants***

As noted above, the NCUAQMD has indicated that emissions are not considered regionally significant for projects whose construction will be of relatively short duration, lasting less than one year. For project construction lasting more than one year or that involves above-average construction intensity in volume of equipment or area disturbed, construction emissions may be compared to the stationary source BACT thresholds.

The NCUAQMD does not have established CEQA significance criteria to determine the significance of impacts that may result from a project; however, the NCUAQMD does have criteria pollutant significance

thresholds for new or modified stationary source projects proposed within the NCUAQMD's jurisdiction. NCUAQMD has indicated that it is appropriate for lead agencies to compare proposed construction emissions that last more than one year to its stationary source significance thresholds, which are:

- Nitrogen oxides – 40 tons per year
- Reactive organic gases – 40 tons per year
- PM<sub>10</sub> – 15 tons per year
- Carbon monoxide – 100 tons per year.

If an individual project's emission of a particular criteria pollutant is within the thresholds outlined above, the project's effects concerning that pollutant are considered to be less-than significant.

Construction of the Project is expected to require two years to complete. CalEEMod version 2020.4.0 was used to estimate air pollutant emissions from Project construction equipment and earthmoving. Emission modelling was conducted based on a two-year construction window, or 131 days of Project work per year. For the purpose of this analysis, construction was conservatively assumed to occur over two, 5-month periods, or about 262 days. However, as noted above, construction could occur over multiple seasons. Table 3.3-3 presents the estimated construction-generated emissions. Construction-generated emissions would not exceed significance thresholds and, therefore, would be less than significant.

**Table 3.3-3 Construction Regional Air Pollutant Emissions (tons per year)**

	ROG	NO <sub>x</sub>	PM <sub>10</sub>	Carbon Monoxide
Construction Emissions 2024	1.0	8.4	3.2	7.7
Construction Emissions 2025	0.9	7.4	3.2	7.5
NCUAQMD Stationary Source Thresholds	40	40	15	100
Significant Impact?	No	No	No	No

## Operation

Following construction, operation of the Project will not include any stationary sources of air emissions. The Project will generate emissions from setback inspection and maintenance, and invasive species control actions. Operational trips to the Project Area would occur to support recreation and nature study, as well as site maintenance, management, and monitoring. Operational site maintenance, management, and monitoring trip generation would be similar to existing conditions. However, the Project proposes to expand public access to seven days per week, with the intent of maintaining hunting access and increasing public visitation rates, resulting in an overall increase in visitation on EREP only. As detailed in DEIR Section 2, Project Description, an increase to seven days per week may result in approximately 7,500 visitors annually, which include an estimated 27.4 total daily trips (13.7 one-way trips) for visitation. For reference, the BAAQMD's adopted CEQA Guidelines, which contains stricter (lower) thresholds of significance than used by the NCUAQMD, provides screening guidance for operational criteria pollutants; if a project meets the screening levels, the BAAQMD states that the project would not result in the generation of operational-related criteria air pollutants and/or precursors that exceed their thresholds of significance. The operational screening levels include:

- Single-family Residential: 325 Dwelling Units
- Elementary School: 2,747 Students
- High School: 2,390 Students

- Hotel: 489 Rooms
- General Office Building: 346,000 square feet
- General Light Industry: 1,249 employees

Operation and maintenance of the Project would result in a fraction of the trip generation by the above land use screening levels. The Project would not result in substantial long-term operational emissions of criteria air pollutants. Therefore, Project-generated operational emissions would not result in a cumulatively considerable net increase of any criteria pollutant for which the region is in non-attainment. The Project's contribution to a cumulative impact would be less than significant.

**Mitigation Measures:** No mitigation is necessary

**Level of Significance:** Less than significant

**Impact AQ-3: Expose sensitive receptors to substantial pollutant concentrations.**

Generally, only sensitive receptors that are within 1,000 feet of an emission source (including construction activities that would occur for more than 1 year) would be evaluated for risk of exposure to substantial pollutant concentrations. There are approximately 4 residences within 1,000 feet of the Project Area, all of which are outside the Project Area. During the 10-month construction period, construction activities would occur in different locations through-out the site. Many of the equipment intensive portions of construction would occur on the interior of the site or further west, away from residences near the southern border of the Project Area. Project construction is not expected to include intensive or prolonged construction equipment use for a long duration. Additionally, equipment use would be spread out over the large Project Area, further reducing the duration of equipment use near individual receptor locations. Due to the short duration (no one area of prolonged or intense construction activity) and distance between construction activity and the nearest sensitive receptor, the Project would not result in the exposure of sensitive receptors to substantial pollutant concentrations. Therefore, the construction-related impact would be less than significant.

Following construction, the Project would not include any stationary sources of air emissions or new mobile source emissions that would result in substantial long-term operational emissions of criteria air pollutants. The operation-related impact would be less than significant.

**Mitigation Measures:** No mitigation is necessary

**Level of Significance:** Less than significant

**Impact AQ-4 Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?**

Facilities that typically are considered to potentially create objectionable odors include such uses as wastewater treatment plants, landfills, asphalt plants, coffee roasters, and food processing.

The Project would create limited exhaust fumes from gas and diesel powered equipment during construction. The likelihood of these odors and emissions reaching nearby receptors is influenced by atmospheric conditions, specifically wind direction. Due to the relative short-term nature of construction, distribution of activities, distance to receptors, emissions or odors caused by construction, the Project would not adversely affect a substantial amount of people. Therefore, a less than significant impact would result.

Operation of the Project (i.e., limited recreational use and ongoing maintenance and monitoring activities) would not create a new substantial source of objectionable odors nor would it create a new receptor. Therefore, the Project would not create noticeably objectionable odors affecting a substantial number of people. The operational impact would be less than significant.

**Mitigation Measures:** No mitigation is necessary

**Level of Significance:** Less than significant

### 3.3.7 Cumulative Impacts

**Impact AQ-C-1: Project plus Cumulative Projects Result in a Cumulatively Considerable Contribution to Cumulative Impacts Related to Air Quality.**

By its nature, air pollution is largely a cumulative impact, in that individual projects are rarely sufficient in size to result in nonattainment of ambient air quality standards. Instead, a project's individual emissions may contribute to cumulative adverse air quality impacts. The NCUAQMD's stationary source thresholds, applied to the construction and operation of this Project, consider the Air Basin's attainment status, continued attainment of the standards, and attainment of the daily PM<sub>10</sub> CAAQS. Therefore, the stationary source thresholds, when used as regional thresholds of significance for criteria and precursor air pollutants, are the emission levels for which a project's individual emissions would be cumulatively considerable. If a project exceeds the identified regional significance thresholds, its emissions would be cumulatively considerable, resulting in significant adverse air quality impacts to the region's existing air quality conditions. Finally, consistency with an attainment plan is a cumulative analysis, as it analyzes a project regarding an adopted plan that is based on growth projections for the region. Therefore, the project-level analysis above for Impacts AQ-1 and AQ-2 also would constitute the cumulative impact analysis, and no additional cumulative impacts analysis is required. As shown in Impact AQ-1, the Project would conflict with or obstruct implementation of the applicable air quality plan during Project construction through generate of fugitive dust during construction. As shown in Impact AQ-1, the Project would result in a cumulatively considerable net increase of a nonattainment criteria pollutant through generate of fugitive dust during construction. However, implementation of Mitigation Measure AQ-1 would reduce these impacts to less than significant. Therefore, the Project would not result in a cumulatively considerable impact for attainment plan consistency or cumulatively considerable emissions of nonattainment criteria pollutants after incorporation of Mitigation Measure AQ-1.

As detailed in Impact AQ-1, the Project may expose sensitive receptors to substantial pollutant concentrations of fugitive dust during Project construction. However, implementation of Mitigation Measure AQ-1 would reduce this impact to less than significant. Therefore, the Project would not result in a cumulatively considerable impact for exposure of sensitive receptors to substantial pollutant concentrations after incorporation of Mitigation Measure AQ-1.

#### **Mitigation Measure AQ-1: Dust Control Measures during Construction**

See Mitigation Measure AQ-1 for full text of the mitigation measure.

**Level of Significance:** Less than significant with mitigation



### 3.3.8 References

- BAAQMD. 2017. *CEQA Air Quality Guidelines*. Accessed June 2022.
- CARB. 2020. *Area Designations Maps / State and National*, Accessed website on June 13, 2022 at: <https://ww2.arb.ca.gov/resources/documents/maps-state-and-federal-area-designations>.
- CARB. 2016. *Ambient Air Quality Standards*, Accessed website on June 13, 2022 at: <https://ww2.arb.ca.gov/sites/default/files/2020-07/aaqs2.pdf>.
- CARB. 2022. *iADAM*, Accessed website on June 13, 2022 at: <https://www.arb.ca.gov/adam>
- Humboldt County. 2017. *Humboldt County General Plan Update Final Environmental Impact Report*. September.
- NCUAQMD. 2015. *Rule 110 – New Source Review (NSR) And Prevention of Significant Deterioration (PSD)*. Accessed June 2022.

## 3.4 Biological Resources

This section evaluates the potential impacts related to biological resources during construction and operation of the Project. The setting section describes the existing environmental conditions for biological resources. The regulatory framework section describes the applicable regulations at the federal, state, and local level. The impacts and mitigation measures section establishes the thresholds of significance, evaluates potential impacts to biological resources, and identifies the significance of potential impacts. Where appropriate, mitigation is presented to reduce impacts to less-than-significant levels. Information in this section is based in part on the studies and reports summarized in Table 3.4-1 below.

### 3.4.1 Study Area

The study area is equivalent to the Project Boundary and habitat directly adjacent to the Project Boundary. The Project Boundary, which is synonymous with the Project Area, is approximately 1,480-acres and located four miles west of the City of Ferndale on the coast of Humboldt County, California (Figure 2-1). The Project Area includes the Eel River Estuary Preserve (EREP) owned by The Wildlands Conservancy (TWC) and various parcels privately owned by Russ Ranch and Timber, L.L.C (RR&T), the Linda S Russ Revocable Trust, and margins of two parcels owned by the O'Rourke Foundation (ORF) (Figure 2-2).

Historically, much of the Project Area was comprised of estuarine saltmarsh and a network of tidal channels including Centerville Slough, which extended from the mouth of the Eel River to base of the Wildcat Hills. Beginning in the late 1800's the area was diked, isolated from tidal waters, and drained for agricultural purposes. The reduction in tidal prism combined with sedimentation from freshwater tributaries, including Russ Creek and Shaw Creek, contributed to the infilling, and narrowing of Centerville Slough to its present-day extent (Figure 2-4). Within the Project Area, a complex system of dikes, tide gates and drainage ditches enable multiple land managers to graze livestock in pastures. Tributaries and tidal channels drain northward across numerous APNs. EREP includes agricultural (grazing) land, tidal salt marsh, brackish marsh, riparian scrub, sloughs/open water channels, freshwater ponds and ditches, and nearshore dune ridges and swales. Russ Ranch and Timber, LLC, and the Linda S Russ Revocable Trust, own the parcels immediately south of EREP, which include grazing land with managed ditches, open water channels and mixed freshwater and brackish marsh and dunes.

The west side of the Project Area encompasses the near shore dunes of Centerville Beach and extends to the Pacific Ocean (Figure 2-4). East of the dunes, the Project Area supports a system of sloughs and pastures that comprise a portion of the Salt River watershed, itself a tributary to the Eel River estuary. The northern Project Area borders the Eel River. The southern half of the Project Area includes several perennial tributary streams draining from the Wildcat Hills including Russ Creek, Shaw Creek, a seasonal drainage referred to as Creamery Ditch, and an unnamed tributary. Much of the southern half of the Project east of the former Centerville Slough was reclaimed and has been converted to pasture for agricultural purposes. The Project Area also includes diked former tidelands that are separated from the estuarine wetlands by a series of dikes and the Cutoff Slough tide gate.

### 3.4.2 Setting

Information sources that inform the baseline conditions of biological resources and subsequent analyses are presented in this section. Sources of information include biological reports, memorandums, surveys, site visits, and letters summarized in Table 3.4-1.

**Table 3.4-1 Summary of Biological Information**

<b>Date</b>	<b>Format</b>	<b>Title</b>	<b>Personnel</b>
2000	Report	Humboldt County culvert inventory and fish passage evaluation	Ross Taylor and Associates
2005	Report	Salt River Watershed Assessment, documentation of fish species	CDFG
2009	Report	Steelhead/rainbow trout ( <i>Oncorhynchus mykiss</i> ) resources of the Eel River watershed, California	CEMAR, Gordon S. Becker and Isabelle J. Reining
2009	Report	Delineation of Wetland and Waters of the US for Connick Ranch	Prepared for The Wildlands Conservancy by Brett Lovelace and Mad River Biologists
2010	Report	Lower Eel River watershed assessment	CDFG Coastal Watershed Planning and Assessment Program
February 2011	Report	Final Environmental Impact Report: Salt River Ecosystem Restoration Project	Grassetti Environmental Consulting in association with California State Coastal Conservancy and Kamman Hydrology & Engineering, Inc.
Spring 2011	Site Visits	Identify potential northern red legged frog (NRLF) breeding habitat	Michael VanHatten (CDFG)
October 12, 2011	Report	Eel River Estuary Preserve Biological Evaluation and Wetland Delineation for Proposed Bridge Construction and Road Improvement Project	Prepared for The Wildlands Conservancy by Mad River Biologists
December 13, 2011	Report	Delineation of Wetlands and Waters of the U.S. for the Eel River Estuary Preserve	Prepared for The Wildlands Conservancy by Brett Lovelace and Mad River Biologists
2012	Report	Humboldt Bay and Eel River Estuary benthic habitat project	Susan Schlosser and Annie Eicher
September 29, 2012	Report	Eel River Estuary Preserve Biological Evaluation and Wetland Delineation for Russ Creek Bridge Replacement Project	Prepared for The Wildlands Conservancy by Stephanie Morrissette, Biological Resource Consulting
January 2013; January 2014	Site Visits	Identify potential northern red-legged frog (NRLF) breeding habitat	The Wildlands Conservancy staff; Ken Mierzwa (GHD)
November 12, 2013	Memorandum	Wildlands Conservancy Eel River Property Restoration, Notes Re: habitat characterization and mapping	Prepared for GHD by Annie Eicher of H.T. Harvey and Associates
December 2013	Report	Habitat and Vegetation Mapping for Eel River Estuary Preserve (EREP) Ecosystem Enhancement Project	GHD

Date	Format	Title	Personnel
July 2014	Report	Delineation of Uplands for Eel River Estuary Preserve (EREP) Ecosystem Enhancement Project	GHD
2014	Report	Special-Status Plant Survey for Russ Ranch and Timber component of the Eel River Estuary Preserve Ecosystem Enhancement Project	GHD
October 10, 2014	Report	Special-status Species Evaluation and Special-status Plant and Animal Surveys for Eel River Estuary Preserve (EREP), Ferndale California	GHD
February 25, 2015	Report	Report on Avian Species on the Eel River Estuary Preserve for the Eel River Estuary Preserve Restoration Working Group	The Wildlands Conservancy
September 2015	Report	Delineation of Uplands for Russ Ranch and Timber	GHD
September 2015	Report	Habitat and Vegetation Mapping for Russ Ranch and Timber	GHD
August 6, 2015	Memorandum	Special-status Plant Survey for Russ Ranch and Timber, Eel River Estuary Preserve (EREP) Ecosystem Enhancement Project, Ferndale California	GHD
March 30, 2016	Memorandum	Tidewater Goby Habitat Assessment for Eel River Estuary and Centerville Slough Enhancement Project	H.T. Harvey and Associates
May 2016	Maps	GIS maps of Western Snowy Plover nesting and non-breeding occurrences	USFWS, John Hunter
2017	Report	Fisheries Sampling in the Lower Salt River during the Fall and Winter of 2016-2017	Ross Taylor and Associates
August 2022	Memorandum Appendix C	Summary of Upland and Habitat Mapping: Russ Creek & Centerville Slough Enhancement Project - Sensitive Natural Communities, Rare Plants and Upland Delineation	GHD

The Project Area is within the Eel River Delta and Estuary and located just southwest of the Salt River (Figure 2-4). The Eel River Estuary includes approximately 24 square miles of delta lands, wetlands, and estuarine channels that receive runoff from 3,700 square miles of the Eel River Basin. It is one of the most significant estuaries along the California coast, with a mosaic of tidal flats, sloughs, marshes, and seasonal wetlands that support resident and migratory birds (Schlosser and Eicher 2012; Grasseti et al. 2011). Many remnant slough channels and streams were historically connected yet have been disconnected through historic reclamation activities and continuous agricultural land use. These include the Project Area tributaries Russ Creek, Shaw Creek and Creamery Ditch. These tributaries resemble Francis Creek, which also drains the Wildcat Hills a short distance to the east, and the watersheds within the Project Area displays the same geology, slope and hydrologic characteristics as Francis Creek, with the exception of their discontinuity with the estuary, a feature that suggests high biological potential for restoration of habitat value. Within this landscape setting, the Project Area extends from the Eel River and Salt River south to the

toe of the Wildcat Hills, which rise sharply above the floodplain. The Project Area consists of gently sloping alluvial floodplain that drains west and north to the Eel River. Vegetation types are further described below and consist of sand dune belt along the west coastline, agricultural pastures (both upland and wetland), and mixtures of freshwater and brackish wetlands.

## Existing Habitat Conditions

This section summarizes habitat and vegetation mapping efforts at EREP and Russ Ranch & Timber, L.L.C (Table 3.4-2, Figure 3.2-1). Agricultural grasslands in the Project Area have historically been diked for agricultural use and remain actively managed for grazing. As such, this habitat type is the most abundant vegetation type at EREP and Russ Ranch & Timber, L.L.C. (RR&T). Most of the fields flood seasonally and in general have poorly drained soils. Upland pasture occurs in the southeast portion of the EREP near Headquarters Barn and in various small dikes, sloughs, or roadways throughout. However, most of the Project Area can be referred to as a combination of brackish, freshwater and upland pasture. In many locations, this habitat supports marsh plant species intermixed with pasture grasses. Areas with residually high soil salinity and/or muted tidal seepage are brackish. Since 2016, some freshwater pastures have been inundated with seawater in winter storm over wash events, which have converted freshwater pastures to increasingly brackish conditions and vegetation communities.

The EREP area includes a dune system on the sand spit south of the mouth of the Eel River that extends south past EREP and along RR&T lands and beyond the Project boundary to Centerville Beach. In the north, nearshore dunes are low and broad, whereas in the south nearshore dunes generally are higher and narrower with interspersed dune breaches. The foredune ridge is dominated by the invasive European beachgrass, a California Invasive Plant Council Cal-IPC clumping perennial grass of high priority, meaning it has severe ecological impacts on physical processes, plant and animal communities, and vegetation structure (Cal-IPC 2022). European beachgrass can be found throughout the dune habitat at varying levels of density. On the backside of these foredunes are herbaceous dune swale communities dominated by rushes.

The Project Area contains several small permanent aquatic habitats (sloughs) and freshwater systems, many of which appear to be remnant channels and other intact remnants of the historic Occidental Marsh. These include existing hydrologically disconnected tributaries to the estuary such as Russ Creek, Shaw Creek and Creamery Ditch, and anthropogenic features such as duck ponds and drainage ditches which range from being unvegetated, in the case of the sloughs, to being comprised of palustrine emergent vegetation, in the case of the duck ponds. At present, the freshwater and brackish aquatic habitats south of the tide gates, including the Inner Marsh, are largely separate from the fully tidal system to the north. The presence of smaller fishes and other aquatic species in the brackish areas suggests some very limited connectivity between the estuary outside of the tide gate and the aquatic habitat immediately adjacent interior of the tide gate, but certainly not connectivity between this matrix and the estuarine tributaries listed above; the levees and tide gates are likely a complete barrier to most aquatic species.

## Vegetation Overview

Sensitive biological communities include habitats that are limited in extent, are particularly sensitive to disturbance, and/or fulfil special functions or have special values, such as wetlands, streams, dunes or riparian habitat. These habitats may be protected under federal regulations such as the Clean Water Act; state regulations such as the Porter-Cologne Act, the Coastal Act, and the California Department of Fish and Wildlife (CDFW) Streambed Alteration Program; or local ordinances or policies such as county tree ordinances. CDFW ranks sensitive communities as "threatened" or "very threatened" and keeps records of their occurrences in its California Natural Diversity Database (CNDDDB). Sensitive plant communities

(herbaceous alliances) are also provided in list format by CDFW (CDFW 2022a). CNDDDB vegetation alliances are ranked 1 through 5 based on NatureServe's (2022) methodology, with those alliances ranked globally (G) or statewide (S) with status of 1 through 3 considered to be critically imperiled, imperiled, or vulnerable, respectively (NatureServe 2022). Additionally, CDFW high priority natural community elements are reserved for those areas exhibiting high quality occurrences based on a criterion such as:

1. Lack of invasive species;
2. No evidence of human caused disturbance such as roads or excessive livestock grazing, or high grade logging; or
3. Evidence of reproduction present (sprouts, seedlings, adult individuals of reproductive age), and no significant insect or disease damage, etc.

Non-sensitive biological communities are those communities that are not afforded special protection under CEQA, and other state, federal, and local laws, regulations, and ordinances. These non-sensitive communities may, however, provide suitable habitat for some special-status plant or wildlife species and are part of the general existing site conditions.

The biological studies conducted to date cover the study area, including both the EREP property (approximately 1,239-acres) and the RR&T areas (approximately 601 acres). Portions of RR&T which were developed or intensively grazed were excluded from the study area for special-status species. All potentially sensitive and non-sensitive plant communities were mapped on the Project Area as part of various supporting biological resource evaluations (detailed in Table 3.4-2) and summarized in Memorandum: Summary of Upland and Habitat Mapping (GHD 2022, Appendix C). This effort permitted the establishment of existing conditions in the Project Area including identification of suitable habitats for special-status species, and mapping of sensitive and non-sensitive habitats. Vegetation alliances were identified and mapped in 2014 and 2015 by GHD botanists; however, rapid changes to vegetation communities have occurred since then due to major storm surge over wash events and increasing salinities in the wetlands and pastures. Previously mapped alliances were reassessed in 2021 and generalized by habitat types and land uses with characteristic species. Habitat types mapped in the Project Area are quantified in Table 3.4-2 and Figure 3.2-1.

**Table 3.4-2 Habitat Types and Indicator Vegetation Mapped in 2021 (Native species are in bold.)**

2021 Habitat	Acres	Characteristic species
Aquatic	95.4	NA
Brackish Marsh	106.5	<b>Argentina egedii</b> (a.k.a. <b>Potentilla anserina ssp. pacifica</b> ), <b>Bolboschoenus maritimus</b> , <b>Distichlis spicata</b> , <b>Schoenoplectus pungens</b> , <i>Atriplex prostrata</i> , <i>Polypogon sp.</i> , <i>Parapholis incurva</i>
Dune Swales	45.6	<b>Abronia latifolia</b> , <b>Ambrosia chamissonis</b> , <b>Juncus breweri</b>
Dunes	123.5	<i>Ammophila arenaria</i> , <b>Abronia latifolia</b> , <b>Ambrosia chamissonis</b>
Full Tidal wetlands (mudflat, salt marsh, transition)	164.3	<b>Salicornia depressa</b> , <b>Distichlis spicata</b> , <b>Bolboschoenus maritimus</b> , <b>Spergularia marina</b> , <b>Carex lyngbyei</b> , <b>Deschampsia caespitosa</b> , <i>Spartina densiflora</i> , <i>Atriplex prostrata</i> ,
Muted Tidal wetlands (mudflat, salt marsh, transition)	301.9	<b>Argentina egedii</b> (a.k.a. <b>Potentilla anserina ssp. pacifica</b> ), <b>Eleocharis macrostachya</b> , <b>Juncus effusus</b> , <b>Scirpus microcarpus</b>
Open Sand	169.4	NA
Pasture – Brackish	297.7	<b>Distichlis spicata</b> , <i>Cotula coronopifolia</i> , <i>Agrostis stolonifera</i> , <i>Festuca perennis</i> , <i>Festuca arundinacea</i> , <i>Trifolium fragiferum</i>
Pasture - Freshwater	432.7	<i>Agrostis stolonifera</i> , <i>Festuca perennis</i> , <i>Festuca arundinacea</i> , <i>Trifolium fragiferum</i>
Pasture - Upland	37.4	<i>Holcus lanatus</i> , <i>Anthoxanthum odoratum</i>
Riparian Forest	1.1	<b>Alnus rubra</b> , <b>Salix hookeriana</b>
Riparian Scrub	26.0	<b>Baccharis pilularis</b> , <b>Salix hookeriana</b>
Ruderal / Developed	13.2	NA
Unmapped	81.4	New areas added to the Project Area since habitat analysis occurred.
<b>TOTAL</b>	<b>1896.0</b>	

## Vegetation Communities

### Brackish Marsh

Brackish marsh occurs in the center of the Project Area, west of ruderal upland levees and adjacent to pickleweed (*Salicornia depressa*) marshes, and in wet depressions having residual soil salinity as a result of wave over wash from winter storm surges. Brackish marsh is former freshwater pasture that has converted due to the increasing salinity from over wash events. Characteristic species of this habitat type include Pacific silverweed (*Potentilla anserina ssp. pacifica*), alkali bulrush (*Bolboschoenus maritimus*), salt grass (*Distichlis spicata*), common threesquare (*Schoenoplectus pungens*), fat-hen (*Atriplex prostrata*), rabbitsfoot grass (*Polypogon sp.*), and sickle grass (*Parapholis incurva*).

### Diked/muted Tidal Wetlands

Tidal wetlands in the Project Area are bisected by an existing earthen dike that runs from a tide gate on the Cutoff Slough southwest to the dunes (Figure 2-4 and Figure 3.4-1). The Outer Marsh north of this dike is under full tidal influence from the Eel River Estuary while the Inner Marsh and tidal wetlands south of the dike have a muted tidal influence. The tidal wetlands south of the dike include a wide variety of vegetation types that intergrade into freshwater and brackish pasture, freshwater and brackish marsh, and full tidal

wetlands. These vegetation communities are rapidly shifting due to the changes in tidal regimes from wave over wash events.

In muted tidal wetlands, pickleweed occurs in wet areas with residually high soil salinity such as along slough channel banks and in wet saline depressions. Bordering Cutoff Slough, the pickleweed mat occurs along the channel banks adjacent to alkali bulrush growing on the water's edge. Small patchy areas were found at the toe of levees on the western and eastern edges of Western Drainage and around the Russ Creek washout area.

The pickleweed stands on the RR&T properties are young and mostly monotypic in comparison to other salt marsh stands in the vicinity due to the new wave incursions over the dunes within the last 20 years. On higher ground with less frequent tidal inundation in the EREP, gumplant (*Grindelia stricta var. stricta*) is often a co-dominant with pickleweed.

Species that are characteristic of the muted tidal wetlands include: pickleweed, creeping bentgrass (*Agrostis stolonifera*), salt grass, Pacific silverweed, large-spike spikerush (*Eleocharis macrostachya*), small-fruited bulrush (*Scirpus microcarpus*), and common rush (*Juncus effusus*).

### **Tidal Wetlands – Full Tidal Influence**

The area under full tidal influence in the EREP (north of the earthen dike) is largely where pickleweed is dominant or co-dominant with a variety of associated species. These tidal wetlands include areas of potential rare plant habitat. Tufted hairgrass (*Deschampsia caespitosa*) and Lyngbye's sedge (*Carex lyngbyei*) are two marsh species typically considered indicative of brackish conditions. Both species are locally abundant in tidal marshes at the EREP.

On the EREP, a large area of dense flowered cordgrass (*Spartina densiflora*) is present in the Outer Marsh north of the existing earthen dike (Figure 3.4-1). *Spartina* removal in the Outer Marsh has been ongoing as part of the Humboldt Bay Invasive *Spartina* Eradication Program. The Project proposes to continue to remove *Spartina* in the Outer Marsh as well as removal of small, isolated areas in the Inner Marsh.

Tufted hair grass is a perennial grass often found in sand dunes, coastal terraces and seasonally flooded areas with moderate salinity (Sawyer et al. 2009). In the tidal marshes of the EREP, tufted hair grass dominates some areas, but more often occurs as a co-dominant with pickleweed, gumplant, and salt grass.

### **Pasture and/or Agricultural wetland**

Historic tidelands in the Project Area have been diked for agricultural use and remain actively managed for grazing. The grazed fields flood seasonally and in general have poorly drained soils. The vegetation communities and salinities of these pastures are changing as tidal influence increases from winter over wash events but can be generalized three different types: brackish pasture, freshwater pasture, and upland pasture. A small area of upland pasture occurs in the southeast portion of the EREP, but the majority of the pastures are either freshwater or brackish wetland and in some locations support marsh plant species. Areas with residually high soil salinity and/or muted tidal seepage are brackish.

Extensive stands of creeping bentgrass are prominent in the grazed areas of the EREP (both freshwater and brackish) and in the western portion of the RR&T properties. In brackish pasture, creeping bentgrass is commonly found with salt grass and brass buttons (*Cotula coronopifolia*).

Freshwater pasture is found in areas intermediary between upland and brackish wetland in the south of the EREP and the east of the RR&T properties. Characteristic species of freshwater pastures include creeping bentgrass, perennial ryegrass (*Festuca perennis*), strawberry clover (*Trifolium fragiferum*), and tall fescue (*Festuca arundinacea*).



Characteristic species of upland pastures are velvet grass (*Holcus lanatus*) and sweet vernal grass (*Anthoxanthum odoratum*). This introduced perennial grassland is found in moist pastures and wetlands at the driest moisture levels and lowest salinities.

### **Nearshore Dune Ridges**

The Project Area includes a dune system on the sand spit south of the mouth of the Eel River and extending south for roughly two thirds of the length of the Project Area toward Centerville Beach. Toward the north end of the Project Area the dunes are low and broad, and they generally become higher and narrower to the south. Since 2016, large areas of these dunes have been washed away in the southernmost 1.7 miles of the Project Area along the coast and have converted from dunes to “open sand” (Figure 3.2-1).

The foredune ridge and low-lying beach wash area of Angel’s Camp in the western portion of the RR&T, and the majority of the foredune ridges in the EREP are dominated by the invasive European beach grass (*Ammophila arenaria*), a Cal-IPC ranked clumping perennial grass of high priority (Cal-IPC 2022). Native species such as sand verbena (*Abronia latifolia*), beach morning glory (*Calystegia soldanella*), dune tansy (*Tanacetum bipinnatum*) and seaside daisy (*Erigeron glaucus*) are present albeit in low percentages.

An area at the north end of the EREP contains a stand of European beachgrass with scattered coastal shrubs, including the native shrub coyote brush (*Baccharis pilularis*) and a shrubby lupine which appears to be a hybrid between the native riverbank lupine (*Lupinus rivularis*) and the invasive bush lupine (*L. arboreus*).

### ***Abronia latifolia* – *Ambrosia chamissonis* Alliance (dune mat)**

Dune mat is a community of low-growing herbaceous native plant species found on the protected inner dunes immediately east of the leading edge of the beach. Dune mat plants are low-growing and adapted to shifting sands and a harsh, windy environment and form an alliance recognized by A Manual of California Vegetation (Sawyer et al. 2009). This vegetation alliance is threatened by non-native grasses, iceplant, and lupines that shade and stabilize the sand. This alliance is also particularly threatened by storm surge over wash which has removed entire sand dunes from the Project Area.

The dune mat alliance has 10 classified associations in A Manual of California Vegetation (Sawyer et al. 2009, CNPS 2022c) but has been classified in Humboldt County into 14 different proposed associations (USFWS 2012). One of these proposed associations is the *Juncus breweri* association which is discussed under dune swales below. The majority of dune mat associations are upland and would be considered an SNC and likely an Environmentally Sensitive Habitat Area (ESHA) within the Coastal Zone. Dune mat was mapped in 2016 as small, isolated pockets totaling 0.12 acre. In 2021, a 4.7-acre area of dunes was found to support a large population of beach layia (*Layia carnosa*, listed as federally threatened and state endangered) with low densities of European beach grass scattered throughout (Figure 3.4-1 and Figure 3.4-2). This area may have additional patches of dune mat alliance, but more surveying and mapping would be required to determine the acreages and boundaries of native vegetation.

### **Nearshore Dune Swales**

On the backside of the foredune are herbaceous dune swales dominated by Brewer’s rush. These “dry swales” have been described from the South and North spit of Humboldt Bay (Pickart 2006). Subsequently, the Brewer’s rush association was described within the coastal sand-verbena – beach bur Alliance (*Ambrosia chamissonis*) (aka dune mat) in a recent floristic classification of Humboldt County dunes (USFWS 2012, HTH 2013a). In the Project Area, very few associated species typically characteristic of

dune mat were present in Brewer's rush dry swales. These included occasional observations of coastal sand-verbena, beach bur, shore bindweed, and sand mat (*Cardionema ramosissimum*). In contrast, lower, wetter swales were vegetated primarily by common threesquare, with Pacific silverweed and creeping bentgrass associates. This species composition notably differs from wet dune swales described from the North Spit of Humboldt Bay, which are characterized as being comprised mainly of slough sedge (*Carex obnupta*) (Pickart 2006).

### **Riparian Forest**

A small stand of Coastal dune willow and red alder (*Alnus rubra*) occurs along Russ Creek on the RR&T properties (Figure 3.2-1). Associated species in this habitat include palustrine herbaceous species such as Pacific silverweed (*Potentilla anserina*) and soft rush (*Juncus effusus*).

### **Riparian Scrub**

Willow (*Salix* spp.) and riparian scrub occur at the northeastern extent of the Project Area and on channel banks of the Salt River where the elevation is higher and there is a greater freshwater influence than in adjacent marshlands (Figure 3.2-1). Coastal dune willow (*Salix hookeriana*) is the only willow that has been reported occurring on the EREP (TWC unpublished data). Willows have also been planted along freshwater ditch margins in the southeast part of EREP, but the total area is small and scattered, thus not mapped individually. Red alder (*Alnus rubra*) was observed intergrading with Coastal dune willow (*Salix hookeriana*).

Coyote brush (*Baccharis pilularis*), a common native shrub of coastal and inland areas of California, was observed intergrading with various non-natives near willow areas in the northeastern extent of the Project Area at the higher elevation margin of tidal marshes, along slough channels, and sporadically on levees.

### **Ruderal Uplands**

The Project Area is interspersed with old levee and berm systems constructed to control seasonal flooding. The vegetation associated with these levees is mostly ruderal and comprised of various non-native and invasive species including bull thistle, creeping thistle, perennial rye grass, creeping buttercup, common velvet grass, creeping bentgrass, white clover (*Trifolium repens*), and strawberry clover. Additionally, a few native species occurred on the levees, including California aster (*Symphyotrichum chilense*), yarrow (*Achillea millefolium*), gumplum and coyote brush.

## **Sensitive Natural Communities and Environmentally Sensitive Habitat Areas**

The study area contains eight vegetation communities with a NatureServe State Rank of S1 to S3 which are considered SNCs by the CDFW and likely ESHAs by the California Coastal Commission (CCC) (Table 3.4-3). Of these eight communities, seven are dominated by wetland indicator species and were mapped as Coastal Commission one-parameter wetlands and USACE three-parameter wetlands (in blue below). The only upland SNC in the study area is dune mat (*Abronia latifolia* – *Ambrosia chamissonis* alliance), all other vegetation communities listed in Table 3.4-3 did not meet the criteria for SNCs. Intact Dune Mat (*Abronia latifolia* – *Ambrosia chamissonis* Herbaceous Alliance) was mapped in 2016 as small, isolated pockets totaling 0.12 acre. In 2021, a 4.7-acre area of dunes was found to support a large population of beach layia with low densities of European beach grass scattered throughout (Figure 3.4-1 and Figure 3.4-2). Based on the presence of this threatened species, portions of this 4.7-acre area may include unmapped intact dune mat.

**Table 3.4-3 Vegetation alliances classified as Sensitive Natural Communities with California State ranks S1-3 (Rows in blue are also three-parameter wetlands).**

Common Name	Scientific Name	Classification	Global Rank	State Rank	Wetland
Dune mat	<i>Abronia latifolia</i> – <i>Ambrosia chamissonis</i>	Alliance	G3	S3	Upland
Lyngbye's sedge swathes	<i>Carex lyngbyei</i>	Provisional alliance	GNR	S1	Yes
Pacific silverweed marshes	<i>Argentina egedii</i>	Alliance	G4	S1	Yes
Salt marsh bulrush marshes	<i>Bolboschoenus maritimus</i>	Alliance	G4	S3	Yes
Salt rush swales	<i>Juncus lescurii</i>	Alliance	G3	S2?	Yes
Pickleweed mats	<i>Salicornia depressa</i> ( <i>Salicornia depressa</i> )	Alliance	G4	S3	Yes
Coastal tufted hair grass – Meadow barley – California oatgrass meadow	<i>Deschampsia cespitosa</i> – <i>Hordeum brachyantherum</i> – <i>Danthonia californica</i>	Alliance	GNR	S3	Yes
Coastal dune willow thickets	<i>Salix hookeriana</i>	Alliance	G4	S3	Yes

As an upland SNC, dune mat is likely regulated as an ESHA under the Coastal Act Article 5 Section 30240. All wetland ESHAs are regulated under Article 4 Section 30233 which discusses allowable uses of fill in coastal wetlands.

### Federal and State Jurisdictional Wetlands and Waters

The delineation efforts conducted at the EREP and RR&T portions of the Project Area to date have been conducted with a focus on delineating upland areas (Figure 3.4-3). The purpose of this approach was to focus efforts on areas that were topographically higher and therefore might exhibit characteristics of upland soils, vegetation, and hydrological indicators. The majority of the area consists of a complex of palustrine emergent wetlands, estuarine wetlands (brackish or tidal), grazed wetlands, as well as transitional areas that support a mix of wetland and upland conditions. Both two- and three-parameter uplands were mapped to meet definitions of the USACE and Coastal Commission. The descriptions in the following paragraph include references to wetland indicator status for each plant species mentioned as follows: Obligate (OBL), facultative wetland (FACW), facultative (FAC), facultative upland (FACU), and not listed (NL).

#### Palustrine and Estuarine Wetlands

Wetlands observed in the Project Area are predominantly palustrine emergent seasonal wetlands (National Wetlands Inventory code PEM1Cd; Federal Geographic Data Committee 2013) with some brackish estuarine wetlands and open slough channels, as well as two-parameter USACE upland areas that are potentially considered jurisdictional (degraded/seasonal) according to Coastal Commission definitions. Dominant species within wetlands consist of creeping bentgrass (FAC), perennial rye grass (FAC), birds-foot trefoil, clover species (FAC), common velvet grass (FAC), and Pacific silverweed (OBL). In some low-lying portions of the Project Area, including broad pasture areas as well as along roadsides and some levees, current or historic brackish inputs allow for dominant species assemblage to include non-native cordgrass (NL) and fat hen (FAC), as well as native brackish species such as pickleweed (OBL), salt grass (FACW), and occasionally tufted hairgrass (FACW).

## **Uplands**

The uplands mapped in the Project Area consist of levees, roads, developed areas, stockpiled uplands, as well as natural topographically higher areas and dunes. The identified upland areas are within various transitional matrices of predominantly palustrine agricultural wetlands, brackish marsh, and slough channels. Additional upland areas exist in the Project Area that were not delineated, including the large upland dune complex to the west and likely some additional upland micro-topographic areas within the predominant wetland and transitional matrix. The upland areas are predominantly perennial grassland series within the open agricultural bottoms. The upland areas consist predominantly of ruderal non-native vegetation (creeping bentgrass-tall fescue Semi-Natural Herbaceous Stands). Upland areas of EREP include dominant FAC species observed in the wetlands and transitional areas as described above, such as common velvet grass (FAC), bentgrass (FAC), and bird's-foot trefoil (*Lotus corniculatus*, FAC). Additional dominant upland species include sweet vernal grass (FACU), yarrow (FACU), English plantain (*Plantago lanceolata*, FACU), bull thistle (*Cirsium vulgare*, FACU), capeweed (*Arctotheca calendula*, NL), and prickly sow thistle (*Sonchus asper* ssp. *asper*, FACU). In addition, at the RR&T portion of the Project Area, few FACW or OBL plant species were present in the wetland plots, apart from Pacific silverweed (OBL), and most of the hydrophytic vegetation consisted of FAC or FACU species including: creeping buttercup (*Ranunculus repens*, FAC), perennial rye grass (FAC), white clover (*Trifolium repens*, FAC), common velvet grass (FAC), dock (*Rumex transitorius*, FAC), soft chess (*Bromus hordeaceus*, FACU), and orchard grass (*Dactylis glomerata*, FACU). However, many of these plant species are also present in upland plots in conjunction with other species in most cases. In conclusion, the absence of wetland soil and wetland hydrology in upland areas corroborates the assumption that plants within most upland portions of the property that are listed as FAC are not actually growing as hydrophytes.

A total of 45.6 acres of three-parameter uplands were mapped in the Project Area that meet USACE and Coastal Commission upland definitions and are non-jurisdictional. An additional 1.9 acres of two-parameter uplands meet the USACE definition of upland but may be considered jurisdictional wetlands by the Coastal Commission due to the presence of one wetland parameter (hydrophytic vegetation). 107 acres of dune habitat on the northwest edge of the Project Area were not evaluated in the upland delineation.

The remainder of the Project Area is comprised of 1,741.5 acres of three-parameter wetland/transitional complexes, ruderal transitional areas, brackish marsh, and slough channels occasionally interspersed with small micro-topographical features that are likely uplands or dunes (GHD 2014[a,b], GHD 2015[a,b,c], GHD 2022; MRB 2011[a,b], Appendix C).

## **Waters of the U.S. and State**

Other waters, besides wetlands, subject to USACE jurisdiction under Section 404 of the Clean Water Act include lakes, rivers, and streams (including intermittent streams) for non-tidal areas. Non-tidal waters of the U.S. are defined at the ordinary high water mark (OHWM) following the USACE Regulatory Guidance Letter No. 05-05, Ordinary High Water Mark Identification (USACE 2005). Tidal waters are delineated at the High Tide Line (HTL) which can be based on elevation but can vary locally based on observance of drift deposits, changes in vegetation, topography, or scour. Other Waters of the U.S. in the Project Area include unvegetated slough channels, Russ Creek, and Cutoff Slough.

## **Riparian and Other Wet Areas**

The Project Area was evaluated to locate potential intermittent streams not already designated wetlands or waters of the U.S./State as well as associated riparian habitat following the standard guidance provided in the California Environmental Handbook (USDA 2001). The guidance for CDFW Section 1602 jurisdiction is

typically understood to include streams and to extend laterally to the top-of-bank. If riparian vegetation is present within the top-of-bank, then CDFW jurisdiction extends to the outer dripline of such vegetation. Potential riparian vegetation in the Project Area includes sparse willows and alders in upland areas along levees and creek channels, particularly on the Russ portion of the Project Area. The riparian areas were mostly determined to be upland based on absence of wetland soil and hydrology and location on topographic high points along creeks, and thus the riparian forest and scrub in the Project Area is not within CDFW 1602 jurisdiction.

### **Special-Status Plant Species**

Table 3.4-4 summarizes the potential for special-status plant species to occur in the Project Area. Database queries of CNDDDB, CNPS, and IPaC (USFWS 2022a) resulted in 48 special status plant species recorded in the Project vicinity. Of these, 19 plant species were determined to have a moderate or high potential to occur in the Project Area and seven were verified as present in the Project Area (Figure 3.4-2). Descriptions of these special-status plant species identified as present in the Project Area are included below. Beyond the 19 species with moderate to high potential to occur, the remaining plant species that could occur in the vicinity were determined to have low or no potential to occur in the Project Area due to one or more of the following reasons:

- Edaphic (soil) conditions (e.g., serpentine) necessary to support some special-status plant(s) are not present in the Project Area;
- Associated vegetation communities (e.g., coastal scrub, coniferous forest, woodland, bluff) necessary to support some special-status plant(s) are not present in the Project Area;
- The presence of extensive highly competitive, non-native plant species (e.g., cordgrass); and
- The Project Area is outside of the known elevation and/or localized distribution of some special-status plant(s) (e.g., montane).

**Table 3.4-4 Potential for Special-Status Plant Species to Occur within the Study Area**

Scientific name	Common Name	Status <sup>1</sup>	Habitat Requirements	Potential to Occur
<i>Abronia umbellata</i> var. <i>breviflora</i>	pink sand verbena	1B.1	Coastal dune, coastal strand; located on foredunes and interdunes with low vegetation cover. Blooms: Jun – Oct.	High potential. Suitable habitat is present. Not observed.
<i>Angelica lucida</i>	sea-watch	4.2	Coastal bluff scrub, Coastal dunes, Coastal scrub, Marshes and swamps (coastal salt). Blooms: Apr – Sep	<b>Present. ~4 individuals were observed in 2014 and 2021.</b>
<i>Anomobryum julaceum</i>	slender silver moss	4.2	Broadleafed upland forest, Lower montane & North Coast coniferous forest, outcrops, usually on roadcuts.	No potential. The Project Area is outside the elevational range for this species (330-3,280 feet).
<i>Astragalus pycnostachyus</i> var. <i>pycnostachyus</i>	coastal marsh milk-vetch	1B.1	Coastal dune (mesic), coastal scrub, marshes, and swamps (coastal salt and streamside). Blooms: Apr – Oct.	High potential. Suitable habitat is present. Not observed.
<i>Calamagrostis foliosa</i>	leafy reed grass	SR, 4.2	Coastal bluff scrub, North Coast coniferous forest, Rocky. Blooms May – Sept	Low potential. Marginally suitable habitat is present. Not observed.
<i>Carex leptalea</i>	bristle-stalked sedge	2B.2	Bogs and fens, meadows and seeps (mesic), freshwater marshes and swamps. Blooms: Mar – Jul.	Moderate potential. Moderately suitable habitat is present. Not observed.
<i>Carex lyngbyei</i>	Lyngbye's sedge	2B.2	Marshes and swamps; brackish to freshwater. Blooms: Apr – Aug.	<b>Present. 0.23 acre was observed in 2021.</b>
<i>Castilleja ambigua</i> ssp. <i>humboldtiensis</i>	Humboldt Bay owl's-clover	1B.2	Coastal salt marsh; located in marshes associated with salt grass, cordgrass, pickleweed, and jaumea. Blooms: Apr – Aug.	<b>Present. &gt;10,000 individuals were observed in 2014 and 2021.</b>
<i>Castilleja litoralis</i>	Oregon coast paintbrush	2B.2	Coastal bluff scrub, coastal dune, coastal scrub; located on sandy substrate. Blooms: June.	No potential. The Project Area is outside the elevational range for this species (50-330 feet).
<i>Chloropyron maritimum</i> ssp. <i>palustre</i>	Point Reyes salty bird's-beak	1B.2	Coastal salt marshes and swamps. Blooms: Jun – Oct.	High potential. Suitable habitat is present. Not observed.
<i>Clarkia amoena</i> ssp. <i>whitneyi</i>	Whitney's farewell-to-spring	1B.1	Coastal bluff scrub, coastal scrub. Blooms: Jun – Aug.	Low potential. The Project Area is outside the elevational range for this species (35 - 330 feet).
<i>Downingia willamettensis</i>	Cascade downingia	2B.2	Cismontane woodland, Valley and foothill grassland, Vernal pools. Blooms: Jun – Jul (Sep)	No potential. The Project Area is outside the elevational range for this species (50-3,640 feet).

Scientific name	Common Name	Status <sup>1</sup>	Habitat Requirements	Potential to Occur
<i>Erysimum menziesii</i> ssp. <i>menziesii</i>	Menzies' wallflower	FE; SE; 1B.1	Coastal dune and coastal strand. Blooms: Mar – Jun.	High potential. Suitable habitat is present. Not observed.
<i>Erythronium oregonum</i>	giant fawn lily	2B.2	Cismontane woodland, meadows, and seeps, occasionally on serpentinite, rocky openings. Blooms: Mar – Jun (July).	No potential. The Project Area is outside the elevational range for this species (330-3,775 feet).
<i>Erythronium revolutum</i>	coast fawn lily	2B.2	Bogs and fens, broadleafed upland forest, North Coast coniferous forest, mesic streambanks. Blooms: Mar – July or August.	Low potential. Marginally suitable habitat is present. Not observed.
<i>Fissidens pauperculus</i>	minute pocket moss	1B.2	North Coast coniferous forest on damp soil.	No potential. No suitable habitat is present. Not observed.
<i>Glehnia littoralis</i> ssp. <i>leiocarpa</i>	American glehnia	4.2	Coastal dunes. Blooms: May – August	High potential. Suitable habitat is present. Not observed.
<i>Gilia capitata</i> ssp. <i>pacifica</i>	Pacific gilia	1B.2	Coastal bluff scrub, Chaparral openings, Coastal prairie, valley and foothill grasslands. Blooms: Apr – Aug.	Low potential. Marginally suitable habitat is present. Not observed.
<i>Gilia millefoliata</i>	dark-eyed gilia	1B.2	Coastal strand, dunes. Blooms: Mar – Jul.	<b>Present. 50 individuals were observed during plant surveys in 2014.</b>
<i>Hemizonia congesta</i> ssp. <i>tracyi</i>	Tracy's tarplant	4.3	Coastal prairie, Lower montane coniferous forest, North Coast coniferous forest, Openings, Serpentinite (sometimes). Blooms: (Mar) May – Oct	No potential. The Project Area is outside the elevational range for this species (395-3,935 feet).
<i>Hesperervax sparsiflora</i> var. <i>brevifolia</i>	short-leaved evax	1B.2	Coastal bluff scrub, coastal dune; located on sandy bluffs and flats near the immediate coastline. Blooms: Mar – Jun.	Moderate potential. The Project Area contains small portions of suitable coastal habitat. Not observed.
<i>Hesperolinon adenophyllum</i>	glandular western flax	1B.2	Chaparral, cismontane woodland, valley and foothill grassland, usually on serpentine soils. Blooms: May – Aug.	No potential. The Project Area is outside the elevational range for this species (490 - 4315 feet).
<i>Hosackia gracilis</i>	harlequin lotus	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, Roadsides. Blooms: Mar – July	Moderate potential. Moderately suitable habitat is present. Not observed.



Scientific name	Common Name	Status <sup>1</sup>	Habitat Requirements	Potential to Occur
<i>Lathyrus glandulosus</i>	sticky pea	4.3	Cismontane woodland. Blooms: Apr – Jun	No potential. The Project Area is outside the elevational range for this species (985-2,625 feet).
<i>Lathyrus palustris</i>	marsh pea	2B.2	Bogs & fens, lower montane coniferous forest, marshes and swamps, north coast coniferous forest, coastal prairie, and coastal scrub. Blooms: Mar – Apr.	Moderate potential. Moderately suitable habitat is present. Not observed.
<i>Layia carnosa</i>	beach layia	FT; SE; 1B.1	Coastal dunes, coastal scrub on sandy soils. Blooms: Mar – Jul.	<b>Present. 480 individuals were observed in 2014. In 2021, Layia was observed on 4.7 acres intermixed with European beachgrass.</b>
<i>Lilium occidentale</i>	western lily	FE; SE; 1B.1	Bogs and fens, coastal bluff scrub, coastal prairie/scrub, freshwater marshes and swamps, North Coast coniferous forest openings. Blooms: Jun – Jul.	Moderate potential. Moderately suitable habitat is present. Not observed.
<i>Lilium rubescens</i>	redwood lily	4.2	Broadleafed upland forest, Chaparral, Lower montane coniferous forest, North Coast coniferous forest, Upper montane coniferous forest, Roadsides (sometimes), Serpentinite (sometimes). Blooms: Apr – Aug (Sep)	No potential. The Project Area is outside the elevational range for this species (100-6,265 feet).
<i>Listera cordata</i>	heart-leaved twayblade	4.2	Bogs and fens, Lower montane coniferous forest, North Coast coniferous forest. Blooms Feb – July.	Low potential. Marginally suitable habitat is present. Not observed.
<i>Lycopodium clavatum</i>	running-pine	4.1	Lower montane coniferous forest, Marshes and swamps, North Coast coniferous forest, Edges (often), Openings, Roadsides. Blooms: Jun - Aug (Sep)	No potential. The Project Area is outside the elevational range for this species (150-4,020 feet).
<i>Mitellastrum caulescens</i>	leafy-stemmed mitrewort	4.2	Broadleafed upland forest, Lower montane coniferous forest, Meadows and seeps, North Coast coniferous forest, Mesic, Roadsides (sometimes). Blooms: (Mar) Apr – Oct.	Low potential. Marginally suitable habitat is present. Not observed.
<i>Montia howellii</i>	Howell's montia	2B.2	Meadows and seeps, North Coast coniferous forest, vernal pools or vernal mesic soils, sometimes roadsides. Blooms: February or Mar – May	Low potential. Marginally suitable habitat is present. Not observed.

Scientific name	Common Name	Status <sup>1</sup>	Habitat Requirements	Potential to Occur
<i>Oenothera wolfii</i>	Wolf's evening-primrose	1B.1	Coastal bluff scrub, coastal dune, coastal prairie, lower montane coniferous forest; located on sandy substrates in mesic sites. Blooms: May – Oct.	Low potential. Marginally suitable habitat is present. Not observed.
<i>Packera bolanderi</i> var. <i>bolanderi</i>	seacoast ragwort	2B.2	Coastal strand and scrub, North Coast coniferous forest. Blooms: Apr – May.	No potential. The Project Area is outside the elevational range for this species (100-2,135 feet).
<i>Pityopus californicus</i>	California pinefoot	4.2	Broadleafed upland forest, Lower montane coniferous forest, North Coast coniferous forest, Upper montane coniferous forest, Mesic. Blooms: (Mar - Apr) May – Aug.	No potential. The Project Area is outside the elevational range for this species (50-7,300 feet).
<i>Pleuropogon refractus</i>	nodding semaphore grass	4.2	Lower montane coniferous forest, Meadows and seeps, North Coast coniferous forest, Riparian forest, Mesic. Blooms: (Mar) Apr – Aug.	Low potential. Marginally suitable habitat is present. Not observed.
<i>Polemonium carneum</i>	Oregon polemonium	2B.2	Coastal prairie, coastal scrub, lower montane coniferous forest. Blooms: Apr – Sep.	Low potential. Marginally suitable habitat is present. Not observed.
<i>Puccinellia pumila</i>	dwarf alkali grass	2B.2	Meadows and seeps, marshes and swamps; located in mineral spring meadows and coastal salt marshes. Blooms: July.	High potential. Suitable habitat is present. Not observed.
<i>Ribes laxiflorum</i>	trailing black currant	4.3	North Coast coniferous forest, Roadsides (sometimes). Blooms: Mar – July (Aug).	No potential. No suitable habitat is present. Not observed.
<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. Blooms: Mar – Apr.	No potential. The Project Area is outside the elevational range for this species (395-7,545 feet).
<i>Romanzoffia tracyi</i>	Tracy's romanzoffia	2B.3	Coastal bluff scrub, coastal rocky scrub. Blooms: Mar – May.	No potential. The Project Area is outside the elevational range for this species (50-100 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). Blooms: (Mar) Apr – Aug.	Moderate potential. Moderately suitable habitat is present. Not observed.
<i>Sidalcea malviflora</i> ssp. <i>patula</i>	Siskiyou checkerbloom	1B.2	Coastal bluff scrub, coastal prairie, North Coast coniferous forest, often on road cuts. Blooms: May – Aug.	No potential. The Project Area is outside the elevational range for this species (50-4,035 feet).

Scientific name	Common Name	Status <sup>1</sup>	Habitat Requirements	Potential to Occur
<i>Sidalcea oregana</i> ssp. <i>eximia</i>	coast checkerbloom	1B.2	Lower montane coniferous forest, meadows and seeps, North Coast coniferous forest. Blooms: Jun – Aug.	Low potential. Marginally suitable habitat is present. Not observed.
<i>Sisyrinchium hitchcockii</i>	Hitchcock's blue-eyed grass	1B.1	Cismontane woodland openings, valley and foothill grasslands. Blooms: June.	No potential. The Project Area is outside the elevational range for this species (1000 feet).
<i>Spergularia canadensis</i> var. <i>occidentalis</i>	western sand-spurrey	2B.1	Marshes and coastal saline swamps. Blooms: Jun – Aug.	<b>Present. Approximately 10 individuals were observed in 2014.</b>
<i>Usnea longissima</i>	Methuselah's beard lichen	4.2	Broadleafed upland forest, North Coast coniferous forest	No potential. The Project Area is outside the elevational range for this species (165-4790 feet).
<i>Zostera maritima</i>	eelgrass	EFS <sup>2</sup>	Sandy substrates in marine estuaries, bays and sloughs.	<b>Present in main slough channel.</b>

## 1) Key to status codes:

FE = Federal Endangered

FT = Federal Threatened

FC = Federal Candidate

FD = Federal De-listed

BCC = USFWS Birds of Conservation Concern

SE = State Endangered

SD = State Delisted

ST = State Threatened

SR = State Rare

SSC = CDFW Species of Special Concern

CFP = CDFW Fully Protected Animal

1A = CRPR List 1A: Plants presumed extinct in California

1B = CRPR List 1B: Plants rare, threatened or endangered in California and elsewhere

2 = CRPR List 2: Plants rare, threatened, or endangered in California, but more common elsewhere

3 = CRPR List 3: Plants about which more information is needed (a review list)

4 = CRPR List 4: Plants of limited distribution (a watch list)

**Potential to Occur:**

No Potential Habitat on and adjacent to the Project Area is clearly unsuitable for the species requirements (cover, substrate, elevation, hydrology, plant community, site history, disturbance regime).

Low Potential Few of the habitat components meeting the species requirements are present, and/or the majority of habitat on and adjacent to the Project Area is unsuitable or of very poor quality. The species is not likely to be found in the Project Area.

Moderate Potential Some of the habitat components meeting the species requirements are present, and/or only some of the habitat on or adjacent to the Project Area is unsuitable. The species has a moderate probability of being found in the Project Area.

High Potential All of the habitat components meeting the species requirements are present and/or most of the habitat on or adjacent to the Project Area is highly suitable. The species has a high probability of being found in the Project Area.

Present Species was observed in the Project Area or has been recorded (i.e. CNDDb, other reports) in the Project Area recently.

Table compiled from the California Department of Fish and Wildlife (CDFW) California Natural Diversity Database (CNDDb), U.S. Fish and Wildlife Service (USFWS) Species Lists, and California Native Plant Society (CNPS) Electronic Inventory searches of the Ferndale, Cannibal Island, Fields Landing, Fortuna, Taylor Peak, Cape Mendocino, and Capetown USGS 7.5 Minute Quadrangles (CDFW 2022b; CNPS 2022b).

The seven species of special concern that are present in the study area are detailed below. These species were observed on the EREP portion of the Project Area during protocol-level surveys in April and June 2014 (GHD 2014b; Table 3.4-5, Figure 3.4-2). No sensitive plant species have been observed during protocol-level surveys of RR&T properties (GHD 2015c). No protocol level surveys have occurred since 2014; however, a large population of beach layia (*Layia carnosa*) was observed in the dunes in 2021 and is included in Figure 3.4-2. Although many portions of the study area are considered low quality for sensitive-listed plant species, due to the dynamic nature of near-coastal habitats, it is acknowledged that population sizes may fluctuate, and new species or occurrences are likely to be found during pre-construction surveys.

**Table 3.4-5 Special-Status Plant Species Mapped on the EREP**

Scientific Name	Common Name	Listing Status	Approximate Number of Individuals	Approximate Absolute Coverage Range (%)
<i>Angelica lucida</i>	sea-watch	CRPR 4.2	4	5-10%
<i>Carex lyngbyei</i>	Lyngbye's sedge	CRPR 2B.2	> 5,000	50-75%
<i>Castilleja ambigua</i> ssp. <i>humboldtiensis</i>	Humboldt Bay's owl-clover	CRPR 1B.2	10,000	15-20%
<i>Gilia millefoliata</i>	dark eyed gilia	CRPR 1B.2	50	5-10%
<i>Layia carnosa</i>	beach layia	FT, SE, CRPR 1B.1	480	5-10%
<i>Spergularia canadensis</i> var. <i>occidentalis</i>	western sand spurrey	CRPR 2B.1	10	1-5%
<i>Zostera maritima</i>	Eelgrass	EFH	unknown	0-15%

Note: California Rare Plant Ranking (CRPR) lists 1A, 1B and 2 and are considered eligible for state listing as Endangered or Threatened pursuant to the California Fish and Game Code.

FT = Federally Threatened

SE = California State Endangered

EFH = Essential Fish Habitat

**Beach layia (*Layia carnosa*) FT; SE; CRPR 1B.1. Present.** Beach layia is a federally threatened and state endangered species documented from approximately 20 occurrences in eight dune systems between Freshwater Lagoon in Humboldt County and Vandenberg Air Force Base in Santa Barbara County (UFWS 2021). The largest extant occurrences are currently known from dunes in Humboldt County. Beach layia is a succulent, annual herb that may have a single stem or many branches, up to six inches tall and 16 inches in breadth, in part depending on site moisture. Populations tend to be patchy and subject to large annual fluctuations in size due to shifts in wind erosion patterns, remobilization, factors affecting dune stabilization, and moisture. The wind dispersed seeds often establish in sparsely vegetated areas. It does not survive for long in areas where there is high cover of native or non-native plants. Therefore, encroachment of non-native species, particularly those that stabilize dunes and form dense stands (e.g., European beachgrass) pose threats this species. Approximately 10 distinct populations ranging from 10 to 100 individuals were mapped in the near-shore dunes (GHD 2014b) and a large population was mapped to 4.7 acres of dunes intermixed with European beachgrass in 2021 (GHD 2022, Figure 3.4-1, Figure 3.4-2, Appendix C). Trampling and off-road vehicle use can harm living plants but moderate disturbance during the off-season is actually beneficial to the plant by opening up areas of bare sand for colonization by wind dispersed seeds.

**Dark-eyed gilia (*Gilia millefoliata*) CRPR 1B.2. Present.** Dark-eyed gilia has no state or federal listing status but has a CRPR of 1B.2 as its distribution in California is largely limited to coastal strand and stabilized dune habitats. At the EREP portion of the Project Area, approximately 50 individuals were

mapped at a single location near where the dike separating the Outer Salt Marsh from the Inner Marsh meets the dune mat habitat type (GHD 2014b, Figure 3.4-2). Associated vegetation in the surrounding mapped area includes relatively low densities of European beachgrass in the surrounding dune area, near to, but not intermingled with, Brewer's rush in lower elevation moist areas just to the northeast, and near to beach layia (*Layia carnosa*) to the southeast.

**Eelgrass (*Zostera marina*). Habitat protected by federal and state regulation. Present.** Eelgrass habitat is protected as Essential Fish Habitat (EFH) and a Habitat of Particular Concern under the Magnuson-Stevens Fishery Conservation and Management Act (1996). In the Eel River estuary, eelgrass occurs in saline to brackish portions of the estuary, including the Salt River, and has been qualitatively mapped along the Cutoff Slough south of the of the Cutoff Slough tide gate, Figure 3.4-2. The population density in this area is greatest toward the tide gate where it reaches approximately 15 percent cover, thinning out gradually to zero percent cover approximately 2,500 feet south of the tide gate. Eelgrass populations generally die-back during winter, presumably due to freshwater influences and cooler temperatures. New growth appears in April gradually forming localized stands during summer months.

**Humboldt Bay owl's-clover (*Castilleja ambigua* ssp. *humboldtiensis*) CRPR 1B.2. Present.** Humboldt Bay owl's-clover has no state or federal listing status but has a CRPR of 1B.2 as it occurs in very limited areas along the Northern California coast in relatively high-elevation salt marshes and wetland-riparian interfaces. At the EREP portion of the Project Area, more than 10,000 individuals of this hemi-parasitic herb were mapped in five populations along the north portion of the dike separating the Outer Salt Marsh from the Inner Marsh in a narrow band of slightly higher elevation marsh in association with salt grass, cordgrass, pickleweed, and jaumea (GHD 2014b, Figure 3.4-2). This species is also known from Riverside Ranch in 2010 and the confluence of Cut-Off Slough up to approximately 2,300 feet above the confluence of Smith Creek (Grasseti et al. 2011).

**Lyngbye's sedge (*Carex lyngbyei*) CRPR 2B.2. Present.** Lyngbye's sedge has no state or federal listing status but has a CRPR of 2B.2 as it is found only in coastal wetlands along the intertidal/upland interfaces from Del Norte to Marin Counties. This rhizomatous herb requires intact coastal brackish reaches of estuaries, where it can form dense mono-specific stands and is often the first colonizer of open mudflats. This species has been mapped at the EREP portion of the Project Area north of the dike separating the Outer Salt Marsh from the Inner Marsh in a population estimated to contain >5,000 individuals. It is also known to occur nearby along the lower reaches of the Salt River (GHD 2014b, Figure 3.4-2). At EREP, the main threat to existing stands is continued encroachment by invasive cordgrass.

**Menzies' wallflower (*Erysimum menziesii* ssp. *menziesii*) FE; SE; CRPR 1B.1. High Potential.** Menzies' wallflower is a state and federally listed endangered species documented from approximately 16 occurrences scattered across foredune systems in Humboldt Bay in Humboldt County, Ten Mile River in Mendocino County, and the Marina Dunes (Monterey Bay) and Monterey Peninsula in Monterey County (USFWS 2022b). Menzies' wallflower is a small, biennial to short-lived perennial succulent plant which flowers and produces fruit only once during its life and is pollinated by a solitary bee species. Seeds are persistent on the plant and appear to only disperse during winter storm events that manage to dislodge the seeds and scatter them across the dune systems where they occur. The seeds do not persist in the seed bank and seedling survival rates are low. Survival of the species is threatened by several factors including: a white rust disease in the Humboldt Bay area, the encroachment of non-native plant species, deer predation, and recreational impacts. This species occurs in nearshore dunes and swales in low statured vegetation.

**Sand spurrey (*Spergularia canadensis* var. *occidentalis*) CRPR 2B.1. Present.** Western sand spurrey has no state or federal listing status but has a CRPR of 2B.1 as its distribution in California is largely limited

to coastal marshes and saline swamps. Western sand spurrey is an annual herb known to occur in both natural and disturbed marsh habitats from California to Alaska. However, its distribution is limited in California with documented observations geographically limited to the Humboldt Bay Area on California. At EREP a single population of 10 individuals was mapped in a nearshore swale habitat location adjacent to the brackish marsh supporting a large population of Lyngbye's sedge (Figure 3.4-2).

## Wildlife Resources

Avian distribution across the Project Area varies seasonally and is based on vegetation types, water depths, and water salinities. A variety of habitat types such as marshland, pasture, and riparian shrubs attract a significant number of avian species, depending on their morphology and dietary needs. In general, shorebirds are found in the brackish to saline waters in the outer marsh and dunes where an abundance of invertebrates can be found. Waterfowl are generally observed grazing in freshwater ponds, pastures, and sloughs at the EREP portion of the Project Area. Abundant seasonally flooded grassland serves as prime foraging habitat for a number of waterfowl species. Passerines can be found in grassland, wetland, and shrub habitat across the Project Area and the ephemeral wetlands in the Project Area likely provide foraging habitat for many insectivorous passerine species. However, a lack of large trees precludes many species from nesting in the Project Area.

The Project Area has a higher biodiversity of avian species during the winter months when migratory waterfowl and wintering raptors use the preserve for foraging and roosting. Specifically, the EREP attracts thousands of wintering Canada and Aleutian Cackling Geese that graze in large and unmolested numbers on short grass/pastureland in the Project Area. The EREP portion of the Project Area is also a well-known wintering location for Tundra Swans. Incidental migrants and other rarities are also seen during the spring and fall in the Project Area (The Wildlands Conservancy 2015). The federally protected Western Snowy Plover (*Charadrius alexandrinus nivosus*) is known to occur in beach and dune habitats within the Project Area.

Northern Red-legged Frogs (*Rana aurora*) are confirmed to occur on the EREP portion of the Project Area from 2011 site visits by Michael van Hattem (CDFG) in the southwest part of the Project Area and in 2013, by Ken Mierzwa (formerly with GHD) and TWC staff. This species is fairly common in the duck club ponds as well as the ditch and associated narrow riparian corridor just west of the Main Barn and EREP office.

Several reports document the importance of the lower Eel River for salmonids and other fishes. Becker and Reining (2009) list many of these reports; a mention of "salmonid fry" in Centerville Slough by CDFG (2005) appears to be the only observation that is potentially within the Project Area. More recent fisheries information is available from surveys led by Ross Taylor and Associates (2017) in the nearby lower Salt River. The closest sample locations are about 1,500 feet straight-line distance east of the tide gate. The 11 sample initial locations included river channel and tributary sloughs and backwaters and ranged from saline to brackish, with a few upstream and less brackish locations added in winter 2015-16. The sample locations are reasonably representative of tidal portions of EREP. A total of 20 species were documented in the samples, including juvenile steelhead, coho, and chinook, Pacific lamprey, longfin smelt, and tidewater goby. Additional information is provided for these species below. The non-native and invasive pikeminnow was also captured during the sampling, generally in areas with lower salinity. Because the samples were recent, conducted in a similar position within the watershed, and included sample events in nine different months, they are believed to have documented a good representation of fish diversity within the estuary. Most of the samples were located in areas recently re-established to tidal marsh on Riverside Ranch as part of the Salt River Ecosystem Restoration Project, so they also provide information on what species can be expected to colonize similar restored portions in the Project Area. Because the Salt River and Riverside

Ranch sample sites were relatively recently constructed, habitat structure likely has not yet reached full potential complexity, and long-term fishery potential may be greater. Most samples were also conducted by seining, which is an efficient method for sampling smaller fish but may under-represent larger individuals.

Less information is available for non-tidal portions of the Project Area. Sampling was conducted at four locations by USFWS in October 2010 (Chamberlain 2010) and at 10 sites by H.T. Harvey in October 2012 (Kramer 2016). Three of the 2010 sample sites were in the Inner Marsh, and one was in the western drainage. The 2012 sites were in and just outside of the Inner Marsh. Only two species were captured in the Inner Marsh and non—tidal portions of EREP: Tidewater Goby and Threespine Stickleback. Although based on fewer sample events, it appears that non-tidal portions of the Project Area have much lower species richness than adjacent tidal areas and thus considerable potential restoration opportunity.

Ten freshwater sites on Russ Creek were sampled on October 22, 2004. At seven sites within 2,500 feet immediately upstream of Centerville Road, two species were reported: Coastal Cutthroat Trout (one young of the year and 13 age 1+) and 15 Threespine Stickleback (CDFG 2004a). These samples were collected a short distance south (upstream) of the Project Area, where the stream gradient is higher than downstream of Centerville Road. Becker and Reining (2009) list earlier studies on Russ Creek, including stocking of steelhead by CDFG in 1934, and absence of steelhead during a 1938 survey. A 1990 CDFG field note mentions that steelhead and salmonids had not been seen “for the past few years.”

Special-status wildlife species are further described and addressed individually in sections below.

### **Special-Status Wildlife Species**

Table 3.4-6 summarizes the special-status wildlife species potentially present in the general vicinity of the Project and evaluates the potential for each of the species to occur within the Project Area. Several special-status wildlife species were observed on the EREP portion of the Project Area during preliminary studies. Twenty special-status wildlife species have been determined to have a moderate to high potential to occur in the Project Area. For the remaining species, the Project Area either lacks potentially suitable habitat or may contain potential habitat, but the habitat is disturbed to the extent that the occurrence of special-status species is unlikely. Special-status wildlife species with a moderate to high potential to occur in the Project Area are discussed below.

**Table 3.4-6 Potential for Special-Status Wildlife Species to Occur**

Species	Status <sup>1</sup>	Habitat Requirements	Potential to Occur
<b>Mammals</b>			
<i>Antrozous pallidus</i> Pallid Bat	SSC, WBWG high priority	Dry open habitats in grasslands, shrublands, woodlands, and forests; requires rocky habitats for roosting; highly sensitive to disturbance of roosting sites.	Low potential. The Project Area is too mesic, and no suitable roosting habitat is present.
<i>Aplodontia rufa humboldtiana</i> Humboldt Mountain Beaver	none	Suitable habitat includes coastal scrub, coastal strand, and riparian vegetation communities with dense, low-growing vegetation.	Low potential. Marginal habitat may be present.
<i>Arborimus pomo</i> Sonoma Tree Vole	SSC	North Coast coniferous forest, old growth redwood forest; feeds almost exclusively on Douglas-fir needles but will occasionally feed on grand fir, hemlock, or spruce.	No potential. No suitable habitat is present.
<i>Corynorhinus townsendii</i> Townsend's Big-eared Bat	SSC, WBWG high priority	Throughout California on a wide variety of sites, most commonly mesic sites; roosts in the open on walls & ceilings; extremely sensitive to human disturbance. Preference for montane forest in the west.	Moderate potential. Suitable roosting habitat not common in the Project Area; old barns could support a few individuals.
<i>Erethizon dorsatum</i> North American Porcupine	none	Commonly found in coniferous and mixed forested areas, but have adapted to harsh environments such as shrublands and tundra	Low potential. Marginal habitat may be present.
<i>Eumetopias jubatus</i> Steller Sea Lion	MMC SSC	Inhabit the coastal waters of the North Pacific Ocean. Sea lions mate and give birth on land in rookeries and haul-out onto sea stacks and rarely beaches.	Low potential. Marginal habitat may be present.
<i>Lasiurus cinereus</i> Hoary Bat	WBWG medium priority	Prefers open habitat mosaics in coniferous forests with access to medium to large roosting trees, roosts in dense foliage of trees, and occasionally caves, bridges, and mines. Most migrate to South America for the winter, although some stay and hibernate. Mating occurs during the fall and young are born May – July.	Low potential. No suitable roosting habitat is present in the Project Area.
<i>Martes caurina</i> Pacific marten	FT	Mixed evergreen forests with more than 40 percent crown cover and variation in stand age, especially old-growth conifers and snags to provide cavities for dens.	No potential. No suitable habitat is present.
<i>Pekania (Martes) pennanti</i> Fisher	FC, SSC	Intermediate to large-tree stages of coniferous forests and deciduous-riparian areas with high percent canopy closure. Use cavities, snags, logs and rocky areas for cover and denning. Need large areas of mature, dense forest.	No potential. No suitable breeding or foraging habitat is present.



Species	Status <sup>1</sup>	Habitat Requirements	Potential to Occur
<b>Birds</b>			
<i>Accipiter cooperii</i> Cooper's Hawk	none	Open, interrupted, or marginal woodland habitat; nests mainly in riparian deciduous trees in canyon bottoms on river floodplains. Also nests in small woodlots in residential areas.	Low potential. Unlikely to nest in the Project Area due to a lack of large trees. This species could be encountered foraging in the Project Area.
<i>Accipiter striatus</i> Sharp-shinned Hawk	none	Prefers dense forest habitat. Ponderosa pine, black oak, riparian deciduous, mixed conifer, and Jeffrey pine habitats; requires north-facing slopes with plucking perches as critical habitat; nests near (275 feet) of water and riparian Habitats.	Low potential. No suitable nesting habitat is present. This species could be encountered foraging in the Project Area.
<i>Aechmophorus clarkii</i> Clark's Grebe	BCC	Nests near freshwater lakes with marshy edges. In the winter, found in coastal waters along the Pacific Coast.	Low potential. No suitable nesting habitat is present; however, this species may be encountered transiting the Project Area.
<i>Aechmophorus occidentalis</i> Western Grebe	BCC	Breeds on freshwater lakes and marshes, frequently in colonies. Builds nest on floating vegetation hidden among emergent plants in the water.	High potential. Known to occur in the Project Area. Nesting habitat present.
<i>Agelaius tricolor</i> Tricolored Blackbird	BCC, SSC	Resident though wanders during non-breeding season, highly colonial during breeding season. Usually nests near freshwater in dense cattails, tule, or thickets of willow, blackberry, wild rose, or other tall herbs.	Low potential. Unlikely to nest in the Project Area. No records of this species in the Project Area. Humboldt County falls outside the current species' range. Incidentals in county but overall rare.
<i>Ammodramus savannarum</i> Grasshopper Sparrow	SSC	Nests on the ground in dry or well-drained, dense grasslands, prairies, and cultivated fields with a variety of grasses and tall forbs for foraging and nesting and scattered scrub for perching and singing.	Low potential. No suitable nesting habitat is present; however, this species may be encountered transiting the Project Area.
<i>Aquila chrysaetos</i> Golden Eagle	CFP, BCC, BGEPA	Found in rolling foothill and montane habitats, including sage-juniper flats, deserts, and oak woodlands. Cliff-walled canyons provide nesting habitats in most of its range; also nests in large, often isolated trees.	Moderate potential. Unlikely to nest in the Project Area. While known to occur in the Project Area on occasion, nesting habitat not sufficient. Occurrences likely restricted to foraging, migrating, or wintering individuals.

Species	Status <sup>1</sup>	Habitat Requirements	Potential to Occur
<i>Ardea alba</i> Great Egret	none	Colonial nester in large trees; rookery sites located near marshes, tide-flats, irrigated pastures, and margins of lakes and rivers.	High potential. Known to occur in the Project Area. Foraging habitat is present but no suitable nesting habitat is present due to a lack of large trees.
<i>Ardea herodias</i> Great Blue Heron	none	Colonial nester in tall trees, cliff sides, and sequestered spots in marshes; rookery sites near forage grounds in marshes, lake margins, tide-flats, rivers, and wet meadows.	High potential. Known to occur in the Project Area. Unlikely to nest in the Project Area due to a lack of large trees. Site serves as foraging habitat however.
<i>Arenaria melanocephala</i> Black Turnstone	BCC	Common to abundant on rocky shores of marine habitats along the entire California coast. Nests along the west coast of Alaska.	Low potential. No suitable nesting habitat is present; however, this species may be encountered transiting the Project Area.
<i>Asio flammeus</i> Short-eared Owl	SSC	Found in swamp/marsh lands, both fresh and salt; lowland meadows; irrigated alfalfa fields. Tule patches/tall grass needed for nesting/daytime seclusion. Nests on dry ground in depression concealed in vegetation.	High potential. Known to occur in the Project Area year-round. Nesting and foraging habitat present in the Project Area.
<i>Athene cunicularia</i> Burrowing Owl	BCC, SSC	Open, dry annual or perennial grasslands, deserts & scrublands characterized by low-growing vegetation. Subterranean nester, dependent upon burrowing mammals, most notably, the California ground squirrel.	Moderate potential. Unlikely to nest in the Project Area. Although known to occur locally, occurrences likely restricted to migrating or wintering individuals.
<i>Brachiramphus marmoratus</i> Marbled murrelet	FT, SE	Nests in moss on the horizontal branches of very tall, large diameter trees in old-growth forest up to 32 miles from shore.	Low potential. No suitable nesting habitat is present; however, this species may be encountered transiting the Project Area.
<i>Chaetura vauxi</i> Vaux's Swift	SSC	Redwood, Douglas-fir, and other coniferous forests. Nests in large hollow trees & snags. Often nests in flocks. Forages over most terrains & habitats but shows a preference for foraging over rivers and lakes.	High potential. Known to forage, but unlikely to nest in the Project Area due to a lack of suitable nest trees.
<i>Chamaea fasciata</i> Wrentit	BCC	Frequents shrub understory of coniferous habitats from the coast to lower regions of mountains throughout cismontane California	Low potential. No suitable nesting habitat is present; however, this species may be encountered transiting the Project Area.
<i>Charadrius alexandrinus nivosus</i> Western Snowy Plover	BCC, SSC, FT	Sandy beaches, salt pond levees, gravel bars, and shores of large alkali lakes. Nests on sandy, gravelly, or friable soils.	High potential. Known occurrence on dunes within the Project Area, including nesting.

Species	Status <sup>1</sup>	Habitat Requirements	Potential to Occur
<i>Charadrius montanus</i> mountain plover	SSC	Winter migrant in California, nests in the Rocky Mountains.	Low potential. No suitable nesting habitat is present; however, this species may be encountered transiting the Project Area.
<i>Circus cyaneus</i> Northern Harrier	SSC	Coastal salt & fresh-water marsh. Nests & forages in grasslands on ground in shrubby vegetation, usually at marsh edge; nest built of a large mound of sticks in wet areas.	High potential. Known to occur in the Project Area year-round. Nesting and foraging habitat exist within the Project boundary.
<i>Clangula hyemalis</i> Long-tailed Duck	BCC	Rare, but regular, winter visitor along the entire California coast.	Low potential. No suitable nesting habitat is present; however, this species may be encountered transiting the Project Area.
<i>Coccyzus americanus occidentalis</i> Western Yellow-billed Cuckoo	SE, FT	Dense riparian habitat. Nests in riparian jungles of willow, often mixed with cottonwoods, w/ lower story of blackberry, nettles, or wild grape.	Low potential. No records of species in the Project Area but recorded at riparian areas in vicinity. No suitable riparian habitat on site.
<i>Contopus cooperi</i> Olive-sided Flycatcher	BCC	Uncommon to common, summer resident in a wide variety of forest and woodland habitats below 9000 ft throughout much of California.	Low potential. No suitable nesting habitat is present; however, this species may be encountered transiting the Project Area.
<i>Coturnicops noveboracensis</i> yellow rail	SSC	Breeds in the Midwest US and Upper Klamath in Northern California.	Low potential. No suitable nesting habitat is present; however, this species may be encountered transiting the Project Area.
<i>Cypseloides niger</i> Black Swift	BCC	Nests on cliff ledges, crevices and under overhands on cliffs along the coast or inland in canyons, along sea bluffs, in cliffs above a river or deep pool, or near seepages.	Low potential. No suitable nesting habitat is present; however, this species may be encountered transiting the Project Area.
<i>Egretta thula</i> Snowy Egret	none	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.	High potential. Known to occur in the Project Area as a year-round resident.
<i>Elanus leucurus</i> White-tailed Kite	CFP	Roosts communally during the non-breeding season. Prefers to nest in trees in open country or on the edge or a forest/wooded area. Forages in open country including grasslands, marshes, savannas, meadows, and cropland.	High potential. Known to forage and nest in the Project Area.

Species	Status <sup>1</sup>	Habitat Requirements	Potential to Occur
<i>Falco peregrinus</i> Peregrine Falcon	BCC, FD, SD, CFP	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.	Moderate potential. While observed in the Project Area on occasion, no suitable nesting habitat is present. Occurrences likely restricted to foraging, migrating, or wintering individuals.
<i>Fratercula cirrhata</i> Tufted Puffin	SSC	Open-ocean bird; nests along the coast on islands, islets, or (rarely) mainland cliffs. Requires sod or earth into which the birds can burrow, on island cliffs or grassy island slopes.	Low potential. Marine habitat is not present in the Project Area, no records nearby. Closest record is the north spit.
<i>Gavia immer</i> Common Loon	BCC	Fairly common in estuarine and subtidal marine habitats along entire coast, including offshore, in November and May.	Low potential. No suitable nesting habitat is present; however, this species may be encountered transiting the Project Area.
<i>Gavia stellata</i> Red-throated Loon	BCC	Uncommon to common along the California coast in marine subtidal and in estuarine habitats.	Low potential. No suitable nesting habitat is present; however, this species may be encountered transiting the Project Area.
<i>Haematopus bachmani</i> Black Oystercatcher	BCC	A permanent resident on rocky shores of marine habitats along almost the entire California coast, and on adjacent islands.	Low potential. No suitable nesting habitat is present; however, this species may be encountered transiting the Project Area.
<i>Haliaeetus leucocephalus</i> Bald Eagle	FD, SE, BCC, CFP, BGEPA	Lower montane coniferous forest, typically old growth. Ocean shore, lake margins, & rivers for both nesting & wintering. Most nests within 1 mi of water.	Moderate potential. While known to occur in the Project Area on occasion, no suitable nesting habitat is present. Occurrences likely restricted to foraging, migrating, or wintering individuals.
<i>Hydroprogne caspia</i> Caspian Tern	BCC	Nests on sandy or gravelly beaches and shell banks in small colonies inland and along the coast. Inland fresh-water lakes and marshes; also, brackish or saltwaters of estuaries and bays.	Moderate potential. Observed in the Project Area on occasion. Potential breeding habitat along beach/dunes on western edge of Project Area. Potential foraging habitat on property.
<i>Larus delawarensis</i> Ring-billed Gull	BCC	A common to abundant, yearlong resident of California coastal areas. Nests inland around the margins of lakes, or on islands in lakes.	Low potential. No suitable nesting habitat is present; however, this species may be encountered transiting the Project Area.

Species	Status <sup>1</sup>	Habitat Requirements	Potential to Occur
<i>Limnodromus griseus</i> Short-billed Dowitcher	BCC	Common to abundant during spring and fall migration along the entire coast of California, where it typically occurs on intertidal mudflats of estuarine habitats.	Low potential. No suitable nesting habitat is present; however, this species may be encountered transiting the Project Area.
<i>Limosa fedoa</i> Marbled Godwit	BCC	A common to abundant migrant and winter visitant from mid-August to early May in estuarine habitats the length of the state.	Low potential. No suitable nesting habitat is present; however, this species may be encountered transiting the Project Area.
<i>Melanitta fusca</i> White-winged Scoter	BCC	An uncommon to fairly common winter resident along the entire coast in ocean waters and bays.	Low potential. No suitable nesting habitat is present; however, this species may be encountered transiting the Project Area.
<i>Melanitta nigra</i> Black Scoter	BCC	Uncommon winter resident October to April on estuarine and marine waters near shore, along entire California coast, but most commonly north of Point Reyes, Marin Co. Does not nest in California.	Low potential. No suitable nesting habitat is present; however, this species may be encountered transiting the Project Area.
<i>Melanitta perspicillata</i> Surf Scoter	BCC	Abundant October to April, and common late September and early May, on estuarine and marine waters near shore along the entire California coast.	Low potential. No suitable nesting habitat is present; however, this species may be encountered transiting the Project Area.
<i>Mergus serrator</i> Red-breasted Merganser	BCC	Common resident October through April on coastal bays, estuaries, and along rocky inshore coastal areas.	Low potential. No suitable nesting habitat is present; however, this species may be encountered transiting the Project Area.
<i>Nycticorax nycticorax</i> Black-crowned Night Heron	none	Colonial nester, usually in trees, occasionally in tule. Rookery sites located adjacent to foraging areas; lake margins, mud-bordered bays, marshy spots.	High potential. Known to forage year-round in the Project Area. Breeders documented in area surrounding the Project Area. Marginally suitable nesting habitat may be present.
<i>Pandion haliaetus</i> Osprey	none	Ocean shore, bays, fresh-water lakes, and larger streams. Large nests built in treetops within 15 miles of a good fish-producing body of water.	Moderate potential. Unlikely to nest in the Project Area. While known to occur in the Project Area on occasion, nesting habitat not sufficient in the Project Area. Occurrences likely restricted to foraging, migrating, or wintering individuals.

Species	Status <sup>1</sup>	Habitat Requirements	Potential to Occur
<i>Pelecanus occidentalis</i> Brown Pelican	FD, SD, CFP	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.	Low potential. Observed passing through the Project Area. Marine cliffs/rocks are not present in the Project Area for nesting however.
<i>Phalacrocorax auritus</i> Double-crested Cormorant	none	Colonial nester on coastal cliffs, offshore islands, & along lake margins in the interior of the state. Nests along coast on islets, usually on ground with sloping surface, or in tall trees along lake margins.	Moderate potential. Observed passing through the Project Area. May forage in the Project Area. Marine cliffs/rocks are not present in the Project Area for nesting however.
<i>Phalaropus fulicarius</i> Red Phalarope	BCC	Common to abundant spring and fall transient the length of the state along the coast in near-shore and offshore waters.	Low potential. No suitable nesting habitat is present; however, this species may be encountered transiting the Project Area.
<i>Phalaropus lobatus</i> Red-necked Phalarope	BCC	Common to abundant spring and fall transient the length of California.	Low potential. No suitable nesting habitat is present; however, this species may be encountered transiting the Project Area.
<i>Poecile atricapillus</i> Black-capped Chickadee	none	Gregarious species that associates in species-specific or mixed species flocks during the winter. Found in a variety of wooded/shrubby habitats including forests, woodlots, riparian, and residential areas. Requires small tree cavities for nesting.	Moderate potential. Observed in the Project Area although nesting habitat is low with few suitable cavity trees.
<i>Pterodroma sandwichensis</i> Hawaiian petrel	FE	Nests in Hawaii, has been recorded off the coasts of California, Oregon, and Washington from May to October.	Low potential. No suitable nesting habitat is present; however, this species may be encountered transiting the Project Area.
<i>Ptychoramphus aleuticus</i> Cassin's Auklet	BCC	Nests in colonies on islands throughout the eastern North Pacific.	Low potential. No suitable nesting habitat is present; however, this species may be encountered transiting the Project Area.
<i>Puffinus creatopus</i> Pink-footed Shearwater	BCC	Nests on offshore islands off Chile, migrates north and is fairly common well off the West Coast during warmer months.	Low potential. No suitable nesting habitat is present; however, this species may be encountered transiting the Project Area.
<i>Puffinus opisthomelas</i> Black-vented Shearwater	BCC	Nests predominantly on offshore islands off of Baja California.	Low potential. No suitable nesting habitat is present; however, this species may be encountered transiting the Project Area.



Species	Status <sup>1</sup>	Habitat Requirements	Potential to Occur
<i>Riparia riparia</i> Bank Swallow	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 holes.	Moderate potential. Observed on properties around the Project Area. Suitable foraging habitat is present, but no suitable nesting habitat is present in the Project Area.
<i>Rissa tridactyla</i> Black-legged Kittiwake	BCC	Nests in colonies on rocky cliffs and sea stacks in the North Pacific and Arctic.	Low potential. No suitable nesting habitat is present; however, this species may be encountered transiting the Project Area.
<i>Selasphorus rufus</i> Rufous Hummingbird	BCC	A common breeder in Oregon and Washington, and breeds in the mountains of Trinity and Humboldt Counties.	Low potential. No suitable nesting habitat is present; however, this species may be encountered transiting the Project Area.
<i>Selasphorus sasin</i> Allen's Hummingbird	BCC	Breeds in coastal lowlands of the Upper Sonoran and Transition life zones. Prefers coastal sage scrub, soft chaparral, ravines & canyons, broken coastal forests, oak woodlands, & riparian-lined watercourses.	Moderate potential. Observed in the Project Area. Site contains nectar plants that serve as food sources.
<i>Setophaga petechia</i> Yellow Warbler	SSC, BCC	Riparian 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.	Low potential. Records at riparian habitats in Project vicinity. No suitable riparian habitat in the Project Area.
<i>Stercorarius pomarinus</i> Pomarine Jaeger	BCC	Breeds on Arctic tundra, spends the rest of the year at sea.	Low potential. No suitable nesting habitat is present; however, this species may be encountered transiting the Project Area.
<i>Strix occidentalis caurina</i> Northern Spotted Owl	FT, ST, SSC	Nests in old growth and mature second growth coniferous forests that contain old trees and snags with high basal areas, dense canopies, multiple canopy layers, and downed woody debris.	Low potential. No suitable nesting habitat is present; however, this species may be encountered transiting the Project Area.
<i>Tringa flavipes</i> Lesser Yellowlegs	BCC	Breeds in Alaska and northern Canada. Occurs in California primarily as an uncommon to fairly common fall migrant, and a very uncommon spring migrant.	Low potential. No suitable nesting habitat is present; however, this species may be encountered transiting the Project Area.

Species	Status <sup>1</sup>	Habitat Requirements	Potential to Occur
<i>Tringa semipalmata</i> Willet	BCC	Abundant in nonbreeding season (July through April) in estuarine habitats, saline emergent wetlands, and salt ponds along the entire California coast.	Low potential. No suitable nesting habitat is present; however, this species may be encountered transiting the Project Area.
<i>Uria aalge</i> Common Murre	BCC	Abundant yearlong in marine subtidal and pelagic habitats off rocky coasts and islands of northern and central California.	Low potential. No suitable nesting habitat is present; however, this species may be encountered transiting the Project Area.
<b>Fish</b>			
<i>Acipenser medirostris</i> Green Sturgeon	FT, SSC	These are the most marine species of sturgeon. Abundance increases northward of Point Conception. Spawns in the Sacramento, Klamath, & Trinity Rivers. Spawns at temps between 8-14 °C. Prefers spawning substrate of large cobble but can range from clean sand to bedrock.	Low potential. Marine and large riverine habitat is not present on the Project Area.
<i>Entosphenus tridentatus</i> Pacific Lamprey	SSC	Spawns in freshwater rivers and streams. Larvae remain in freshwater for many years before entering the ocean for 1-2 years and then returning to spawn.	Low potential. Marginal habitat may be present; however, this species has not been observed in fish sampling studies.
<i>Eucyclogobius newberryi</i> Tidewater Goby	FE, SSC	Brackish water habitats along the Calif coast from Agua Hedionda Lagoon, San Diego Co. to the mouth of the Smith River. Found in shallow lagoons and lower stream reaches, they need fairly still but not stagnant water & high oxygen levels.	High potential. This species has been documented within the Project Area, and presence is assumed within brackish water habitat.
<i>Lampetra richardsoni</i> Western Brook Lamprey	SSC	Endemic to freshwater coastal waterways of the Western US and Canada. Spawns in gravel in mid-Summer.	Low potential. Marginal habitat may be present; however, this species has not been observed in fish sampling studies.
<i>Oncorhynchus clarkii clarkia</i> Coast Cutthroat Trout	SSC	Small coastal streams from the Eel River to the Oregon border. Small, low gradient coastal streams & estuaries. Need shaded streams with water temps <18 degrees Celsius, & small gravel for spawning.	High potential. This species has been documented in the Eel River estuary as well as tributaries of the Salt River.
<i>Oncorhynchus kisutch</i> Southern OR / Northern CA Coast Coho Salmon	FT	Anadromous, spending time in the ocean, and spawning in coastal rivers and creeks.	High potential. This species is assumed to be present in tidal portions of the Project Area; recent records from the adjacent lower Salt River.



Species	Status <sup>1</sup>	Habitat Requirements	Potential to Occur
<i>Oncorhynchus tshawytscha</i> Chinook Salmon – California Coastal ESU	FT, NMFS	Anadromous, spending most of its life cycle in the ocean, but spawning in coastal rivers and creeks. The CA Coast ESU includes naturally spawned populations from rivers and streams south of the Klamath River (exclusive) to the Russian River (inclusive).	High potential. The species is assumed to be present in tidal portions of the Project Area; recent records from the adjacent lower Salt River.
<i>Oncorhynchus mykiss</i> Steelhead - Northern CA ESU	FT, NMFS, SSC	Anadromous, spending most of its life cycle in the ocean, but spawning in coastal rivers and creeks. The federal designation refers populations occurring below impassable barriers in coastal basins from Redwood Creek to, and including, the Gualala River. Adults migrate upstream to spawn in cool, clear, well-oxygenated streams. Juveniles remain in fresh water for one or more years before migrating downstream to the ocean.	High potential. The species is assumed to be present in tidal portions of the Project Area; recent records from the adjacent lower Salt River.
<i>Spirinchus thaleichthys</i> Longfin Smelt	FC, ST, SSC	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.	High potential. The species is assumed to be present in low numbers in tidal areas and seasonally in lower segments of accessible freshwater streams.
<i>Thaleichthys pacificus</i> Eulachon	FT	Found in Klamath River, Mad River, Redwood Creek and in small numbers in Smith River & Humboldt Bay tributaries. Spawn in lower reaches of coastal rivers w/ moderate water velocities & bottom of pea-sized gravel, sand & woody debris.	Low potential. Not known from recent nearby samples and typically found farther north; however, potentially suitable habitat is present.
<b>Reptiles and Amphibians</b>			
<i>Ascaphus truei</i> Pacific Tailed Frog	SSC	Occurs from Mendocino County and north, in cold permanent streams, usually in forested areas of high precipitation.	No potential. The Project Area does not contain high-gradient stream habitat.
<i>Chelonia mydas</i> Green Sea Turtle	FT	Aquatic, living in the ocean and rarely coming onto land.	No potential. No suitable habitat is present.
<i>Emys (Actinemys) marmorata</i> Western Pond Turtle	SSC	An aquatic turtle of ponds, marshes, rivers, streams, and irrigation ditches, usually with aquatic vegetation, below 6000 ft elevation. Need basking sites and suitable (sandy banks or grassy open fields) upland habitat up to 0.5 km from water for egg-laying.	Low potential. Suitable habitat is present; however, presence may be limited by cool coastal temperatures.

Species	Status <sup>1</sup>	Habitat Requirements	Potential to Occur
<i>Rana aurora</i> Northern Red-legged Frog	SSC	Associated with quiet perennial to intermittent ponds, stream pools and wetlands. Prefers shorelines with extensive emergent and/or riparian vegetation. Documented to disperse through upland habitats after rains.	High potential. Observed in and near freshwater portions of the Project Area; breeding has been documented.
<i>Rana boylei</i> Foothill Yellow-legged Frog	SC, SSC	Found in gently flowing streams and rivers with cobble and boulder-dominated substrates found in foothill woodlands, forests, and chaparral.	No potential. No suitable habitat is present.
<i>Rhyacotriton variegatus</i> Southern Torrent Salamander	SSC	Found in cold, well-shaded, permanent streams, seepages, and waterfalls in coastal forests (e.g., coastal redwood, Douglas-fir, mixed conifer, montane riparian, and montane hardwood-conifer).	No potential. No suitable habitat is present.

## 1) Key to status codes:

FE = Federal Endangered  
 FT = Federal Threatened  
 FC = Federal Candidate  
 FD = Federal De-listed  
 SE = State Endangered  
 SD = State Delisted  
 ST = State Threatened  
 SR = State Rare  
 SC = State Candidate

BCC = USFWS Birds of Conservation Concern  
 BGEPA = Bald and Golden Eagle Protection Act  
 CFP = CDFW Fully Protected Animal  
 MMC SSC = Marine Mammal Commission Species of Special Concern  
 NMFS = National Marine Fisheries Service Protected  
 SSC = CDFW Species of Special Concern  
 WBWG = Western Bat Working Group High or Medium Priority species

**Potential to Occur:**

**No Potential** Habitat on and adjacent to the Project Area is clearly unsuitable for the species requirements (cover, substrate, elevation, hydrology, plant community, site history, disturbance regime).

**Low Potential** Few of the habitat components meeting the species requirements are present, and/or the majority of habitat on and adjacent to the Project Area is unsuitable or of very poor quality. The species is not likely to be found in the Project Area.

**Moderate Potential** Some of the habitat components meeting the species requirements are present, and/or only some of the habitat on or adjacent to the Project Area is unsuitable. The species has a moderate probability of being found in the Project Area.

**High Potential** All of the habitat components meeting the species requirements are present and/or most of the habitat on or adjacent to the Project Area is highly suitable. The species has a high probability of being found in the Project Area.

Table compiled from the California Department of Fish and Wildlife (CDFW) Natural Diversity Database, U.S. Fish and Wildlife Service (USFWS) Species Lists, Electronic Inventory searches of the Ferndale, Cannibal Island, Fields Landing, Fortuna, Taylor Peak, Cape Mendocino, and Capetown USGS 7.5 Minute Quadrangles (CDFW 2022b; USFWS 2022a). Potential to occur is determined based on habitat availability and nearest known documented records as well as limited site-specific information including annual Christmas bird counts, USFWS/ snowy plover counts, CDFW/GHD frog surveys, limited fish sampling data, and incidental observations made during site visits by GHD and HTH.

**Western Grebe (*Aechmophorus occidentalis*), USFWS Birds of Conservation Concern. High Potential.** Western Grebes are common to abundant along the entire coast of California in marine subtidal and estuarine waters from October to May (CDFW 2014). Western Grebes nest colonially in flooded emergent vegetation such as bulrushes or cattails. Nests are comprised of a pile/mat of stems and algae that may either be anchored to emergent vegetation or floating in the water. Western Grebes are strictly piscivores. The Project Area contains open water and nesting substrate that could serve as foraging and breeding habitat for Western Grebes. The presence of any established colonies in the Project Area is currently unknown and would require surveys to confirm. However, based on historical records and available habitat, the species has a high potential to be present, forage, and nest within the Project Area.

**Golden Eagle (*Aquila chrysaetos*), CDFW Fully Protected, USFWS Birds of Conservation Concern. Bald and Golden Eagle Protection Act, Moderate Potential.** Golden Eagles are uncommon permanent residents and migrants throughout California (CDFW 2014). Golden Eagles favor wide open habitats such as woodlands, clear cuts, steppe, shrubland, and tundra with associated nest substrate (cliff/canyon ledges or large trees). The eagles construct their nests out of large sticks and branches and line them with leaves, moss, bark, or grass. The nests are quite large in size (up to 1.5 m in diameter) and may be re-used from year to year. Golden Eagles feed on small to medium sized mammals, snakes, birds, and carrion. No suitable nesting trees are present within the Project Area. Overall, the open nature of the Project Area provides better foraging habitat for wintering eagles. Based on historical records and available habitat, the species has a moderate potential to be present and forage within the Project Area.

**Great Egret (*Ardea alba*), no special status. High Potential.** Great Egrets are year-round residents in western California, and fairly common yearlong in coastal lowlands in Northern California (CDFW 2014). In term of habitat, they favor wetlands, estuaries, lakes, rivers, ponds, swamps, streams, marshes, and tidal flats. Great Egrets utilize a variety of substrates for nesting including trees, woody vegetation, artificial nest platforms, or even the ground either over water, on islands, or directly adjacent to water. Nests platforms are typically constructed of locally available sticks and greenery. Great Egrets nests communally with conspecifics 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. The Project Area contains wetland, marsh, and estuarine habitat, which could serve as foraging habitat for Great Egrets. No suitable nesting trees are present in the Project Area. Based on historical records and available habitat, the species has a high potential to be present and forage within the Project Area.

**Great Blue Heron (*Ardea herodias*), no special status. High Potential.** Great Blue Herons are year-round residents in the majority of coastal and central California (CDFW 2014). Great Blue Herons are extremely adaptable to a variety of habitats including most saltwater and freshwater bodies, agricultural land, swamps, wetlands, as well as commercial and residential areas such as golf courses. Nesting habitat includes trees, bushes, artificial structures, or the ground adjacent to a water body. Nests 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. 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. The Project Area contains wetland, marsh, and estuarine habitat, which could serve as breeding habitat for Great Blue Herons. However, the lack of large nest trees on the property restricts the chance of breeding in the Project Area. Based on historical records and available habitat, the species has a high potential to be present and forage within the Project Area.

**Short-eared Owl (*Asio flammeus*), CDFW Species of Special Concern. High Potential.** Short-eared Owls are a widespread winter migrant, found primarily in the Central Valley, western Sierra Nevada foothills, and along the coastline (CDFW 2014). Short-eared Owls are associated with open habitat such as

agricultural areas, tundra, prairies, and shrub-steppe. Many of these habitats are declining due to land conversion, wetland destruction, and monotypic farming. Short-eared Owls have been designated as a state species of special concern in California, with further research necessary to determine the actual state-wide status of the species. In terms of nesting habitat, Short-eared Owls prefer to nest on the ground in dense grasslands, marshes, or on elevated areas of tundra. Nests consist of a scrape lined with grass and down feathers. Prey items include small mammals such as voles and birds. The Project Area contains marsh and grassland habitat that could serve as breeding habitat for Short-eared Owls. Based on historical records and available habitat, the species has a high potential to be present, forage on, and nest within the Project Area.

**Burrowing Owl (*Athene cunicularia*), CDFW Species of Special Concern. Moderate Potential.**

Burrowing Owls are year-round open dry grasslands and desert habitats and are winter residents in coastal prairies and grasslands north San Francisco Bay (CDFW 2014). Burrowing Owls are declining in many areas as a result of agricultural activities, pesticides, and habitat loss. Burrowing Owls prefer grassland, steppe, and desert habitats as well as other open/developed landscapes such as golf courses, cemeteries, and airports. Burrowing Owls typically nest in burrows created by other animals such as badgers, prairie dogs, or skunks. They may also excavate their own burrows or use artificial burrows. Burrowing Owls feed on insects, small mammals, reptiles, and amphibians. The Project Area contains open grassland that could serve as foraging and breeding habitat for Burrowing Owls. However, Burrowing Owls have only been detected on this property during the winter and therefore are more likely using the area as a foraging and wintering site. Based on historical records and available habitat, the species has a moderate potential to be present and forage within the Project Area during winter months.

**Vaux's Swift (*Chaetura vauxi*), CDFW Species of Special Concern. High Potential.** Vaux's Swifts are summer residents in Northern California, breeding on the coast from central California northward and in the Cascades and Sierra Nevada mountains (CDFW 2014). Nesting occurs in large, accessible, chimney-like tree cavities that allow birds to fly within the cavity directly to secluded nest sites. Such cavities usually occur in conifers, particularly redwoods. Chimneys and similar man-made substrates are also used for nesting. This species is highly aerial and forages widely for insects in open airspace. During migration, nocturnal roosting occurs communally; favored roosts may host thousands of individuals. Suitable breeding habitat is present along Centerville Road outside of the Project Area, so this species has a high potential to be encountered foraging within the Project Area.

**Western Snowy Plover (*Charadrius nivosus nivosus*), Federally Threatened, USFWS Birds of Conservation Concern, CDFW Species of Special Concern. High Potential.** Snowy Plovers are common in winter on sandy marine and estuarine shores in northern California (CDFW 2014). During the 20th century, the breeding range along the California coast became extremely fragmented. Habitat loss is one of numerous threats to the species. Other threats include but are not limited to human disturbance, predation by species associated with human development (i.e., corvids), and pesticides/inorganic contaminants. Snowy Plovers favor open coastal beaches with sparse vegetation, gravel bars in rivers, agricultural wastewater ponds, evaporation ponds, and barrier islands. Nesting microhabitat within these larger features include open ground in/adjacent to driftwood, beached kelp, small plants, cow patties, or other conspicuous items in an otherwise barren landscape. Nests consist of a depression/scrape in the ground lined with small items such as shell fragments, fish bones, pebbles, and bits of vegetation. Snowy Plovers are territorial during the breeding season but gregarious during the winter and when foraging. Snowy Plovers feed on a variety of invertebrates including but not limited to crabs, beetles, amphipods, insect larvae, flies, and caterpillars. There is an existing breeding population located on open sand and dunes within the Project Area, thus, the species has a high potential to remain present, forage on, and nest within the Project Area.

**Northern Harrier (*Circus cyaneus*), CDFW Species of Special Concern. High Potential.** Northern Harriers are a widely distributed raptor species, with year-round residents on the California coast, northeastern portion of the state, and the Central Valley (CDFW 2014). They are seasonal breeders throughout most of the rest of the state. Northern Harriers are associated with open habitat such as meadows, grazing land, marshes, tundra, prairies, riparian woodlands, and shrub-steppe. Many of these habitats are declining due to land conversion, wetland destruction, and monotypic farming. This being the case, Northern Harriers have been designated as a state species of special concern in California, with further research necessary to determine the actual state-wide status of the species. In terms of nesting habitat, Northern Harriers prefer to nest on the ground in vegetated uplands or wetlands. Nests consist of a large grass-lined cup surrounded by tall and dense vegetation such as reeds, willows, or blackberry bushes. Northern Harriers are polygynous, with one male frequently supporting/providing food for multiple nesting females. Prey items include rodents, birds, reptiles, and amphibians. The Project Area contains wetland, marsh, and grassland habitat, which could serve as breeding habitat for Northern Harriers. Based on historical records and available habitat, the species has a high potential to be present, forage on, and nest within the Project Area.

**Snowy Egret (*Egretta thula*), no special status. High Potential.** Snowy Egrets are widespread in California along shores of coastal estuaries, fresh and brackish wetlands, irrigation ditches and wet fields (CDFW 2014). Snowy Egrets prefer riparian and estuarine areas, marshes, wet meadows, inland lakes, and river courses. Snowy Egrets construct stick nest platforms in a variety of tree and shrub species including willows, holly, birch, and wax myrtle. Nests are lined with reeds, grasses, and moss. Snowy Egrets are colonial nesters, with colonies comprised of both conspecifics and allospecifics. Snowy Egrets hunt in shallow water and on shore, frequently making use of their distinctly yellow feet to attract and capture prey items. Prey includes fish, amphibians, snakes, lizards, crustaceans, insects, and worms. The Project Area contains woody vegetation adjacent to wetland, marsh, and estuarine habitat, which could serve as breeding habitat for Snowy Egrets. Based on historical records and available habitat, the species has a high potential to be present, forage on, and nest within the Project Area.

**White-tailed Kite (*Elanus leucurus*), CDFW Fully Protected. High Potential.** White-tailed Kites are year-round residents in coastal and valley lowlands in California (CDFW 2014). White-tailed Kites prefer open landscapes at low elevations including marshes, grasslands, oak-woodlands, savannahs, and agricultural land. Nests are typically constructed on habitat edges in the upper third portion of a tree or bush. Nests consist of small sticks, grass, hay, and leaves placed in a variety of tree or shrub species including coastal redwoods, Sitka spruce, or brooms. White-tailed Kites feed almost exclusively on small mammals captured via hover hunting. The Project Area contains agricultural, marsh, and grassland habitat with trees and shrubs, which could serve as breeding habitat for White-tailed Kites. Based on historical records (nesting in 2013, Sean McAllister personal communication) and available habitat, the species has a high potential to be present, forage on, and nest within the Project Area.

**Peregrine Falcon (*Falco peregrinus*), Federally Delisted, State Delisted, USFWS Birds of Conservation Concern, CDFW Fully Protected. Moderate Potential.** Peregrine Falcons are found along the coast of California and the majority of the interior of the state, excluding the Central Valley and arid regions in the southeast (CDFW 2014). Peregrines generally prefer for open landscapes for foraging and cliffs for breeding. Nests consist of a scrape in sand, gravel, or dirt on a cliff ledge, artificial nest boxes, or abandoned raptor or corvid nests. Peregrine Falcons feed primarily on other avian species including passerines, waterfowl, and shorebirds. They have also been known to take amphibians, fish, and mammals. The Project Area does not contain any old corvid nests or offshore rocks that could serve as breeding habitat for Peregrines. Based on historical records and available habitat, the species has a moderate potential to be encountered foraging in the Project Area.

**Bald Eagle (*Haliaeetus leucocephalus*), State Endangered, Federally Delisted, USFWS Birds of Conservation Concern, CDFW Fully Protected, Bald and Golden Eagle Protection Act. Moderate Potential.** Bald Eagles are permanent residents and uncommon winter migrants in California with breeding largely restricted to Northern California (CDFW 2014). Bald Eagles are found in forested areas adjacent to lakes, rivers, estuaries, and dams, with nests in large trees, cliffs, or on the ground in treeless regions. Platform nests are constructed out of large sticks and lined with grass, moss, down feathers, and other soft vegetation. Bald Eagles are opportunistic feeders, taking fish, waterfowl, mammals, and even carrion during the winter. Open water is present and this species has been observed foraging in the Project Area in winter. No suitable nesting trees are present in the Project Area. Based on historical records and available habitat, the species has a moderate potential to be encountered foraging within the Project Area.

**Caspian Tern (*Hydroprogne caspia*), USFWS Birds of Conservation Concern. Moderate Potential.** Caspian Terns are common to very common along the California coast and scattered locations inland (CDFW 2014). Habitat preferences include lakes, rivers, estuaries, shorelines, sloughs, lagoons, and occasionally open ocean. Caspian Terns favor islands in river and lakes, coastal estuarine habitat, salt marsh, and barrier islands for nesting with sandy, pebble, or gravel beaches. Nests consist of a depression/scrap in the sand/gravel lined with dried vegetation, shells, pebbles, and other debris. Terns feed on fish, crayfish, and insects. The Project Area contains coastal dune/beach habitat as well as estuarine habitat that could serve as breeding and foraging areas for Caspian Terns. Based on historical records and available habitat, the species has a moderate potential to be present, forage on, and nest to the west of the Project along coastal areas of the Project Area.

**Black-crowned Night Heron (*Nycticorax nycticorax*), no special status. High Potential.** Black-crowned Night Herons are year-round residents in much of California that form large nesting colonies (CDFW 2014). These herons can be found in a wide variety of habitats adjacent to water bodies including urban, wetland, partially forested, and agricultural landscapes. Black-crowned Night Herons are colonial nesters, building platform stick nests in trees, reeds, cattails, bushes, or on the ground. As opportunistic feeders, Black-crowned Night Herons eat fish, insects, mammals, birds, carrion, trash, clams, crayfish, turtles, and many other food items. Based on historical records and available habitat, the species has a high potential to be present, forage on, and nest within the Project Area.

**Osprey (*Pandion haliaetus*), CDFW Watch List. Moderate Potential.** Osprey breeds in northern California in the Cascade Ranges and along the coast south to Marin County (CDFW 2014). A few wintering populations are located on large bodies of water away from the coast (e.g., the Salton Sea and large reservoirs stocked with fish). Osprey prefer forested or coastal habitat adjacent to large bodies of shallow water in temperate or tropical climates. Large platform stick nests are constructed in a variety of large tree species and on artificial nest platforms, power poles, and cliffs. In terms of prey, Osprey are strictly piscivores. The Project Area contains open water and nesting structures that could serve as foraging habitat for Osprey. However, the lack of large trees/structures on the Project Area makes the habitat subprime for nesting. Based on historical records and available habitat, the species has a moderate potential to be present and forage within the Project Area.

**Double-crested Cormorant (*Phalacrocorax auritus*), CDFW Watch List. Moderate Potential.** Double-crested Cormorants are year-round residents along most of the California coast and some inland areas (CDFW 2014). Cormorants are associated with aquatic environments such as coastal or aquaculture areas with suitable roosting and loafing sites on rocks, pilings, or sandbars. Double-crested Cormorants nest colonially on the ground, cliffs, power poles, rock islands, or trees or shrubs. Nests are composed of small sticks, seaweed, and trash such as rope, balloons, and fishing line. Double-crested Cormorants are primarily piscivores but also will eat crustaceans, insects, eels, and amphibians. The Project Area contains

numerous open habitats that could potentially serve as foraging habitat for Double-crested Cormorants, however, overall habitat is subprime for the species due to a lack of rocks, sandbars, or other nesting and loafing requirements. Based on historical records and available habitat, the species has a moderate potential to occur and forage within the Project Area.

**Black-capped Chickadee (*Poecile atricapillus*), CDFW Watch List. Moderate Potential.** Black-capped Chickadees are uncommon residents restricted to Del Norte, Humboldt, and Siskiyou Counties in California (CDFW 2014). Black-capped Chickadees are found in mixed and single species flocks during the non-breeding season and can be seen defending territories during the breeding season. The species prefers fragmented wooded areas such as woodlots, parks, and riparian corridors, but also continuous deciduous and mixed forests. Chickadees are cavity nesters that particularly favor hardwoods. After the cavity has been excavated, females line the interior of the tree cavity with moss, mammal fur, or grasses. Black-capped Chickadees prefer to feed on insects, spiders, seeds, and berries during the winter and breeding seasons. The Project Area contains few trees that could serve as breeding habitat. Based on historical records and available habitat, the species has a moderate potential to be present, forage on, and nest within the Project Area.

**Bank Swallow (*Riparia riparia*), State Threatened. Moderate Potential.** Bank Swallows are a spring/fall migrant in the interior of California and is less common on the coast (CDFW 2014). Bank Swallows favor open habitat associated with water features such as coastlines, streams, rivers, lake banks, wetlands, agricultural areas, prairies, and riparian woodlands. Bank Swallows generally nest colonially along stream/river banks in burrows excavated perpendicular to the bank. These burrows are lined with grasses, straw, leaves, feathers, and other organic material. Bank Swallows capture insects on the wing but will also consume aquatic insects and larvae. The Project Area does not contain typically suitable stream/riverbanks that would serve as nesting habitat for the species. However, the presence of any established breeders in the Project Area is currently unknown and would require surveys to confirm. In contrast, suitable habitat may exist along the Eel River to the northeast of the Project Area and Bank Swallows have been observed in areas adjacent to the Project Area. Therefore, the Project Area likely serves as suitable foraging habitat for Bank Swallows and the species has a moderate potential to be encountered foraging within the Project Area.

**Allen's Hummingbird (*Selasphorus sasin*), USFWS Bird of Conservation Concern. Moderate Potential.** Allen's hummingbird is a common summer resident and migrant along most of the California coast (CDFW 2014). Breeding areas parallel the coastal fog belt and typical habitats used by the species include coastal scrub, riparian, and woodland areas along forest edges. Allen's hummingbirds feed on nectar as well as insects and spiders. The Project Area provides some forest edge habitat as well as nectar plants that could support the species. As such, the species has a moderate potential to be present and breed in the Project Area.

**Yellow Warbler (*Setophaga petechia*), USFWS Bird of Conservation Concern, CDFW Species of Special Concern. Moderate Potential.** Yellow Warblers breed throughout the coast range and coastal areas from Del Norte to Santa Barbara (CDFW 2014). Yellow Warblers favor riparian willow thickets, disturbed early successional habitats, shrubby wetlands, bogs, wet-deciduous forest, and hedgerows. As such, nesting habitats include a variety of shrub and tree species such as dogwoods, willows, and cottonwoods. Yellow Warblers construct cup nests out of grasses and bark lined with fur, feathers, dandelion fruits, or other seed fibers. The Project Area contains shrubby wetland habitat suitable for nesting. Based on historical records and available habitat, the species has a moderate potential to be encountered foraging or nesting within the Project Area.



**Western Pond Turtle (*Emys marmorata*), CDFW Species of Special Concern. Moderate Potential.**

Pond turtles occur in a variety of permanent and semi-permanent freshwater aquatic habitats including lakes, rivers, ponds, creeks, and marshes. Pond turtles are fairly common a few miles inland in Humboldt County. However, cool summer temperatures along coastal areas may preclude successful breeding. There are no reports to date from the Project Area, and, if present, pond turtles would likely be limited to freshwater or brackish areas. There have been reports of non-breeding animals in coastal marshes on the Samoa Peninsula, and these are believed to be released pets originating from more inland locations (D. Ashton, pers. comm.).

**Northern Red-legged Frog (*Rana aurora*), CDFW Species of Special Concern. High Potential.**

Northern Red-legged Frogs are relatively common in near-coastal portions of Humboldt County and are known to be present in freshwater portions of the Project Area. Breeding has been documented in the duck club ponds and in a riparian ditch west of the EREP visitor center, with over 100 egg masses documented in each location in some years (GHD 2014b). A single egg mass was reported from the western drainage (GHD 2014b).

**Longfin Smelt (*Spirinchus thaleichthys*), State Threatened. High Potential.** The longfin smelt is a small, pelagic, estuarine fish and is listed as threatened under the California Endangered Species Act. Most of the approximately two-year lifespan is spent in brackish or saline water, while spawning may occur in freshwater. Spawning is generally from December through February in populations that are known from The Eel River estuary and from Humboldt Bay (Garwood 2017). Potentially suitable habitat is available within the Project Area. Eight individuals were captured during December 2014 and February 2015 sampling of nearby recently restored Salt River and Riverside Ranch locations, suggesting that longfin smelt may be able to colonize portions of the Project Area after tidal action is restored (Kramer 2016). The species is assumed to be already present in tidal portions of the Project Area although no detailed information is available.

**Steelhead (*Oncorhynchus mykiss*), Federal Threatened/State Threatened. High Potential.** Winter-run Northern California Steelhead enter fresh water from the ocean between November and April and migrate to spawning areas between April and May. Some adults, however, do not enter coastal streams until spring, just prior to spawning. Spring-run Summer Steelhead enter freshwater in the spring and summer months, hold in the mainstem and Middle Fork Eel River near the Project Area, and then spawn in fall. Both Winter-run and Spring-run Summer Steelhead are found in the Middle Fork Eel River, although Spring-run Summer Steelhead are rare. Documentation of Spring-run Summer Steelhead in the lower-Eel River is limited to the Van Duzen River. Most of the over summer juvenile steelhead rearing occurs in the upper sections of the estuary near Fernbridge, not within the Project Area, which largely restricts fish passage. Most steelhead smolt migration to sea occurs by June, although juveniles may be present in the estuary all year (HTH and Hassler 1995). Winter steelhead populations generally smolt after two years in fresh water.

Steelhead were stocked on an annual basis into Salt River tributaries including Russ Creek and Francis Creek during the 1930's, 1953-1966, and possibly as recently as the 1980's (DFG 1938, CEMAR 2009 2011). Staff from DFG surveyed Russ Creek in 1938 and did not observe *O. mykiss* but noted that natural propagation "should be considerable" in this creek. The survey report notes the presence of "good" spawning areas and "good" pools and shelter (DFG 1938a in CEMAR 2009). In a 1990 field note, DFG staff wrote that the creek historically supported steelhead and salmon populations, however, "None of these species have been observed for the past few years." The note mentions several limiting factors including passage barriers, bank failures, livestock damage, and sedimentation (DFG 1990 in CEMAR 2009). Staff from DFG conducted a stream inventory of Russ Creek in 2004. Surveyors did not observe *O. mykiss* in Russ Creek during the survey (CCC 2004). The inventory report recommended that a box culvert at

Centerville Road and a dam 496 feet upstream from the road crossing be assessed for fish passage. One juvenile steelhead was captured in a recently restored segment of Salt River in March 2016 (RTA 2017). Steelhead are assumed to be present in tidal portions of the EREP portion of the Project Area, including in immediate proximity to the tide gates and the outer side of the levees.

**Coho Salmon (*Oncorhynchus kisutch*). Federal Threatened, State Threatened. High Potential.** Coho Salmon in the Project Area are part of the Southern Oregon Northern California (SONCC) Evolutionary Significant Unit (ESU). General life history information and biological requirements of SONCC coho salmon are described in the NOAA Fisheries' final rule listing SONCC coho salmon (May 6, 1997; 62 FR 24588). Adult Coho Salmon typically enter rivers between September and February; entry into the Eel River Estuary is reported to be November to February (Schlosser and Eicher 2012). Most west coast coho salmon enter rivers in October and spawn from November to December and occasionally into January (Weitkamp et al. 1995). Coho Salmon eggs incubate for 35-50 days between November and March. Fry start emerging from the gravel two to three weeks after hatching and move into shallow areas with vegetative or other cover. As fry grow larger, they disperse up or downstream. In summer, coho salmon fry prefer pools or other slower velocity areas such as alcoves, with woody debris or overhanging vegetation. Juvenile Coho Salmon over-winter in slow water habitat with cover as well. Juveniles may rear in fresh water for up to 15 months then migrate to the ocean as "smolts" from March to June (Weitkamp et al. 1995). A small percentage (~15 %) may rear in fresh water for a second year. Estuaries are an important transition area and may be occupied for days to months (Schlosser and Eicher 2012); juvenile Coho are known to be present in the Eel River estuary in the winter months. Coho Salmon adults typically spend two years in the ocean before returning to their natal streams to spawn as three-year olds. Available historical and modern data are summarized by the NOAA Fisheries status review update (NMFS 2011), and CDFW's Recovery Strategy for Coho Salmon (CDFG 2004b). Coho Salmon stocks between Punta Gorda and Cape Blanco are depressed relative to past abundance, but there is limited data to assess population numbers and trends. The decline of SONCC Coho Salmon is not the result of one single factor, but rather the consequence of a number of natural and anthropogenic factors that include dam construction, instream flow alterations, and land use activities coupled with large flood events, fish harvest, and hatchery effects. However, several Coho Salmon juveniles were observed within the city limits of Ferndale in Francis Creek in 2005 and the mainstem Salt River occasionally provides migration habitat for adult Coho Salmon during higher flows, and juvenile Coho were captured in five of nine monthly samples during 2014 and 2015 at the nearby lower Salt River (Ross Taylor and Associates 2016), suggesting that the species can readily colonize recently restored habitat. Tributary streams provide potential rearing and spawning habitat for Coho Salmon. Russ Creek is similar in size and catchment to Francis Creek, and because of proximity to the lower Eel River estuary it would likely host Coho during critical life history patterns if habitat conditions allowed. Coho are assumed to be already present in tidal portions of the Project Area including in immediate proximity to the tide gates and levees; pre-Project presence is less likely behind the tide gates but cannot be conclusively ruled out based on the limited sample data available. Captures of considerable numbers of juvenile Coho during 2014-2016 monitoring of the nearby Salt River and Riverside Ranch suggests that this species would quickly occupy newly available potential rearing habitat made available by re-establishment of muted tidal action within the Inner Marsh and Centerville Slough.

**California Coastal Chinook Salmon ESU (*Oncorhynchus tshawytscha*), Federal Threatened. High Potential.** This ESU occurs from Redwood Creek south to the Russian River and includes Chinook in the Eel River watershed. Populations have declined considerably from historic levels. Spawning populations enter the Eel River estuary from August through January (Schlosser and Eicher 2012). Juvenile Chinook are reportedly present in the estuary from spring through fall, and juveniles have been captured in recent samples from the nearby Salt River Restoration Project; four individuals were captured in February 2014

and additional captures were made in April and July 2014 (RTA 2017). Chinook are assumed to be present in the tidal portions of the Project Area.

**Tidewater Goby (*Eucyclogobius newberryi*), Federal Endangered. High Potential.** Tidewater Goby occur in coastal lagoons, brackish marshes, and estuaries that are seasonally disconnected from tidal action when sand bars form at the ocean's edge (USFWS 2023), or when structures such as culverts or tide gates mute tidal action (Ritter et al. 2008). Storm events that result in sandbar breaches may disperse gobies up to several kilometers from extant populations (Lafferty et al. 1999). Tidewater Goby have been documented within the EREP Inner Marsh in 2010 and 2012, and in the Western Drainage in 2010 (Kramer 2016). Goby have also been extensively documented within restored Riverside Ranch where the population grew considerably from pre-project to post-project (A. Renger, pers. comm.) There were 318 individuals captured in 2014-2015 samples, dropping back to seven individuals in 2015-2016 sampling. Wetter conditions with higher flows and lower salinities may have contributed to the lower 2015-2016 numbers (Ross Taylor and Associates 2016). Tidewater Goby life history and presence within the Project Area are further described by Kramer (2016).

**Coastal Cutthroat Trout (*Oncorhynchus clarkia clarkia*), Species of Special Concern. High Potential.** The Coastal Cutthroat Trout ranges from the southernmost extent of its range in the Eel River to Prince Williams Sound in Alaska. Ecological requirements are similar to those of steelhead, and where the two species co-occur Coastal Cutthroat Trout usually occupy smaller tributary streams (CDFG 2010a). Unlike most salmon, this species may spawn more than once. Adults commonly enter streams during the fall and feed on the eggs from other salmon's spawn. Spawning can occur from December through May. Young Cutthroat may spend up to two weeks in the gravel before emerging and from one to nine years in fresh water before migrating to estuaries and ocean in the spring. Coastal Cutthroat Trout usually spend less than one year in saltwater before returning to spawn. Juveniles and adults are carnivorous, feeding mostly on insects, crustaceans, and other fish throughout their lives. In freshwater, adult Cutthroat 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's survival. During the estuarine or ocean phase of life, the Cutthroat Trout utilizes tidal sloughs, marshes, and swamps as holding areas and feeding grounds. Despite widespread decline throughout its range, Coastal Cutthroat Trout are present in the Eel River estuary, the Salt River, and in the Salt River tributary streams (Downie and Lucey 2005). Coastal Cutthroat Trout were reported from electrofishing surveys of Russ Creek just above Centerville Road in 2004 (CDFG 2004a); although no samples were conducted within the Project Area, this species is assumed to be present based on occurrence immediately upstream.

The homogenization of the Occidental Marsh to pasture, and the removal of overstory significantly reduced habitat quality for this species. The proposed Project would restore the connectivity and habitat that this species depends upon.

### 3.4.3 Regulatory Framework

Many sensitive biological resources in California are protected and/or regulated by federal, state, and local laws and policies. Those applicable to the proposed Project are summarized below.

## Federal

### ***Federal Endangered Species Act***

The federal Endangered Species Act of 1973 (ESA) recognizes that many species of fish, wildlife, and plants are in danger of or threatened with extinction and established a national policy that all federal agencies should work toward conservation of these species. The Secretary of the Interior and the Secretary of Commerce are designated in the act as responsible for identifying endangered and threatened species and their critical habitats, carrying out programs for the conservation of these species, and rendering opinions regarding the impact of proposed federal actions on endangered species. The act also outlines what constitutes unlawful taking, importation, sale, and possession of endangered species and specifies civil and criminal penalties for unlawful activities.

Biological assessments are required under Section 7(c) of the act if listed species or critical habitat may be present in the area affected by any major construction activity conducted by, or subject to issuance of a permit from a federal agency as defined in Part 404.02. Under Section 7(a)(3) of the act, every federal agency is required to consult with USFWS or NOAA Fisheries on a proposed action if the agency determines that its proposed action may affect an endangered or threatened species.

Section 9 of the ESA prohibits the “take” of any fish or wildlife species listed under the ESA as endangered or threatened. Take, as defined by the ESA, means “to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such action.” However, Section 10 allows for the “incidental take” of endangered and threatened species of wildlife by non-federal entities. Incidental take is defined by the ESA as take that is “incidental to, and not the purpose of, the carrying out of an otherwise lawful activity.” Section 10(a)(2)(A) requires an applicant for an incidental take permit to submit a “conservation plan” that specifies, among other things, the impacts that are likely to result from the taking and the measures the permit applicant will undertake to minimize and mitigate such impacts. Section 10(a)(2)(B) provides statutory criteria that must be satisfied before an incidental take permit can be issued.

### ***Clean Water Act, Section 404***

Proposed discharges of dredged or fill material into waters of the U.S. require USACE authorization under Section 404 of the Clean Water Act (CWA) [33 U.S.C. 1344]. Waters of the U.S. generally include tidal waters, lakes, ponds, rivers, streams (including intermittent streams), and wetlands (with the exception of isolated wetlands). Wetlands subject to the CWA Section 404 are defined as “those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions” (33 CFR 328.3 [b]; 40 CFR 230.3 [t]). The USACE identifies wetlands using a “multi-parameter approach,” which requires positive wetland indicators in three distinct environmental categories: hydrology, soils, and vegetation. According to the USACE Wetlands Delineation Manual, except in certain situations, all three parameters must be satisfied for an area to be considered a jurisdictional wetland.

The CWA also defines the ordinary high water mark as the Section 404 jurisdictional limit in non-tidal waters. When adjacent wetlands are present, the limit of jurisdiction extends to the limit of the wetland. Field indicators of ordinary high water include clear and natural lines on opposite sides of the banks, scouring, sedimentary deposits, drift lines, exposed roots, shelving, destruction of terrestrial vegetation, and the presence of litter or debris. Typically, the width of waters corresponds to the two-year flood event.

The 404(b)(1) Guidelines describe exceptions for a general rule that fill should not be discharged in waters of the United States if there is a practicable alternative that would overall have less adverse impact on

aquatic resources. They presume that for special aquatic sites like wetlands, practicable alternatives to fill discharges in wetlands are available unless otherwise demonstrated. The Guidelines also prohibit discharges of fill that may cause or contribute to “significant degradation” of U.S. waters, or discharges that may jeopardize a federally listed, endangered, or threatened species. Finally, for approved fill discharges in U.S. Waters, the Guidelines require that practical steps must be taken to minimize impacts (mitigation; Subpart H). The Guidelines require detailed factual determinations (40 C.F.R. Section 230.11, Subparts C-F) to support permit decisions that must comply with the Guidelines, including physical, chemical, and biological impacts, impacts to special aquatic sites (wetlands, mudflats, refuges, vegetated shallows, etc.), and impacts to human uses. These factual determinations identify the specific functions and values of aquatic habitats that must be evaluated for impacts of proposed fill. Permits for fill discharges subject to Section 404 are issued by the USACE, with some programmatic oversight from EPA. The USACE is authorized to issue a Section 404 Permit for the discharge of dredged or fill material into waters of the U.S., provided that such discharges are found to be compliant with Sections 401 and 404(b)(1) guidelines published by the EPA.

### ***Migratory Bird Treaty Act***

The Migratory Bird Treaty Act (MBTA) of 1918 (50 CFR 10.13) 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. “Take” is defined in the MBTA “to include by any means or in any manner, any attempt at hunting, pursuing, wounding, killing, possessing, or transporting any migratory bird, nest, egg, or part thereof.” Only non-native species such as Rock Pigeons (*Columba livia*), House Sparrows (*Passer domesticus*), and European Starlings (*Sturnus vulgaris*) are exempt from protection.

### ***Bald and Golden Eagle Protection Act***

The Bald and Golden Eagle Protection Act (BGEPA; 16 U.S.C. 668-668c), enacted in 1940, prohibits anyone, without a permit issued by the Secretary of the Interior, from “taking” bald or golden eagles, including their parts (including feathers), nests, or eggs. The Act defines “take” as “pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb.” Regulations further define “disturb” as “to agitate or bother a bald or golden eagle to a degree that causes, or is likely to cause, based on the best scientific information available, 1) injury to an eagle, 2) a decrease in its productivity, by substantially interfering with normal breeding, feeding, or sheltering behavior, or 3) nest abandonment, by substantially interfering with normal breeding, feeding, or sheltering behavior” (50 CFR 22.6).

In addition to immediate impacts, this definition also covers effects that result from human-induced alterations initiated around a previously used nest site during a time when eagles are not present, if, upon the eagle's return, such alterations agitate or bother an eagle to a degree that interferes with or interrupts normal breeding, feeding, or sheltering habits, and causes injury, death or nest abandonment.

Regulations for permitting take of bald eagles or golden eagles (50 CFR 22) provide information on eagle permits for “the taking, possession, and transportation within the United States of bald eagles (*Haliaeetus leucocephalus*) and golden eagles (*Aquila chrysaetos*) and their parts, nests, and eggs for scientific, educational, and depredation control purposes; for the religious purposes of American Indian tribes; and to protect other interests in a particular locality.”

### ***Executive Order 13112, Invasive Species***

Executive Order 13112 was issued in 1999 to enhance federal coordination and response to the complex and accelerating problem of invasive species. It provides policy direction to promote coordinated efforts of federal, state, and local agencies in monitoring, detecting, preventing, evaluating, managing, and controlling the spread of invasive species and increasing the effectiveness of scientific research and public outreach affecting the spread and impacts of invasive species.

### **State**

#### ***California Environmental Quality Act***

Rare or endangered plant or wildlife species are defined in the CEQA Guidelines Section 15380. Endangered means that survival and reproduction in the wild are in immediate jeopardy. Rare means that a species is either presently threatened with extinction or that it is likely to become endangered within the foreseeable future. A species of animal or plant shall be presumed to be rare or endangered if it is listed in Sections 670.2 or 670.5, Title 14, California Administrative Code; or Title 50, Code of Federal Regulations Sections 17.11 or 17.12 pursuant to the federal Endangered Species Act as threatened or endangered.

#### ***California Endangered Species Act***

The California Endangered Species Act (CESA) includes provisions for the protection and management of species listed by the State of California as endangered or threatened or designated as candidates for such listing (Fish and Wildlife Code Sections 2050 through 2085). The act requires consultation “to ensure that any action authorized by a state lead agency is not likely to jeopardize the continued existence of any endangered or threatened species or result in the destruction or adverse modification of habitat essential to the continued existence of the species” (Section 2053). California plants and animals declared to be endangered or threatened are listed in 14 California Code of Regulations (CCR) 670.2 and 14 CCR 670.5, respectively. The state prohibits the take of protected amphibians (14 CCR 41), protected reptiles (14 CCR 42), and protected furbearers (14 CCR 460). The CDFW may also authorize public agencies through permits or a memorandum of understanding to import, export, take, or possess any endangered species, threatened species, or candidate species for scientific, educational, or management purposes (Section 2081[a]). The CDFW may also authorize, by permit (incidental take permit), the take of endangered species, threatened species, and candidate species provided specific conditions are met (Section 2081[b]).

#### ***California Fish and Game Code***

The CDFW enforces the California Fish and Game Code (CFGC), 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). With the exception of permitted scientific research, no take of any fully protected species is allowed.

Section 3503 of the CFGC 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 Dove, and House Sparrow, are not afforded protection under the MBTA or CFGC.

Streams, lakes, and riparian vegetation as habitat for fish and other wildlife species, are subject to jurisdiction by the CDFW under Sections 1600-1616 of the CFGC. Activity that will do one or more of the following, generally require a Section 1602 Lake and Streambed Alteration Agreement: 1) substantially

obstruct or divert the natural flow of a river, stream, or lake; 2) substantially change or use any material from the bed, channel, or bank of a river, stream, or lake; or 3) deposit or dispose of debris, waste, or other material containing crumbled, flaked, or ground pavement where it can pass into a river, stream, or lake. The term “stream,” which includes creeks and rivers, is defined in the CCR as follows: “a body of water that flows at least periodically or intermittently through a bed or channel having banks and supports fish or other aquatic life. This includes watercourses having a surface or subsurface flow that supports or has supported riparian vegetation” (14 CCR 1.72). In addition, the term stream can include ephemeral streams, dry washes, watercourses with subsurface flows, canals, aqueducts, irrigation ditches, and other means of water conveyance if they support aquatic life, riparian vegetation, or stream-dependent terrestrial wildlife. Riparian is defined as, “on, or pertaining to, the banks of a stream.” Therefore, riparian vegetation is defined as, “vegetation which occurs in and/or adjacent to a stream and is dependent on, and occurs because of, the stream itself.” Removal of riparian vegetation also requires a Section 1602 Lake and Streambed Alteration Agreement from the CDFW. Areas to the outer drip line of riparian vegetation are typically within CDFW jurisdiction under section 1602.

### ***Clean Water Act and the Porter-Cologne Water Quality Control Act***

The SWRCB regulates construction storm water discharges through SWRCB Order No. 2003-0017-DWQ, “General Waste Discharge Requirements for Dredge and Fill Discharges that Have Received State Water Quality Certification.” The state’s authority to regulate activities in wetlands and waters resides primarily with the SWRCB, which in turn has authorized the state’s nine RWQCBs, discussed below, to regulate such activities. Under Section 401 of the federal CWA, every applicant for a federal permit for any activity that may result in a discharge to a water body must obtain State Water Quality Certification that the proposed activity will comply with state water quality standards.

In the Project Area, the North Coast RWQCB (NCRWQCB) regulates construction in waters of the U.S. and waters of the State, including activities in wetlands, under both the CWA and the State of California’s Porter-Cologne Water Quality Control Act (California Water Code, Division 7). Under the CWA, the RWQCB has regulatory authority over actions in waters of the U.S., through the issuance of water quality certifications, as required by Section 401 of the CWA, which are issued in conjunction with permits issued by the USACE under Section 404 of the CWA. The RWQCB must certify that a USACE permit action meets state water quality objectives (§401 CWA, and Title 23 CCR 3830, et seq.) before a USACE permit is issued. Activities in areas that are outside of the jurisdiction of the USACE (e.g., isolated wetlands, vernal pools, or stream banks above the ordinary high water mark) are regulated by the nine RWQCBs, under the authority of the Porter-Cologne Act, and may require the issuance of either individual or general waste discharge requirements.

The California Wetlands Conservation Policy (Executive Order W-59-93) establishes a primary objective to “ensure no overall net loss ... of wetlands acreage and values in California.” The RWQCBs implement this policy and the Basin Plan Wetland Fill Policy, both of which require mitigation for wetland impacts.

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 specified criteria including:*
  - 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...*

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).*

### **State Species of Special Concern**

The CDFW maintains a list of species and habitats of special concern. 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 habitats may be considered significant under CEQA.

State Species of Special Concern include those plants and wildlife species that have not been formally listed yet are proposed or may qualify as endangered or threatened or are candidates for such listing under the California Endangered Species Act (CESA). This affords protection to both listed species and species proposed for listing. In addition, CDFW Species of Special Concern, which are species that face extirpation in California if current population and habitat trends continue, United States Fish and Wildlife Service (USFWS) Birds of Conservation Concern, and CDFW special-status invertebrates are considered special-status species by CDFW. Plant species included within the California Native Plant Society (CNPS) Inventory of Rare and Endangered Plants (Inventory) with California Rare Plant Rank (CRPR) of 1 and 2 are also considered special-status plant species. Few Rank 3 or Rank 4 plants meet the definitions of



Section 1901 Chapter 10 of the Native Plant Protection Act (see below) or Sections 2062 and 2067 of the CFGC that outlines the CESA. There are occasions where CRPR List 3 or 4 species might be considered of special concern particularly for the type locality of a plant, for populations at the periphery of a species range, or in areas where the taxon is especially uncommon or has sustained heavy losses, or from populations exhibiting unusual morphology.

Also, under the jurisdiction of CDFW and considered sensitive are vegetation alliances with a State (“S”) ranking of S1 through S3 in the List of Vegetation Alliances (CDFG 2009). CDFW ranks sensitive communities as "threatened" or "very threatened" and keeps records of their occurrences in its California Natural Diversity Database.

### ***Native Plant Protection Act***

The CDFW administers the California Native Plant Protection Act (CNPPA) (Sections 1900–1913 of the CFGC). These sections allow the California Fish and Game Commission to designate rare and endangered plant species and to notify landowners of the presence of such species. Section 1907 of the CFGC allows the Commission to regulate the “taking, possession, propagation, transportation, exportation, importation, or sale of any endangered or rare native plants.” Section 1908 further directs that “[n]o person shall import into this state, or take, possess, or sell within this state, except as incident to the possession or sale of the real property on which the plant is growing, any native plant, or any part or product thereof, that the Commission determines to be an endangered native plant or rare native plant.”

### ***California Coastal Act***

The California Coastal Act (California Public Resources Code sections 30000 et seq) was enacted by the State Legislature in 1976 to provide long-term protection of California’s 1,100-mile coastline for the benefit of current and future generations. Coastal Act policies constitute the standards used by the California Coastal Commission (Commission) in its coastal development permit decisions and for the review of local coastal programs (LCPs) prepared by local governments and submitted to the Commission for approval. These policies are also used by the Commission to review federal activities that affect the coastal zone. Among other things, the policies require:

- Protection and expansion of public access to the shoreline;
- Protection, enhancement and restoration of environmentally sensitive habitats;
- Protection of productive agricultural lands, commercial fisheries and archaeological resources; and
- Protection of the scenic beauty of coastal landscapes and seascapes.

All new development proposed on tide and submerged lands, and other public trust lands must receive a permit from the Coastal Commission (PRC 30519(b), and 30416(d)). Section 30107.5 defines an “environmentally sensitive area” as “...any area in which plant or animal life or their habitats are either rare or especially valuable because of their special nature or role in an ecosystem and which could be easily disturbed or degraded by human activities and developments.” An important Coastal Act policy is the protection, enhancement and restoration of environmentally sensitive habitats, including intertidal and nearshore waters, wetlands, bays and estuaries, riparian habitat, certain wood and grasslands, streams, lakes, and habitat for rare or endangered plants or animals.

Article 5 Section 30240 of the Coastal Act states that “Environmentally sensitive habitat areas shall be protected against any significant disruption of habitat values and only uses dependent on those resources shall be allowed within those areas.”

Article 4 Section 30231 of the Coastal Act provides that “(t)he biological productivity and the quality of coastal water, streams, wetlands, estuaries, and lakes appropriate to maintain optimum populations of marine organisms and for the protection of human health shall be maintained and where feasible restored....” Section 30233 discusses allowable uses of fill in coastal wetlands.

## Regional and Local

### ***Humboldt County Eel River Area Local Coastal Plan***

The Eel River Area Plan includes regulations (goals and policies) regarding environmentally sensitive habitat areas such as wetlands, salt marshes, mudflats, coastal streams, and riparian habitats that are applicable to the proposed Project. County regulations limit the circumstances under which disruption of sensitive habitat, diking, filling, dredging of wetlands, and significant alteration of streams is permitted. These activities are permitted by the county when they are carried out for fish and wildlife habitat restoration or improvement with CDFW consultation (Eel River Area Plan Sections 30233(a), 30607.1, 30236). Development within riparian corridors is normally prohibited, but it can be permitted in order to maintain or replace flood control channels, construction of wells, road and bridge replacement, and construction of fences (Eel River Area Plan Section 30236). In perennial and intermittent streams in the EREP, the riparian corridor can extend as far as 200 feet from the inner (streamside) edge of riparian vegetation, depending on slope, existing riparian vegetation, and the presence of areas of bank instability and slides (Eel River Area Plan Section 30236).

This Local Coastal Plan provides specific examples of ESHA within the Eel River Area coastal zone (Ch.3, p.28):

(a) *Environmentally sensitive habitats within the Eel River Planning Area include:*

1. *Rivers, creeks, and associated riparian habitats;*
2. *Estuaries, sloughs, and wetlands;*
3. *Rookeries for herons and egrets;*
4. *Harbor seal pupping areas; and*
5. *Critical habitats for rare or endangered species listed on State or Federal lists.*

A consistency determination for the proposed Project would be applied for through the Coastal Commission, thus the LCP policies are advisory not binding with regard to the consistency determination.

## 3.4.4 Evaluation Criteria and Significance Thresholds

The evaluation criteria (based on Appendix G of the current CEQA Guidelines) and significance thresholds, as shown below, guide whether the Project would have a significant impact on biological resources.

Evaluation Criteria	Significance Thresholds	Sources
Would the Project have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	Uncompensated loss of any plant or animal species or individuals listed as rare, threatened, or endangered by federal or state government, or loss or degradation of habitat that supports such species	CEQA Guidelines Appendix G, Checklist Item IV (a)
Would the Project have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	Uncompensated loss of more than an incidental and minor area of riparian habitat or other sensitive habitat type (excluding wetlands defined by Section 401 of the Clean Water Act) identified under federal, state or local policies	CEQA Guidelines Appendix G, Checklist Item IV (b) Humboldt Bay Area Plan Natural Resources Protection Policies and Standards for ESHA and Riparian Vegetation
Would the Project have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	Uncompensated loss or severe degradation of more than an incidental or minor area of wetlands as defined by USACE and SWRCB	CEQA Guidelines Appendix G, Checklist Item IV (c) Humboldt Bay Area Plan Natural Resources Protection Policies and Standards for Wetland Fill, Wetland Buffers, and Development with Wetland Buffers
Would the Project interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	Uncompensated loss or substantive modification of key habitat areas that provide for continuity of movement for resident or migratory wildlife, or as a loss or substantive degradation of key habitat components that would result in loss of use of important concentration areas for wildlife	CEQA Guidelines Appendix G, Checklist Item IV (d)
Would the Project conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	Uncompensated loss of important biological resources that is inconsistent with local ordinance or policies	CEQA Guidelines Appendix G, Checklist Item IV (e) Humboldt Bay Area Plan Biological Resource Policies
Would the Project conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan	CEQA Guidelines Appendix G, Checklist Item IV (f)

### 3.4.5 Methodology

Potential impacts to biological resources are evaluated for both construction and operational activities. The Project and operations are evaluated to determine compliance with applicable federal, state, and local permitting and design requirements. Potential impacts related to sensitive plants or animals are evaluated.

Potential wetland impacts are evaluated by determining placement of fill material or temporary ground disturbance relative to mapped wetland boundaries. The evaluation also considers potential impacts to or changes in habitat type or extent, especially for sensitive habitats.

### 3.4.6 Impacts and Mitigation Measures

**Impact BIO-1: Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service.**

#### ***Wildlife***

Construction and operation of the proposed Project could directly or indirectly impact populations of Tidewater Goby, raptors, migratory birds, Western Snowy Plover, Northern Red-legged Frog, Western Pond Turtle, salmonids, and their habitats.

Impacts on Tidewater Goby could occur during various construction activities, including the retrofit of the gated culverts, the installation of new gated culverts, improvements to Centerville Slough, the reconnection of Russ Creek to Centerville Slough, the reconnection of Shaw Creek to Centerville Slough, and the improvement of existing and establishment of new off-channel habitat in the Project Area. Operational activities could also directly or indirectly affect Tidewater Goby. For example, improper handling of gobies or relocation of gobies to unsuitable habitat during preconstruction and pre-maintenance (operation) efforts to preserve individual Tidewater Goby could result in injury or mortality. During construction dewatering to facilitate excavation and other construction activities may be harmful if Tidewater Goby become entrained into dewatering pumps or if Tidewater Goby become stranded. Gobies also could be crushed by equipment or debris, or they could be removed from their habitat during construction. Injury could result indirectly from habitat destruction, increased turbidity and sediment in channel waters related to construction activities, and exposure to contaminants (e.g., spills). Improvements to the Project Area would benefit other aquatic species, including non-native species, such as Sacramento Pike Minnow, which can prey on Tidewater Goby; however, the quantity and quality of post-construction habitat for Tidewater Goby would be increased in the Project Area. Tidewater Goby populations are expected to expand into restored areas and be able to withstand any potential increase in predation by non-native species such as Sacramento Pike Minnow as a result of the increase in complex vegetated aquatic habitat.

The increase in tidal exchange to the Inner Marsh, where Tidewater Goby have been detected, would alter hydrologic conditions (e.g., salinity, flow, velocity) and may create an environment intolerable for some life stages of Tidewater Goby, resulting in goby mortality. In the longer term, the Project would result in a net gain in suitable Tidewater Goby habitat and in the area of available higher quality habitat by restoring Centerville Slough including side channels and backwater lagoons and by greatly increasing the area subject to tidal influence. Tidewater Goby numbers are expected to increase within the Project Area after restoration; however, the short-term impacts would be potentially significant.

Federally threatened or endangered salmonid species that occur in close proximity to the Project Area either as residents or non-residents are Coho Salmon, Steelhead, and Chinook Salmon. Coastal Cutthroat Trout (SSC) also occur in the southernmost extent of their range as an apparently isolated riverine population in Russ Creek above Centerville Road. State-listed Longfin Smelt such as those recently documented in newly restored Riverside Ranch, are also present nearby. Effects on salmonids could occur

if in-stream Project activities are conducted in areas where juvenile sensitive listed fish species could be present or migrating.

Although salmonids and other estuarine or anadromous fishes are believed to be rare or absent in the non-tidal portions of the Project Area where most work would occur, some individual animals almost certainly occur in tidal waters in immediate proximity to the tide gates and levees and could be affected by construction. In the longer term, a net benefit is expected for salmonids because the Project would allow seasonal access into portions of the Project Area not currently available. Even with this longer-term enhancement of fish passage and expansion of available habitat, the impacts on salmonids and other anadromous species would be significant.

A key goal of the Project is to increase the area of tidal influence and improve passage for aquatic organisms, including crustaceans, salmonids and other fish characteristic of tidal portions of the estuary. Tidal exchange would be reintroduced to the Inner Marsh and the re-established Centerville Slough with a new gated culvert structure constructed through the new dike on Russ Creek and Shaw Creek. This new gated culvert would be equipped with side hinge gates that would provide aquatic organism passage. The final design of the new gates would meet State and Federal fish passage guidelines. The Project would provide a significant improvement to fish passage over existing conditions, which provides no passage at any time. Additionally, the replacement of the gates on the existing Cutoff Slough tide gate structure will improve aquatic organism passage.

The biological evaluation of the Project Area determined that special-status, summer resident, avian species could be present in the Project Area and impacted during construction due to vegetation removal or ground disturbance. This could affect both tree nesting and ground nesting species. There is also the potential for migratory bird species to fly over or stop in the Project Area. Although habitat for many tree or cliff nesting species is not ideal, seasonal or occasional presence and/or nesting cannot be ruled out at this point in time. Project construction occurring during the March 15th through August 15th breeding season may have an adverse impact on breeding success for special-status bird species. Impacts to special-status bird species, raptors, and birds protected under the Migratory Bird Treaty Act would be a potentially significant impact.

The Western Snowy Plover occurs in a band along the beach and foredune west of the Project Area, with specific known occurrences and identification of Primary Constituent Elements in multiple locations from Centerville Beach north to the mouth of the Eel River. According to agency discussions, the largest concentrations of birds are in the southern portion of the Project Area near the Angel's Camp dune overwash. Critical habitat was designated in 1999 and revised in 2012 (77 FR 36727-36869) and includes the entire dune complex from Centerville to the Eel River mouth. This critical habitat does not include the new open sand areas created by over wash events in 2019. The Project would focus on back dune enhancements outside of designated Snowy Plover critical habitat. Proposed dune enhancement has the potential to directly and indirectly affect this species through long-term changes in habitat along the backdune fringe as well as through temporary visual and noise disturbance during construction. These would be potentially significant impacts.

No impacts are expected to Northern Red-legged Frog breeding habitat or to Western Pond Turtle in the Project Area (i.e., the duckponds). It is possible that outside of breeding season individual frogs or turtles could disperse into areas of ground disturbance, which could result in significant impacts to Northern Red-legged Frogs or Western Pond Turtle.

There would be changes in agricultural grassland areas in the Project Area that provide potential foraging habitat for bats as a result of the Project. However, this impact is considered less than significant because

agricultural grassland for foraging is regionally abundant and not a limiting factor for this species, and because special status bats have only a moderate probability of occurrence in the Project Area (Table 3.4-6). Townsend's Big-eared Bats and other bats can also utilize riparian areas and wetlands as foraging habitat, further reducing the impact on these species. The Project does not propose changes to buildings, rocky areas, or trees which could provide roost sites and no potential impact on roosting habitat is anticipated. Impacts to bats would be less than significant.

### **Mitigation Measure BIO-1: Avoidance, Minimization, and Mitigation for Tidewater Goby**

To mitigate for direct and indirect impacts on Tidewater Goby, the following avoidance and minimization measures will be incorporated into the Project:

- Construction activities will be phased and conducted in a sequence that minimizes impacts to Tidewater Goby. Construction also will be limited to dry-season work windows (June 15 through October 15) to reduce the amount of goby habitat affected and minimize the impact on water quality. Although dry-season work windows may coincide with spawning and larval development, the footprint of available Goby habitat may be smaller because summer conditions typically are drier, reducing the area in which Tidewater Goby may be present. In addition, conducting work during the dry season will minimize the impact on water quality from sediment generated by construction activities and from spills that could occur during construction and maintenance of the Project (e.g., oil, fuel, hydraulic fluid).
- Phase Project construction so Tidewater Goby can be relocated to sites in the Project Area but away from areas targeted for restoration. During excavation, Tidewater Goby may be crushed by equipment or debris or may be removed from channels or marshes unintentionally by equipment. Mortality can be minimized by capturing and relocating Tidewater Goby out of construction areas. Relocating Tidewater Goby from areas targeted for restoration to habitat outside of the immediate restoration area before construction begins is intended to protect individual fish; however, improper capture and handling may result in injury or mortality. In addition, Tidewater Goby that need to be relocated should be taken to areas that have suitable habitat (e.g., where Tidewater Goby are known to thrive). Therefore, the capture and handling of Tidewater Goby will be conducted by qualified biologists, and suitable habitats for relocation will be identified before construction begins.
- Where dewatering needs to occur, all pump intakes will be screened with 1.6 mm (1/16 inch) screen, and only qualified biologists will conduct Goby rescue during dewatering.

### **Mitigation Measure BIO-2: Conduct Pre-construction Avian Surveys for Nesting Passerine Birds and Avian Species of Special Concern**

To mitigate for direct and indirect impacts on nesting birds, the following avoidance and minimization measures will be incorporated into the Project:

Clearing of shrubs or other vegetation, if necessary for construction or maintenance, shall be conducted during the fall and/or winter months from August 16 to March 14, outside of the active nesting season for migratory bird species (i.e., March 15 to August 15) if feasible. No trees will be removed for this Project. If vegetation removal or ground disturbance cannot be confined to the non-breeding season, the applicant shall have a qualified biologist conduct preconstruction surveys within the impact area for ground disturbance, vegetation removal and/or maintenance activities, to check for nesting activity of migratory, raptors, and special-status bird species. The

biologist shall conduct the preconstruction surveys within the 7-day period prior to vegetation removal and ground-disturbing activities. If ground disturbance and vegetation removal work lapses for 15 days or longer during the breeding season, a qualified biologist shall conduct a supplemental avian preconstruction survey before Project work may be reinitiated.

If active nests are detected within the construction or maintenance (operation) footprint or within 500 feet of construction activities, the applicant shall flag the buffers that are supporting breeding and will not begin ground disturbing work or vegetation removal inside the buffers until the nests have fledged. Construction activities shall avoid nest sites until the biologist determines that the young have fledged, or nesting activity has ceased. If nests are documented outside of the construction (disturbance) footprint, but within 500 feet of the construction area, buffers will be implemented if deemed appropriate in coordination with CDFW. In general, the buffer for common species would be a minimum of three feet, the buffer for sensitive species would be 300 feet, and the buffer for raptors would be 500 feet.

### **Mitigation Measure BIO-3: Avoid, Minimize, and Mitigate for Potential Impacts to Western Snowy Plover**

To mitigate for direct and indirect impacts on Snowy Plover, the following avoidance and minimization measures will be incorporated into the Project:

Construction and maintenance activities associated with the construction of Back Dune Berms would be conducted between September 1 and March 1, outside of the plover nesting season. The area of impact, defined as permanent or semi-permanent change in elevation or conversion to > 30 percent vegetation cover, would also occur outside of USFWS-designated critical habitat for Snowy Plover. This would result in no net loss nor temporal loss of suitable Western Snowy Plover breeding habitat.

### **Mitigation Measure BIO-4: Mitigate for Potential Impacts to Northern Red-legged Frog and Western Pond Turtle**

Although direct impacts to Northern Red-legged Frog breeding habitat are not anticipated because the duckponds will remain in freshwater conditions, measures for this species are included because individual frogs may disperse for considerable distances and could enter construction areas.

A qualified biologist will perform a pre-construction survey for the Northern Red-legged Frog, and Western Pond Turtle within seven days prior to commencement of ground disturbance. The survey shall be limited to within 50 feet of suitable habitat within the Project footprint. Suitable habitat would be determined by the qualified biologist. The qualified biologist would inspect any work areas containing fresh surface water (not including puddles resulting from rainfall) to ensure tadpoles or frogs are not present. If they are present, the qualified biologist would implement a rescue and relocation operation to move any tadpoles or frogs to a safe location in nearby suitable habitat.

In the event that a Northern Red-legged Frog or Western Pond Turtle is observed in an active construction zone, the contractor shall halt construction activities in the area and the frog and/or turtle shall be moved to a safe location in similar habitat outside of the construction zone.

Construction within areas of standing fresh water shall be limited to the period of the year between July 1 and October 30 to avoid disturbance to breeding frogs unless a qualified biologist evaluates the areas of standing water and determines they are not suitable habitat, or the absence of eggs and tadpoles is confirmed.

### **Mitigation Measure BIO-5: Mitigate for Potential Impacts to Salmonid Species**

To mitigate for direct and indirect impacts on salmonid species, the following avoidance and minimization measures will be incorporated into the Project:

The in-water construction and maintenance work window will be limited to June 15<sup>th</sup> through October 15<sup>th</sup> to avoid or minimize impacts to juvenile salmonids. Before potential de-watering activities begin in creeks or channels within the Project Area, the qualified Biologist shall ensure that native aquatic vertebrates and larger invertebrates, if feasible, are relocated out of the construction footprint into a flowing channel segment by a qualified fisheries biologist. In deeper or larger areas, water levels shall first be lowered to manageable levels using methods to ensure no impacts to fisheries and other special status aquatic species. A qualified fisheries biologist or aquatic ecologist shall then perform appropriate seining or other trapping procedures to a point at which the biologist is assured that almost all individuals within the construction area have been caught. These individuals shall be kept in buckets with aerators to ensure survival. They shall then be relocated to an appropriate flowing channel segment or other appropriate habitat as identified by the qualified Biologist in consultation with NOAA Fisheries and CDFW. Federally threatened salmonid species that occur within the Project Area include natal or non-natal Coho Salmon, Steelhead, and Chinook Salmon.

**Level of Significance:** Less than significant with mitigation

Mitigation Measure BIO-1 addresses potential impacts to the Tidewater Goby and mitigates potential impacts to less than significant levels within applicable rules and regulations and has a standard scientific approach for addressing potential impacts to this species.

Implementation of Mitigation Measure BIO-2 provides protection measures during construction for special-status birds and would mitigate potential impacts on special-status and migratory birds to less-than-significant levels by requiring pre-construction surveys by a qualified biologist to determine whether special-status or migratory bird nests are present at or near the Project footprint and ensure the protection of nests and young until they have fledged.

Mitigation Measure BIO-3 identifies avoidance and compensation measures for Western Snowy Plover including seasonal work windows and enhancement of dune habitat elsewhere on the EREP portion of the Project Area to offset direct impacts to habitat. This would reduce impacts to a less than significant level.

Mitigation Measure BIO-4 requires pre-construction surveys for Northern Red-legged Frog and Western Pond Turtle, and relocation of any individual animals found within ground disturbance areas. This would reduce impacts to a less than significant level.

Mitigation Measure BIO-5 identifies seasonal avoidance measures for salmonids and other sensitive fish species, and relocation of individual salmonids if any are located within dewatering areas. The Project will also result in a long-term benefit to salmonids due to establishing seasonal access to extensive areas which are currently not accessible. This would reduce impacts to a less than significant level.

There are no anticipated impacts to bat species and mitigation is not proposed.



## **Plants**

The Project footprint will avoid direct impacts to most populations of sensitive listed plant species mapped in the Project Area except for Lyngbye's sedge (*Carex lyngbyei*) and Humboldt Bay owl's-clover (*Castilleja ambigua* var. *humboldtensis*) which are present adjacent to the levee to be removed, and beach layia (*Layia carnososa*) along the eastern edge of the Dune habitat where a temporary haul route may be placed.

### Humboldt Bay Owl's Clover and Lyngbye's Sedge

In the Project Area, all Humboldt Bay owl's-clover and the majority of Lyngbye's sedge are found north of the levee to be removed in habitat described as Full Tidal Wetlands (Figure 3.4-2). The Outer Marsh was not surveyed for rare plants beyond the channel north of the existing levee and it is likely that more Humboldt Bay owl's-clover and Lyngbye's sedge are present in the northern reach of the Project Area where the tidal channel will be constructed (Figure 2-5). Additionally, populations of owl's-clover can fluctuate dramatically between years (Pickart 2001), making the number of individuals impacted difficult to predict in advance. At least 0.74 acre of known Lyngbye's sedge and 0.14 acre of known Humboldt Bay owl's-clover will be removed in the course of channel excavation through the existing levee. Some additional Humboldt Bay owl's-clover may be removed outside of the channel as a result of construction activities to remove the levee.

Lyngbye's sedge reproduces by seeds and is considered a pioneer species as it is one of the first plants to colonize the mud of tidal flats (CNPS 2022a). Humboldt Bay owl's-clover is an annual hemi-parasitic plant that reproduces by seeds when suitable host plants are present. The removal of the levee and construction of the tidal channel are likely to directly impact both Humboldt Bay owl's-clover and Lyngbye's sedge in the ground disturbance footprint; however, the introduction of tidal influence south into Russ Creek Marsh and Angel's Camp Marsh is expected to triple the amount of suitable habitat available to these species and is anticipated to result in a net increase to both species' populations in the Project Area (Figures 3.2-1 and Figure 3.4-4). *Spartina* removal occurring in 2022 in the Outer Marsh may also be considered "advance mitigation" that will allow owl's-clover and Lyngbye's sedge to spread throughout the restoration area unimpeded and unimpacted by the removal of *Spartina*.

### Beach Layia

Direct impacts to beach layia (*Layia carnososa*) may occur with the construction of a temporary haul route between the back dune and the Outer Marsh to access and transport fill from Centerville Slough. Beach layia was mapped in 2021 to a large general area of dune habitat where it was interspersed with European beach grass and other vegetation; however, the northern-most mile of Dune habitat in the Project Area was not surveyed for rare plants (Figure 3.4-2).

Populations of beach layia tend to be patchy and subject to large annual fluctuations in size and local distribution associated with the shifts in dune blowouts, remobilization, and natural dune stabilization that occur in the coastal dune ecosystem (USFWS 1998). The temporary haul route must be placed on dry ground outside of marsh habitat to support heavy vehicles and equipment and so may encroach on potentially suitable habitat for beach layia.

Mitigation Measures will be required to avoid or minimize impacts. All other ground disturbance and staging will occur outside of suitable habitat for beach layia. New Back Dune berm construction will occur on open sand south of the dune habitat and outside of all areas where this species has been observed (Figure 2-5).

Eel grass

Eel grass is present in Cutoff Slough; however, no ground disturbing alterations are proposed there, and no direct impacts are anticipated. Re-established Centerville Slough and the re-connected tidal channels within the Inner Marsh are anticipated to increase suitable habitat for natural recruitment of eel grass.

The proposed Project could indirectly impact other special status plant species through changes in tidal prism and site hydrology, changes in sand movement associated with foredunes, and/or if new plant populations are identified beyond the previously mapped extent or if new species are identified in the Project Area. Overall, with the addition of new dune habitat in the southwest of the Project Area and with the increase in tidal influence, suitable habitat for all special status plant species is expected to increase resulting in a positive effect on plant populations.

**Mitigation Measure BIO-6: Mitigate Impacts to Sensitive-Listed Plant Species**

The following mitigation is addressed collectively for all special status plant species. Significant impacts to special-status plant species present or likely to be present in the Project Area shall be avoided or minimized by complying with the following requirements for all special status plant species:

- Pre-construction and maintenance surveys: Potential habitat for special-status plant species shall be surveyed in appropriate seasons prior to temporary road construction, excavation/dredging, fill, drainage, or flooding activities associated with Project construction and maintenance. Surveys shall be performed by a qualified field botanist. Populations shall be mapped and flagged if the population is located adjacent to or within construction areas and avoidance is feasible.
- The locations of any special status plant populations to be avoided shall be clearly identified in the contract documents (plans and specifications).

**Mitigation Measure BIO-7: Mitigate Impacts to Beach Layia**

The following measures shall be implemented to mitigate impacts to the federally listed beach layia during construction and operation/ongoing maintenance of the Project, primarily associated with the temporary haul route to be placed between the back dune and the Outer Marsh.

- A pre-construction survey shall be conducted between March 1 and July 31, prior to the beginning of ground disturbing work to verify the extent of known beach layia occurrences and to identify new occurrences in the area of the proposed temporary haul route. The route shall be placed a minimum of 10 feet from any beach layia occurrences to the extent feasible. At the beginning of construction, flagging or exclusion fencing shall be installed around all known occurrences of beach layia within 20 feet of construction limits. Locations of fencing shall be identified and flagged by a qualified biologist and installed while the biologist is present. The fencing shall be inspected weekly for the duration of construction to ensure that the fencing remains installed properly. Direct impacts to beach layia shall be avoided.
- If any new or existing occurrences of beach layia cannot be avoided by the placement of the temporary haul route, then mitigation will be employed that includes one or more of the following mechanisms: seed collection from the Project Area and/or nearby known occurrences so that seeds can be dispersed into the area of the temporary haul route post-construction or replacement plants can be grown out at a nursery and replaced at a stable portion of the

Project Area (2:1 planting ratio), plant relocation, and/or preparation of a sensitive species management plan (SSMP) that provides further details about the above options in cooperation with USFWS as to which mechanism(s) are preferred option(s) at the time of impact. The triggering mechanism for seed banking would be if this plant species is identified within the footprint of the proposed temporary haul route and cannot be avoided. If an SSMP is deemed appropriate by jurisdictional agencies, the report would lay out specific timing and details of seed collection, mitigation site identification (within the Project Area), substrate preparation, monitoring and maintenance. If replanting is employed, a 2:1 planting ratio includes built in overplanting in order to meet success criteria and no net loss.

**Level of Significance:** Less than significant with mitigation

Mitigation Measure BIO-6 and Mitigation Measure BIO-7 would mitigate the impact to sensitive plants consistent with regulations governing sensitive species through a combination of avoidance, minimization, and seed salvage from impacted populations.

**Impact BIO-2:** **Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?**

Some habitats in the Project Area are expected to convert with the introduction of tidal influence south of the existing levee (Table 3.4-7). Brackish Marsh, Muted Tidal Wetlands, and part of the Brackish Pasture are expected to become full tidal wetlands, while part of the brackish pasture will be converted into freshwater pasture (Figure 3.4-4).

**Table 3.4-7 Existing Habitats and Proposed Conversions**

Habitat Type	Existing Area (acres)	Proposed Area (acres)	Change in Habitat (acres)
Aquatic	95.4	171.1	75.8
Brackish Marsh	106.5		-106.5
Dune Swales	45.6	45.6	0.0
Dunes	123.5	130.3	6.9
Full Tidal Wetlands (Mudflat, Salt Marsh, Transition)	164.3	539.4	375.0
Muted Tidal Wetlands (Mudflat, Salt Marsh, Transition)	301.9	10.5	-291.4
Open Sand	169.4	158.0	-11.4
Pasture - Brackish	297.7		-297.7
Pasture - Freshwater	432.7	682.8	250.1
Pasture - Upland	37.4	22.8	-14.6
Riparian Forest	1.1	3.9	2.8
Riparian Scrub	26.0	23.8	-2.3
Ruderal / Developed	13.2	27.2	13.9
Unmapped	81.4	80.7	-0.7
Total	1,896.0	1,896.0	-

Approximately 2.3 acres of the Riparian Scrub habitat in the northeast of the Project Area will be converted into Aquatic habitat with the excavation and realignment of the Russ Creek channel; however, 2.8 acres of Riparian Forest will be created on the Planted Berm along Russ Creek (Figure 2-5). No net loss of riparian habitat will occur as a result of Project activities.

One upland sensitive (S3 ranking) natural vegetation community was identified within the Project Area: Dune Mat. An expansion of 6.9 acres is expected in Dune Mat habitat with the creation of Back Dune Berms in the area of Open Sand in the southeast portion of the Project Area (Figure 2-5). No direct impacts to Dune Mat habitat are expected as all ground disturbance and staging are planned well outside of this sensitive habitat type. Potential indirect effects to Dune Mat by construction activities can be mitigated with the implementation of the measures below.

Ground disturbance and creation of new tidal areas could result in the expansion of dense flowered cordgrass, which could affect Sensitive Natural Communities in wetlands. Control of dense-flowered cordgrass in the Project Area using mowing, grinding, excavation, and/or flaming methods will occur to support current Regional Eradication efforts. Continued control in the maintenance period of the Project will ensure that newly created tidal habitat will not be invaded.

Invasive plant propagules could be introduced to the Project Area on construction machinery and equipment resulting in a significant impact. With the implementation of the mitigation measures this impact can be avoided.

Eel grass is considered a sensitive habitat as it is Essential Fish Habitat. This plant community is present in Cutoff Slough; however, no Project work is proposed in this habitat and no direct impacts are anticipated. Re-established Centerville Slough and the re-connected tidal channels within the Inner Marsh are anticipated to provide suitable habitat for natural recruitment of eel grass.

#### **Mitigation Measure BIO-8: Mitigate Impacts to Sensitive Listed Habitats Through Avoidance and Re-establishment**

Intact Dune Mat vegetation will be protected during construction primarily by pre-construction surveys and avoidance. A qualified biologist will survey sandy habitats in and around ground disturbance and staging areas for intact Dune Mat vegetation. Dune Mat vegetation will be flagged and avoided by all vehicles and personnel. If high quality Dune Mat cannot be avoided, it will be mitigated at a ratio of no less than 1:1 in a suitable location.

#### **Mitigation Measure BIO-9: Mitigate Impacts to Sensitive Listed Habitats Through Control of Invasive Species**

To reduce the likelihood of dense-flowered cordgrass (*Spartina*) colonizing restored tidal marsh, existing populations in and adjacent to (north of the tide gates) the Project footprint shall be controlled prior to construction using manual, mechanical, and/or approved chemical methods, and in compliance with appropriate methods analyzed and disclosed in the Regional Invasive *Spartina* Management Plan and the associated EIR (HTH 2013b). During the operation period of the Project, removal of cordgrass would be conducted under the authority of the Regional Invasive *Spartina* Management Plan and the associated PEIR.

All vehicles and equipment would be required to be cleaned and weed-free before entering the Project Area.

**Level of Significance:** Less than significant with mitigation

Project activities are anticipated to result in a net increase in tidal wetlands with the reintroduction of tidal influence south of the existing levee. Native saltmarsh vegetation is expected to increase and outcompete non-native annual grasses as soil and aquatic salinities increase. Changes in tidal wetlands will be monitored and governed through implementation of the adaptive management plan. A smaller net increase is expected for Dune Mat communities.

Mitigation Measure BIO-8 provides for avoidance and protection of sensitive areas during construction. Mitigation Measure BIO-9 will oversee *Spartina* control during implementation and during the maintenance period to enhance natural community quality. These measures reduce impacts to less than significant levels.

**Impact BIO-3:** Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means.

The Project design includes both the filling of three-parameter and one-parameter wetlands, as well as the creation of new wetlands (both one and three-parameter wetlands). The USACE only requires mitigation for the filling of wetlands with three-parameters, while the CCC also requires mitigation for the filling of one-parameter wetlands. Due to the difference in wetland definitions, two sets of wetland acreages are shown below to calculate mitigations (Table 3.4-8, 3.4-9, Figure 3.4-3 3.4-5). The preliminary design analysis shows that the Project will result in no net loss of three-parameter wetlands.

**Table 3.4-8 Change in USACE Three-parameter (par) Wetland Areas (acres).**  
(Colors correspond to Figure 3.4-5.)

Upland Description	Wetland Creation	Wetland Fill
Levee removal inner marsh	3.37	
Levee removal west of new levee	0.18	
Lone upland	0.05	
Upland pasture	14.56	
1-par road removal inner marsh	0.42	
1-par road removal west of new levee	0.02	
1-par road remains east of new levee		
1-par existing access road		
East side of new levee		
Existing access road		
New berm		18.11
Sand berm		0.44
<b>Total</b>	<b>18.60</b>	<b>18.56</b>

The existing access road and berm between Centerville Slough and the North Barn (Figure 2-4) was identified as a one-parameter wetland by Mad River Biologists in 2011 (MRB 2011a, Figure 3.4-3). This one-parameter wetland is considered upland within the jurisdiction of the USACE but is considered wetland within the jurisdiction of the CCC. A portion of this road (0.41 acre) will be converted to three-parameter upland through expansion of the existing berm, and a separate portion (0.44 acre) will be converted to three-parameter wetland by removal of the road (Table 3.4-8). In the calculation of USACE three-parameter wetland creation and fill, the 0.44 acre of road is considered upland by the USACE (Table 3.4-8) but is considered wetland by the CCC (Table 3.4-9). Therefore, the conversion of this one-parameter to three-

parameter wetland does not qualify as wetland creation for the CCC. In addition, 0.41 acre of road classified as one-parameter wetland (MRB 2011a) would be converted to three-parameter upland (existing berm improvement). A total of 0.85 acre of mitigation will be required for the 0.41 acre of one-parameter wetland fill and the absence of 0.44 acre of wetland creation within the CCC jurisdiction. Wetlands shall be replaced within the Project Area at no less than a 1:1 ratio or the satisfaction of jurisdictional agencies.

**Table 3.4-9 Change in CCC Wetland Areas (acres).**  
(Colors correspond to Figure 3.4-5.)

Upland Description	Remaining Wetland	Wetland Creation	Wetland Fill
Levee Removal Inner Marsh		3.37	
Levee Removal West of New Levee		0.18	
Lone Upland		0.05	
Upland Pasture		14.56	
1-par road bend east of new levee	0.02		
1-par existing access road	1.10		
East side of new levee			
Existing access road			
New Berm			18.11
Sand Berm			0.44
Existing berm improvements			0.41
New berm eastern edge seeding		0.44	
Upland pasture edge seeding		0.41	
<b>Total</b>	<b>1.12</b>	<b>19.01</b>	<b>18.97</b>

The final design and required agency permit applications will show documentation of no net loss in wetlands and a breakdown of wetland conversion (fill) and establishment. Overall, the Project will result in an increase in tidal wetlands and a reduction in agricultural/grazed wetlands. The change in wetland type is not deemed a significant impact since habitat value will be enhanced in the Inner Marsh and west of the proposed berm through improved tidal prism and associated habitat quality.

Although no net loss overall to wetland acreage/quantity or quality is expected, the proposed Project could result in short-term temporary impacts to permanent, seasonal, and transitional wetland areas. Construction activities associated with restoration implementation would involve disturbance of wetlands and waters through vegetation clearing activities, grading and installation of restoration features, dewatering activities, and construction and use of access roads and staging areas for construction equipment, materials and stockpiles. Soil to be beneficially reused from levee removal would generally be placed to 1) build the set-back berms, 2) raise subsided land closer to tidal marsh elevation, or 3) build low profile tidal lagoon berms that have crest elevations below 9 feet and thus remain tidal wetland. Vegetation clearing activities may occur in advance of other restoration actions, resulting in a temporary loss of wetlands with increased duration of site disturbance. Short-term impacts to wetlands and waters are considered potentially significant.

#### **Mitigation Measure BIO-10: Mitigate Temporary and Short-term Impacts to Wetlands Through Construction Minimization and Avoidance Measures**

- At least 0.85 acre of uplands will be seeded with hydrophytic vegetation (FAC, FACW, OBL ratings according to the WMVC wetland plant list) to create one-parameter wetlands in the Project Area. Up to 0.41 acre will be seeded around the margin of the upland pasture and up to

0.44 acre will be seeded on the east side of the new levee (Figure 3.4-5). Straw mulch will be placed on seeded areas.

- The locations of sensitive habitats including wetlands to be avoided shall be clearly identified in the contract documents (plans and specifications).
- Before clearing and grubbing commences, disturbance areas shall be flagged to clearly define the limits of the work area. These areas shall be clearly identified on the contract documents (plans and specifications).
- Selected contractors shall sign a document stating that they have read, understand, and agree to the required resource avoidance measures, and shall have construction/maintenance crews participate in a training session on sensitive resources.
- A qualified biologist shall be on-site to observe activities, as appropriate, when construction or maintenance in or adjacent to sensitive habitat including wetlands occurs. Site disturbance shall be minimized to the greatest extent feasible by using existing disturbed areas for access roads and staging areas and concentrating the area of disturbance associated with restoration actions within the minimum space(s) necessary to complete the Project. Where feasible, temporary measures for access or construction, such as the use of temporary tracks or pads, shall be used to minimize impacts. Revegetation activities shall take place at seasonally appropriate times based on habitat types, and as soon as feasible following habitat disturbance, to restore disturbed areas to pre-Project conditions or better.

**Level of Significance:** Less than significant with mitigation

Mitigation Measure BIO-10 will minimize temporary impacts to wetlands and reduce impacts to a less than significant level.

**Impact BIO-4:** **Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites.**

One of the primary goals of the Project is to enhance tidal prism, which is expected to increase the area accessible to salmonids and other aquatic species. Thus, there would be a net gain in the area of accessible aquatic habitat and potential for movement of salmonids and other aquatic species.

There would be some temporary interference with movement of both terrestrial and aquatic species during construction while silt fences are in place and during instream work. Because of the large size of the Project Area, there would be alternative corridors for movement, and the duration of any interference would be of relatively short duration. In addition, the post-Project condition would be similar to or better than pre-Project conditions. In general, the effect on avian species and larger or highly mobile mammal species would be minimal. With regard to protection under the Migratory Bird Treaty Act, refer to the analysis under Impact BIO-1. Temporary interference to movement of fishes and other aquatic species would occur in areas where seasonal or other periodic barriers are already present, and the Project would in many cases result in long-term removal or reduction of these barriers and is thus judged to be less than significant.

**Mitigation Measures:** No mitigation is necessary

**Level of Significance:** Less than significant

**Impact BIO-5: Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.**

The Project does not conflict with approved local, regional, or state habitat conservation plans, as there are no such special plans that would govern the Project other than the Eel River Area Local Coastal Plan. The Project would likely require a Coastal Zone Management Act (CZMA) Federal Consistency Determination or a Coastal Development Permit from the California Coastal Commission for compliance with the Local Coastal Plan. The Project would also likely require a Grading Permit and a Conditional Use Permit for off-easement activities from the County of Humboldt. The Project does not conflict with local policies for the protection of biological resources.

**Mitigation Measures:** No mitigation is necessary

**Level of Significance:** Less than significant

**Impact BIO-6: Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.**

The Project will not conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan as there are no such special plans that would govern the Project.

**Mitigation Measures:** No mitigation is necessary

**Level of Significance:** Less than significant

### 3.4.7 Cumulative Impacts

Many of the projects identified in Table 3-1 could result in impacts to sensitive biological resources, such as special status species, wetlands, and riparian habitat. However, these impacts would be mitigated through surveys and avoidance measures, and BMPs. Implementation of the remainder of the nearby Salt River Ecosystem Restoration Project would enhance the habitat value of the Eel River Estuary Preserve and the Russ properties by creating a larger contiguous area of open space and habitats managed for plants and wildlife. This larger area would support larger populations of plants and animals, and such populations would be more resilient to future disturbances.

Construction could result in short-term impacts to sensitive biological resources, such as special status species. However, these impacts would be mitigated through avoidance measures and BMPs and in some cases, specific mitigation measures. Implementation of the regional restoration projects would provide access to additional upstream habitat, with connectivity from freshwater to brackish habitat as well as provide an adjacent riparian corridor. Cumulative biological impacts are less than significant with the proposed mitigation.

**Mitigation Measures:** No mitigation is necessary

**Level of Significance:** Less than significant

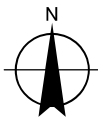
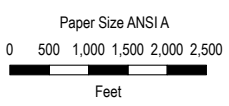
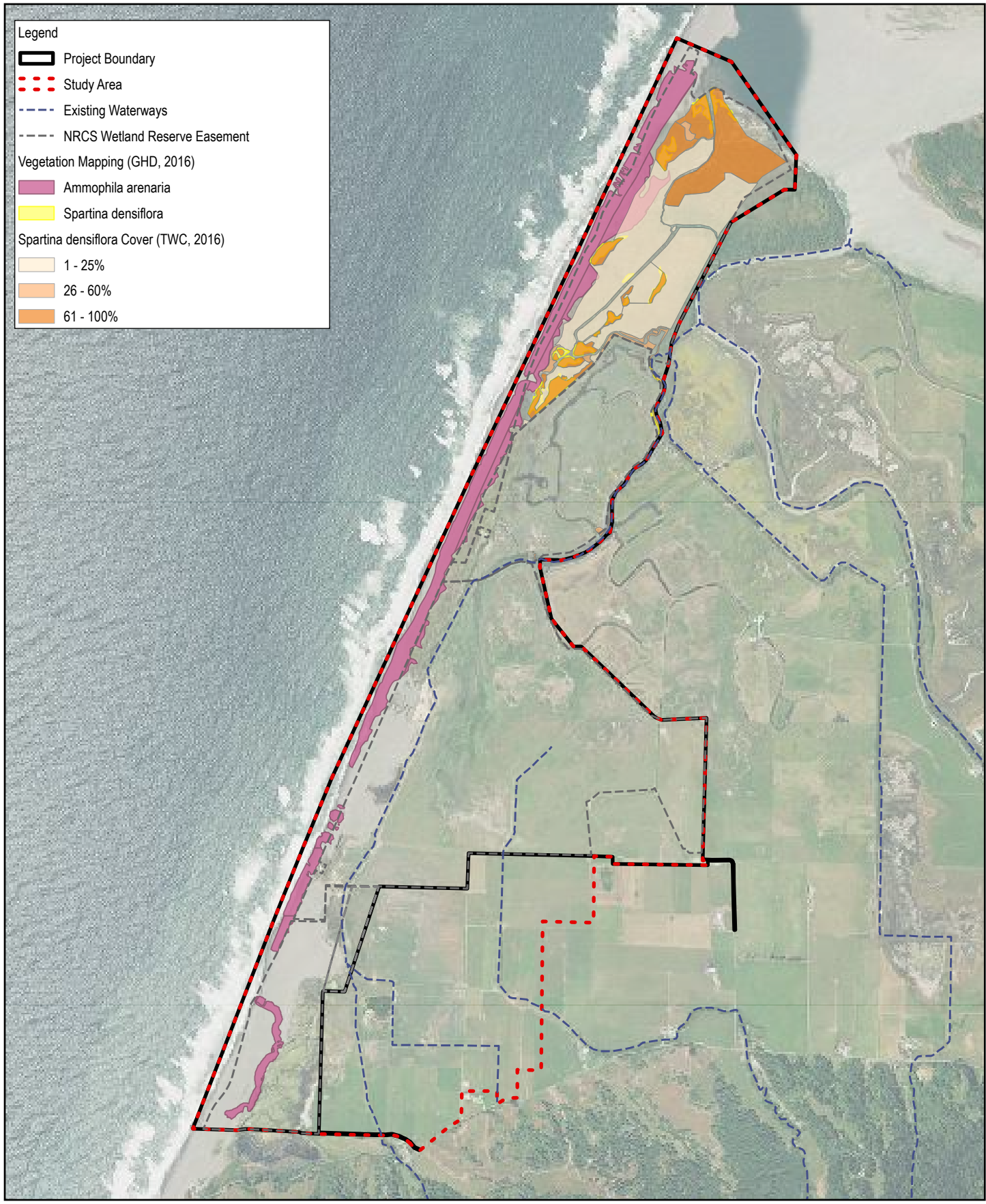


### 3.4.8 References

- Becker, G. S., and I. J. Reining. 2009. *Steelhead/rainbow trout (Oncorhynchus mykiss) resources of the Eel River watershed, California*. Center for Ecosystem Management and restoration (CEMAR), Oakland CA.
- Cal-IPC. 2022. *California Invasive Plant Council*, <https://www.cal-ipc.org/plants/inventory/>
- California Department of Fish and Game (CDFG). 2004a. *Stream inventory report, Russ Creek*. 89794
- CDFG. 2004b. *Recovery Strategy for California Coho salmon*. Report to the California Fish and Game Commission.
- CDFG. 2005. *Salt River Watershed Assessment, documentation of fish species*.
- CDFG. 2010a. *Fish Species of Special Concern: Coastal cutthroat trout*. <https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=104288&inline>
- CDFG. 2010b. *Lower Eel River watershed assessment*. CDFG Coastal Watershed Planning and Assessment Program, Fortuna CA.
- California Department of Fish and Wildlife (CDFW). 2014. *California Interagency Wildlife Task Group. California Wildlife Habitat Relationships (CWHR) version 9.0*. Sacramento, CA. <https://wildlife.ca.gov/Data/CWHR>
- CDFW. 2022a. *California Department of Fish and Wildlife Natural Communities Lists*. Accessed August 2022. Available at: <https://www.wildlife.ca.gov/Data/VegCAMP/Natural-Communities/List>
- CDFW. 2022b. *California Natural Diversity Database (CNDDDB). USGS 7.5 Minute Quadrangles*. State of California, Natural Resources Agency, Department of Fish and Wildlife, Biogeographic Data Branch, Sacramento, California, USA. <https://www.wildlife.ca.gov/Data/CNDDDB> (Accessed 2022)
- California Native Plant Society (CNPS). 2022a. *Calscape*. <https://calscape.org/> California Native Plant Society, Sacramento, CA. Accessed 2022.
- CNPS. 2022b. *Inventory of Rare and Endangered Plants* (online edition, v8-01a). California Native Plant Society (CNPS). Sacramento, CA. Accessed: 2022.
- CNPS. 2022c. *A Manual of California Vegetation*, Online Edition; <http://www.cnps.org/cnps/vegetation/>; California Native Plant Society, Sacramento, CA. Accessed 2022.
- Chamberlain, C.D. 2010. *Tidewater Goby Investigations - 2010 North Coast Populations*. Arcata Fisheries Data Series Report DS-2011-21. USFWS, Arcata, California.
- Downie, S. and K. Lucey. 2005. *Salt River watershed assessment*. Coastal Wetland Series #9, California Department of Fish and Game: 104 p.
- Federal Geographic Data Committee (FGDC). 2013. *Classification of wetlands and deepwater habitats of the United States*. FGDC-STD-004-2013. Second Edition. Wetlands Subcommittee, Federal Geographic Data Committee and U.S. Fish and Wildlife Service, Washington, DC.
- Garwood, R.S. 2017. *Historic and contemporary distribution of Longfin Smelt (Spirinchus thaleichthys) along the California coast*. California Fish and Game 103: 96-117.
- GHD. 2013. *Eel River Estuary Preserve Ecosystem Enhancement Project: Habitat and Vegetation Mapping Report*; 8410882.

- GHD. 2014a. *Eel River Estuary Preserve Ecosystem Enhancement Project: Delineation of Uplands*; 8410332.
- GHD. 2014b. *Special-Status Species Evaluation and Special-Status Plant and Animal Surveys for Eel River Estuary Preserve (EREP) Memorandum*, Ferndale, CA; 8410882
- GHD. 2015a. *Russ Ranch and Timber: Delineation of Uplands*; 8410332.
- GHD. 2015b. *Habitat and Vegetation Mapping for Russ Ranch*; 8410882.
- GHD. 2015c. *Special-status Plant Survey for Russ Ranch and Timber, Eel River Estuary Preserve (EREP) Ecosystem Enhancement Project*, Ferndale California; 8410882.
- GHD. 2022. *Summary of Upland and Habitat Mapping: Russ Creek & Centerville Slough Enhancement Project - Sensitive Natural Communities, Rare Plants and Upland Delineation*.
- Grassetti Environmental Consulting, California State Coastal Conservancy, and Kammen Hydrology & Engineering. 2011. *Final Environmental Impact report: Salt River Ecosystem Restoration Project*.
- H.T. Harvey & Associates (HTH). 2013a. *Wildland Conservancy Eel River Property Restoration, Notes RE: habitat characterization and mapping*; HTH Project# 3526-01
- HTH. 2013b. *Humboldt Bay Regional Spartina Eradication Plan*, H.T. Harvey & Associates Ecological Consultants prepared for the California State Coastal Conservancy.
- Kramer, S. 2016. *Tidewater goby habitat assessment for the Eel River estuary and Centerville Slough enhancement project*. H.T. Harvey & Associates, Arcata, CA.
- Lafferty, K.D., C.C. Swift, and R.F. Ambrose. 1999. *Extirpation and Recolonization in a Metapopulation of an Endangered Fish, the Tidewater Goby*. *Conservation Biology*. 13:1447-1453.
- Mad River Biologists (MRB). 2011a. *Eel River Estuary Preserve Biological Evaluation and Wetland Delineation for Proposed Bridge Construction and Road Improvement Project*. Mad River Biologists.
- MRB. 2011b. *Delineation of Wetland and Waters of the US for Eel River Estuary Preserve*. Mad River Biologists.
- Morrisette, S. 2011. *Eel River Estuary Preserve Biological Evaluation and Wetland Delineation for Russ Creek Bridge Replacement Project*.
- NatureServe. 2022. <https://explorer.natureserve.org/AboutTheData/Statuses>
- National Marine Fisheries Service (NMFS). 2011. *Status review updates for Pacific Salmon and Steelhead listed under the Endangered Species Act: Southwest*.
- Pickart, A. 2001. *The distribution of Spartina densiflora and two rare salt marsh plants in Humboldt Bay 1998–1999*. US Fish and Wildlife Service, Humboldt Bay National Wildlife Refuge, Arcata, CA.
- Pickart, A. 2006. *Vegetation of diked herbaceous wetlands of Humboldt Bay National Wildlife Refuge: classification, description, and ecology*. Arcata, CA, U.S. Fish and Wildlife Service, Humboldt Bay National Wildlife Refuge: 93.
- Ritter, A.F., K. Wasson, S.I. Lonhart, R. Jeppesen. 2008. *Ecological Signatures of Anthropogenically Altered Tidal Exchange in Estuarine Ecosystems*. *Estuaries and Coasts* 31: 554-571.
- Ross Taylor & Associates. 2016. *Fisheries Sampling in the Lower Salt River during the Fall and Winter of 2015 – 2016*.

- Ross Taylor & Associates. 2017. *Fisheries Sampling in the Lower Salt River during the Fall and Winter of 2016-2017*.
- Sawyer, J.O., T. Keeler-Wolf, and J.M. Evens. 2009. *A Manual of California Vegetation, Second Edition*. California Native Plant Society, Sacramento, CA.
- Schlosser, S., and A. Eicher. 2012. *Humboldt Bay and Eel River estuary benthic habitat project*. California Sea Grant College Program, Scripps Institute of Oceanography, La Jolla CA, Publication T-075.
- SWRCB (State Water Resources Control Board). 2020. *Implementation Guidance for the State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State*. Guidance, Sacramento, CA: State Water Resources Control Board.  
[https://www.waterboards.ca.gov/water\\_issues/programs/cwa401/docs/dredge\\_fill/revised\\_guidance.pdf](https://www.waterboards.ca.gov/water_issues/programs/cwa401/docs/dredge_fill/revised_guidance.pdf)
- State Water Resources Control Board (SWRCB). 2021. *Procedures for Discharges of Dredged or Fill Material to Waters of the State*. Procedures, Sacramento, USA.  
[https://www.waterboards.ca.gov/water\\_issues/programs/cwa401/docs/2021/procedures.pdf](https://www.waterboards.ca.gov/water_issues/programs/cwa401/docs/2021/procedures.pdf)
- United States Army Corps of Engineers (USACE). 2005. *Regulatory Guidance Letter No. 05-05*, Subject: Ordinary High Water Mark Identification
- United States Department of Agriculture (USDA). 2001. *California Environmental Handbook*. Natural Resources Conservation Service, Davis, California.
- U.S. Fish and Wildlife Service (USFWS). 1998. *Recovery Plan for Seven Coastal Plants and the Myrtle's Silverspot Butterfly*. Accessed online at: [https://ecos.fws.gov/docs/recovery\\_plan/980930d.pdf](https://ecos.fws.gov/docs/recovery_plan/980930d.pdf)
- USFWS. 2012. *Classification of Humboldt Bay and Eel River Dune Vegetation to Association Level* (unpublished).
- USFWS. 2021. *Beach Layia General Information*, accessed online at:  
<https://ecos.fws.gov/ecp/species/6728>, Updated December 14, 2021.
- USFWS. 2022a. *IPaC - Information for Planning and Consultation*. Department of the Interior, U.S. Fish and Wildlife Service. <https://ecos.fws.gov/ipac/> (09/22/2022).
- USFWS. 2022b. *Menzies Wallflower General Information*, accessed online at:  
<https://ecos.fws.gov/ecp/species/2935>, updated March 01, 2022.
- USFWS. 2023. *Tidewater Goby General Information*, accessed online at:  
<https://www.fws.gov/species/tidewater-goby-eucyclogobius-newberryi>
- Weitkamp, L.A., T.C. Wainwright, G.J. Bryant, G.B. Milner, D.J. Teel, R.G. Kope, and R.S. Waples. 1995. *Status review of coho salmon from Washington, Oregon, and California*. NOAA Technical Memorandum NMFS-NWFSC-24. 258 p.
- The Wildlands Conservancy. 2015. *Report on Avian Species on the Eel River Estuary Preserve*, February 25.



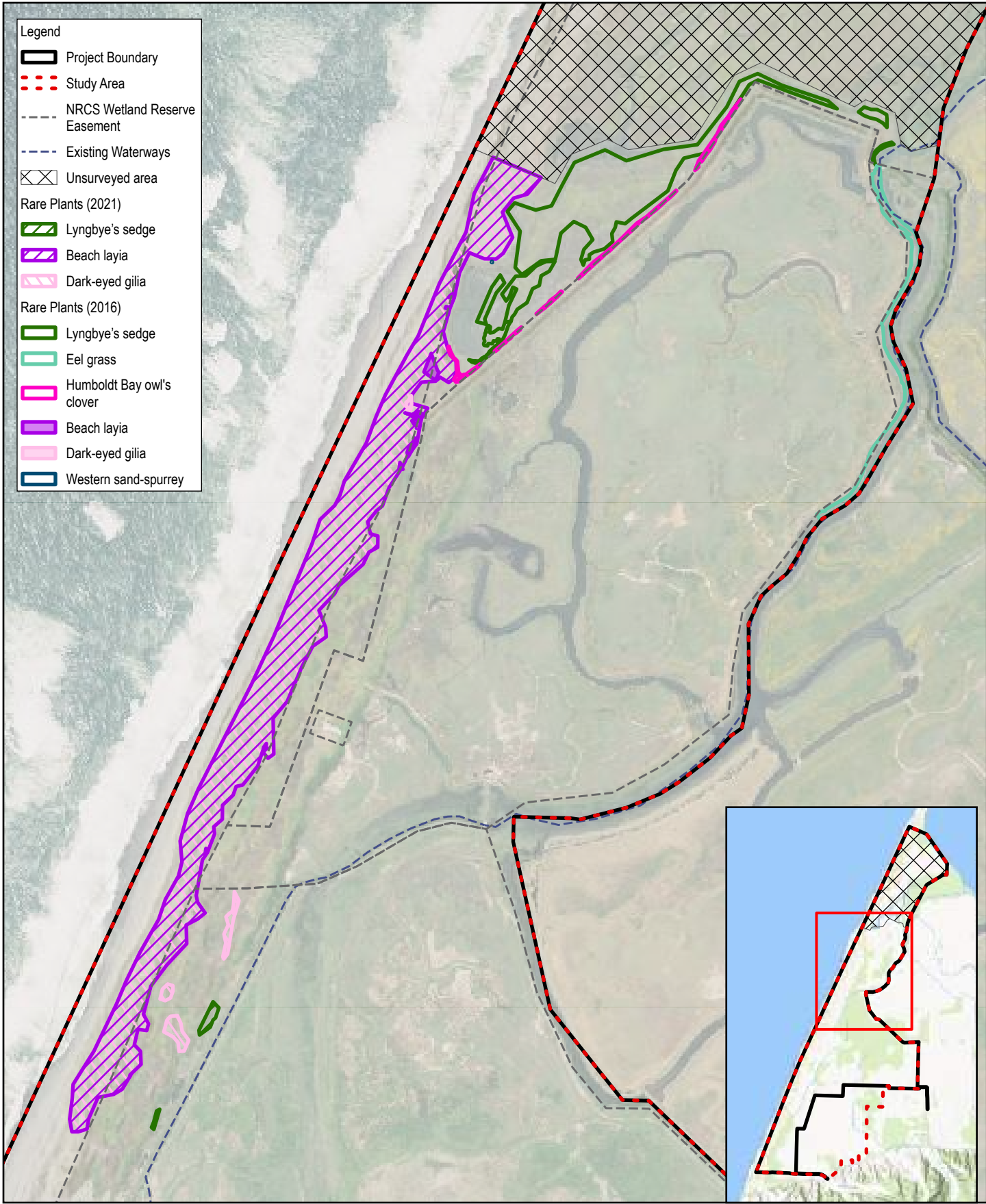
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Russ Creek and Centerville Slough Restoration Project

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Revision No. -  
Date April 2023

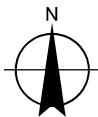
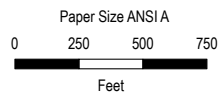
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**Invasive Plants**

**FIGURE 3.4-1**



- Legend**
- Project Boundary
  - Study Area
  - NRCS Wetland Reserve Easement
  - Existing Waterways
  - Unsurveyed area
  - Rare Plants (2021)**
  - Lyngbye's sedge
  - Beach layia
  - Dark-eyed gilia
  - Rare Plants (2016)**
  - Lyngbye's sedge
  - Eel grass
  - Humboldt Bay owl's clover
  - Beach layia
  - Dark-eyed gilia
  - Western sand-spurrey



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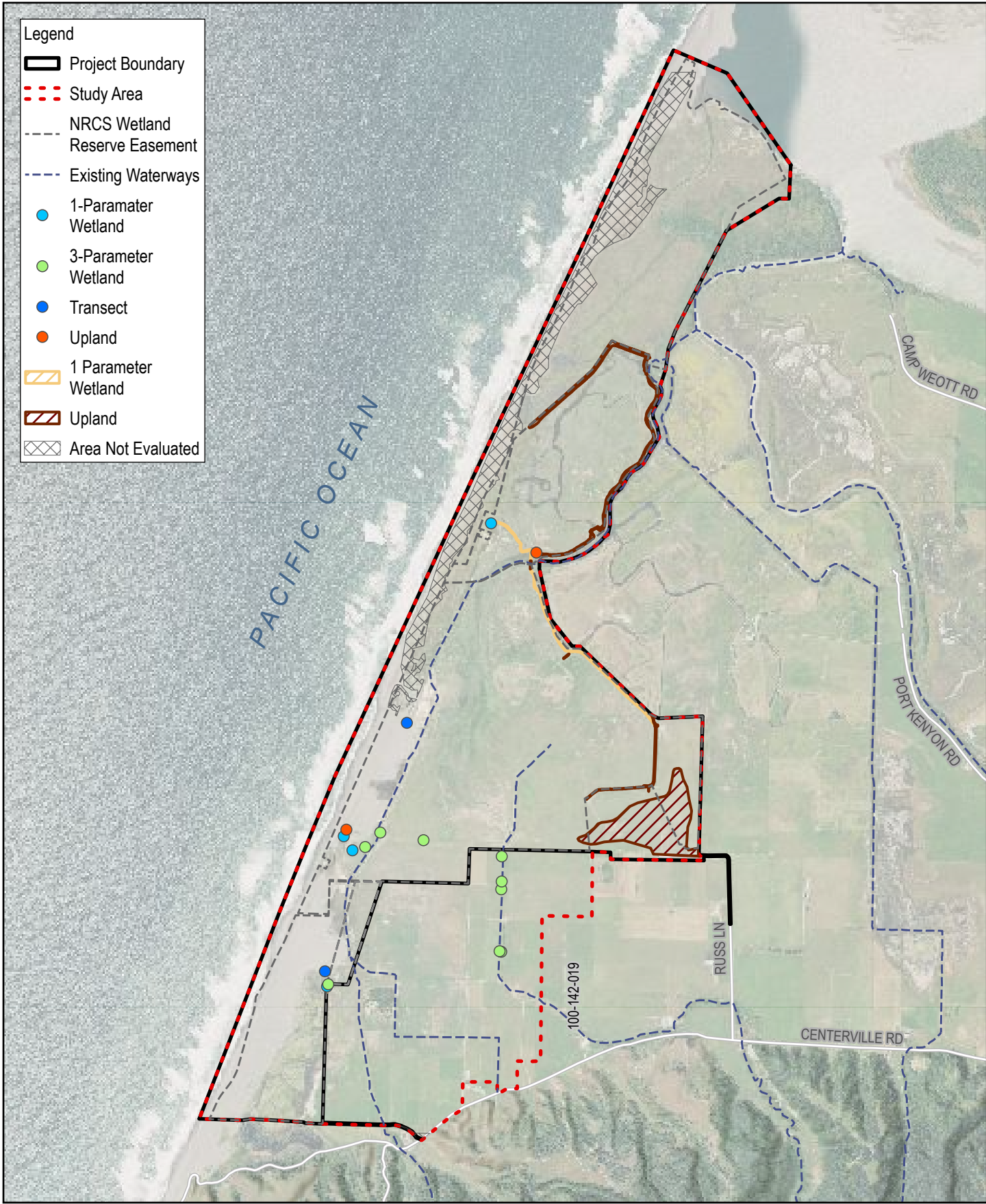
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**Russ Creek and Centerville Slough Restoration**

**Rare Plants Reconnaissance**  
**Overview**  
**(Combined 2015-16 and 2021 Data)**

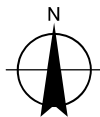
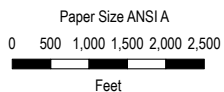
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**FIGURE 3.4-2**





- Legend**
- Project Boundary
  - Study Area
  - NRCS Wetland Reserve Easement
  - Existing Waterways
  - 1-Parameter Wetland
  - 3-Parameter Wetland
  - Transect
  - Upland
  - 1 Parameter Wetland
  - Upland
  - Area Not Evaluated



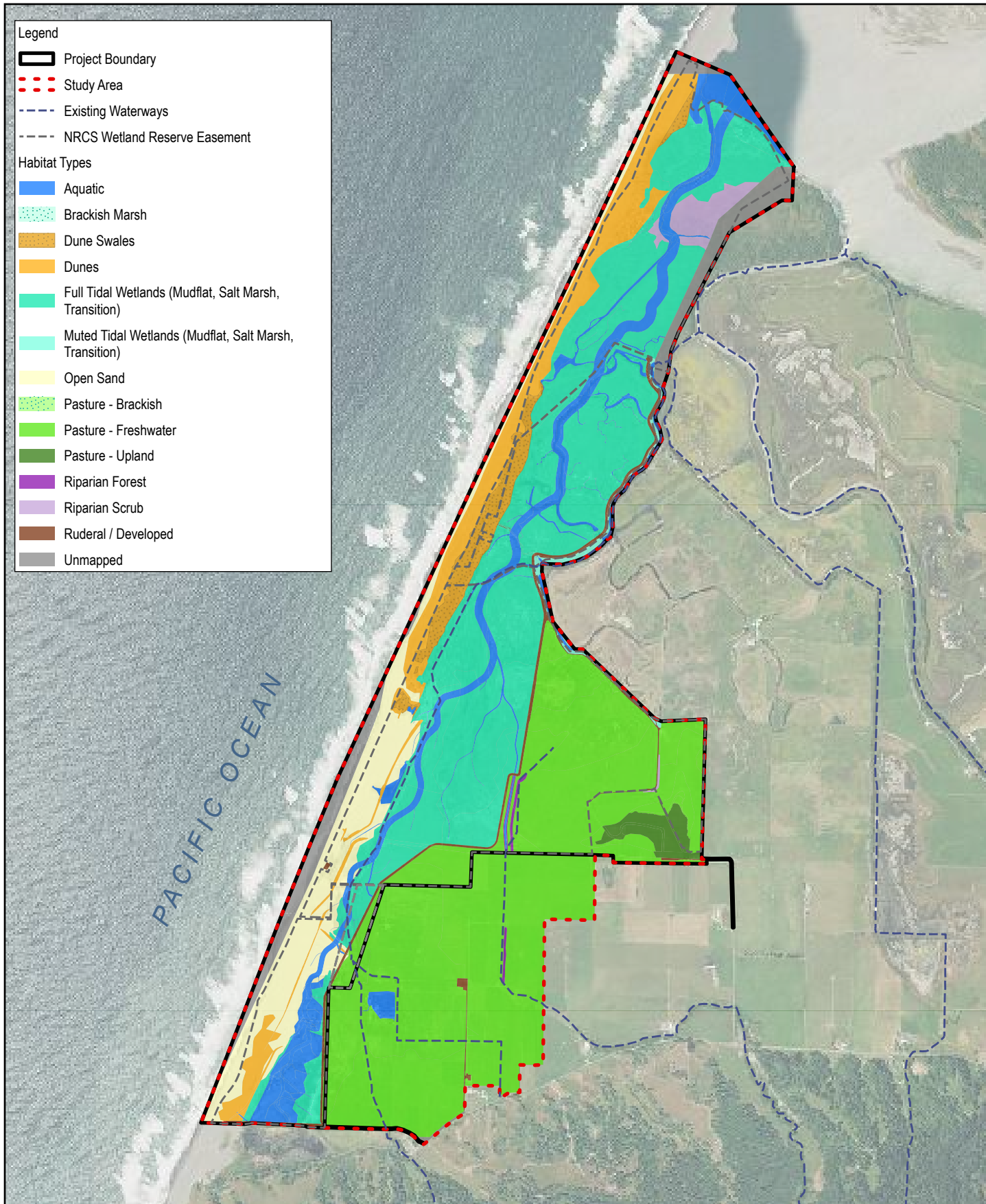
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**Upland Delineation Overview**

**FIGURE 3.4-3**

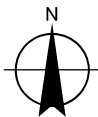
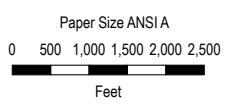


**Legend**

- Project Boundary
- Study Area
- Existing Waterways
- NRCS Wetland Reserve Easement

**Habitat Types**

- Aquatic
- Brackish Marsh
- Dune Swales
- Dunes
- Full Tidal Wetlands (Mudflat, Salt Marsh, Transition)
- Muted Tidal Wetlands (Mudflat, Salt Marsh, Transition)
- Open Sand
- Pasture - Brackish
- Pasture - Freshwater
- Pasture - Upland
- Riparian Forest
- Riparian Scrub
- Ruderal / Developed
- Unmapped














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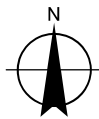
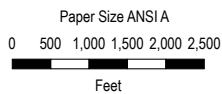
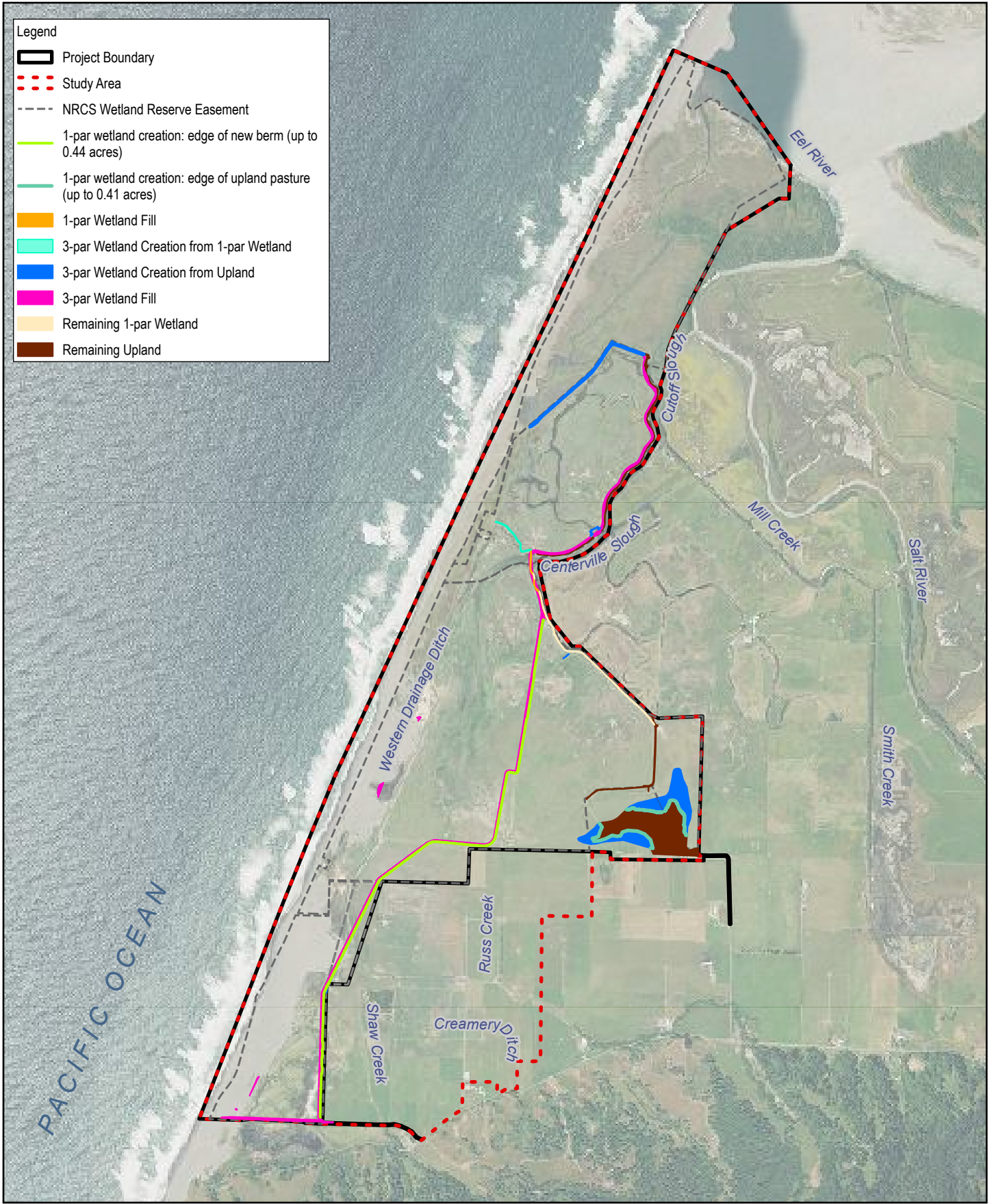
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**Habitat Classification  
Under Project Conditions**

**FIGURE 3.4-4**

- Legend**
-  Project Boundary
  -  Study Area
  -  NRCS Wetland Reserve Easement
  -  1-par wetland creation: edge of new berm (up to 0.44 acres)
  -  1-par wetland creation: edge of upland pasture (up to 0.41 acres)
  -  1-par Wetland Fill
  -  3-par Wetland Creation from 1-par Wetland
  -  3-par Wetland Creation from Upland
  -  3-par Wetland Fill
  -  Remaining 1-par Wetland
  -  Remaining Upland



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**Wetland Conversion**

**FIGURE 3.4-5**



## 3.5 Cultural Resources

This section evaluates the potential impacts related to cultural resources during construction and operation of the Project. To provide the basis for this evaluation, the Setting section describes the archaeological and historical setting for the Project Area, and the Regulatory Framework section describes the applicable federal, state and local regulations affecting the Project Area. Descriptions in this section are based on reviews of published information, reports, and plans regarding cultural resources. The evaluation criteria and impacts and mitigation measures sections establish the thresholds of significance, evaluate potential cultural resource impacts, and identify the significance of impacts and feasible mitigation measures if necessary.

In 2016 a cultural resources investigation conducted by Roscoe and Associates to evaluate the potential for cultural resources within the study area (Roscoe et al. 2016; S-048292). In 2022, an addendum to the cultural resources investigation was conducted to study approximately 26 acres to the southern area of the previously studied Project (Roscoe et al. 2022). The results of the studies are described below. Due to the sensitive nature and location of archaeological sites, these reports are not included as an appendix to this EIR.

### 3.5.1 Study Area

The study area and access routes are termed the Area of Potential Effect (APE) in the cultural resources reports prepared for the Project. The study area extends outside of the Project Area (also referred to as the Project Boundary) and includes all areas of direct impacts and includes potential impacts up to 10 feet below ground surface of the study area. The APE is located in Wiyot Indian tribe ancestral lands.

### 3.5.2 Setting

#### Prehistoric Context

The Project Area is located within the ethnographic territory of the Wiyot Indians who had an original population of 1,000 to 3,300 prior to European settlement. According to Humboldt State University linguist Victor Golla, the Wiyots arrived in the Humboldt Bay area approximately 2,000 years ago, inhabiting a lagoon environment that afforded the use of coastal resources. The Yuroks then came “at a much later date,” sometime subsequent to the arrival of the first Athabascan speakers, who came after 600 CE (Common Era).

The Wiyot lived almost exclusively in villages along the protected shores of Humboldt Bay and near the mouths of the Eel and Mad Rivers. Villages consisted of dwellings that were rectangular in shape and made from split redwood planks. The Wiyot utilized a wide range of plant and animal resources gathered within their territory, including mollusks, sea lions, stranded whales, deer, elk, and acorns. The most important food source was anadromous fish from coastal streams such as the Mad and Eel Rivers and smaller tributaries.

After the start of the California Gold Rush, from 1850 to 1860, Wiyot territory became the center for the largest concentrations of European settlers in California north of San Francisco. The settlers utilized Humboldt Bay as a major shipping point for supplies to the gold mines on the Trinity, Klamath, and Upper Sacramento Rivers. In addition, the establishment of the redwood timber industry, and homesteading of the Eel River and Arcata Bottoms for ranching and farming purposes, brought more people into the area. Settlers killed almost all of the Wiyot people in a coordinated series of massacres in February 1860.

## Historic Context

Recognizing that Euro-American settlement was the event that changed forever the natural systems in the Delta, several early developments on lower Eel River provide a historic context for understanding present conditions. These 19th century activities were economic pursuits, instituted to further livelihoods and wealth in the settlement community, although in the case of the commercial fisheries, both the resource and much of the wealth were exported. Reclamation projects converted marshes to agricultural land for cultivated crops, dairying, and ranching. The commercial fisheries on lower Eel River were a text-book case of the “tragedy of the commons,” and even acknowledged as such by a commercial fisherman of the day. Navigation on Salt River was an important economic development on the lower river and its early demise was attributed to human activities, notably reclamation and the associated reduction of tidal prism (Van Kirk 2013).

## Inventory Results of Site Building and Structures

During the field investigation associated with the 2016 report, several structures and buildings associated with the Russ Ranch & Timber (RR&T) and The Wildlands Conservancy (TWC) properties were identified within the study area, based on the cultural resource report APE. These include five standing barns, one demolished barn, two demolished grain silos, a Quonset Hut, a corral complex and associated cattle scale, 1900’s home, and a tidewater control system of dikes, ditches and gates. A brief description of each feature is outlined below.

**Feature 1: The North Barn.** This barn provided storage space for hay grown on the ranch and a covered/floored area for stock feeding in the northern area of the ranch. A set of corrals and a watering trough are also associated with the barn. This barn is within the Project Area.

**Feature 2: The South Barn.** This barn provided storage space for hay grown on the ranch and a covered/floored area for stock feeding in the southern area of the ranch. This barn is within the Project Area.

**Feature 3: The Quonset Hut.** This building housed the large metal rollers used for barley processing. By the late 1950’s this building also housed the Centerville Duck Club’s office. This hut is within the Project Area.

**Feature 4: Willow Barn Ruins and Grain Silos.** Just to the north of the Quonset hut is evidence of a large barn, known as the Willow Barn. This was a dairy barn and later used as a feed barn with hay stored in the middle section with feeding on either side. Rolled barley was fed to cattle in four barns on the ranch, including the Willow Barn. The concrete base of one silo is 20 feet in diameter, 63 feet in circumference; the other silo exists only as rubble. These features are within the Project Area.

**Feature 5: Fern Cottage Corrals and Cattle Scale.** This complex of holding pens with metal gates, chutes, and 68-foot catwalk along one long chute, plus two buildings, is located near the preserve headquarters. This barn is within the Project Area.

**Feature 6: Potato Barn.** The barn was once used for moving, sorting, inspecting, and packaging potatoes before shipment. Today, the potato barn has been repaired and the present building appears to be nearly all new construction. This Barn is now also known as the Headquarters Barn.

**Feature 7: Dike and Ditch System.** This feature includes a coastal levy system and a tide flood gate, all constructed after the 1964 floods. These features are within the Project Area and extent into the study area.

**Feature 8: Former site of the Scotia Gun Club Cabin.** This feature was the location of the former cabin/bunkhouse, which had been used by the Scotia Gun Club. Local resident, Bruce Slocum, who had

visited the cabin as a boy, said that it was built of logs that had washed up on beach from a log raft. The cabin had a small brick fireplace, a kitchen area with a water pump in the sink, and several sets of bunkbeds for the duck hunters. Very little remains at the cabin site today. According to Slocum, the cabin burnt in the 1970's, and only a few fragments of brick, glass, and earthenware mark its former location. This feature is within the Project Area.

**Feature 9: Robart House and Horse Barn.** Based on background research, the house may date back to the 1890s, and represents a house-type prevalent during the settlement period. Currently, the house is used for residential purposes and has been improved with double paned windows and metal roof. The horse barn is apparent in 1948 aerial photographs, suggesting it does not date to the Robarts tenure, but may have come as a later addition. This house and barn are outside the Project Area but within the study area.

**Feature 10: Shaw Barn.** Background research showed that the barn was under construction in June of 1906 and was likely completed that year. At some point, the roof was covered in corrugated sheet metal, most likely within a decade or two of construction. The barn is historically associated with Joseph A. Shaw. Currently, the barn is used for agricultural purposes for RR&T. This barn is outside the Project Area but within the study area.

These features were inventoried to identify potentially historically-significant properties that could be impacted by implementation of the Project. The Project proposes to demolish Feature 1 and 2 (North Barn and South Barn). Neither barn is in use; the North Barn will no longer be accessible due to adjacent restoration activities and the South Barn sustained substantial damage after a winter storm. Additionally, some isolated areas of the ditch and dike system will be physically altered to improve site drainage.

### 3.5.3 Regulatory Framework

#### Federal

##### ***Section 106 of the National Historic Preservation Act (NHPA)***

The proposed Project will require a permit from the U.S. Army Corps of Engineers (USACE). Section 106 of the NHPA requires that, before beginning an undertaking, a federal agency, or those they fund or permit, must take into account the effects of the undertaking on historic properties and afford the Advisory Council on Historic Preservation and other interested parties an opportunity to comment on these actions.

Section 106 of the NHPA prescribes specific criteria for determining whether a project would adversely affect a historic property, as defined in 36 CFR 800.5. An impact is considered significant when prehistoric or historic archaeological sites, structures, or objects listed in or eligible for listing in the National Register of Historic Places (NRHP) are subjected to the following effects:

- physical destruction of or damage to all or part of the property
- alteration of a property
- removal of the property from its historic location
- change of the character of the property's use or of physical features within the property's setting that contribute to its historic significance
- introduction of visual, atmospheric, or audible elements that diminish the integrity of the property's significant historic features
- neglect of a property that causes its deterioration

- transfer, lease, or sale of the property.

Cultural resources significance is evaluated in terms of eligibility for listing in the NRHP. NRHP significance criteria applied to evaluate the cultural resources for this Project are defined in 36.CFR 60.4 as follows: The quality of significance in American history, architecture, archaeology, engineering, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, association, and

- that are associated with events that have made a significant contribution to the broad patterns of our history; or
- that are associated with the lives of persons significant in our past; or
- that embody the distinctive characteristics of type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or
- that have yielded, or may be likely to yield, information important in prehistory or history.

Specific regulations regarding compliance with Section 106 state that, although the tasks necessary to comply with Section 106 may be delegated to others, the federal agency is ultimately responsible for ensuring that the Section 106 process is completed according to statute.

## **State**

### ***California Environmental Quality Act***

Cultural resources are defined as buildings, sites, structures, or objects, each of which may have historic, architectural, archaeological, cultural, or scientific importance. Under CEQA statute an impact on a cultural resource is considered significant if a Project would result in an impact that may change the significance of the resource (Public Resources Code [PRC] Section 21084.1). Demolition, replacement, substantial alteration, and relocation of historic properties are actions that would change the significance of a historic resource (California Code of Regulations, Title 14, 15064.5). The following steps are normally taken in a cultural resources investigation to comply with CEQA:

- Identification of cultural resources
- Evaluate the significance of the cultural resources based on established thresholds of significance
- Evaluate the impacts of a Project on cultural resources
- Develop and implement measures to mitigate the impacts of the Project on significant cultural resources.

Because the Project is located on non-federal land in California, it is also necessary to comply with state laws pertaining to the inadvertent discovery of human remains of Native American origin. The procedures that must be followed if burials of Native American origin are discovered on non-federal land in California are described in the Impacts and Mitigation Measures section, below.

### ***Office of Historic Preservation***

The California State Office of Historic Preservation (OHP) is responsible for administering federally and state mandated historic preservation programs to further the identification, evaluation, registration and protection of California's irreplaceable archaeological and historical resources under the direction of the State Historic Preservation Officer and the State Historical Resources Commission.

OHP reviews and comments on federally sponsored projects pursuant to NHPA Section 106, and state programs pursuant to PRC Sections 5024 and 5024.5, which provide policies and plans for preserving and maintaining all state-owned historical resources or eligible historical resources. OHP also reviews and comments on local government and state projects pursuant to CEQA.

A variety of programs have been created by OHP in order to manage historic resources and to determine eligibility for classification as a historic resource. The programs that OHP administer includes: the NRHP, the California Register of Historic Resources (CRHR), the California Historical Landmarks, and the California Points of Historical Interest. Each program has different eligibility criteria and procedural requirements.

### ***California Register of Historic Resources***

Cultural resource significance is evaluated in terms of eligibility for listing in the CRHR. The State Historical Resources Commission has designed the CRHR program for use by state and local agencies, private groups and citizens to identify, evaluate, register and protect California's historical resources. The Register is the authoritative guide to the state's significant historical and archaeological resources. CRHR criteria for designation include:

- **Criterion 1.** Associated with events that have made a significant contribution to the broad patterns of local or regional history or the cultural heritage of California or the United States.
- **Criterion 2.** Associated with the lives of persons important to local, California or national history.
- **Criterion 3.** Embodies the distinctive characteristics of a type, period, region or method of construction or represents the work of a master or possesses high artistic values.
- **Criterion 4.** Has yielded, or has the potential to yield, information important to the prehistory or history of the local area, California or the nation.

The CRHR criteria is nearly identical to the federal NRHP criteria and are used in tandem as "1/A" or "2/B" when identifying impacts. There is a slight difference in meaning between the CRHR and NRHP regarding Criterion 3 (Criterion C in the NRHP), which will be evaluated when determining impacts and significance.

### **California Public Resources Code (PRC)**

As part of the determination made pursuant to PRC Section 21080.1, the lead agency must determine whether a Project would have a significant effect on archaeological and paleontological resources. Several sections of the PRC protect cultural resources. PRC Section 5097.98 states that if Native American human remains are identified within a Project Area, the landowner must work with the Native American Most Likely Descendant as identified by the Native American Heritage Commission (NAHC) to develop a plan for the treatment or disposition of the human remains and any items associated with Native American burials with appropriate dignity. These procedures are also addressed in Section 15046.5 of the CEQA Guidelines.

On September 25, 2014, Assembly Bill 52 (AB 52) was signed, which included amendments to PRC Section 5097.94. AB 52 requires tribal cultural resources to be considered under CEQA. AB 52 requires lead agencies to provide notice to Native American tribes that are traditionally and culturally affiliated with the geographic area of a proposed Project if they have requested notice of projects proposed within that area.

### **California Health and Safety Code**

California Health and Safety Code Section 7050.5 prohibits disinterring, disturbing, or removing human remains from a location other than a dedicated cemetery. Section 7050.5 also requires that construction or

excavation be stopped in the vicinity of discovered human remains until the Coroner can determine whether the remains are those of a Native American. If determined to be Native American, the Coroner must contact the California NAHC.

**California Native American Historical, Cultural and Sacred Sites Act**

This Act applies to both state and private lands. The Act requires that upon discovery of human remains, that construction or excavation activity cease and that the county Coroner be notified. If the remains are of a Native American, the Coroner must notify the NAHC. The NAHC then notifies those persons mostly likely to be descended from the Native American remains. The Act stipulates the procedures the descendants may follow for treating or disposing of the remains and associated grave goods.

**Regional and Local**

***Humboldt County Eel River Area Local Coastal Plan***

*3.29 Archaeological and Paleontological Resources*

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*Where new development would adversely impact archaeological or paleontological resources as identified by the State Historic Preservation Office, reasonable mitigation measures shall be required.*

A. *Reasonable mitigation measures may include but are not limited to:*

1. *Changing building and construction sites and/or road locations to avoid sensitive areas.*
2. *Providing protective cover for sites that cannot be avoided.*
3. *Where appropriate and with the approval of all parties concerned, provide for the removal or transfer of culturally significant material by a professional archaeologist or geologist.*

*3.42 Visual Resource Protection*

*3.42 C. Protection of Historical Buildings*

1. *Historic buildings shall be considered a scenic and visual resource of public importance.*
2. *Historic buildings shall be defined as those sites on County, State or Federal Historic Registers.*
3. *The restoration and preservation of historic buildings shall be encouraged consistent with the other requirements of this Plan.*

**3.5.4 Evaluation Criteria and Significance Thresholds**

Evaluation Criteria	Significance Thresholds	Sources
Would the Project cause a substantial adverse change in the significance of a historical resource pursuant to §15064.5?	Adverse alteration of those physical characteristics of a historical resource that justify its eligibility for the California Register of Historical Resources (CRHR) or as a local landmark	CEQA Guidelines Appendix G, Checklist Item V (a) NHPA Section 106 eligibility criteria California Register of Historic Resources

Evaluation Criteria	Significance Thresholds	Sources
		(CRHR) eligibility criteria
Would the Project cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	Adverse alteration of those physical characteristics of an archaeological resource that justify its eligibility for the CRHR or as a unique archaeological resource	CEQA Guidelines Appendix G, Checklist Item V (b)
Would the Project disturb any human remains, including those interred outside of formal cemeteries?	Disturbance of human remains, including Native American human remains, associated grave goods, or items of cultural patrimony	CEQA Guidelines Appendix G, Checklist Item V (c)

### 3.5.5 Methodology

The impact analysis included in this section is based on cultural resource investigations conducted in 2016 and 2022 for the Project Area by Roscoe and Associates as described below.

#### Records and Literature Search

The background research for this Project included archival research at the Humboldt State University Library, Humboldt County Library, Humboldt County Historical Society, Humboldt County Assessors and Recorders Office, and the Department of Public Works. The California Historical Resources Information System (CHRIS) records search included an examination of the archaeological site records, maps, and Project files at the Northwest Information Center (NWIC), one of the regional information centers of the CHRIS. The NWIC is located at Sonoma State University, Rohnert Park, California. Roscoe and Associates conducted the record searches on September 9, 2013, February 2, 2016, and November 18, 2021.

In addition to the library and NWIC record search, the following inventories were consulted: the Historic Property Directory, the National Register of Historic Places (NRHP), Determinations of Eligibility for the National Register of Historic Places, Historic Spots in California, California Historical Landmarks, and California Points of Historical Interest, California Register of Historical Places, and the California Inventory of Historic Resources (CRHR). The literature search is undertaken to determine if there are any previously recorded archaeological resources or historic structures within the Project Area and whether the area has been included in any previous archaeological research or reconnaissance projects.

The records search and literature review for this study were done to (1) determine whether known cultural resources had been recorded within or adjacent to the study area; (2) assess the likelihood of unrecorded cultural resources based on archaeological, ethnographic, and historical documents and literature, and on the environmental setting of nearby sites; and (3) develop a context for preliminary recommendation of identified resources.

#### Previous Research

In addition to the cultural resource investigations conducted for this Project, the records search at the NWIC revealed that nine cultural resource studies have been conducted within ½ mile of the study area (Table 3.5-1). One previously recorded archaeological site was documented within ½ mile of the study area and multiple previously recorded historic resources occur within ½ mile of the study area (Table 3.5-2).

For the Project parcels, deed searches were conducted in the Humboldt County Recorder’s Office, Eureka, California in September and October 2013. Tax assessment records, federal census schedules and newspaper microfilm, notably the Ferndale Enterprise, which were researched at the Humboldt County Library in Eureka and Humboldt State University Library in Arcata provided historical information on the properties. Parcel maps, U.S.G.S. Quad maps, the historic Belcher, Metsker, and Forbes maps; maps from the “Humboldt Bay Historical Atlas” (Laird), and surveys and maps in the Recorder’s Office were used to locate property ownerships and the history of the properties’ structures.

**Table 3.5-1 Previous Studies within 1/2 –Mile Record Search Radius of Study Area**

Study No.	Date	Author	Title	Results
S9860	1988	Van Kirk	Fern Cottage National Register Nomination	One National Register eligible site
S24299	1998	Pieper, J	1-98-203, 22 acre Timber Harvest Plan	No sites
S042078	1998	Hess, K.	Confidential Archaeological Addendum for Timber Operations on Non-Federal Lands in California, Grandy/Brown, THP #1-98-203 HUM	No sites
S43826	2008	Roscoe et al. 2008	A Cultural Resources Investigation of the Salt River Ecosystem Restoration Project	P-12-002939; P-12-002941; P-12-002940- all within 1/2 mile
S043826b	2011	Roscoe J. and W. Rich	Addendum Report for Additional Phase I Cultural Resources Investigation of the Proposed Salt River Ecosystem Restoration Project	No sites
S39842/ S039840	2012	Miller, R	An Archaeological Survey Report for the Pries Timber Harvesting Plan, Humboldt County, CA	No sites
S39898	2012	McCann, R	EQIP-Project #12FY12-0051	Noted Fern Cottage and various historic barns and Outbuildings
S048914	2016	Coleman, J.	Cultural Resources Survey Report for the Russ Ranch and Timber Company ACEP-WRE Project, Humboldt County, California	P-12-003573
Not yet assigned	2020	Zalaris-Chase, R.	Extended Phase I Investigation for the Storm Damage Repair to Centerville Road Project HCDPW-T02 Centerville Road P.M. 4.62. Humboldt County, California	P-12-0039200



**Table 3.5-2 Previously Recorded Cultural Resources within and near the Project Area**

<b>P Number/ Trinomial</b>	<b>Site Type</b>	<b>Author/Date</b>	<b>Location relative to the Project Area</b>
P-12-000171/ CA-HUM-000114	Native American Archaeological Site	Loud, UC. 1918 Bowden-Renna, C. 2010	Outside of the Project Area
P-12-002939	Riverside Ranch Dike and Drainage System	Rich, W. and E. Whiteman 2008	Outside of the Project Area
P-12-002941	Channel Improvement Features	Rich, W. and E. Whiteman 2008	Outside of the Project Area
P-12-002940	Barn and Corral	Rich, W. and E. Whiteman 2008	Outside of the Project Area
P-12-003573	Connick Ranch/Occidental Ranch: historic era cattle ranch as associated features (not eligible for listing or designation)	Roscoe et. al. 2014 and Coleman, J. 2016	Within and adjacent to the Project Area
Shaw Barn	Historic era barn as associated features (not eligible for listing or designation)	Van Kirk, S., Roscoe, J., Rich, W. 2015	Outside of the Project Area
P-12-0039200	Milk Cave	Zalaris-Chase, D., Hollreiser K. 2020	Outside of the Project Area
California Historical Landmark No. 173	The Centerville Cross	General Listing in the CHL	Outside of the Project Area

### Native American Outreach

Consultation initiated by Roscoe and Associates that was associated with the 2016 cultural resource investigation included a letter faxed to the NAHC on September 23, 2013. The NAHC was asked to search their Sacred Lands Inventory File and to provide a list of Native American representatives for the Project Area. The NAHC replied on October 2, 2013 that no sacred lands were present within the Project Area and provided a list of interested Native American tribes near the Project Area. A letter was sent to all representatives on the NAHC list on September 26, 2013, and again on January 12, 2016. Thomas Torma PhD, Tribal Historic Preservation Officer (THPO) for the Wiyot Tribe, responded on October 8, 2013, "...the Tribes cultural information on this area, beyond information contained in site Loud AQ, is currently missing –this is especially distressing as the tribe owns property on Cock Robin Island. I wish you best of luck on the survey and look forward to seeing it. We also look forward to being future neighbors with the preserve." Erika Collins M.A., THPO for the Bear River Band of the Rohnerville Rancheria, replied on October 8, 2013 "A review of Bear River's cultural resource database did not identify any previously recorded cultural resources within the Project Area. We have record of one previously recorded site, Loud AQ, approximately ¾ mile outside of the Project Area's northwest edge. Please let me know when you plan to schedule the fieldwork; if possible either Eli or I would like to join you for some of the survey." Ms. Collins participated in the field survey on February 12, 2014. Janet Eidsness M.A., THPO, Blue Lake Rancheria, responded on October 8, 2013, "Note the Project is located outside Blue Lake Rancheria's mapped area of concern for tribal resources. No need to consult with me further about this Project." No further responses were received in respect to the 2016 mailing.

As a part of the Project's 2022 cultural resource investigation addendum, correspondence with local tribal representatives was initiated by Roscoe and Associates and included a letter e-mailed to the Native American Heritage Commission on November 22, 2021. The Native American Heritage Commission (NAHC) was asked to search their Sacred Lands Inventory File and to provide a list of Native American representatives for the Project Area. The NAHC replied on February 7, 2022, that no sacred lands were present within the Project Area and provided a list of Native American tribes who have interest in the Ferndale area. Per the NAHC's list, representatives of the Bear River Band of Rohnerville Rancheria, Blue Lake Rancheria, Cher-Ae Heights Indian Community of the Trinidad Rancheria, and the Wiyot Tribe were contacted on November 24, 2021. No responses were received.

## Field Survey

An archaeological field reconnaissance of the EREP portion of the study area was conducted by Roscoe and Associates, on October 1, 17, 18, 26 and 27, 2012, February 12, 2014, and the RR&T properties portion of the study area on December 1 and 8, 2015. The archaeological field investigation involved a systematic, mixed-strategy archaeological field survey of the entire study area. The survey was designed to suit the study area's sensitivity for the occurrence of prehistoric and historic cultural resources based on pre-field research. The highest priority was given to potentially sensitive areas identified through pre-field research as having been the focus of historic land-use and settings where prehistoric archaeological sites might be located. Intensive field reconnaissance included systematically traversing the study area at 25-meter intervals or less. At regular intervals, the surveyors scraped the ground surface, using a hoe or shovel, to allow inspection of the mineral soil. The aim of this survey method was to cover the entirety of the Project and to identify areas of high archaeological sensitivity not indicated through pre-field research. Linear historic sites such as dikes and ditches were inspected along their lengths to identify associated features, and to assess integrity. Historic and topographic maps and aerial photographs were utilized as an aid in locating and mapping linear systems.

On March 29, 2022, Roscoe and Associates conducted pedestrian field reconnaissance surveys of an additional 26 acres to the south of the 2016 Project APE and adjacent areas. The area in general is well vegetated with areas of deep water, which made pedestrian survey impossible. The best opportunities to observe archaeological deposits were in areas where vegetation was absent due to bioturbation from the cows that graze the field and ground dwelling rodents. The area is covered by fine silty sediments, indicating a history of flooding. The salt marsh areas of the Project are unlikely to contain habitation-related archaeological deposits.

## 3.5.6 Impacts and Mitigation Measures

**Impact CR-1: Cause a substantial change in the significance of a historical resource as defined in Section 15064.5.**

The field survey inventory results, as noted above in Section 3.5.2 and 3.5.5, recorded three standing barns, one demolished barn, two demolished grain silos, a Quonset Hut, a corral complex and associated cattle scale, and a tidewater control system of dikes, ditches and gates associated with the reclamation works within the Project Area. Eligibility criteria as delineated by Section 106 and California CRHR criteria were applied in the evaluation of the buildings and features. The criteria are similar, one more focused on California history and cultural heritage and the other more broadly applied (see Section 3.5.3, Federal). The eligibility criteria for listing on the NRHP and the CRHR outline the regulations for properties that are

associated with the broad patterns of history (criterion A) and/or important people (criterion B), are notable examples of the built environment (criterion C) and have or may have archaeological value (criterion D).

According to the cultural resources investigation, the three standing barns, one demolished barn, two demolished grain silos, a Quonset Hut, a corral complex and associated cattle scale, and a tidewater control system of dikes, ditches and gates are not considered historic resources eligible for listing on the CRHR nor historic properties eligible for listing on the NRHP. The sites may be associated with an important event or theme on the local level; however, they do not retain integrity of the context to be considered significant for listing on the CRHR or NRHP under Criterion A. The Barns and Quonset Hut were heavily damaged during the 1964 flood and almost completely rebuilt and modified. The Dike and Ditch System was also heavily damaged during the 1964 flood and was repaired and rebuilt. The existing floodgates were constructed in the mid 1970's. The Willow Barn and silos were destroyed by the 1964 flood and not rebuilt. All that remain are the concrete foundations and some debris. The sites are not significant under criterion B because they are not likely to be directly associated with an important person. These sites cannot be considered significant under Criterion C because they do not possess a particular quality such as the oldest type or best available example of its type. The sites are not eligible under criterion D because they do not possess data to address important research questions. Therefore, although the North Barn and South Barn (Feature 1 and 2) will be demolished, the impact would be less than significant.

Other historic resources identified outside the Project Area (Table 3.5-2), but within the study area, would not be impacted due to their distance from the Project Area. Based on previous research and the results of Roscoe and Associates' cultural resources investigations, no historical resources were identified within or immediately adjacent to the Project site, therefore a less than significant impact would occur.

**Mitigation Measures:** No mitigation is necessary

**Level of Significance:** Less than significant

**Impact CR-2:** Cause a substantial adverse change in the significance of an archaeological resource pursuant to § 15064.5.

Based on previous research and the results of Roscoe and Associates' cultural resources investigations, no cultural resources, including archaeological or historical resources, were identified within or immediately adjacent to the Project Area. However, it is possible that significant (as defined by CEQA) historical or unique archaeological resources that could not be observed during the course of the field survey may be buried on the Project site. Due to an extensive history of flooding and silt deposits in the area, it is possible, although unlikely, that buried archaeological materials are present at this site. Specific mitigation measures are included in Mitigation Measures CR-1 in the event buried archaeological resources are uncovered during Project related excavations. The disturbance of these resources during site excavation activities would be a significant impact, therefore, the following mitigation is proposed.

### **Mitigation Measure CR-1: Protocols for Inadvertent Discovery of Cultural Resources**

If cultural or historic-era resources (for example: chipped or ground stone, historic debris, building foundations, or bone) are encountered during construction activities, work shall be stopped within 20 meters (66 feet) of the discovery, per the requirements of CEQA (Title 14 CCR 15064.5 (f)). Project representatives shall be immediately notified and work near the archaeological finds shall not resume until a professional archaeologist, who meets the Secretary of the Interior's Standards and Guidelines, has evaluated the materials and offered recommendations for further action. The

qualified archaeologist shall evaluate the discovery and, in consultation with the landowner and lead agency, develop a plan for treatment of the resources that is deemed appropriate and feasible. Such treatment may include avoidance, curation, documentation, excavation, preservation in place, or other appropriate measures. If the archaeological resources are Native American, representatives of the appropriate culturally affiliated tribe shall also be enlisted to help evaluate the find and suggest appropriate treatment.

**Level of Significance:** Less than significant with mitigation

Mitigation measure CR-1 would reduce potentially significant impacts on undiscovered archaeological resources to a less-than-significant level by providing a process for evaluation of any unknown resources encountered during construction, and avoidance or data recovery of resources that meet the CEQA definition of historical or unique archaeological resources. These measures are consistent with Humboldt County Eel River Area Local Coastal Plan Policies (3.29 and 3.42) and Public Resources Code 7050.5 and 5097.

**Impact CR-3: Disturb any human remains, including those interred outside of dedicated cemeteries.**

While no evidence exists for the presence of historic or prehistoric burials at the Project site, this does not preclude the existence of buried subsurface human remains. If any human remains were unearthed during Project construction, particularly those that were determined to be Native American, a potentially significant disturbance of human remains would occur, therefore, the following mitigation is proposed.

#### **Mitigation Measure CR-2: Protocols for Inadvertent Discovery of Human Remains**

If human remains are discovered during Project construction, work will stop at the discovery location, within 20 meters (66 feet), and any nearby area reasonably suspected to overlie adjacent to human remains (Public Resources Code, Section 7050.5). Project representatives shall be immediately notified. The Humboldt County Coroner will be contacted to determine if the cause of death must be investigated. If the coroner determines that the remains are of Native American origin, it is necessary to comply with state laws relating to the disposition of Native American burials, which fall within the jurisdiction of the NAHC (Public Resources Code, Section 5097). The coroner will contact the NAHC. The descendants or most likely descendants of the deceased will be contacted, and work will not resume until they have made a recommendation to the landowner or the person responsible for the excavation work for means of treatment and disposition, with appropriate dignity, of the human remains and any associated grave goods, as provided in Public Resources Code, Section 5097.98.

**Level of Significance:** Less than significant with mitigation

Mitigation Measure CR-2 would reduce potentially significant impacts on uncovering human remains to a less-than-significant level by providing direction on who to notify in the event human remains are found.

### 3.5.7 Cumulative Impacts

**Impact CR-C-1: Would the Project result in cumulative impacts to cultural resources.**

There are no known cultural resources that would be impacted by the Project. As described in this EIR, appropriate studies were undertaken to ensure that cultural resources that could be impacted by the Project were identified, and that mitigation measures are put forth that would reduce the impacts to unknown cultural resources to a less-than-significant level. These measures are consistent with Humboldt County Eel River Area Local Coastal Plan Policies (3.29 and 3.42) and Public Resources Code 7050.5 and 5097. Therefore, the Project's incremental effect to cultural resources is not cumulatively considerable and would not contribute to any significant impacts to cultural resources that may be caused by other cumulative Projects.

**Mitigation Measures:** No mitigation is necessary

**Level of Significance:** Less than significant

### 3.5.8 References

Roscoe and Associates. 2022. *An addendum to the Cultural Resources Investigation Report for the Connick and Russ Ranches Eel River Estuary and Centerville Slough Enhancement Project*. Located in Ferndale, Humboldt County, California. Prepared for GHD, June.

Roscoe and Associates. 2016. *A Cultural Resources Investigation for the Connick and Russ Ranches, Eel River Estuary and Centerville Slough Enhancement Project*. Humboldt County, California. Prepared for California Trout, June.

Van Kirk. 2013. *Loleta Creamery Historic Resources Report*. Prepared for Peter van der Zee.

## 3.6 Energy

This section evaluates the potential impacts to energy resources resulting from construction and operation of the Project against significance thresholds derived from applicable local, state or federal policies, or from Appendix G of the CEQA Guidelines. CEQA Guidelines Appendix F, Energy Conservation, predates the inclusion of Energy Resources as an impact category and section within EIRs. The information and analysis recommended by CEQA Guidelines Appendix F, Energy Conservation, is addressed throughout this EIR including (but not exclusive to): this Section; Section 2.0, Project Description; Section 3.8, Greenhouse Gas Emissions; and, Section 3.15, Transportation.

### 3.6.1 Study Area

The study area for energy impacts includes the Project Area (also referred to as the Project Boundary) and Humboldt County.

### 3.6.2 Setting

#### Energy Resources

Energy resources in Humboldt County consist primarily of fossil fuels such as natural gas deposits, and local biomass resources sourced from lumber mill wood residue. Most of the primary energy used in Humboldt County is imported, with the exception of biomass energy. Although natural gas deposits exist in Humboldt County, the County imports approximately 90 percent of its natural gas. There is one natural gas pipeline connecting the county to the larger natural gas grid. Active gas wells in Humboldt County are concentrated in the Tompkins Hill Gas Field in the Eel River basin in Humboldt County. There is no record of geothermal production in Humboldt County. Most petroleum-based transportation fuels are imported to the county by barge. There are two major connections to the larger electric grid.

Electric transmission capacity of approximately 70 MW, connects Humboldt County to the regional grid. This represents less than half of the County's 170 MW peak electrical demand. Humboldt County generates much of its own electricity, primarily using natural gas and biomass fuels. According to the Humboldt County General Plan 2025 Energy Element Background Technical Report (SERC 2005), the residential, commercial, industrial and agricultural sectors in Humboldt County consumed a total of 940 Gigawatt-hours (GWh) in 2003, and the total peak electrical demand was 158 Megawatts (MW). In 2019, the total electricity usage data for Humboldt County from the California Energy Commission's Energy Reports was 791 GWh, which is a reduction of approximately 149 GWh from the 2003 electrical usage. For natural gas, the total amount consumed for Humboldt County was estimated to be 31.0 million therms (CEC 2020).

The Project Area is not located on or near any substantial known energy source or energy system infrastructure. PG&E power poles and overhead electricity transmission lines are present throughout the vicinity of the Project Area.

### 3.6.3 Regulatory Framework

#### Federal

There are no federal regulations that apply to the Project related to energy resources in Humboldt County.

## State

### ***Executive Order N-79-20***

This executive order from Governor Newsom, signed on September 23, 2020, requires sales of all new passenger vehicles to be zero-emission by 2035 and additional measures to eliminate harmful emissions from the transportation sector. The California Air Resources Board (CARB) will develop regulations to mandate that 100 percent of in-state sales of new passenger cars and trucks are zero-emission by 2035 – a target which would achieve more than a 35 percent reduction in greenhouse gas emissions and an 80 percent improvement in oxides of nitrogen emissions from cars statewide. In addition, CARB will develop regulations to mandate that all operations of medium- and heavy-duty vehicles shall be 100 percent zero emission by 2045 where feasible, with the mandate going into effect by *2035 for drayage trucks*.

### ***Assembly Bill 1007***

Assembly Bill 1007 required the CEC to prepare a state plan to increase the use of alternative fuels in California (State Alternative Fuels Plan). The CEC prepared the State Alternative Fuels Plan in partnership with the California Air Resources Board and in consultation with other state, federal, and local agencies. The final State Alternative Fuels Plan, published in December 2007, attempts to achieve an 80-percent reduction in greenhouse gas emissions associated with personal transportation, even as California's population increases.

## Regional and Local

The Project Area includes the Eel River Estuary Preserve (EREP) owned by The Wildlands Conservancy (TWC) and various parcels privately owned by Russ Ranch and Timber, L.L.C (RR&T), and Linda S Russ Revocable Trust. Therefore, this section includes the County of Humboldt General Plan, including the Eel River Area Local Coastal Plan's policies for the area.

### ***Humboldt County General Plan***

The Humboldt County General Plan is not applicable in the Coastal Zone. Referenced policies below have been provided for guidance purposes only.

#### ***E-G2. Increase Energy Efficiency and Conservation***

*Decrease energy consumption through increased energy conservation and efficiency in building, transportation, business, industry, government, water and waste management.*

#### ***E-G3. Supply of Energy from Local Renewable Sources***

*Increased local energy supply from a distributed and diverse array of renewable energy sources and providers available for local purchase and export.*

#### ***E-P3. Local Renewable Energy Supply***

*The County shall support renewable energy development projects including biomass, wind, solar, "run of the river" hydroelectric, and ocean energy, consistent with this Plan that increases local energy supply.*

#### ***E-P10. Transportation Management Plans***

*Major commercial, business, or industrial, facility developments shall be required to submit a transportation management plan that addresses energy conservation measures such as connectivity*

*to alternative transportation modes; preferential parking for carpools, vanpools, motorcycles, mopeds, and bicycles; shuttle services; alternative fueling stations; transit passes; bike lockers; and locker-room facilities. Develop incentives for projects not deemed as major that incorporate such energy conservation measures.*

**E-P11. Energy-efficient Landscape Design**

*Encourage and incentivize energy efficient landscape design in development projects, subdivisions, and in new and existing streets and parking areas in order to reduce impervious surfaces, minimize heat and glare, control soil erosion, and conserve water.*

**AQ-P16. Electric Vehicle Accommodations**

*Encourage and provide incentives for commercial and residential design that supports the charging of electric vehicles.*

**Humboldt County Eel River Area Local Coastal Program**

There are no applicable policies in the Eel River Area Local Coastal Program (LCP) that address energy from construction or operation (Humboldt County 2007).

### 3.6.4 Evaluation Criteria and Significance Thresholds

Evaluation Criteria	Significance Thresholds	Sources
Would the Project result in potentially significant environmental impacts due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?	Result in environmental impacts due to wasteful, inefficient, or unnecessary consumption of energy resources	CEQA Guidelines Appendix G, Checklist Item VI (a)
Would the Project conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	Conflict with SB 100	CEQA Guidelines Appendix G, Checklist Item VI (b)  California SB 100

### 3.6.5 Methodology

Impacts to energy resources were evaluated as to whether or not the Project would result in potentially significant environmental impacts due to wasteful, inefficient, or unnecessary consumption of existing energy resources. The Project was evaluated for consistency or conflict with State energy efficiency goals.



### 3.6.6 Impacts and Mitigation Measures

**Impact ER-1:** Result in potentially significant environmental impacts due to wasteful, inefficient, or unnecessary consumption of energy resources, during Project construction or operation.

#### Construction

Construction of the Project would require use of heavy equipment, as discussed in Section 3.3 (Air Quality), and associated fuels (primarily gas, diesel, and motor oil). The precise amount of construction-related energy consumption that would occur is uncertain. However, construction would not require a large amount of fuel or energy usage because of the moderate number of construction vehicles and equipment, worker trips, and truck trips that would be required for a project of this scale. Trips expected to occur during Project construction would consist of less than 120 per day, and construction equipment would remain staged in the Project Area once mobilized. Additionally, all material appropriate for reuse on-site would remain within the Project Area so truck trips to dispose of sediment off-site would not be required. The use of fuel would be limited to construction activities of the estuarine restoration component of the Project and would not be wasteful or unnecessary.

Excessive idling and other inefficient site operations would be prohibited. Equipment idling times would be minimized either by shutting equipment off when not in use or reducing the maximum idling time to five minutes or less (as required by the California airborne toxics control measure Title 13, Section 2485 of the California Code of Regulations [CCR]). Because of the relatively short initial timeframe needed to construct the estuarine restoration portion of the Project (approximately two construction seasons), and because Project construction would not encourage activities that would result in the use of large amounts of fuel and energy in a wasteful manner, impacts related to the inefficient use of construction-related fuels would be less than significant.

#### Operation

Operation of the Project will include periodic inspection and maintenance, as well as ongoing management of non-native vegetation. These activities will generally be supported by vehicles and use of hand-held tools, although some activities may require use of heavy equipment. The use of fossil-fuel powered equipment to support these operational and maintenance activities will be periodic and short-term. These activities will not result in a substantial increase in energy use, and will not result in inefficient, wasteful, or unnecessary consumption of fuels or other energy resources.

Natural functions, including habitat for native fisheries, support for water bird and wildlife species, and protection of agricultural land are the Project Area's central function. The Project Area would have public access within the EREP, with public use activity such as hiking, kayak, and wildlife viewing. The Public use activities would require use of personal vehicles to access the site. Approximately 7,500 visitors are expected to access the site annually, which will result in an increase in fuel consumption as compared to existing fuel consumption in the area. However, the vehicles accessing the Project Area are subject to CARB's fuels and emissions standards; vehicle use for recreation would not result in inefficient, wasteful, or unnecessary consumption of fuels. The impact will be less than significant.

**Mitigation Measures:** No mitigation is necessary

**Level of Significance:** Less than significant

**Impact ER-2: Conflict with or obstruct a state or local plan for renewable energy or energy efficiency.**

The Project will not conflict with or inhibit the implementation of SB 100 or other state regulations that are applicable to the Project because the Project will not inefficiently utilize energy due to incorporation of Mitigation Measure AQ-1 which limits idling time and provides measures to protect air quality. The Project will temporarily require the use of construction equipment in order to construct the components of the Project, however these activities will be temporary and will not interfere with the broader energy goals of the state. The Project will therefore not conflict with or obstruct a state or local plan for renewable energy or energy efficiency, as no component of the Project will require an energy source, beyond the temporary use of construction equipment. A less than significant impact will occur.

**Mitigation Measures:** No mitigation is necessary

**Level of Significance:** Less than significant

### 3.6.7 Cumulative Impacts

**Impact ER-C-1: Would the Project contribute to a cumulatively significant impact to Energy Resources?**

The geographic scope of potential cumulative impacts related to energy resources consists of the PG&E service area in Northern California (e.g., Humboldt and Trinity counties). The proposed Project, in combination with other regional projects would not contribute to inefficient, wasteful, or unnecessary consumption of fuels or other energy resources. The Project's contribution would not be cumulatively considerable because the Project would not use energy in a wasteful or unnecessary manner and the Project would incorporate energy efficiency measures during construction and operation in accordance with the mitigation measures in Section 3.3 (Air Quality).

As discussed in this Section, construction will not encourage activities that will result in the use of large amounts of fuel and energy in a wasteful manner. Operation of the Project will result in vehicle fuel use from site inspection, maintenance, and visitor trips consistent with normal functioning of an open space-recreational land use. The operation of the Project will not result in inefficient, wasteful, or unnecessary consumption of fuels or other energy resources. The Project's contribution to cumulative energy impacts will not be cumulatively considerable and, therefore, will be less than significant.

**Mitigation Measures:** No mitigation is necessary

**Level of Significance:** Less than significant

### 3.6.8 References

California Energy Commission (CEC). 2020. *Energy Reports: Gas Consumption by County*.

Humboldt County. 2007. *Humboldt County General Plan, Vol. II, Eel River Area Plan of the Humboldt County Local Costal Program*. April 2007. Available at: <https://humboldt.gov/205/General-Plan>

Schatz Energy Research Center (SERC). 2005. *Humboldt County General Plan 2025 Energy Element Background Technical Report*. August 2005. Available at: <https://humboldt.gov/DocumentCenter/View/63211/Humboldt-County-General-Plan-Energy-Element-Background-Technical-Report-2005-PDF>

## 3.7 Geology and Soils

This section evaluates the potential impacts related to geology and soils. Impacts are evaluated based on thresholds of significance. Where appropriate, mitigation is presented to reduce impacts to less-than-significant levels. A previously completed geotechnical investigation conducted by LACO Associates (LACO) is used throughout this section as a technical basis for impact analysis. The geotechnical investigation was updated via an addendum in 2022 (LACO 2016, LACO 2022).

### 3.7.1 Study Area

For impact assessment related to direct construction impacts, the Project Boundary was used as the study area. The Project Boundary is equivalent to the Project Area. Impact assessment related to seismic conditions considered a broader, regional study boundary reflective of applicable fault and tsunami hazard mapping.

### 3.7.2 Setting

#### Regional Geology

Published geologic maps (Ogle 1953, Evenson 1959, McLaughlin et al. 2000) show the study area located within the lower Eel River valley, which is underlain with unconsolidated Holocene to Pleistocene fluvial and floodplain deposits consisting of sand, silt, and gravel deposited in near-shore, estuarine, and fluvial environments (Figure 3.7-1 – Regional Geologic Setting). Evenson (1959) documents that groundwater levels (i.e., the groundwater table) within the lower Eel River valley generally lies within 20 feet of the ground surface. The valley is a broad northwest-southeast trending syncline (fold) formed by active compression tectonics (Carver 1987, Clarke 1992, Kelsey 2001). The valley's average rate of subsidence over the last 2,000 years is reported to be 1 – 3 millimeters (mm) per year; however, that subsidence has occurred abruptly during sudden events that are hypothesized to be related to major earthquakes within the southern Cascadia subduction zone (Kelsey 2001). The valley is bounded along the south by the Ferndale fault (McLaughlin et al. 2000) and the steeply inclined sedimentary rocks that form the Ferndale Hills (Ogle 1953). To the north, the valley is bounded by a broad arching fold named the Table Bluff anticline, which creates the uplands area of the same name. That anticline is considered genetically related to the Little Salmon thrust fault system (Ogle 1953, McLaughlin et al. 2000, Kelsey 2001) but not the specific trace of that fault, which is formally designated by the State of California as a Holocene active fault (CGS 2018).

The Eel River delta formed by depositional processes as the river channel migrated across the Eel River Valley. The channel has likely shifted positions within the valley numerous times during the development of the delta.

#### Soils

Soils in the Project Area are derived from alluvial materials. Soil characteristics vary spatially across the landscape and reflect differences in the depositional history and drainage. The most widespread soil type on the Eel River delta is a poorly drained silt loam. Depressional (low) areas on the delta commonly have soils with a higher clay content, silty clay loam, and are very poorly drained. There are pockets of sandier soils, fine sandy loam, present on natural levee features that remain on the delta. The sandier soils are well drained.

According to the Geotechnical Report, shallow soils underlying much of the Project Area primarily consist of geologically young, unconsolidated, silts and clays (Unified Soil Classification System: inorganic silts (ML), inorganic clays (CL), organic silts (OL), inorganic clays (CH), organic clays (OH)) with minor amounts of poorly graded sands (SP), silty sands (SM) and peat (PT). All soils within the Project Area represent relatively young, soft/loose, tidal marsh, alluvial, aeolian and beach deposits.

## **Seismic Hazards**

The lower Eel River valley is controlled by numerous folds and faults generated in response to active compression tectonics. More specifically, the valley lies about 30 miles north of the Mendocino Triple Junction (MTJ) where three vast tectonic plates meet. South of the MTJ, the Pacific plate is juxtaposed against the North American Plate (NAP) along the strike-slip San Andreas fault zone. North of the MTJ, including the area just offshore from the study area, the Gorda plate converges with and subducts beneath the NAP at the southern end of the Cascadia subduction zone (CSZ). The MTJ has been migrating northward for approximately 30 million years. The migration has generated the tectonic compression that created the folds and faults which control the physiography of the Eel River valley. Additionally, the complex interactions between the three plates at the MTJ make this region one of the more tectonically active areas of the world (Furlong and Schwartz 2004). That tectonic activity generates multitudes of earthquakes and associated ground-shaking that is felt throughout the region. Because the lower Eel River is underlain by generally saturated alluvial sediments (Ogle 1953, Evenson 1959), earthquake shaking in the area is likely to be stronger because seismic waves move more slowly through these softer sedimentary earth materials.

Dengler et al. (1992) identify five sources of seismicity on the North Coast of California which include the Gorda plate, Mendocino fault that marks the boundary between the Gorda and Pacific plates, San Andreas fault, NAP, and CSZ. The study area has experienced numerous strong earthquakes, including the April 25, 1992 7.2 moment magnitude (M) earthquake that generated severe shaking in the towns of Petrolia, Ferndale, Rio Dell, and Scotia. That earthquake was felt in southern Oregon, as far south as San Francisco, and in Reno, Nevada (USGS 2022). More recently, a 6.4 M earthquake originated off the coast of Petrolia on December 20, 2022 and also resulted in ground shaking in the study area (USGS 2022).

## **Surface Fault Rupture**

Seismically induced ground rupture is defined as the physical displacement of surface deposits in response to an earthquake's seismic waves. The magnitude and nature of fault rupture can vary for different faults or even along different strands of the same fault. Surface rupture can damage or collapse buildings, cause severe damage to roads and pavement structures, and cause failure of overhead as well as underground utilities. As a result of the damage, buildings could become uninhabitable, roads could close, and utility service could be disrupted for an undetermined length of time. Ground rupture is typically confined to relatively narrow zones (a few feet to tens of feet wide) and considered more likely along active faults. The study area does not fall within an Alquist-Priolo Fault Rupture Hazard Zone Map, as designated through the Alquist-Priolo Earthquake Fault Zoning Act (CGS 2022).

According to the geotechnical report, the Project is within a seismically active region which is subject to frequent moderate to large earthquakes. Although not within a "Fault Rupture Hazard Zone" or within an area currently designated as a "Seismic Hazard Zone" by the State of California, numerous faults of various activity levels are within 50 kilometers of the site.

## ***Ground Shaking***

Earthquakes on active faults have the capacity to produce a range of ground shaking intensities in the study area. Ground shaking may affect areas hundreds of miles distant from an earthquake's epicenter. Ground motion during an earthquake is described by the parameters of acceleration and velocity as well as the duration of the shaking. A common measure of ground motion is the peak ground acceleration (PGA). The PGA for a given component of motion is the largest value of horizontal acceleration obtained from a seismograph. PGA is expressed as the percentage of the acceleration due to gravity (g)<sup>1</sup>. Moderate earthquake hazard areas are defined as areas with ground accelerations of less than .092g and Violent earthquake hazard areas have ground accelerations of .65g to 1.24g.

According to the California Geologic Survey (CGS), with a Vs30 value of 180 meters per second (m/s), there is a 10 percent chance that the study area will experience ground shaking of 0.50g or more, within the next 50 years (CGS 2008b).

## ***Liquefaction, Lateral Spreading and Subsidence***

Liquefaction is a phenomenon whereby unconsolidated and/or near-saturated soils lose cohesion and are converted to a fluid state due to severe vibratory motion. The relatively rapid loss of soil shear strength during strong earthquake shaking results in temporary, fluid-like behavior of the soil. Soil liquefaction causes ground failure that can damage roads, pipelines, underground cables and buildings with shallow foundations.

The consequences of strong seismic shaking within the study area will likely include liquefaction, and related dynamic settlement and/or lateral movement. The Project is in an area with a high liquefaction potential (Topozada et al. 1995, LACO 2016). Additionally, the Division of Mines and Geology (DMG 1992) reports widespread liquefaction in the Eel River valley associated with the April 1992 Petrolia earthquake. Typical consequences of liquefaction at sites with similar subsurface characteristics include sand boils (liquefied soil ejected to the ground surface), ground cracking associated with blocks of cohesive soils "floating" on the underlying liquefied soil, lateral spreading of soils down-gradient toward unsupported slopes, and/or dynamic settlement.

Subsidence (e.g., settlement) is the depression of the bearing soil when a load, such as that of a building or new fill material, is placed upon it. Subsidence could occur if loose, saturated sands near the ground liquefy during severe ground shaking.

## **Geologic Hazards**

### ***Slope Failure and Landslides***

Slope failures, commonly referred to as landslides, include many phenomena that involve the downslope displacement and movement of material, either triggered by static (i.e., gravity) or dynamic (i.e., earthquake) forces. Earthquake motions can induce significant horizontal and vertical dynamic stresses in slopes that can trigger failure. Earthquake-induced landslides can occur in areas with steep slopes that are susceptible to strong ground motion during an earthquake. Additionally, landslides are characterized and classified on the basis of specific criteria such as depth of debris and earth material composition (CGS 2013).

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<sup>1</sup> Acceleration of gravity (g) = 980 centimeters per second squared; 1.0g of acceleration is a rate of increase in speed equivalent to a car traveling 328 feet from rest in 4.5 seconds.

The Project Area is characterized by flat terrain except for the dunes along the Project Area's western boundary; therefore, landslide hazards to the planned structures are considered to be low. The nearest slopes having a gradient of 25 percent or greater are the Wildcat Hills south of the Project Area. Landslides are a prevalent geologic hazard in the Wildcat Hills due in part to the steep, rugged topography, relatively high rainfall, unstable geological structure, and high rates of tectonic activity. Rocks in the Wildcat Group are prone to erosion and contribute to the high potential for landslides. The Rio Dell Formation, in particular, is soft and erodible and landslide failures are common along the interface between beds of mudstone and sandstone.

### ***Expansive Soils***

Expansive soils are capable of causing considerable distress to roads and building foundations as they "rise-and-fall" in accordance with the cycles of soil wetting (swelling) and drying (shrinking). Soils with high percentages of silicate clays are those that have the potential for shrinking and swelling. The clay content of a soil can be estimated in terms of its "plasticity" which means it can be molded and rolled into a thin thread provided the water content is appropriate (Brady and Weil 1996). Mapping by the NRCS (2022) shows the lower elevation areas of the study area to have the highest percentage of clay content ranging between 30 percent and 40 percent with Plasticity Index values of between 8 and 16. Thus, those soils in the lower elevation areas of the study are defined as silty clay loam and are considered to have a low to medium potential for expansion.

### ***Soil Erosion***

Soil erosion is a process whereby soil materials are worn away and transported to another area, either by wind or water. Areas susceptible to erosion occur where surface soils possess low-density and/or low-strength properties. Slopes are another factor in soil erosion – the greater the slope, the greater the erosion hazard, especially if the soil is bare of vegetation. With the exception of the existing channels, embankment, and dune side slopes, slope gradients with and surrounding the Project Area are generally flat (less than 5 percent).

### ***Dune Development and Erosion***

Storm waves deposit even more sand on the beach and transport it to the backshore area. Once on the beach, the sand is then picked up and blown by winds inland and beyond the beach forming a sand dune field. Primary dunes are composed of sand blown directly from the beach face. Secondary dunes form in response to the subsequent modification of the primary dune by continued wind (eolian) processes and are generally located further inland (Sloss et al. 2012).

Foredunes are primary dunes that rise-up from the backshore of the beach and includes two types: incipient foredune and established foredune. Incipient dunes are low relief primary dunes that accumulate in the backshore portion of the beach above the high tide mark. These dunes are generally small, parallel to the beach, and are the result of wind-blown sand being trapped by a roughness element such as large wood or vegetation (Sloss et al. 2012). Established foredunes develop from the incipient dune and have greater height, width, age, and morphological complexity. Additionally, they commonly coalesce to form a prominent ridgeline parallel to the beach.

As the dunes get larger and older, vegetation cover increases, and they become more stable. However, they remain susceptible to modification via wind erosion and a field of secondary dunes generated by that modification forms immediately inland of the foredune. Secondary dunes develop in response to wind erosion of the primary dunes and are of a variety of different forms: parabolic, barchan, transverse,

longitudinal, and blowouts (USACE 2002, Sloss et al. 2012). Periodically, storm waves locally breach the foredune ridge as “overwash” that erodes a shallow channel through the foredune and into the secondary dune field. As an example, this occurred during the December 17, 2018 and January 17, 2019 events (GHD 2020).

The USACE provides extreme wave height projections near the Project Area as part of their Wave Information Studies project. The nearest station is Station 83048, approximately ten miles northwest of the shoreline. Based on the Wave Information Studies project, the annual extreme offshore wave height is projected to be 24.3 feet, increasing to as much as 37.9 feet for a 100-year event (GHD 2020).

Relict foredunes are old foredunes that now lie inland from the contemporary foredune and are incorporated (partially buried) within the field of secondary dunes. Their presence is indicative of a shoreline that is advancing seaward (i.e., progradation); however, dunes in the Project Area are also eroding via wave overwash during storm events.

In the study area, the Eel River is a major supplier of sand to the longshore current within the Eureka Littoral cell. Littoral cells are segments of the coast with distinct sediment sources, defined longshore transport pathways, and sinks where the sediment is removed from the littoral system (Patsch and Griggs 2006). The Eureka littoral cell stretches between Trinidad Head located approximately 30 miles north of the study area to the rocky outcroppings of False Cape located south of the study area (Patsch and Griggs 2007). Although the prevailing wind direction is from the north and northwest, a predominant longshore current direction is not considered to exist within the Eureka littoral cell, and the available evidence suggests that currents of the Eureka littoral cell move in both directions, especially along the south end of the cell (Patsch and Griggs 2007). Despite the volume of sand contributed to the Eureka littoral cell by the Eel River, most of the sand does not end up on the beach or dunes within the study area (Patsch and Griggs 2007). The shoreline south of the Eel River has been eroding since 1948 (Figure 3.7-2 – Shoreline Accretion and Erosion Trends, Friends of the Dunes and GHD 2018).

As part of a larger investigation of the Eel River estuary and associated dune fields south of the Eel River mouth, Kamman Hydrology & Engineering, Inc. (KHE), analyzed a segment of dunes at the southern end of the Project Area near the Western Drainage Ditch and Angel’s Camp.

*“The Western Drainage ditch was created sometime between 1916 and 1940. There is a larger disturbed area evident in the 1940 aerial, but the geometry does not look like a typical overwash fan and it may reflect human manipulation (grading) of an overwash fan or some other type of disturbance, such as alluvial fan deposition from Shaw Creek. A pair of wave overwash fans 100 m in diameter are first evident in the 1963 aerial image. As a result of the dune overwash, there is no well-developed band of associated dune vegetation extending parallel to the coastline through this area as occurs along the dunes immediately north and south of the overwash. The same pair of overwash fans persist through 1978 but become obscured from vegetation growth by 1985. There is a significant loss of vegetation and seaward dune between 1988 and 1993. Comparison of these aerial images suggest an episodic 20- to 30-meter narrowing of the dune field and associated vegetation. A new pair of dune overwash fans appear in 1998 of similar size and location to the pair that existed in 1963. The size and extend of dune overwash increases progressively in the 2005, 2009, 2010 and 2012 aerial images. By 2010, individual sand lobes have coalesced into one single large overwash fan. The beach and dune front also appears to be eroding with the coastline shifting eastward since 1998. The dune overwash fan does not change in size significantly between 2012 and 2014. In addition, the area behind the fan appears saturated and vegetation is likely being impacted by high salinity water associated with overwash flooding this area (KHE 2015).”*

The dune profile in the Project Area shifted eastward between 1968 and 2010 by approximately 330 feet (100 meters) and lowered by approximately 33 feet (10 meters) and the foredunes remains in a state of destruction (KHE 2015). This trend has continued (e.g., Friends of the Dunes and GHD 2018).

### 3.7.3 Regulatory Framework

#### **Federal**

There are no federal policies or regulations relevant to the Project for geology and soils.

#### **State**

##### ***Alquist-Priolo Earthquake Fault Zoning Act***

The Alquist-Priolo Earthquake Fault Zoning Act (California Public Resources Code, Division 2, Chapter 7.5) was passed in 1972 to mitigate the hazard of surface faulting (i.e., ground rupture) to structures designed for human occupancy (CGS 2018). Title 14 of the California Code of Regulations (CCR), Section 3601(e), defines buildings intended for human occupancy as those that would be inhabited for more than 2,000 hours per year. In accordance with the Alquist-Priolo Act, the State Geologist is responsible for delineating regulatory zones, called “earthquake fault zones,” around the surface traces of faults that exhibit evidence of ground rupture during the Holocene Epoch (i.e., the last ~11,700 years). These zones are depicted on USGS 7.5-minute topographic quadrangle maps and published by the CGS. Because many active faults are complex and consist of more than one branch, earthquake fault zones can extend several hundred feet on either side of the mapped fault trace. Within these zones, buildings for human occupancy cannot be constructed unless the building site has been formally investigated by a Professional Geologist who has prepared a geologic report demonstrating that the proposed structure would not lie astride the trace of an active fault.

While the study area lies approximately 8.2 miles west of the Little Salmon fault zone which is an Alquist-Priolo Earthquake Fault Zone (CGS 2022), no portion of the study area lies within such a fault zone. The Project also would not include construction or ongoing use of buildings that meet the criterion for human occupancy. Therefore, the regulatory provisions of the Alquist-Priolo Act do not apply to the Project.

##### ***Seismic Hazards Mapping Act***

Like the Alquist-Priolo Act, the Seismic Hazards Mapping Act of 1990 (Public Resources Code [PRC] Sections 2690 to 2699.6) is intended to reduce damage resulting from earthquakes. More specifically, the act sets forth a statewide minimum public safety standard such that buildings for human occupancy do not collapse in response to an earthquake (CGS 2008a). While the Alquist-Priolo Act addresses surface fault rupture, the Seismic Hazards Mapping Act addresses other earthquake-related hazards, including strong ground shaking, liquefaction, and seismically induced landslides. Its provisions are similar in concept to those of the Alquist-Priolo Act in that the State Geologist is charged with identifying and delineating areas at risk of strong ground shaking, liquefaction, landslides, and other corollary hazards. Counties and cities are then tasked regulating development within the mapped Seismic Hazard Zones. In particular, cities and counties are prohibited from issuing development permits for sites within Seismic Hazard Zones until appropriate site-specific geologic and/or geotechnical investigations have been conducted by a state-licensed engineering geologist or civil engineer, and measures to reduce potential damage have been incorporated into the development plans.



Official Seismic Hazard Zone Maps have not yet been prepared for all parts of the State, and the lower Eel River valley (i.e., the study area) is one region that has not been mapped for seismic hazards such as liquefaction and landsliding. Humboldt County's Web GIS contains generalized geologic hazard (e.g., liquefaction and landslides) zoning delineations and uses that information as part of the decision-making process in the issuance of County building permits.

### **California Building Code**

The State of California provides minimum standards for building design through the California Building Code (CBC 2019). Where no other building codes apply, CBC Chapter 29 regulates excavation, foundations, and retaining walls. The CBC applies to building design and construction in the state and is based on the federal Uniform Building Code (UBC) used widely throughout the country. The CBC has been modified for California conditions with numerous more detailed and/or more stringent regulations. Specific minimum seismic safety and structural design requirements are set forth in CBC Chapter 16. The Code identifies seismic factors that must be considered in structural design. Chapter 18 of the CBC regulates the excavation of foundations and retaining walls, and Appendix Chapter A33 regulates grading activities, including drainage and erosion control, and construction on unstable soils, such as expansive soils and areas subject to liquefaction. No buildings are proposed as part of the Project and thus the CBC does not apply.

### **California Public Resources Code**

As part of the determination made pursuant to PRC Section 21080.1, the lead agency must determine whether a project would have a significant effect on paleontological resources. Several sections of the PRC protect cultural resources and PRC Section 5097.5 protects vertebrate paleontological sites located on public land. Under Section 5097.5, no person shall knowingly and willfully excavate upon, or remove, destroy, injure, or deface any prehistoric ruins, vertebrate paleontological site (including fossilized footprints), or any other paleontological, or historical feature situated on public lands, except with the express permission of the public agency that has jurisdiction over the lands. Section 30244 of the PRC requires reasonable mitigation for impacts on paleontological and archaeological resources that occur because of development on public lands.

### **California Coastal Act**

The Project Area is within the Coastal Zone. The California Coastal Act contains policies relevant to paleontological resources. The following Coastal Act sections are relevant to this analysis:

**Section 30233 Diking, filling, or dredging: continued movement of sediment and nutrients, Section (d)**

Erosion control and flood control facilities constructed on watercourses can impede the movement of sediment and nutrients that would otherwise be carried by storm runoff into coastal waters. To facilitate the continued delivery of these sediments to the littoral zone, whenever feasible, the material removed from these facilities may be placed at appropriate points on the shoreline in accordance with other applicable provisions of this division, where feasible mitigation measures have been provided to minimize adverse environmental effects. Aspects that shall be considered before 43 issuing a coastal development permit for these purposes are the method of placement, time of year of placement, and sensitivity of the placement area.

Section 30253 Minimization of adverse impacts, Section (a) and Section (b)

New development shall do all of the following: (a) Minimize risks to life and property in areas of high geologic, flood, and fire hazard. (b) Assure stability and structural integrity, and neither create nor contribute significantly to erosion, geologic instability, or destruction of the site or surrounding area or in any way require the construction of protective devices that would substantially alter natural landforms along bluffs and cliffs.

**Regional and Local****Humboldt County Eel River Area Local Coastal Plan**3.28 HazardsA. *Development Policies*30253 New Development Shall:

*Minimize risks to life and property in areas of high geologic, flood and fire hazard.*

*Assure stability and structural integrity, and neither create nor contribute significantly to erosion, geologic instability, or destruction of the site or surrounding areas or in any way require the construction of protective devices that would substantially alter natural landforms along bluffs and cliffs.*

- 1. New development shall be consistent with the adopted Humboldt County Safety and Seismic Safety Element of the General Plan. Of particular interest, when siting new development, the Natural Hazards/Land Use Risk Rating Matrix in Chapter 3 of Volume 1 should be used in conjunction with Plates III. Plate III is a map delineating seismic zones relating to earthquake shaking as well as land stability and other natural hazard conformation.*
- 2. The County shall amend Chapter 70, Section 7006, of the Uniform Building Code to require soil engineering and geological engineering investigations, prepared by a registered geologist or by a professional civil engineer with experience in soil mechanics or foundation engineering, or by a certified engineering geologist, for classes of development and hazard areas as shown in Table 1 of the Eel River Area Plan and Plate III of the Eel River Area Plan.*
- 3. Tsunamis--New development below the level of the 100 year tsunami run-up elevation described in Tsunami Predictions for the West Coast of the Continental United States (Technical Report H-78-26 by the Corps of Engineers) shall be limited to public access, boating, and public recreation facilities.*
- 4. Flood Plains--No critical facilities should be permitted to locate within the 100 year flood plain. Utility lines may cross hazard zones if there is no reasonable alternative and provisions are made to mitigate the hazard. Non-critical facilities should be permitted in the 100 year flood plain only if adequate flood control measures, such as control works, compact fill, etc., that would result in a site being beyond or above the 100 year flood extend, are provided. Further, the County will continue to review development in light of and impose conditions consistent with the National Flood Insurance Program.*

### 3.7.4 Evaluation Criteria and Significance Thresholds

Evaluation Criteria	Significance Thresholds	Sources
Would the Project directly or indirectly cause potential substantial adverse effects involving rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault?	Placement of a structure intended for human occupancy within an Alquist-Priolo earthquake fault zone	CEQA Guidelines Appendix G, Checklist Item VII(a)(i)
Would the Project directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving strong seismic ground shaking, including on or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?	Non-compliance with California Building Code  Non-compliance with recommendations of Project-specific geotechnical reports	CEQA Guidelines Appendix G, Checklist Item VII(a)(ii) and VII(c)
Would the Project directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving seismic-related ground failure, including liquefaction, landslides, or otherwise unstable or expansive soils?	Non-compliance with California Building Code  Non-compliance with recommendations of Project-specific geotechnical reports	CEQA Guidelines Appendix G, Checklist Item VII(a)(iii) and VII(a)(iv)
Would the Project result in substantial soil erosion or the loss of topsoil?	Non-compliance with the Grading, Excavation, Erosion and Sedimentation Control County Code language.	CEQA Guidelines Appendix G, Checklist Item VII(b)  Grading Excavation, Erosion and Sedimentation Control (Humboldt County Code Section 331-14)
Would the Project have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?	Non-compliance with recommendations of Project-specific geotechnical reports	CEQA Guidelines Appendix G, Checklist Item VII(e)
Would the Project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	Disturbance of a known vertebrate fossil locality or within a geologic unit that has high sensitivity for vertebrate fossils	CEQA Guidelines Appendix G, Checklist Item VII(f)

### 3.7.5 Methodology

The descriptions of geology and soils in this section rely on information gathered from the USGS, Natural Resources Conservation Service (NRCS), CGS, and geotechnical reports prepared for the Project (LACO 2016, LACO 2022). This section also incorporates previous research and analyses provided in the preliminary geotechnical report prepared for the Project. This information was reviewed to determine relevant information for the EIR analysis. Project activities are evaluated for their potential to be affected by, or to increase, risks associated with identified geologic and seismic hazards. Appropriate mitigation measures are identified for impacts determined to be significant.

### 3.7.6 Impacts and Mitigation Measures

**Impact GEO-1:**            **Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault. Refer to Division of Mines and Geology Special Publication 42.**

The Project is not located within an active or potentially active fault zone and is not located within a special studies zone or an Alquist-Priolo Fault Rupture Hazard Zone Map (CGS 2022). Therefore, this significance criterion is not applicable to the Project and is not discussed further. The Project does not include any elements of construction techniques that could increase the risk of fault rupture. No impact would result.

**Mitigation Measures:**        No mitigation is necessary

**Level of Significance:**        No impact

**Impact GEO-2:**            **Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving strong seismic ground shaking, including on or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse.**

The study area is located within a seismically active region, which is subject to frequent moderate to large earthquakes. Past seismic history suggests that the Project Area is susceptible to moderate to strong seismic ground shaking (LACO 2016). Under existing conditions, the existing berm and drainage control structures are vulnerable to damage from a large seismic event, which could contribute to on- or off-site flooding and erosion. Following construction, Project elements would be at risk of collapse or damage from ground shaking, such as access roads, culverts, and gated culverts. The new and reconstructed set-back berm and access road improvements would be susceptible to damage during strong seismic ground shaking.

Project design would be required to conform to the State Earthquake Protection Law, which set design criteria for seismic resistant structures and construction in areas with liquefiable soils. The Project Area has withstood previous strong earthquakes. The Project would not construct any new buildings or otherwise increase human occupancy above existing conditions. Culverts, gated culverts, berms, and unimproved roads are present in the Project Area and vulnerable to damage under existing conditions. However, the impact related to strong seismic ground shaking or seismic-related ground failure to new culverts, gated culverts, and new and reconstructed set-back berms/unimproved roads could result in a potentially

significant impact. Therefore, Mitigation Measure GEO-1 has been incorporated into the Project to ensure geotechnical recommendations specific to seismic resiliency are implemented during construction.

### **Mitigation Measure GEO-1: Implement Recommendations in the Geotechnical Report**

The Humboldt County Resource Conservation District shall ensure that the Project is designed to comply with the recommendations in the Project's geotechnical report (LACO 2022) to ensure seismic stability, implementation of recommendation specific to grading and excavation, erosion control protections, and adherence to the California Building Code (CBC). The geotechnical recommendations are proposed to be incorporated in the final plans and specifications and implemented during construction. Professional inspection by a qualified engineer or geologist of foundation and excavation, earthwork and other geotechnical aspects of site development shall be performed during construction in accordance with the current version of the CBC.

**Level of Significance:** Less than significant with mitigation

Mitigation Measure GEO-1 would reduce impacts to a less-than-significant level by requiring adherence to the recommendations in the geotechnical report so that the Project is designed and constructed in conformance with applicable design standards that would reduce the risk to life or property during a seismic event.

**Impact GEO-3:** **Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving seismic-related ground failure, including liquefaction, landslides, or otherwise unstable or expansive soils.**

The Project Area is in an area with a high liquefaction potential (LACO 2022). Liquefaction has been documented in the lower Eel River valley as a function of larger earthquakes, and potential for liquefaction during a large future earthquake is considered high. The Project includes the installation of a berm with gated culverts that would be at a minimal risk of collapse from ground shaking and liquefaction. Lateral spreading is related to the liquefaction phenomena but requires the earth materials involved to be topographically inclined to facilitate gravitational sliding and displacement. Given the generally flat topography of the beach and salt marsh, lateral spreading is considered unlikely to occur in those areas. However, it is potential that the berms constructed atop the liquefiable salt marsh sediments would undergo localized deformation and displacements (breaks). This affect is most likely to occur within the saturated low-elevation salt marsh area, along the beach, and possibly within the Project Area. Because of the potential for liquefaction, the Project Area is potentially susceptible to lateral spreading or subsidence from liquefaction. Breaks in the berm could potentially create adverse environmental impacts such as undesired or unanticipated flooding. The potential impact from liquefaction is considered significant. Therefore, Mitigation Measure GEO-1 has been incorporated into the Project to ensure geotechnical recommendations specific to liquefaction are implemented during construction.

The proposed Project Area is generally flat. The area does not include steep slopes or hillsides and thus does not have the potential for landslides. Landslides are considered unlikely in the dune field because the sediment is not consolidated. Landslides are also unlikely in the low-lying salt marsh area because there is little topographic relief. No Impact related to landslides would result.

According to the geotechnical report prepared for the Project, borings excavated along Centerville Slough, the proposed Russ Creek Channel alignments, and in the Inner Marsh identified moderate to highly plastic clays (LACO 2016). Expansive soils can damage structures and foundations. This would be a potentially

significant impact. Therefore, Mitigation Measure GEO-1 is included to (e.g., recommendations for foundations, seismic design parameters, grading, structural fill, channel excavation, dune rebuilding, levee berm, construction, repair and improvement, and other Project design details) ensure that potential impacts from conducting Project activities in expansive soils are reduced to a less than significant level.

### **Mitigation Measure GEO-1: Implement Recommendations in the Geotechnical Report**

See Mitigation Measure GEO-1 for full text of the mitigation measure.

**Level of Significance:** Less than significant with mitigation

Mitigation Measure GEO-1 would reduce impacts to a less-than-significant level by requiring adherence to the recommendations in the geotechnical report so that the Project is designed and constructed in conformance with applicable design standards that would reduce the risk to life or property related to liquefaction following a seismic event.

**Impact GEO-4: Result in substantial soil erosion or loss of topsoil.**

The Project includes substantial grading and earthwork. Grading, earthwork, dense-flowered cordgrass removal, construction access, stockpiling during construction, and maintenance could result in increased potential for erosion or loss of topsoil on and off-site, which would be a potentially significant impact. With the exception of the existing channels, embankment, and dune side slopes, slope gradients in the Project Area are generally flat. Most Project actions, including operational maintenance and management, are designed to reduce/control flooding hazards and susceptibility of soil to erosion or loss of topsoil. The temporary access routes along formal access roads, the set-back berm, and dunes would be constructed to ensure immediate protection from erosion during construction. Final grades along channel margins and berms would be designed to ensure long-term stability.

Under existing conditions, agricultural lands experience tidal flooding and dune overwash, resulting in erosion. By improving the berm to limit flooding on agricultural lands, soil erosion and loss of topsoil would be reduced in those areas, resulting in a long-term Project benefit.

Low ground-pressure equipment would be used in discrete restoration areas that are not accessible from existing levees or berms. All areas disturbed by temporary staging and access would be de-compacted and naturalized, as needed, prior to Project completion. In addition, all soil areas where excavation or ground disturbance (including construction and Spartina removal activities) would occur and could deliver sediment to an adjacent surface water will implement erosion control protections. The impact related to erosion or loss of topsoil is potentially significant. In addition to adhering to the Project's required project-specific Water Pollution Control Plan, Mitigation Measure GEO-1, Mitigation Measure HWQ-1, Mitigation Measure HWQ-2, and Mitigation Measure HWQ-3 have been incorporated into the Project to reduce impact on geologic resources.

Removal of Spartina could result in erosion and soil loss, resulting in a potentially significant impact. The Project would implement Mitigation Measure Spartina PEIR WQ-6, as defined from the Programmatic Final EIR for the Humboldt Bay Regional Spartina Eradication Plan (H.T. Harvey and GHD 2013), hereafter referred to as the 2013 Spartina PEIR, to reduce potential impacts from erosion and loss of topsoil to a less than significant level.

Changes in the hydrology of the site, including an increase in the tidal exchange resulting from implementation of the Project, could impact erosion rates within existing tidal channels, newly constructed

channels, and/or adjacent waterbodies. See Section 3.10 (Hydrology and Water Quality) for further analysis of potential erosion resulting from hydrodynamic changes associated with implementation of the Project.

**Mitigation Measure GEO-1: Implement Recommendations in the Geotechnical Report**

See Mitigation Measure GEO-1 for full text of mitigation measure.

**Mitigation Measure HWQ-1: Manage Construction Storm Water**

See Mitigation Measure HWQ-1 for full text of the mitigation measure.

**Mitigation Measure HWQ-2: Implement Contractor Training for Protection of Water Quality**

See Mitigation Measure HWQ-2 for full text of the mitigation measure.

**Mitigation Measure HWQ-3: In-Stream Erosion and Water Quality Control Measures During Channel Excavation and Operations**

See Mitigation Measure HWQ-3 for full text of the mitigation measure.

**Mitigation Measure Spartina PEIR WQ-6: Designate Ingress/Egress Routes**

Temporary ground disturbance associated with site ingress/egress, staging, stockpiling, and equipment storage areas could occur in areas outside and adjoining work areas. Where areas adjacent to staging and stockpile areas are erosion prone, the extent of staging and stockpile shall be minimized by flagging their boundaries. An erosion/sediment control plan shall be developed for erosion prone areas outside the work area where greater than 0.25 acre (0.1 hectare) of ground disturbance may occur as a result of ingress/egress, access roads, staging and stockpile areas. The erosion/sediment control plan shall be developed by a qualified professional and identify BMPs for controlling soil erosion and discharge for Project-related contaminants. The erosion/sediment control plan shall be prepared prior to any ground disturbing activities and implemented during construction (H.T. Harvey & Associates and GHD 2013, page 128).

**Level of Significance:** Less than significant with mitigation

Mitigation Measures GEO-1, Mitigation Measure HWQ-1, Mitigation Measure HWQ-2, and Mitigation Measure HWQ-3 and Mitigation Measure Spartina PEIR WQ-6 would reduce impacts to a less-than-significant level by requiring adherence to the recommendations in the geotechnical report so that the Project is designed and constructed in conformance with applicable design standards to control erosion during construction.

**Impact GEO-5:** Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water.

The Project would not include the use of septic tanks or alternative wastewater disposal systems. Therefore, this significance criterion is not applicable to the Project and is not discussed further.

**Mitigation Measures:** No mitigation is necessary

**Level of Significance:** No impact

**Impact GEO-6:** **Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature.**

There are no known unique paleontological resources or geologic features within the Project Area. Because the sand dunes are relatively new geologically, and Eel River flooding over the decades has resulted in relatively recent silt deposits in the tidal and flood prone portions of the Project Area, the likelihood of the Project affecting paleontological resources is low. Additionally, limited deep excavation would not occur during construction. However, the possibility of encountering a paleontological resource during construction cannot be completely discounted; therefore, the impact related to the disturbance or damage of previously undiscovered paleontological resources, if present, is considered potentially significant. Mitigation Measure GEO-2 has been incorporated into the Project to reduce impact on paleontological resources.

### **Mitigation Measure GEO-2: Protect Paleontological Resources during Construction Activities**

If fossils are encountered during construction (i.e., bones, teeth, or unusually abundant and well-preserved invertebrates or plants), construction activities within 50 feet (15 meters) of the find shall be stopped. The HCRCD and property owners shall be immediately notified, and a professional paleontologist shall be retained to evaluate the potential resource, assess the nature and importance of the find, and document the discovery as needed. Based on the scientific value or uniqueness of the find, the HCRCD may allow work to continue after the paleontologist has recorded the find or may recommend salvage and recovery of the material if it is determined that the find should, but cannot, be avoided. The paleontologist shall make recommendations for any necessary treatment that is consistent with currently accepted scientific practices. The HCRCD will work with a qualified paleontologist to determine the appropriate final disposition for any fossils found onsite. The final disposition of any paleontological resources recovered on state lands under the jurisdiction of the State Lands Commission must be approved by the State Lands Commission.

**Level of Significance:** Less than significant with mitigation

Mitigation Measure GEO-2 would reduce potentially significant impacts on undiscovered paleontological resources to a less-than-significant level by providing a process for evaluation of any unknown resources encountered during construction, and avoidance or data recovery of potential resources.

## **3.7.7 Cumulative Impacts**

**Impact GEO-C-1:** **Project Plus Cumulative Projects Result in a Cumulatively Considerable Contribution to Cumulative Impacts Related to Geology and Soils.**

The nature of geologic impacts is largely site-specific. Therefore, geologic hazards do not accumulate as impacts on other resources do, as indicated in other sections of this EIR. The Project would comply with state and local regulations and policies. Mitigation Measure GEO-1 would be implemented to reduce the risk to life and property from potential geologic hazards. Mitigation Measure HWQ-1, and Mitigation



Measure HWQ-2, Mitigation Measure HWQ-3, and Mitigation Measure WQ-6, and Mitigation Measure Spartina PEIR WQ-6 would be implemented to reduce potentially significant impacts from Project-related soil erosion or soil instability to a less-than-significant level, and Mitigation Measure GEO-2 would be implemented to reduce potentially significant impacts on undiscovered paleontological resources to a less-than-significant level.

Additionally, nearby projects considered in Table 3-1 include restoration activities at Cannibal Island, Ocean Ranch, Riverside Ranch, Williams Creek, and the Salt River. These projects all include the same project-specific erosion control and geotechnical requirements, which further limit the potential of a cumulative impact to geology and soils. Repair of storm damage at the Centerville Beach County Park, the closest project listed in Table 3-1, will specifically increase resiliency of the roadway and beach access to future storm damage and sea level rise, reducing the long-term risk to geology and soils.

With implementation of mitigation measures in this EIR, specifically GEO-1, Mitigation Measure HWQ-1, Mitigation Measure HWQ-2, Mitigation Measure HWQ-3, and Mitigation Measure Spartina PEIR WQ-6), the Projects contribution to cumulative impacts would not be considerable, and therefore cumulative impacts on geology and soils would be less than significant.

**Mitigation Measures:** No mitigation is necessary

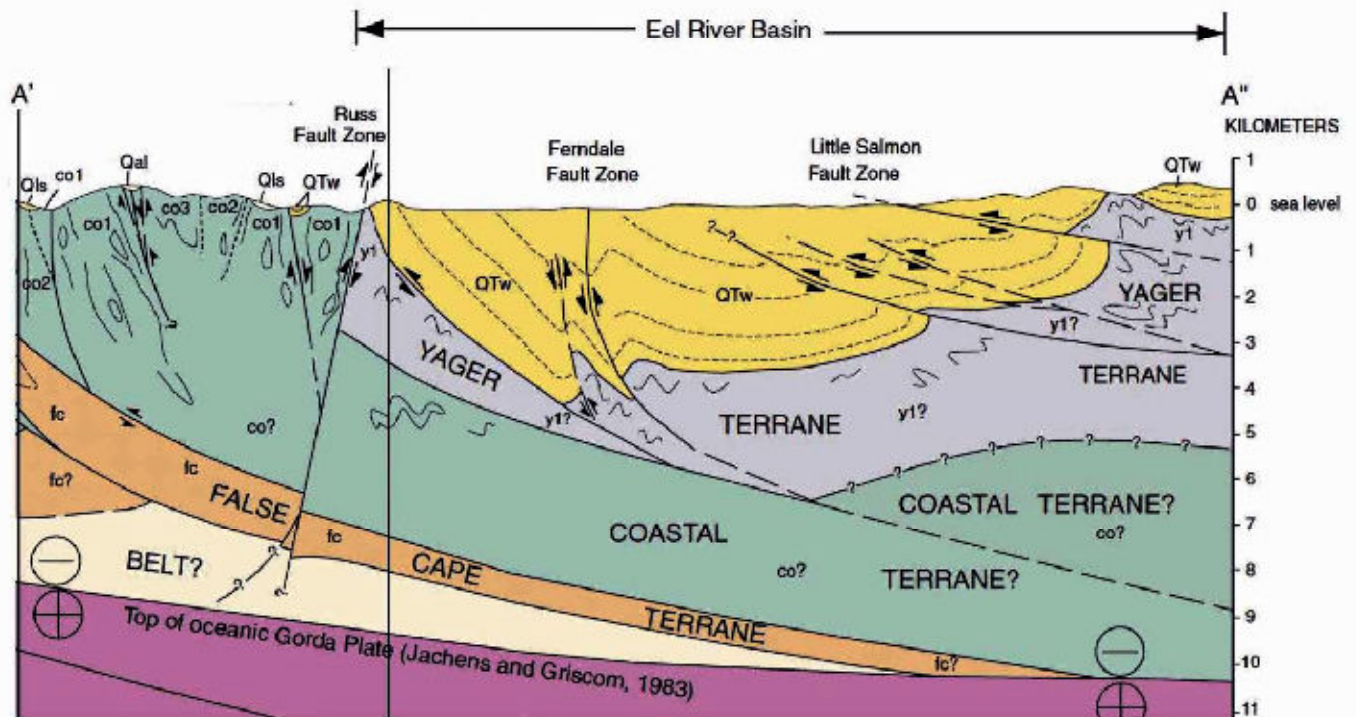
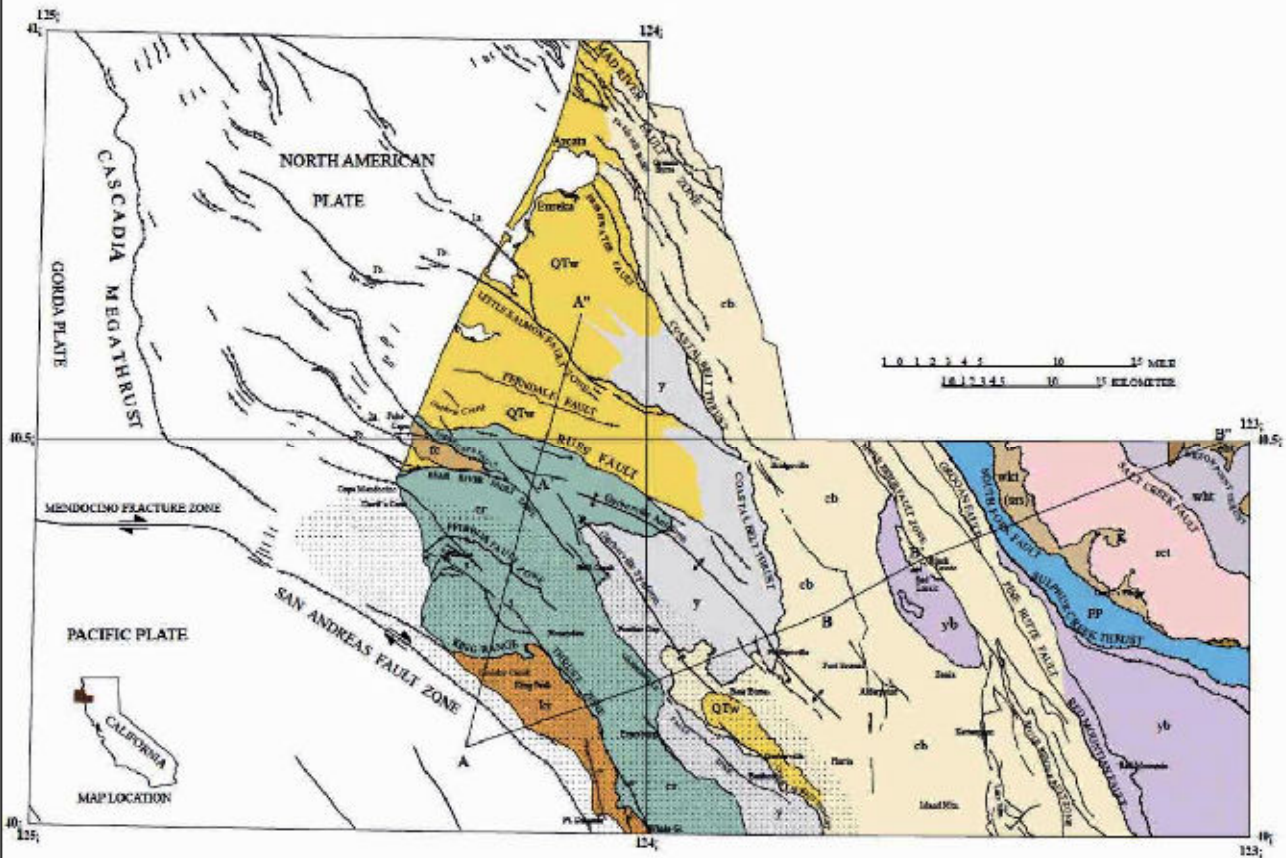
**Level of Significance:** Less than significant

### 3.7.8 References

- Brady, N.C. and Weil, R.R. 1996. *The nature and property of soils*. Prentice Hall, Inc. Upper Saddle River, NJ. 740 p.
- California Geological Survey (CGS). 2008a. *Guidelines for Evaluating and Mitigating Seismic Hazards in California*. Calif. Geol. Surv. Special Publication SP-117A. 98 p.
- California Geological Survey (CGS). 2008b. *Probabilistic Seismic Hazards Mapping Ground Motion Interpolator*. Available at: <https://www.conservation.ca.gov/cgs/ground-motion-interpolator>
- California Geological Survey (CGS). 2013. *Factors affecting landslides in forested terrain*. Calif. Dept. of Conservation, Calif. Geol. Survey. Note 50 6 p.
- California Geological Survey (CGS). 2018. *Earthquake Fault Zones: A Guide for Government Agencies, Property Owners/Developers, and Geoscience Practitioners for Assessing Fault Rupture Hazards in California (revised)*. Calif. Dept. of Conservation. Calif. Geol. Surv. Special Publication SP-42. 83 p.
- California Geological Survey (CGS). 2022. *CGS Seismic Hazards Program: Alquist-Priolo Fault Hazard Zones*. Available at: <https://gis.data.ca.gov/maps/ee92a5f9f4ee4ec5aa731d3245ed9f53/explore>
- Carver, G.A. 1987. *Late Cenozoic tectonics of the Eel River basin region, coastal northern California*. in Schymiczek, H., and Suchsland, R. eds. *Tectonics, sedimentation and evolution of the Eel River and associated coastal basins of northern California*. symp. proc. San Joaquin Geol. Society. Bakersfield, CA. 137 p.
- California Building Code (CBC). 2019. *California Building Code. California Code of Regulations, Title 24, part 2, volume 2 of 2*. Copyright held by the International Code Council, Inc., Country Club Hill, IL.

- Clarke, S. H. 1992. *Geology of the Eel River Basin and Adjacent Region: Implications for Late Cenozoic Tectonics of the Southern Cascadia Subduction Zone and Mendocino Triple Junction*. Amer. Assoc. of Petroleum Geologists Bulletin. v. 76. n. 2. P. 199-224.
- Dengler, L., Carver, G., and McPherson, R. 1992. *Sources of north coast seismicity*. Calif. Geol. Dept. of Conservation, Div. of Mines and Geol. (now the Calif. Geol. Survey). v.45. n. 2. P. 40-53.
- Division of Mines and Geology (DMG). 1992. *The Cape Mendocino Earthquakes; April 25-27-, 1992*. Calif. Geol. Dept. of Conservation, Div. of Mines and Geol. (now the Calif. Geol. Survey). v.45. n. 2. P. 56-57.
- Evenson, R.E. 1959. *Geology and ground-water features of the Eureka Area, Humboldt County, California*. U.S. Geological Survey Water-Supply Paper 1470. 77 p.
- Friends of the Dunes and GHD. 2018. *Coastal Dune Vulnerability and Adaptation Study, Eel River Shoreline Trends*.
- Furlong, K.P. and Schwartz, S.Y. 2004. *Influence of the Mendocino Triple Junction on the tectonics of coastal California*. Annu. Rev. Earth Planet. Sci. v. 32 4. P. 403-433.
- GHD. 2020. *Coastal Hazard Assessment and Rock Shoreline Protection Memo*. Prepared for the County of Humboldt.
- H.T. Harvey & Associates and GHD. 2013. *Final Programmatic Environmental Impact Report for the Humboldt Bay Spartina Eradication Plan, Volume 1*. Prepared for the California State Coastal Conservancy. Oakland, California.
- Kamman Hydrology & Engineering, Inc. (KHE). 2015. *Eel River Coastal Plain Dunes Assessment and Restoration Feasibility Analysis, Humboldt County, California*. September 2015. 52 p.
- Kelsey, H.M. 2001. *Active faulting associated with the southern Cascadia Subduction Zone in northern California*. in H. Ferriz and R. Anderson eds. *Engineering Geologic Practice in Northern California*. Calif. Dept. of Conservation, Division of Mines and Geology (now the California Geological Survey) Bulletin 210, p. 259-274.
- LACO. 2016. *Eel River Estuary Preserve Ecosystem Enhancement Project Draft Geotechnical Report*, June 22.
- LACO. 2022. *Geotech addendum report for Centerville Slough and Russ Creek Restoration Project*.
- McLaughlin, R.J., Ellen, S.D., Blake, Jr., M.C., Jayko, A.S., Irwin, W.P., Aalto, K.R., Carver, G.A., and Clarke, Jr., S.H. 2000. *Geology of the Cape Mendocino, Eureka, Garberville, and Southwestern part of the Hayfork 30x60 Minute Quadrangles and Adjacent Offshore Area, Northern California*. USGS Misc. Field Studies MF-2236, v. 1.0.
- Natural Resources Conservation Service (NRCS). 2022. *Web Soil Survey*. Retrieved from: <https://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx>
- Ogle, B.A. 1953. *Geology of the Eel River Valley Area, Humboldt County, CA*. California Division of Mines Bulletin 164, 128p.
- Patsch, K, Griggs, G. 2006. *Littoral cells, sand budgets, and beaches: understanding California's shoreline*. Institute of Marine Sciences, University of Santa Cruz, California Department of Boating and Waterways. California Coastal Sediment Working Group. 40 p.

- Patsch, K, Griggs, G. 2007. *Development of Sand Budgets for California's Major Littoral Cells*. Institute of Marine Sciences, University of Santa Cruz, California Department of Boating and Waterways, California Coastal Sediment Working Group.
- Sloss, C.R., Shepherd, M., and Hesp, P., 2012. *Coastal Dunes: Geomorphology*. Nature Education Knowledge 3 (10):2.
- Topozada, T., Borchardt, G., Haydon, W., and Petersen, M. 1995. *Planning Scenario in Humboldt and Del Norte Counties, California, for a Great Earthquake on the Cascadia Subduction Zone*. Calif. Div. of Mines and Geology (now the Calif. Geol. Surv.). Special Publication SP-115. 159 p.
- U.S. Army Corps of Engineers (USACE). 2002. *Coastal engineering manual, part IV, Chp. 2, Coastal classification and morphology*. EM1110-2-1100. 83 p.
- U.S. Geological Survey (USGS). 2022 and 1992. *Earthquake Catalogue*. Available at: <https://earthquake.usgs.gov/earthquakes/search/>. Accessed: June 2022.



Regional Geology of Eel River coastal plain. Alignment of cross-sectional profile A'-A'' (lower graphic) is indicated in upper graphic. Formation abbreviations: QTW - marine and non-marine siltstone, sandstone, and mudstone; y1 - sheared and highly folded mudstone of the Yager terrane; co - highly folded and sheared sandstone, mudstone (mélange) of the Coastal terrane; and fc - thin-bedded sandstone and limestone of the False Cape terrane. Data and Figure Modified from McLaughlin et al., 2000, and cited from KHE 2015.




Humboldt County Resource Conservation District  
 Russ Creek and Centerville Slough Restoration Project

Project No. 11187323  
 Revision No. -  
 Date Jun 2022

Regional Geologic Setting












FIGURE 3.7-1

**Legend**

 Project Boundary

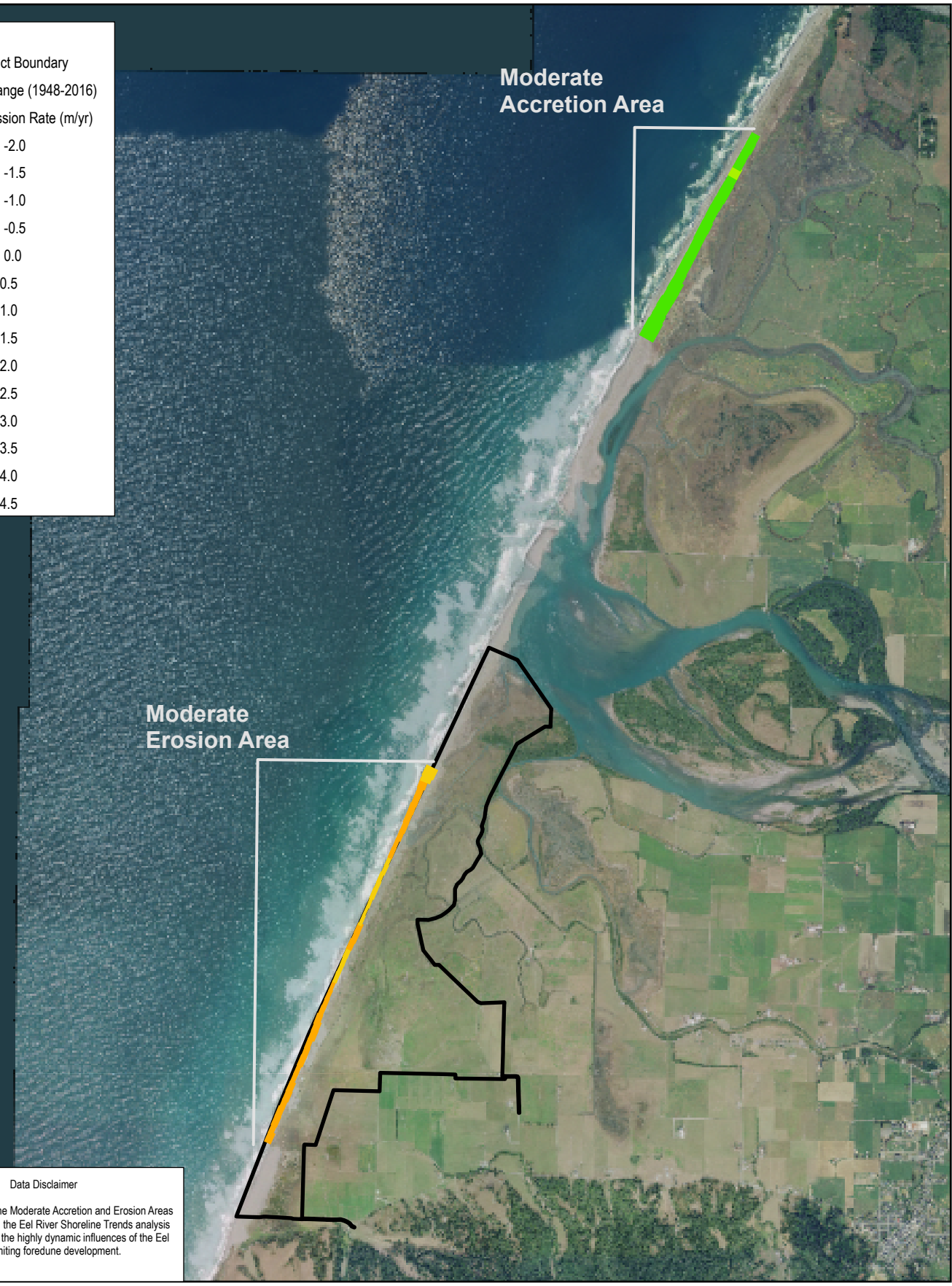
Shoreline Change (1948-2016)

Linear Regression Rate (m/yr)

-  -2.5 - -2.0
-  -2.0 - -1.5
-  -1.5 - -1.0
-  -1.0 - -0.5
-  -0.5 - 0.0
-  0.0 - 0.5
-  0.5 - 1.0
-  1.0 - 1.5
-  1.5 - 2.0
-  2.0 - 2.5
-  2.5 - 3.0
-  3.0 - 3.5
-  3.5 - 4.0
-  4.0 - 4.5

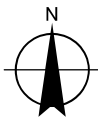
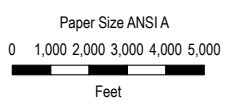
**Moderate  
Accretion Area**

**Moderate  
Erosion Area**



**Data Disclaimer**

The area between the Moderate Accretion and Erosion Areas were excluded from the Eel River Shoreline Trends analysis (GHD 2017) due to the highly dynamic influences of the Eel River limiting foredune development.



Humboldt County Resource Conservation District  
Russ Creek and Centerville Slough Restoration Project

Project No. 11187323  
Revision No. -  
Date Apr 2023

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

**Shoreline Accretion and Erosion Trends  
Eel River Segments**

**FIGURE 3.7-2**



## 3.8 Greenhouse Gas Emissions

This section evaluates the potential impacts related to greenhouse gas (GHG) emissions during construction and operation of the Project. To provide the basis for this evaluation, the Setting section describes the existing setting with regard to GHG emissions for the Project Area and the Regulatory Framework section describes the regulatory background that applies to the Project. The Impacts and Mitigation Measures section establish the thresholds of significance, evaluates GHG impacts, and identifies the significance of impacts. Where appropriate, mitigation measures are presented to reduce impacts to a less than significant level.

### 3.8.1 Study Area

The study area for greenhouse gas emissions impacts includes the Project Area (also referred to as the Project Boundary) and Humboldt County.

### 3.8.2 Setting

#### Climate and Meteorology

The Project is located in the western portion of Humboldt County, California, which is within the North Coast Air Basin. The coastal zone of Humboldt County experiences wet, cool winters, and dry, mild foggy summers. Coastal summer highs range from the mid-60s to 70s, with lows from the upper 40s to mid-50s. In the winter, highs range from the low 40s to high 50s, with lows in the 30s and 40s. The coastal zone experiences a number of frosty nights in winter and early spring, though snowfall and hard freezes are rare.

#### Project Area

The Project Area is located within an agricultural and sparsely populated area.

#### Global Climate Change – Greenhouse Gases

Gases that trap heat in the atmosphere are referred to as GHGs because they capture heat radiated from the sun as it is reflected back into the atmosphere, much like a greenhouse. The accumulation of GHGs has been implicated as the driving force for global climate change. The primary GHGs are carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>), nitrous oxide (N<sub>2</sub>O), ozone (O<sub>3</sub>), and water vapor (H<sub>2</sub>O).

While GHGs in the atmosphere are naturally occurring, the emission rate of CO<sub>2</sub>, CH<sub>4</sub> and N<sub>2</sub>O has been accelerated by human activities. Emissions of CO<sub>2</sub> are largely a by-product of fossil fuel combustion, whereas CH<sub>4</sub> results from off-gassing associated with such activities as agricultural practices and landfills. Other GHGs include hydrofluorocarbons, perfluorocarbons and sulfur hexafluoride, which are generated during certain industrial processes. GHGs are typically reported in “carbon-dioxide-equivalent” (CO<sub>2</sub>e) measures.

There is international scientific consensus that human-caused increases in GHGs have contributed, and will continue to contribute, to climate change. Probable climate change impacts in California include, but are not limited to, a decrease in snowpack; sea level rise; a greater number of extreme heat days per year, high ozone days, large forest fires, and drought years. Secondary effects are likely to include impacts on agriculture, changes in disease vectors, and changes in habitat and biodiversity.

The U.S. Environmental Protection Agency (EPA) reports U.S. GHG emissions for 2019 as 6,558 million metric tons (MMT) of carbon dioxide equivalent (CO<sub>2</sub>e). The transportation sector accounts for 29 percent, followed by the electricity sector at 25 percent and the industrial sector at 23 percent. Commercial and residential fuel use and the agricultural sector accounted for the remaining 23 percent.

The California Air Resources Board (CARB) estimated that in 2019 California produced about 418.2 MMT of CO<sub>2</sub>. The transportation sector was the highest source at 40 percent of the State's total GHGs, followed by the industrial sector at 21 percent, and electricity generation (both in-state and out-of-state) at 14 percent. Commercial and residential fuel use, recycling and waste, high global warming potential, and agricultural sectors accounted for the remaining 25 percent of the State's total GHG emissions (CARB 2018). CARB uses the Intergovernmental Panel on Climate Change (IPCC) 2007 Fourth Assessment Report (AR4) global warming potentials for the state's 2000-2019 emissions inventory.

GHGs normally associated with the proposed Project include the following listed below. Global Warming Potential (GWP) is a measurement of the heat absorbed by any GHG in the atmosphere, as a multiple of the heat that would be absorbed by the same mass of CO<sub>2</sub>. All GWP are given as 100-year GWP. Unless otherwise noted, all GWPs and information presented below were obtained from the IPCC 2007 AR4 (IPCC 2007):

*Water Vapor (H<sub>2</sub>O). Although water vapor has not received the scrutiny of other GHGs, it is the primary contributor to the greenhouse effect. Natural processes, such as evaporation from oceans and rivers, and transpiration from plants, contribute 90 percent and 10 percent of the water vapor in our atmosphere, respectively. The primary human-related source of water vapor comes from fuel combustion in motor vehicles; however, it does not contribute a significant amount (less than one percent) to atmospheric concentrations of water vapor. The Intergovernmental Panel on Climate Change (IPCC) has not determined a Global Warming Potential for water vapor.*

*Carbon Dioxide (CO<sub>2</sub>). Carbon dioxide is primarily generated by fossil fuel combustion in stationary and mobile sources. Due to the emergence of industrial facilities and mobile sources in the past 250 years, CO<sub>2</sub> emissions from fossil fuel combustion increased by a total of 5.6 percent between 1990 and 2015. Carbon dioxide is the most widely emitted GHG and is the reference gas (GWP of 1) for determining GWP for other GHGs (IPCC 2007).*

*Methane (CH<sub>4</sub>). Methane is emitted from biogenic sources, incomplete combustion in forest fires, landfills, manure management, and leaks in natural gas pipelines. The United States' top three methane sources are landfills, natural gas systems, and enteric fermentation (flatulence produced by livestock digestion). Methane is the primary component of natural gas, used for space and water heating, steam production, and power generation. The GWP of methane is 25 (IPCC 2007).*

*Nitrous Oxide (N<sub>2</sub>O). Nitrous oxide is produced by both natural and human-related sources. Primary human-related sources include agricultural soil management, animal manure management, sewage treatment, mobile and stationary combustion of fossil fuels, adipic acid production, and nitric acid production. The GWP of nitrous oxide is 298 (IPCC 2007).*

The study area is located within a rural area generally comprised of agricultural land, undeveloped riverine floodplains, freshwater and estuarine wetlands, and single-family residences. Although agricultural activities do generate GHG emissions, the number of active dairies or other similar uses within the study area is limited. Additionally, due to the rural nature of the study area, the demand for fossil fuels in the form of transportation is low. The majority of trips are associated with traveling to areas for recreational purposes, residents traveling to their respective homes and/or ranches, and maintenance of infrastructure and habitats in the Project Area. No other major sources of GHG emissions exist in the study area.

One of the distinctive attributes about land use in the temperate north coast area is that the agricultural sector here is largely self-sufficient. Producers enjoy productive pastures that do not depend on extensive fertilization, the importation of fertilizers or forage from afar, or other practices that traditionally increase the GHG impact of agricultural/livestock operations. The majority of dairies surrounding the Project Area are organic operations and more than 50 percent of producers in the area have developed and implemented comprehensive nutrient management plans. Proper nutrient management practices serve to lower GHG emissions.

Thus, due to its low demand for fossil fuels for transportation of feed, lack of air conditioning for livestock as is needed in some hotter climates, and nearly nonexistent use of fossil fuel-based fertilizers, the agricultural industry here produces significant levels of high-quality dairy and beef products with low GHG emissions relative to other areas. The community is striving to balance ecosystem restoration capable of carbon sequestration with preservation of an agricultural economy and heritage.

### 3.8.3 Regulatory Framework

#### Federal

The U.S. Environmental Protection Agency (EPA) is the federal agency responsible for implementing the Clean Air Act (CAA). The U.S. Supreme Court ruled on April 2, 2007 that CO<sub>2</sub> is an air pollutant under the CAA, and that EPA has the authority to regulate emissions of GHGs.

On February 18, 2010, the Council on Environmental Quality (CEQ) provided a draft guidance memorandum for public consideration and comment on the ways in which federal agencies can improve their consideration of the effects of greenhouse gas emissions and climate change in evaluations of proposals for federal actions under the NEPA (CEQ 2010). The CEQ updated that draft in 2014 and provided a final guidance on August 2, 2016 (CEQ 2016). The CEQ's 2010 draft guidance proposed to advise federal agencies to consider, in scoping their NEPA analyses, whether analysis of the direct and indirect greenhouse gas emissions from their proposed actions may provide meaningful information to decision makers and the public. Specifically, if a proposed action would be reasonably anticipated to cause direct emissions of 25,000 metric tons or more of carbon dioxide equivalent (MTCO<sub>2</sub>e) emissions on an annual basis, agencies should consider this an indicator that a quantitative and qualitative assessment may be meaningful to decision makers and the public. For long-term actions that have annual direct emissions of less than 25,000 MTCO<sub>2</sub>e, CEQ encouraged federal agencies to consider whether the action's long-term emissions should receive similar analysis. CEQ did not propose this as an indicator of a threshold of significant effects, but rather as an indicator of a minimum level of greenhouse gas emissions that may warrant some description in the appropriate NEPA analysis for agency actions involving direct emissions of greenhouse gases. The CEQ removed the direct emissions criteria from the 2016 final guidance, which contains no numeric recommendations. However, the CEQ replaced the 2016 final guidance with the 2019 Draft GHG Guidance. The CEQ then rescinded the 2019 Draft GHG Guidance and committed to review, revise, and update its 2016 GHG Guidance in accordance with Executive Order 13990. This does not automatically restore the 2016 Final GHG Guidance, and CEQ's announcement of the rescission encouraged agencies to consider "all available tools and resources" when analyzing GHG emissions and climate change in their NEPA reviews, including the 2016 Guidance "as appropriate and relevant." For comparison, the EPA's Greenhouse Gas Reporting Program requires mandatory reporting for 'large' industrial sources of GHG to report GHG data and defines large industrial sources as those that emit more than 25,000 MTCO<sub>2</sub>e per year.



## State

### ***Executive Order S-3-05***

In 2005, the Governor of California signed Executive Order S-3-05, which established greenhouse gas emission reduction targets to reduce emissions as follows:

- By 2010, reduce GHG emissions to 2000 levels,
- By 2020, reduce GHG emissions to 1990 levels, and
- By 2050, reduce GHG emissions to 80 percent below 1990 levels.

The Secretary of the California Environmental Protection Agency (Secretary) was designated to coordinate oversight of the multi-agency efforts made to meet the targets.

The Cal/EPA Secretary must also submit biannual reports to the governor and California Legislature describing the progress made toward the emissions targets, the impacts of global climate change on California's resources, and mitigation and adaptation plans to combat these impacts. To comply with the executive order, the Secretary of Cal/EPA created the California Climate Action Team (CAT), made up of members from various state agencies and commissions. The team released its first CAT Report in March 2006, with its most recent S-3-05-mandated CAT Report released in 2010. The report proposes to achieve the targets by building on the voluntary actions of California businesses, local governments, and communities and through state incentive and regulatory programs.

### ***Assembly Bill 32, California Global Warming Solutions Act of 2006***

In 2006, the Governor of California signed the Global Warming Solutions Act of 2006 (Assembly Bill [AB] 32), committing California to reducing GHG emissions to 1990 levels by 2020. The statute requires the CARB to track emissions through mandatory reporting, determine the 1990 emission levels, set annual emissions limits that would result in meeting the 2020 target, and design and implement regulations and other feasible and cost-effective measures to ensure that statewide GHG emissions would be reduced to 1990 levels by 2020. As shown below, the 2020 emissions goal was 431 MMT CO<sub>2</sub>e; the State achieved this emission reduction goal in 2016 with a calculated GHG inventory of 429.0 MMT CO<sub>2</sub>e.

### ***Climate Change Scoping Plan***

In December 2008, pursuant to AB 32, the CARB adopted the Climate Change Scoping Plan (Scoping Plan), which outlined measures to attain the 2020 GHG emissions limit. The Scoping Plan estimated that implementation of identified measures would result in a reduction of 105.3 MMT CO<sub>2</sub>e from various sectors including transportation, energy, forestry, and high global warming potential gas sectors (originally reported as 174 MMT CO<sub>2</sub>e but updated to 105.3 MMT CO<sub>2</sub>e in the Status of Scoping Plan Recommended Measures [found at the CARB website]). This is 24 percent more than is needed to meet the 2020 mandate. AB 32 requires CARB to update the Scoping Plan at least every five years.

CARB approved the First Update to the Climate Change Scoping Plan (Updated Scoping Plan) in May 2014. The Updated Scoping Plan describes the progress made to meet the near-term (2020) objectives of AB 32 and defines California's climate change priorities and activities for the next several years. The Updated Scoping Plan also updated the 2020 emissions limit and business-as-usual emissions for 2020.

The second update to the Scoping Plan, the 2017 Climate Change Scoping Plan (2017 Scoping Plan), was released in November 2017 and approved in December 2018. The 2017 Scoping Plan provides California's climate policy portfolio and recommended strategies to put the state on a path to achieve the 2030 target set by EO B-30-15 and SB 32. On November 18, 2022, CARB adopted the 2022 Scoping Plan for

Achieving Carbon Neutrality (2022 Scoping Plan), which identifies a path to meet the SB 32 GHG, as well as reducing anthropogenic GHG emissions to 85 percent below 1990 levels by 2045, and achieving carbon neutrality by 2045 or earlier. The 2022 Scoping Plan includes measures to move to a zero-emissions (decarbonized) transportation sector and phasing out the use of natural gas in residential and commercial buildings. The 2022 Scoping Plan would also reduce emissions of short-lived climate pollutants (SLCPs) and includes mechanical CO<sub>2</sub> removal and carbon capture and sequestration actions, as well as natural working lands management and nature-based strategies. The plan's measures are identified in Table 2-2 and Table 2-3 of the 2022 Scoping Plan. The measures are statewide and programmatic in nature. The 2022 Scoping Plan is largely advisory, as CARB does not directly regulate many of the sectors identified by the plan's measures.

The 2022 Scoping Plan states that local action by municipalities can support and amplify efforts to reduce GHGs. Local government decisions play a critical role in supporting state-level measures to contain the growth of GHG emissions associated with the transportation system and the built environment. Local actions, provided in Appendix D of the 2022 Scoping Plan, are not required by statutory or gubernatorial direction, and are not binding, but contain guidance and information regarding actions that other jurisdictions may choose to take that complement the 2022 Scoping Plan measures. However, the 2022 Scoping Plan measures are broad policy and regulatory initiatives that would be implemented at the state level and do not relate to the construction and operation of individual projects such as the Project.

The CARB's Cap-and-Trade Program relies on data collected through the Mandatory Reporting of Greenhouse Gas Emissions Regulation (MRR) to identify major sources of greenhouse gas emissions in California. The MRR was originally adopted in 2007 and was updated in 2011. Industries that emit 10,000 or MTCO<sub>2e</sub> are required to report their GHGs to CARB; a subset of industrial facilities with annual emissions equal to or greater than 25,000 MTCO<sub>2e</sub> are required to comply with the Cap-and-Trade Program.

### ***Executive Order B-30-15***

On April 29, 2015, the Governor of California announced EO B-30-15 and established the 2030 target of reducing GHG emissions to 40 percent below 1990 levels. The emission reduction target is an interim-year goal to provide substantial progress toward the ultimate goal of reducing emissions by 80 percent below 1990 levels by 2050.

### ***Senate Bill 32 and Assembly Bill 197***

Senate Bill (SB) 32, passed in 2016, extended the goals of AB 32 and codifies the GHG reduction target of 40 percent below 1990 levels by year 2030, consistent with EO B-30-15. The companion bill to SB 32, AB 197, provides additional direction to CARB in developing each update to the Climate Change Scoping Plan.

### ***California Coastal Act***

The California Coastal Act of 1976 (Coastal Act) set policies related to management of resources in California's coastal zone. The policies of the Coastal Act constitute the statutory standards applied to planning and regulatory decisions made by the California Coastal Commission (CCC), pursuant to the Coastal Act. The following policy of the California Coastal Act regulates air pollution which may contain GHGs.

Section 30253. New Development shall:

*Be consistent with requirements imposed by an air pollution control district or the State Air Resources Control board as to each particular development.*

## Regional and Local

### **North Coast Unified Air Quality Management District**

NCUAQMD has not adopted regulations regarding the evaluation of greenhouse gas (GHG) emissions in a CEQA document and has not established CEQA significance criteria to determine the significance of impacts with regard to GHGs.

### **Humboldt County Eel River Area Local Coastal Plan**

No GHG regulations are listed or discussed in the Eel River Area Local Coastal Plan.

## 3.8.4 Evaluation Criteria and Significance Thresholds

Evaluation Criteria	Significance Thresholds	Sources
Would the Project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	Annual operational generation of 1,100 MTCO <sub>2</sub> e	CEQA Guidelines Appendix G, Checklist Item VIII (a) Bay Area Air Quality Management District, Sacramento Metropolitan Air Quality Management District, and South Coast Air Quality Management District
Would the Project conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	Conflict with the State's adopted Scoping Plan	CEQA Guidelines Appendix G, Checklist Item VIII (b)

## 3.8.5 Methodology

The GHG emissions impact analysis considers construction and operation impacts associated with the proposed Project. There are currently no applicable federal, state, or local significance thresholds pertaining to construction activities.

The NCUAQMD has stated that they would not comment adversely on the use of thresholds of significance from the Bay Area Air Quality Management District (BAAQMD) for projects within Humboldt County. The BAAQMD's 2017 CEQA Guidelines contain a recommended GHG threshold of 1,100 MTCO<sub>2</sub>e/year for project operations, and no threshold for project construction. However, the BAAQMD has recently revised their adopted recommended CEQA thresholds of significance for GHG. The BAAQMD's Justification Report for the newly adopted greenhouse gas thresholds identify the thresholds as specific for 'development projects' of commercial/residential development and other projects. Per the Draft Justification Report:

*The Air District has developed these thresholds of significance based on typical residential and commercial land use projects and typical long-term communitywide planning documents such as*

*general plans and similar long-range development plans. As such, these thresholds may not be appropriate for other types of projects that do not fit into the mold of a typical residential or commercial project or general plan update.*

*Lead agencies should keep this point in mind when evaluating other types of projects. A lead agency does not necessarily need to use a threshold of significance if the analysis and justifications that were used to develop the threshold do not reflect the particular circumstances of the project under review. Accordingly, a lead agency should not use these thresholds if it is faced with a unique or unusual project for which the analyses supporting the thresholds as described in this report do not squarely apply. In such cases, the lead agency should develop an alternative approach that would be more appropriate for the particular project before it, considering all of the facts and circumstances of the project on a case-by-case basis. (emphasis added)*

Additionally, the BAAQMD's Justification Report states:

*There is no proposed construction-related climate impact threshold at this time. Greenhouse gas emissions from construction represent a very small portion of a project's lifetime GHG emissions. The proposed thresholds for land use projects are designed to address operational GHG emissions which represent the vast majority of project GHG emissions. (BAAQMD 2022)*

Therefore, as the BAAQMD and NCUAQMD do not have recommended thresholds of significance to apply to construction-period emissions or open land-management projects, the Sacramento Metropolitan Air Quality Management District's (SMAQMD) and South Coast Air Quality Management District's (SCAQMD) recommended GHG methodology and thresholds for construction impacts were applied. These thresholds of significance are consistent with the BAAQMD's previously recommended 1,100 MTCO<sub>2</sub>e/year threshold for project operations.

For project construction, SMAQMD has a threshold of 1,100 metric tons of carbon dioxide (MTCO<sub>2</sub>e) per year threshold of significance (SMAQMD 2021). SCAQMD recommends a threshold of 1,100 MTCO<sub>2</sub>e applied to construction and operation; SCAQMD recommends that construction emissions be amortized over the life of the project, defined as 30 years, and added to the operational emissions for comparison against the threshold of significance.

CalEEMod version 2020.4.0 was used to estimate the GHG emissions from construction of the Project. Construction emissions were estimated using detailed construction phasing, duration and equipment parameters. Construction would require two years to complete with approximately 131 working days of Project work per year. In order to assess the potential impact of construction-generated emissions, the construction GHG emissions are annualized over an assumed 30-year Project lifespan and compared against a threshold of 1,100 MTCO<sub>2</sub>e.

Operation of the Project does not include any stationary sources of GHG. The main source of operational GHG emissions would be from on-road trips generated by visitors, management, and monitoring personnel accessing the Project Area. Operational trips for site maintenance, management and monitoring would be similar to existing conditions. The Project may result in 7,500 visitors annually, which include an estimated 27.4 total daily trips (13.7 one-way trips) for visitation. The BAAQMD's 2017 CEQA Guidelines operational-related GHG screening levels were used to assess potential significance.

For determining a conflict with an applicable plan, the Project is evaluated for its compliance with the state's *First Update to the Climate Change Scoping Plan* (the implementing tool of AB 32) the one plan adopted for the purpose of reducing GHG emissions which also is applicable to the Project Area. There are no County-level plans that have been adopted for the purpose of reducing GHG emissions.

GHG emissions, by their nature, represent a cumulative impact. No single project could generate enough greenhouse gas emissions to noticeably change the global average temperature. Instead, GHG emissions contribute, on a cumulative basis, to the significant adverse environmental impacts of global climate change. Therefore, the Project analysis is discussed in the context of the cumulative impact.

### 3.8.6 Impacts and Mitigation Measures

**Impact GG-1:                   Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment.**

Project construction activities would result in a temporary increase in GHG emissions, including exhaust emissions from on-road haul trucks, worker commute vehicles, and off-road heavy-duty equipment. Construction would require clearing, earthmoving, hauling, and delivery equipment, as used for similar projects, and which have been accounted for in the state's emission inventory and reduction strategy for both on and off-road vehicles. When averaged over the assumed life of the Project, 30 years, construction emissions are estimated to be 60 MTCO<sub>2</sub> per year for each individual year from construction activities.

During operation of the Project, some GHG emissions would occur from worker trips and equipment as a result of maintenance activities and recreational visits. Maintenance activities would be infrequent and short-term in nature. Flaming, which is a form of weed control in which a flame is passed over a plant until it wilts, causing the fluid in the plant's cells to expand and rupture and ultimately killing the plant, would be used for weed control. Flaming includes the use of propane, but it would be limited and wouldn't contribute a substantial amount of emissions. Other maintenance activities are anticipated to be no greater than the traditional maintenance historically performed on these lands. Recreational visits would be approximately 7,500 visitors annually or around 27.4 total daily trips for visitation. For reference, the BAAQMD's 2017 CEQA Guidelines identifies screening guidance for operational GHG pollutants; if a project meets the screening levels, the BAAQMD states that the project would not result in the generation of operational-related GHG that exceed their 2017 threshold of significance of 1,100 MTCO<sub>2</sub>e/year. The operational screening levels include:

- Single-family residential: 56 dwelling units
- Elementary School: 44,000 square feet
- High School: 49,000 square feet
- Hotel: 83 Rooms
- General Office Building: 53,000 square feet
- General Light Industry: 121,0000 square feet

Operation and maintenance of the Project would result in a fraction of the trip generation by the above land use screening levels. The Project would not exceed the BAAQMD's 2017 CEQA Guidelines screening levels and, therefore, not exceed the related threshold of significance. The Project would not result in substantial long-term operational emissions of GHGs, even when combined with annualized construction emissions. GHG emissions related to operation of the Project are considered less than significant.

**Mitigation Measures:**           No mitigation is necessary

**Level of Significance:**       Less than significant

**Impact GG-2: Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases.**

The recommended next steps in the *2022 Climate Change Scoping Plan* (Scoping Plan) are broad policy and regulatory initiatives that will be implemented at the State level and, in general, do not relate to the construction and operation of this individual Project. Although Project construction may benefit from implementation of some of the state-level regulations and policies, such as the Zero Emission Vehicles (ZEV) regulations proposed to be implemented within the transportation sector, the Project would not impede the State in implementing the policies.

With regard to operation, the Project is in line with the goals of the Natural and Working Lands focus area. The Scoping Plan identifies the following applicable measure for Natural and Working Lands:

- Conserve 30% of the state's NWL and coastal waters by 2030.

As described in the Scoping Plan, natural lands, including wetlands, provide a multitude of economic and environmental benefits and therefore these lands should be managed in ways that maximize carbon benefits and ensure landscape resilience. The Scoping Plan further indicates that the restoration and improved management practices of natural lands should be a priority. The marsh restoration components of this Project are consistent with supporting the State's priorities regarding the management and restoration of natural lands.

The Project would not conflict or impede the state from implementing the broad policy and regulatory initiatives, and would comply with carbon sequestration goals, therefore, no impact would occur.

**Mitigation Measures:** No mitigation is necessary

**Level of Significance:** No Impact

### 3.8.7 Cumulative Impacts

**Impact GG-C-1: Result in a cumulatively considerable contribution to a significant cumulative impact relative to greenhouse gas emissions.**

GHG emissions, by their nature, represent a cumulative impact. No single project could generate enough GHG emissions to noticeably change the global average temperature. Instead, GHG emissions contribute, on a cumulative basis, to the significant adverse environmental impacts of global climate change. Therefore, the Project analysis presented above also represents the cumulative analysis for impacts from GHG emissions. The Project analysis above found that impacts to GHG emissions would be less than cumulatively considerable.

**Mitigation Measures:** No mitigation is necessary

**Level of Significance:** No Impact

### 3.8.8 References

Bay Area Air Quality Management District (BAAQMD). 2022. *CEQA Thresholds for Evaluating the Significance of Climate Impacts From Land Use Projects and Plans*.

Council on Environmental Quality (CEQ). 2010. *Draft NEPA Guidance on Consideration of the Effects of Climate Change and Greenhouse Gas Emissions*. February 18.

CEQ. 2016. *Final Guidance for Federal Department and Agencies on Consideration of Greenhouse Gas Emission and the Effects of Climate Change in National Environmental Policy Act Reviews*. August 1.

IPCC. 2007. *Climate Change 2007*. The Physical Science Basis.

Sacramento Metropolitan Air Quality Management District (SMAQMD) 2021. *CEQA Guide*. Available at: <https://www.airquality.org/residents/ceqa-land-use-planning/ceqa-guidance-tools#:~:text=The%20Guidance%20to%20Address%20the,thresholds%20of%20significance%20emissions%20levels>.

## 3.9 Hazards and Hazardous Materials

This Section evaluates the potential impacts related to hazards and hazardous materials resulting from construction and operation of the Project against significance thresholds derived from applicable local, state or federal policies, or from Appendix G of the CEQA Guidelines.

### 3.9.1 Study Area

The Project Area boundary and adjacent properties were used as the Project construction impact assessment study area. For assessment of general hazards related to public safety, a broader regional study area based on the locations of nearby airports, schools, and emergency services was used.

### 3.9.2 Setting

The following subsections generally describe the geographic and regulatory setting of the Project Area (also referred to as the Project Boundary), specifically the hazards and hazardous materials potentially relevant to the Project.

#### **Site Description**

The Project Area primary consists of agricultural land historically used for cattle grazing. Undeveloped dune habitat exists to the west of the Project Area. The Project Area is located entirely within the Coastal Zone. There is no evidence in the reviewed records of industrial, manufacturing, or large-scale residential use of any kind in the Project Area, or on contiguous lands.

#### ***Database Records Search***

To evaluate the Project Area with respect to the presence and location of existing and/or historical soil and groundwater contamination, GHD completed a regulatory database review of available online government records. The database records search assessed the potential presence of contamination from hazardous substances, including petroleum products, within the Project Area. Potential contamination was evaluated as evidenced by documented releases of contaminants to the soil and/or groundwater, the presence of underground storage tanks (USTs), or the use of hazardous materials.

The database review did not identify sites that governmental regulatory agencies reported to have environmental concerns in or near the Project Area (CalEPA 2022, DTSC 2022, SWRCB 2022, SWRCB 2022a). As the records search indicated that the Project Area is not listed among any of the government records examined, there are no specific areas of known impacted soil and/or groundwater within and near the Project Area that could potentially pose an exposure risk to humans and/or the environment. As there are no areas of concern within the Project Area, there are no requisite institutional or engineering controls established for the Project Area.

#### ***Historical Use of the Project Site***

Historical use information for the Project Area was determined using United States Geological Survey (USGS) topographic maps, as well as zoning records from the Humboldt County Department of Public Works (HCDPW) Department of Natural Resources. Topographic maps from 1943 to 2022 were reviewed to visually evaluate the historical use of the Project Area. Review of these records indicate that the Project Area has generally remained undeveloped open pastureland and coastal dune habitat since at least 1943.



Existing roads are evident in the aerial photographs and the roads do not appear to have historically deviated from their current alignments.

### ***Historical Use of Adjacent Property***

Historical land use on adjoining properties was determined using the aerial photographs described above. Properties to the north and east have been used for agriculture, specifically cattle ranching, for decades. These properties remain in agricultural use today and only a handful of structures (such as barns and farmhouses) are visible east of the Project Area. Land to the west is undeveloped beachfront and dune habitat. There is no evidence in the reviewed historical aerial photographs of industrial, manufacturing or large-scale residential use of any kind at the Project Area, or on contiguous lands.

### **Hazardous Materials Definition**

Hazardous materials are a wide-ranging category of substances that include toxic substances, flammable or explosive materials, corrosive substances such as acids, and radioactive materials. A material is defined as hazardous if it appears on a list of hazardous materials prepared by a federal, state, or local agency, or if it has characteristics defined as hazardous by such an agency.

The California Code of Regulations (CCR) Title 22, Division 4.5, Chapter 10, Article 2, Section 66260.10 defines a hazardous material as a substance that, because of physical or chemical properties, quantity, concentration, or other characteristics, may either: (1) cause an increase in mortality or an increase in serious, irreversible, or incapacitating illness; or (2) pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported or disposed of, or otherwise managed. Hazardous materials are classified per 22 CCR, Chapter 11, Article 3 according to four properties: toxicity, ignitability, corrosivity, and reactivity.

Hazardous wastes are wastes with potentially hazardous properties as defined in 22 CCR section 66261.3. Hazardous wastes can include used, discarded, or abandoned hazardous materials designated for disposal.

### **Hazardous Materials Exposure and Potential Receptors**

Factors that influence the health effects of exposure to hazardous materials include the dose to which the person is exposed, the frequency of exposure, the exposure pathway, and individual susceptibility. Hazardous material contamination can exist in air, water, soil, dust, manufactured materials, and food.

The consequences for individuals potentially exposed to hazardous materials and/or associated contamination are dependent on several factors, including the exposure magnitude (i.e., frequency, and duration), concentration of the hazardous contaminant(s), and the pathway(s) of exposure. Exposure pathways include external exposure (direct contact), injection (puncture), inhalation, and ingestion. The amount of a hazardous material to which an individual is exposed over a given period of time is known as the dose (ATSDR 2022). The dose and pathway affect the potential severity of the impact on human health.

The relationship between hazardous material dose and associated effect on human health is known as the dose-response relationship (ATSDR 2022). The health effects experienced by those exposed to hazardous materials (dose-response relationship) can range from no changes in body function (i.e., no symptoms), to short-term acute symptoms, or to long-term chronic health effects.

Potential dose-response relationships are evaluated by conducting exposure assessments. The principal elements of exposure assessments typically include:

- Evaluation of the fate and transport processes for hazardous materials at a given site

- Identification of potential exposure pathways
- Identification of potential exposure scenarios
- Calculation of representative chemical concentrations
- Estimation of potential chemical uptake

Schools and residences are examples of sensitive receptors that could be susceptible to significant effects from exposure to hazardous materials. There are no schools within 0.25 mile of the Project Area. The closest school to the Project Area is Ferndale High School which is approximately 2.8 miles east of the eastern Project Area boundary. The closest residential cluster is the City of Ferndale. There are a few rural residential homes within one mile of the Project Area to the south and east.

## **Fire Hazards**

There are 39 fire departments providing fire protection to cities and unincorporated communities in Humboldt County (HCFCA 2020). The Project Area is within the Ferndale Fire Protection District served by the Ferndale Volunteer Fire Department (FVFD). The FVFD is supported by the Eel River Valley Technical Resource Team for complex rescue operations, such as low-/high-angle rope rescue, confined space/trench rescue, and water rescue. The Hazardous Materials Response Team, managed by Humboldt Bay Fire, is a multi-agency emergency response resource, providing response, training, and coordination support for hazardous materials incidents throughout Humboldt County. In responding to emergencies, local fire departments work closely with law enforcement, public utilities, the County Office of Emergency Services, and ambulance companies.

The California Department of Forestry and Fire Protection (CAL FIRE) is tasked with preventing and responding to wildfire emergencies within the State Responsibility Area (SRA). Incorporated cities, agriculture lands, and other areas where the local government is responsible for wildfire protection are designated as Local Responsibility Areas (LRA). CAL FIRE identifies Fire Hazard Severity Zones (FHSZ) in the SRA and LRA throughout California. The Project Area and surrounding lands within the Eel River valley are classified as LRA – Unincorporated and are not designated by a FHSZ (CAL FIRE 2007).

## **Airports**

The closest public airport to the Project Area is the Rohnerville Airport south of Fortuna, California. The Rohnerville airport is located approximately 9.6 aerial miles southeast of the Project Area. The second closest airport to the Project Area is Samoa Field, located approximately 11.4 aerial miles northeast of the Project Area on the Samoa Peninsula. There are no private airfields in the Project Area.

## **3.9.3 Regulatory Framework**

Hazardous materials storage, handling, and transportation must comply with an interconnected matrix of federal, state, and local laws. These laws are codified in the Code of Federal Regulations (CFR), the California Code of Regulations (CCR), as well as numerous local and/or regional regulatory standards.

### **Federal**

The primary federal agencies with responsibility for enforcing hazardous materials regulations are the United States Environmental Protection Agency (USEPA), the United States Department of Transportation (DOT), and the United States Department of Labor Occupational Safety and Health Administration (OSHA). State, county, and municipal governments can implement equivalent or more stringent regulations than

those administered by federal agencies, thus state and local agencies can have delegated authority for enforcing relevant federal regulations within those agencies' regional jurisdictions.

### ***Hazardous Materials Environmental Impact Control and Remediation***

The USEPA has broad a directive to protect the environment, including mitigating the impact of hazardous materials. The USEPA's control and cleanup of hazardous materials is authorized by various statutes, including the Toxic Substances Control Act (TSCA), the Resource Conservation and Recovery Act (RCRA), Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), and the Summary of the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA).

Once a hazardous material is designated as a waste, then specific storage, handling, transportation, and disposal regulations apply. The USEPA enforces federal hazardous waste regulations under the RCRA per Title 40 CFR Parts 239-282.

Shipment of hazardous materials by air, motor transport, rail, or by vessel is regulated by the DOT. Packaging, labeling, placarding, and transportation of hazardous materials and waste is subject to regulations enforced by the DOT per 49 CFR Parts 171-179.

### ***Occupational Health and Safety***

Worker safety standards and hazard mitigation protocols are enforced by OSHA as authorized by the Occupational Safety and Health Act of 1970. Construction standards required by OSHA per 29 CFR 1926 seek to protect worker safety and mitigate negative consequences resultant from hazardous materials exposure. In California, responsibility for enforcing federal worker health and safety regulations has been delegated to the State, as described in the following subsection.

### ***Emergency Response***

The Federal Emergency Management Agency (FEMA) is tasked with emergency management and civil defense in support of disaster relief efforts. For large-scale emergencies involving hazardous materials, FEMA could potentially be involved with coordination support and funding.

The National Fire Protection Association (NFPA) establishes standards and guidelines for first responders, as well as certifies equipment used by emergency services personnel. The NFPA *704 Standard System for the Identification of the Hazards of Materials for Emergency Response*, classifies hazards by the severity of the hazard into three principal categories: health, flammability, and instability.

The DOT uses a hazard classification system that categorizes hazardous materials into nine hazard classes based on the materials' physical characteristics (explosive, flammable, corrosive, etc.). The DOT hazard classification system requires transporters of hazardous materials to identify their cargo using placards and shipping papers (manifests) to help first responders characterize the nature and severity of the hazard posed by the material in the event of an emergency.

## **State**

### ***Hazardous Materials Environmental Impact Control and Remediation***

Hazardous materials usage in California is subject to applicable state regulations, including California Health and Safety Code (HSC) Section 25531, Division 20, Chapter 6.5 and other standards enforced by the various departments and boards under the California Environmental Protection Agency (Cal/EPA). The Cal/EPA hazardous materials regulations are consolidated under California's Unified Program enforced by the Department of Toxic Substances Control (DTSC), the State Water Resources Control Board (SWRCB),

and the Department of Resources Recycling and Recovery (CalRecycle). In addition to the above-listed Cal/EPA entities, the North Coast Regional Water Quality Control Board (NCRWQCB) and the North Coast Unified Air Quality Management District (NCUAQMD) are two regional delegated authorities with jurisdiction to enforce specific hazardous materials regulations within the Project Area.

The Cal/EPA administers the Unified Program via local Certified Unified Program Agencies (CUPAs). The CUPA for Humboldt County is the Humboldt County Division of Environmental Health (HCDEH). The HCDEH Hazardous Materials Unit has jurisdiction over the Project Area and is tasked with local CUPA inspections and compliance. In accordance with Chapter 6.11 of the HSC, Section 25404, local regulatory agencies enforce many federal and state regulatory programs through the CUPA program, including:

- State Uniform Fire Code requirements (Section 80.103 of the Uniform Fire Code as adopted by the State Fire Marshal pursuant to Health and Safety Code Section 13143.9)
- Underground storage tanks (Chapter 6.7 of the Health and Safety Code, Sections 25280 et seq.)

At sites known or suspected to have soil or groundwater contamination, a site health and safety plan must be prepared and generally require approval by the CUPA. The health and safety plan establishes policies and procedures to protect workers and the public from exposure to potential contamination hazards.

The California HSC Sections 25249.5 et seq., and Title 22 CCR, Division 2, Chapter 3, Sections 12000-14000, enacted as Proposition 65, establishes a list of substances known to the state to be harmful to human health. The California Office of Environmental Health and Hazard Assessment (OEHHA) administers Proposition 65, which prohibits businesses from knowingly exposing anyone to listed chemicals without first giving clear and reasonable warning. Proposition 65 further prohibits discharge of listed chemicals to drinking water sources.

Packaging, transportation, and disposal of hazardous waste is subject to regulations enforced by the Cal/EPA Department of Toxic Substances Control (DTSC). Hazardous waste is defined by California as waste material that is listed or meets the criteria for hazardous waste per CCR Title 22 and Article 9 and is regulated by the DTSC per HSC Title 22 CCR, Division 4.5.

### ***Occupational Health and Safety***

Worker health and safety are regulated by the California Department of Industrial Relations, Division of Occupational Safety and Health (Cal/OSHA) per the California Occupational Safety and Health Act of 1973. Cal/OSHA is the delegated authority for enforcing OSHA regulations within the state, including those governing worker exposure to hazardous materials. Regulations requiring safe hazardous materials work practices are enforced by Cal/OSHA per CCR Title 8 and require specific hazard communication, exposure monitoring, and worker protection compliance measures.

Cal/OSHA hazard communication compliance includes hazard identification, worker training, signage/postings, container labeling, hazardous materials storage/handling standards, safety planning/reporting, and emergency response procedures. Workers at contaminated sites, including workers contacting hazardous materials/wastes that might be encountered during excavation of contaminated soils, must receive specialized Hazardous Waste Operations and Emergency Response (HAZWOPER) training and medical supervision according to 8 CCR 5192.

### ***Emergency Response***

Section 30232 (Oil and hazardous substance spills) of the California Coastal Act of 1976 (Coastal Act) provides for the protection against the spillage of crude oil, gas, petroleum products, or hazardous

substances in relation to any development or transportation of such materials. Effective containment, clean-up facilities, and procedures must be provided for accidental spills and releases.

Hazardous materials transportation emergencies along state roadways are under the jurisdiction of the California Highway Patrol (CHP) and California Department of Transportation (Caltrans).

California has developed an emergency response plan administered by California Office of Emergency Services (Cal OES) to coordinate emergency services provided by federal, state, local government, and private agencies. Responding to hazardous materials incidents is a part of this plan. The plan organizes the responses of other agencies such as local fire, police, emergency medical services, CHP, and Caltrans.

The California Department of Forestry and Fire Protection (CAL FIRE) enforces fire safety regulations, timber harvesting activities, conducts emergency response operations, and coordinates statewide firefighting activities within State Responsibility Areas (SRAs). The California Public Resources Code (PRC) sets forth fire safety regulations that include the following:

- Earthmoving and portable equipment with internal combustion engines must be equipped with a spark arrestor to reduce the potential for igniting a wildland fire (PRC Section 4442).
- Appropriate fire suppression equipment must be maintained during the highest fire danger period – from April 1 to December 1 (PRC Section 4428).
- On days when a burning permit is required, flammable materials must be removed to a distance of 10 feet from any equipment that could produce a spark, fire, or flame, and the construction contractor would maintain the appropriate fire suppression equipment (PRC Section 4427).
- On days when a burning permit is required, portable tools powered by gasoline-fueled internal combustion engines must not be used within 25 feet of any flammable materials (PRC Section 4431).

### ***Water Quality***

The Porter Cologne Water Quality Control Act (Porter Cologne) is the primary statute covering the quality of waters in California. Under Porter Cologne, the SWRCB has the ultimate authority over state water rights and water quality policy. The five-member SWRCB allocates water rights, adjudicates water right disputes, develops statewide water protection plans, and establishes water quality standards. Nine Regional Water Quality Control Boards (RWQCBs) are dispersed throughout the major state watersheds and operate under the SWRCB to regulate water quality through the standards and objectives set forth in Water Quality Control Plans (also referred to as Basin Plans) prepared for each region. The NCRWQCB has regulatory oversight of the Project Area, with standards and objectives provided in the Water Quality Control Plan for the North Coast Region (NCRWQCB 2018).

Responsibility for implementation of Section 402 of the Clean Water Act has also been delegated to the SWRCB/RWQCBs, where they implement and enforce permits that fall under the National Pollutant Discharge Elimination System (NPDES). The General Permit for Stormwater Discharges Associated with Construction and Land Disturbance Activities (Construction General Permit) (Order No. 2009-0009, as amended by Order No. 2010-0014) applies to discharges from construction sites that include one or more acre of soil disturbance. Construction activities include clearing, grading, grubbing, excavation, stockpiling, and reconstruction of existing facilities involving removal or replacement. The Statewide General NPDES Permit for Residual Aquatic Pesticide Discharges to Waters of the United States from Algae and Aquatic Weed Control Applications (Order No. 2013-0002-DWQ) applies to any pesticide applications at aquatic sites that will result in discharges to Waters of the U.S.

The Coastal Act set policies related to management of resources in California’s coastal zone. The policies of the Coastal Act constitute the statutory standards applied to planning and regulatory decisions made by the California Coastal Commission, pursuant to the Coastal Act. Hazardous substances are addressed in Chapter 3, Section 30232 (Oil and hazardous substance spills) of the Coastal Act. Per Section 30232 of the Coastal Act, “(p)rotection against the spillage of crude oil, gas, petroleum products, or hazardous substances shall be provided in relation to any development or transportation of such materials. Effective containment and clean-up facilities and procedures shall be provided for accidental spills that do occur.”

## Local

### ***Humboldt County Eel River Area Plan Local Coastal Program***

The Project Area is located entirely within the Coastal Zone. Relevant policies and regulations from the Eel River Area Plan of the Humboldt County Local Coastal Program include:

#### 3.28 Hazards

##### *A Development Policies*

#### 30253 New Development Shall:

*Minimize risks to life and property in areas of high geologic, flood and fire hazard.*

*Assure stability and structural integrity, and neither create nor contribute significantly to erosion, geologic instability, or destruction of the site or surrounding areas or in any way require the construction of protective devices that would substantially alter natural landforms along bluffs and cliffs.*

### ***Humboldt County Operational Area Hazard Mitigation Plan***

The 2019 Humboldt County Operational Area Hazard Mitigation Plan Update is the County’s plan to identify and reduce hazards before any type of hazard event occurs (Humboldt County 2019). The Hazard Mitigation Plan aims to reduce losses from future disasters such as dam failure, drought, earthquake, fish losses, flooding, landslide, severe weather, tsunami, and wildfire. The Hazard Mitigation Plan also includes a vulnerability analysis and proposed initiatives designed to minimize future hazard-related damage.

### ***Humboldt County Emergency Operations Plan***

The 2015 Humboldt County Emergency Operations Plan (EOP) for the Humboldt Operational Area addresses the planned response to extraordinary emergency situations associated with natural disasters, technological incidents, and national security emergencies in or affecting Humboldt County (Humboldt County 2015). The EOP addresses integration and coordination with other governmental levels when required. The EOP accomplishes the following:

- Establishes the emergency management organization required to mitigate any significant emergency or disaster affecting Humboldt County.
- Identifies the policies, responsibilities, and procedures required to protect the health and safety of Humboldt County communities, public and private property, and the environmental effects of natural and technological emergencies and disasters.
- Establishes the operational concepts and procedures associated with field response to emergencies, County Emergency Operations Center activities, and the recovery process.

### 3.9.4 Evaluation Criteria and Significance Thresholds

Based on Appendix G of the CEQA Guidelines, a hazards or hazardous materials impact is considered significant if implementation of the proposed Project would do any of the following:

- Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials;
- Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment;
- Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school;
- Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would create a significant hazard to the public or the environment;
- Be located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, where the Project could result in a safety hazard or excessive noise for people residing or working in the Project Area;
- Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan; or
- Expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires.

The criteria for evaluating a hazard or hazardous materials impact are summarized in the following table.

Evaluation Criteria	Significance Thresholds	Sources
Would the Project create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	Potential for improper transport, use, disposal, or accidental release of hazardous materials or wastes due to non-compliance with State and federal hazardous materials or waste regulations	CEQA Guidelines Appendix G, Checklist Item IX (a) Hazardous Materials Transportation Act of 1975 Resource Conservation and Recovery Act of 1978 (RCRA)
Would the Project create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	Potential for improper transport, use, disposal, or accidental release of hazardous materials or wastes due to non-compliance with State and federal hazardous materials or waste regulations	CEQA Guidelines Appendix G, Checklist Item IX (b) Hazardous Materials Transportation Act of 1975 Resource Conservation and Recovery Act of 1978 (RCRA)
Would the Project emit hazardous emissions or involve handling hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	Use, storage, or emission, of acutely hazardous materials or waste within 0.25 mile of a school	CEQA Guidelines Appendix G, Checklist Item IX (c)

Evaluation Criteria	Significance Thresholds	Sources
Would the Project be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, create a significant hazard to the public or the environment (State CEQA Guidelines Section 15186)?	Location of Project on or adjacent to a site with presence or likely presence of hazardous substances or petroleum products	CEQA Guidelines Appendix G, Checklist Item IX (d)
Would the Project be located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the Project result in a safety hazard for people residing or working in the Project area?	Location of Project within an airport land use plan or within two miles of an airport and introduction of new or increased safety hazard	CEQA Guidelines Appendix G, Checklist Item IX (e)
Would the Project impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	Location of Project in areas that impair or interfere with an adopted emergency plan, including emergency access routes	CEQA Guidelines Appendix G, Checklist Item IX (f)
Would the Project expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	Non-conformance with State Responsibility Area fire safe regulations	CEQA Guidelines Appendix G, Checklist Item IX (g)

### 3.9.5 Methodology

This analysis considers the range and nature of foreseeable hazardous materials use, storage, and disposal resulting from the proposed Project construction and operation, including planned maintenance and management activities, and identifies the primary ways that these hazardous materials could expose the environment or individuals to health and safety risks. Local and state agencies would be expected to continue to enforce applicable regulations to the extent that they currently do.

The following reports were used in the analysis of hazardous conditions at the Project Area:

- Available literature, including documents published by county, state and federal agencies
- Applicable elements from the Humboldt County General Plan and Eel River Area Plan
- Prior EIRs for the area (i.e., Salt River Ecosystem Restoration Project)
- California Coastal Act

The information obtained from these sources was reviewed and summarized to establish existing conditions and to identify potential environmental effects, based on the significance thresholds in this section. In determining the level of significance, the analysis assumes that construction and operation of the Project would comply with federal, state, and local ordinances and regulations.



## 3.9.6 Impacts and Mitigation Measures

**Impact HAZ-1: Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials.**

### Construction

Construction of the Project would include the transport and use of common hazardous materials inherent to the construction process, including petroleum products for construction equipment and vehicles, hydraulic fluids, paints, and concrete curing compounds for Project improvements. These materials are commonly used during construction, are not acutely hazardous, and would be used in relatively small quantities. Project activities involving the transport, use, storage, and disposal of hazardous materials would be in accordance with established rules and regulations.

The primary chemical hazard would be the use of equipment fuel and fluids during construction. In the unlikely event of a spill, fuels would be controlled and cleaned up in accordance with county and state regulations, with minimal environmental impact. Hazardous materials would not be routinely transported, stored, or disposed of onsite.

Worker exposure to hazardous materials is regulated by Cal/OSHA and requires worker safety protections. Cal/OSHA enforces hazard communication regulations, which require worker training and hazard information (signage/postings) compliance. In addition, hazard communication compliance includes procedures for identifying and labeling hazardous substances, communicating information related to hazardous substances handling/storage, and preparation of health and safety plans.

Best management practices (BMPs) addressing materials management would be required, including proper material delivery and storage, spill prevention and control, and management of concrete and other wastes. Project construction would be required to implement stormwater BMPs during construction in accordance with the SWRCB General Construction Storm Water Permit.

The transportation of hazardous materials and wastes is regulated by Caltrans, DTSC, and the CHP. These agencies mandate container types, packaging requirements, as well as require licensing and training for truck operators, chemical handlers, and hazardous waste haulers.

The established regulatory framework, BMPs, and requisite construction protocols provide appropriate risk mitigation and hazard protections, thus Project construction would not create a significant hazard to the public or environment from hazardous materials. Because contractors would be required to comply with existing and future hazardous materials laws and regulations addressing the transport, storage, use, and disposal of hazardous materials, the potential to create a significant hazard to the public or the environment during Project construction would be less than significant.

### Operation

Following construction, operation of the Project would require ongoing site maintenance and repair, management, and monitoring. Operational activities also include intermittent dense-flowered cordgrass treatment. Operational activities would involve hazardous materials such as equipment fuel/oils, propane, and herbicides.

The operational risk posed by use of petroleum products (diesel fuel, gasoline, and oil) for equipment and vehicles utilized during intermittent maintenance and repair of Project improvements specific to hazardous materials is low. With adherence established regulations, BMPs, and Mitigation Measure HWQ-3, the

potential to create a significant hazard to the public or the environment from fuels and/or oils used during routine maintenance and repair operations would be less than significant.

### ***Herbicide Application***

The Project could include use of herbicide (Imazapyr), in conjunction with mechanical treatments (e.g., mowing, grinding), to control dense-flowered cordgrass. Proposed treatment methods for dense-flowered cordgrass, including the use of herbicide, would be consistent with those outlined in the Humboldt Bay Regional Spartina Eradication Plan (H.T. Harvey and GHD 2013).

Herbicide applications would be performed in discrete areas by a Qualified Applicator, or under the supervision of a Qualified Applicator, in accordance with Cal/OSHA regulations and the manufacturer's recommendations for aquatic use and application. Herbicide would be applied by workers moving through the marsh on foot using backpack sprayers or wick applicators. Alternatively, herbicide would be applied from spray equipment mounted on boats, trucks, or amphibious tracked vehicles. The Project would not include aerial applications of herbicide, such as broadcasting herbicide from helicopters or airplanes.

Imazapyr is approved for aquatic use and has been used to control non-native Spartina in the San Francisco Bay since 2006. Fate and transport studies have determined that Imazapyr poses no significant risk to aquatic environments, as it is rapidly degraded by photolysis with a half-life averaging two days (Nufarm Americas Inc. 2020). Imazapyr inhibits the enzyme acetolactate synthase in plants, blocking the production of three essential amino acids: valine, leucine, and isoleucine (Washington DOE 2009). This enzyme acetolactate synthase is not present in animals. The USEPA has categorized Imazapyr as "practically non-toxic" to birds and mammals (USEPA 2016).

The prescribed application rate of Imazapyr does not result in aquatic or terrestrial concentrations that exceed screening levels for toxicity to wildlife. Risk for bioaccumulation is low because it is highly soluble in water and has low solubility in lipids, meaning it does not concentrate in animal fat or organ tissue. Therefore, the application of this herbicide would not impact the study area through food web bioaccumulation.

Imazapyr is a slow-acting, systemic, broad-spectrum, pre- and post-emergent herbicide that effectively controls grasses and many broadleaf species. As such, this herbicide will affect most terrestrial vegetation it is in contact with at sufficient concentrations, including non-target vegetation. Overspray, drift, accidental spills or off-target discharge that may occur as a result of herbicide treatments could, therefore, result in impacts to non-target vegetation in the Project Area.

Hazards to Project workers, including those mixing, loading, and applying herbicide, include exposure to herbicide products. Unprotected personnel (i.e., workers without appropriate PPE) directly exposed to Imazapyr Direct dermal exposure to herbicide formulations containing Imazapyr may result in mild skin irritation or other symptoms (Nufarm Americas Inc. 2020; SePRO Corporation 2016). Mild eye irritation can also occur if Imazapyr is contacts the eye.

If not properly managed and applied, the use of Imazapyr for treatment of dense-flowered cordgrass could result in potential impact to the environment, or potential impacts to the human health, such as direct unprotected exposure to herbicide mixtures. This potential impact is considered significant. The impact of herbicide application on non-target vegetation is analyzed in Section 3.4 (Biological Resources).

In accordance with CEQA Guidelines Section 15150, an EIR may incorporate by reference all or portions of another document which is a matter of public record or is generally available to the public. Where all or part of another document is incorporated into an EIR by reference, the referenced language shall be considered to be incorporated in full.

The Project would implement Mitigation Measure Spartina PEIR HHM-1, Mitigation Measure Spartina PEIR HHM-3, and Mitigation Measure Spartina PEIR HHM-4 as defined in the 2013 Spartina PEIR (H.T. Harvey and GHD 2013) for application of herbicide on dense-flowered cordgrass. Mitigation measures to be implemented as part of the Project applicable to this section are described below.

### **Mitigation Measure Spartina PEIR HHM-1: Worker Injury from Accidents Associated with Use of Manual and Mechanical Equipment**

A health and safety plan shall be developed to identify and educate workers engaged in activities that involve heavy equipment associated with construction or invasive plant management activities under the Project. Appropriate safety procedures and equipment, including hearing, eye, hand and foot protection, and proper attire, shall be used by workers to minimize risks associated with use of heavy equipment. Workers shall receive safety training appropriate to their responsibilities prior to engaging in such work.

### **Mitigation Measure Spartina PEIR HHM-3: Worker Health Effects from Herbicide Application**

Appropriate health and safety procedures and equipment, as described on the herbicide or surfactant label, including personal protective equipment (PPE) as required, shall be used by workers to minimize risks associated with herbicide application methods. Mixing and applying herbicide will be done in accordance with label directions and shall be conducted or supervised by certified or licensed herbicide applicators.

### **Mitigation Measure Spartina PEIR HHM-4: Avoid Health Effects to the Public and Environment from Herbicide**

For areas targeted for application of herbicide that are within 500 feet (152 meters) of human sensitive receptors (i.e., houses, schools, hospitals), prepare and implement a herbicide drift management plan to reduce the possibility of chemical drift into populated areas. The Plan shall include the elements listed below. To minimize risks to the public, mitigation measures for herbicide application methods related to timing of herbicide use, area of treatment, and public notification, shall be implemented by entities engaging in treatment activities as identified below:

- Herbicide will be applied in accordance with the manufacturer's label.
- CDFW will coordinate with the County Agricultural Commissioner to identify and avoid impacts to any nearby sensitive areas (e.g., schools, hospitals) that require notification prior to herbicide applications.
- CDFW will identify nearby sensitive habitat and, where feasible, establish buffer zones to avoid affecting sensitive receptors.
- Herbicide will be applied using the coarsest droplet size possible that maintains sufficient plant coverage while minimizing drift into adjacent areas.
- Herbicide shall not be applied when winds exceed 10 miles per hour or when inversion conditions exist (consistent with the herbicide labels); or when wind could carry spray drift into inhabited areas. Refer to Section 3.3 (Air Quality) for discussion on inversions.
- Public access to treatment sites will be restricted during treatment windows.
- No surfactants containing nonylphenol ethoxylate will be used.

**Level of Significance:** Less than significant with mitigation

With implementation of Mitigation Measure Spartina PEIR HHM-1, HHM-3, and HHM-4, the potential impact to human health and the environment from use of hazardous materials would be mitigated to a less-than-significant level.

**Impact HAZ-2:** **Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment.**

## Hazardous Sites

The Project Area is generally undeveloped, with the exception of the North Barn, South Barn, Potato/Headquarters Barn and Quonset Hut, and miscellaneous constructed features (fencing, etc.) typical of cattle ranching and agricultural usage. There are no recorded hazardous waste sites, documented hazardous material spills, or cleanup operations within or adjacent to the Project Area.

As no hazardous sites were identified within the Project Area vicinity, the potential to create a significant hazard to the public or the environment from the release of hazardous materials associated with contaminated sites would be less than significant.

## Construction

There are two types of hazardous materials releases that could occur during Project construction:

- Accidental spills
- Discovery of existing unknown contaminated soil or groundwater at the site

Project construction would utilize heavy equipment to perform some tasks including excavation, grading, and transportation of materials. When equipment is operating, there is the potential for an accident to occur which could cause fuel to be released to soil or surface water. Equipment on-site during construction would be required to have emergency spill cleanup kits immediately accessible in the case of any petroleum product spills. The potential impact from a fuel spill is addressed under Section 3.10 -- Hydrology. Mitigation Measure HWQ-3 includes requirements for the contractor to make adequate preparations, including training, for spill response and requires vehicle and equipment maintenance to be performed offsite whenever feasible. The incorporation of Mitigation Measure HWQ-3, any potential impact related to streams and wetlands from an accidental spill would be less than significant.

The Project Area is undeveloped and does not appear on a list of hazardous materials sites. Aerial imagery shows no significant historical development within the Project Area. Adjacent properties have no hazardous materials releases on record. Therefore, the potential to encounter contaminated soil or groundwater within the Project Area is low, and the impact would be less than significant.

The Project includes the demolition of two existing barns within the Project Area, the North Barn (constructed in the late 1880's) and South Barn (constructed in 1949). Both barns were almost completely rebuilt and modified in the 1960's after sustaining heavy flood damage. Material from the demolished barns will be hauled offsite for disposal. Following demolition, the site will be restored similar to adjacent conditions. Demolition and disposal of the barns will be compliant with County use permit and other applicable regulatory demolition requirements and therefore will result in a less than significant impact.

## Operation

Operational activities would include suppression of invasive species and long-term maintenance and monitoring activities. Project long-term maintenance would include vegetation maintenance, invasive cordgrass treatment, infrastructure maintenance (e.g., drainage, roadways, berms, gated culverts), sediment removal, and sediment soil management.

Project operational activities would be required to comply with federal, state, and local regulations governing hazardous materials management as described in Section 3.9.3. These regulations and codes would be implemented and adhered to during the Project as applicable. Project compliance would be monitored by state and/or local jurisdictions, including HCDEH and the FVFD.

As described above in Impact HAZ-1 Herbicide Application, invasive cordgrass treatment would include the use, storage, and transportation of Imazapyr. As with the use of any hazardous material, the potential exists for an accident to occur which could result in the release of such material to the environment. This would be a potentially significant impact. Therefore, Mitigation Measure Spartina PEIR HHM-1, Mitigation Measure Spartina PEIR HHM-3, and Mitigation Measure Spartina PEIR HHM-4 are included to ensure that potential impacts from conducting Project activities are reduced to a less than significant level.

### **Mitigation Measure Spartina PEIR HHM-1: Worker Injury from Accidents Associated with Use of Manual and Mechanical Equipment**

See Mitigation Measure HHM-1 above for full text of the mitigation measure.

### **Mitigation Measure Spartina PEIR HHM-3: Worker Health Effects from Herbicide Application**

See Mitigation Measure HHM-3 above for full text of the mitigation measure.

### **Mitigation Measure Spartina PEIR HHM-4: Avoid Health Effects to the Public and Environment from Herbicide**

See Mitigation Measure HHM-4 above for full text of the mitigation measure.

### **Mitigation Measure HWQ-3: In-Stream Erosion and Water Quality Control Measures During Channel Excavation and Operations**

See Mitigation Measure HHWQ-3 above for full text of the mitigation measure.

**Level of Significance:** Less than significant with mitigation

Implementation of Mitigation Measure Spartina PEIR HHM-1, Mitigation Measure Spartina PEIR HHM-3, Mitigation Measure Spartina PEIR HHM-4, and Mitigation Measure HWQ-3 would reduce potential impacts associated with accidents involving hazardous materials to a less than significant level.

**Impact HAZ-3:** **Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school.**

No schools are located within one-quarter mile of the Project Area. The closest school to the Project Area is Ferndale High School which is located approximately 2.8 miles east of the eastern boundary of the Project

Area at Russ Lane. Therefore, the Project's effects on schools will not be evaluated further in this section. No impact would result.

**Mitigation Measures:** No mitigation is necessary

**Level of Significance:** No impact

**Impact HAZ-4:** **Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment.**

Governmental hazardous materials databases were reviewed to identify known hazardous materials sites located in or near the Project Area as described in Section 3.9.2. The results of the records search showed that the Project Area is not listed among any of the government records examined (CalEPA 2022, DTSC 2022, SWRCB 2022). Further, there are no open or active hazardous materials cleanup sites located within or adjacent to the Project Area (SWRCB 2022a). The nearest open LUST cleanup site is the Ferndale Museum, located approximately 2.8 miles east of the Project Area. Therefore, this significance criterion is not applicable to the proposed Project and is not discussed further in this section. No impact would result.

**Mitigation Measures:** No mitigation is necessary

**Level of Significance:** No impact

**Impact HAZ-5:** **For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, result in a safety hazard or excessive noise for people residing or working in the Project area.**

The proposed Project Area is not located within an airport land use plan or within two miles of a public airport (HCALUC 2021). Project construction and operation would include ground-based equipment and travel. The Project does not include structures which would interfere in any way with use of the airspace above the Project Area. The proposed Project Area is not located within the vicinity of a private airstrip. No impact would result.

**Mitigation Measures:** No mitigation is necessary

**Level of Significance:** No impact

**Impact HAZ-6:** **Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan.**

The Humboldt County Emergency Operations Plan (EOP) establishes a structure for Humboldt County Operation Area agencies to respond to large-scale emergencies requiring multiagency participation or activation of the Humboldt County Emergency Operations Center (EOC) (Humboldt County 2015). Hazard mitigation and risk assessment strategies for Humboldt County Operation Area are formalized in the Humboldt County Operational Area Hazard Mitigation Plan (HMP). The Humboldt County EOP and HMP have not designated specific evacuation routes or emergency shelter locations or included policies or procedures with which the Project would conflict. Therefore, the Project would not impair implementation of or physically interfere with the Humboldt County EOP or HMP.

The Project is located in a rural agricultural area with few roads and limited public access. Within the Project Area, internal private roadways may be closed or restricted for a discrete portion of the Project during culvert installation and re-graveling of the roads. The first 0.4 miles of Russ Lane nearest Centerville Road is a public roadway in a rural setting. Short-term, temporary lane closures or delays may occur, but emergency access would not be restricted. The Project would not permanently block or impact usage of public roadways and would improve public access to the Project Area after construction.

Ingress and egress of construction equipment could require temporary lane closures. Signage would safely demarcate and separate Project construction work along roadways. Signage, notifications, and timing for lane closure, as applicable, would be established in accordance with County of Humboldt requirements. Emergency response vehicles would not be impeded during lane closures. As noted above, approximately 0.4 miles of Russ Lane is a public road.

Once constructed, operational use of the Project would not modify transportation along public roadways. Thus, emergency response or evacuation via existing roadways would not change compared to existing conditions. As the Project would not impair implementation of an emergency response plan or evacuation plan, the potential impact related to temporary closures during construction would be less than significant.

**Mitigation Measures:** No mitigation is necessary

**Level of Significance:** Less than significant

**Impact HAZ-7:** **Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires.**

The Project Area generally consists of marsh, pastureland and dune habitats and includes few built structures. The Project does not include any structures for human occupancy.

The Project could use flaming to treat invasive cordgrass. The potential exists for invasive cordgrass treatments involving fire to result in wildfire exposure to people or structures. The Project would increase tidal influence within the Project Area and decrease fuel loads by removing non-native biomass from restoration areas; thereby reducing the overall risk and severity of a potential wildfire within the Project Area. As noted in Impact WDF-2, this potential impact is less than significant. Wildfire hazards and associated mitigation measures are further discussed in Section 3.17 Wildfire.

**Mitigation Measures:** No mitigation is necessary

**Level of Significance:** Less than significant

### 3.9.7 Cumulative Impacts

**Impact HAZ-C-1:** **Would the Project, in combination with other cumulative projects, increase exposure of hazardous substances to the public or environment.**

The Project is not anticipated to result in any potentially significant impacts related to hazardous substances, thus would not combine with other cumulative impacts to increase exposure of hazardous substances to the public or the environment. Any less than significant Project impacts would be localized in extent, and therefore would not contribute to other potential Project impacts.

Project construction, as well as Project operational maintenance and monitoring activities, would comply with existing and future hazardous materials regulations. Compliance with federal, state, and local regulations during the construction and operation of the Project would ensure that there would be no cumulative hazards to the public or the environment associated with the routine transportation, use, disposal or release of hazardous materials.

Based on the information presented above, no cumulatively considerable impact would occur. Therefore, this significance criterion is not applicable to the proposed Project and is not discussed further in this section.

**Mitigation Measures:** No mitigation is necessary

**Level of Significance:** Less than significant

### 3.9.8 References

- Agency for Toxic Substances and Disease Registry (ATSDR). 2022. *Centers for Disease Control ATSDR Registry Glossary of Terms*. Retrieved from: <https://www.atsdr.cdc.gov/glossary.html#G-D->.
- California Department of Forestry and Fire Protection (CAL FIRE). 2007. *Humboldt County Draft Fire Hazard Severity Zones in SRA*.
- California Environmental Protection Agency (CalEPA). 2022. *Sites Identified with Waste Constituents Above Hazardous Waste Levels Outside the Waste Management Unit*. Retrieved from: <https://calepa.ca.gov/wp-content/uploads/sites/6/2016/10/SiteCleanup-CorteseList-CurrentList.pdf>.
- California Department of Toxic Substances Control (DTSC). 2022. *EnviroStor Database*. Retrieved from: [https://www.envirostor.dtsc.ca.gov/public/map/?global\\_id=12240119](https://www.envirostor.dtsc.ca.gov/public/map/?global_id=12240119).
- California State Water Resources Control Board (SWRCB). 2022. *GeoTracker Database*. Retrieved from: [https://geotracker.waterboards.ca.gov/map/?global\\_id=T0602900093#](https://geotracker.waterboards.ca.gov/map/?global_id=T0602900093#).
- California State Water Resources Control Board (SWRCB). 2022a. *List of Active Cease and Desist Orders and Cleanup and Abatement Orders from Water Board*. Retrieved from: <https://calepa.ca.gov/wp-content/uploads/sites/6/2016/10/SiteCleanup-CorteseList-CDOCAOList.xlsx>.
- H.T. Harvey. 2013. *Final Programmatic Environmental Impact Report for the Humboldt Bay Regional Spartina Eradication Plan (2013 Spartina PEIR)*. Volume 1. Prepared for the California State Coastal Conservancy. [https://scc.ca.gov/webmaster/ftp/pdf/sccbb/2013/1304/20130418Board08\\_HB\\_Invasive\\_Spartina\\_Eradication\\_Ex4.pdf](https://scc.ca.gov/webmaster/ftp/pdf/sccbb/2013/1304/20130418Board08_HB_Invasive_Spartina_Eradication_Ex4.pdf)
- Humboldt County Airport Land Use Commission (HCALUC). 2021. *Humboldt County Airport Land Use Compatibility Plan*. April.
- Humboldt County Fire Chiefs Association (HCFCA). 2020. *HCFCA 2020 Annual Report*. November.
- Humboldt County. 2015. *County of Humboldt Emergency Operations Plan – Humboldt Operational Area*. March.
- Humboldt County. 2019. *Humboldt County Operational Area Hazard Mitigation Plan Update*.
- North Coast Regional Water Quality Control Board (NCRWQCB). 2018. *Water Quality Control Plan for the North Coast Region*. June.



- Nufarm Americas Inc. (2020). *Polaris Herbicide [Material Safety Data Sheet]*. Retrieved from <http://www.cdms.net/ldat/mp8KR003.pdf>. May.
- SePRO Corporation (2016). *Habitat Herbicide [Material Safety Data Sheet]*. Retrieved from [https://www.sepro.com/Documents/Habitat\\_SDS.pdf](https://www.sepro.com/Documents/Habitat_SDS.pdf). June.
- United States Environmental Protection Agency (EPA). 2016. *Technical Overview of Ecological Risk Assessment - Analysis Phase: Ecological Effects Characterization*. <https://www.epa.gov/pesticide-science-and-assessing-pesticide-risks/technical-overview-ecological-risk-assessment-0>.
- Washington Department of Ecology (Washington DOE). 2009. Human Health and Ecological Effects Risk Assessment: Imazapyr Risk. Submitted to Washington State Department of Agriculture, Olympia, WA. Prepared by AMEC Geomatrix, Inc. Lynnwood, WA. Project 14858.000. Report dated June 2009.
- United States Geologic Survey (USGS). 2022. *National Geospatial Program National Geologic Map Database*. Retrieved from: <https://ngmdb.usgs.gov/topoview/viewer/#13/40.6100/-124.2613>.

## 3.10 Hydrology and Water Quality

This section evaluates the potential impacts related to hydrology and water quality during construction and operation of the Project. To provide the basis for this evaluation, the Setting section describes the hydrological setting for the Project Boundary, which is synonymous with the Project Area, including regional and local surface water and groundwater characteristics. Descriptions in this section are based on reviews of published information, reports, and plans regarding regional and local hydrology, climate, topography, and geology. The evaluation section establishes the thresholds of significance, evaluates potential hydrology and water quality impacts, and identifies the significance of impacts. Where appropriate, mitigation measures are presented to reduce potential impacts to a less than significant level.

### 3.10.1 Study Area

The study area includes the Project Boundary (Figure 2-5). In addition, the study area also includes the off-site vicinity surrounding the Project Boundary (Project Area), specifically:

- Eel River at confluence of remnant Centerville Slough
- The lower reach of the Salt River downstream of the California Department of Fish and Wildlife's Riverside Ranch property
- Privately owned parcels to the east of the Project Area, primarily used for agricultural purposes, including those owned by the O'Rourke Foundation
- Angel's Camp Marsh south of the Project Area, which is privately owned
- Centerville Road south of the Project Area
- Dunes, beach, and Pacific Ocean to the west of the Project Area

### 3.10.2 Setting

The following section discusses the hydrology and water quality-related context in which the proposed Project would be constructed and operate, drainage to/from the Project Area, regional climate and hydrology, beneficial uses of surface waters, surface water quality, drainage and flooding, the local groundwater basin, and beneficial uses. Existing waterways are shown in Figure 2-4 – Existing Conditions.

#### **Watershed Context and Regional Climate**

The Eel River drains a watershed (basin) that comprises approximately 3,683 square miles of rugged Coast Range terrain where elevations range from sea level to 7,000 feet (2,134 meters). The Eel River watershed is about 120 miles long, averages 30 miles in width, and is underlain chiefly by sedimentary rocks (mostly graywacke sandstone) of the Franciscan complex that have been uplifted and are fractured, faulted, and penetratively sheared (Brown and Ritter 1971, McLaughlin et al. 2000). Much of the watershed has been subject to heavy logging, grazing, and widespread road construction that have destabilized soils (Brown and Ritter 1971, CDFW 2010).

The Project is located in the Eel River estuary, which is a bar-built estuary. Such a classification is based exclusively on geologic features and more recent estuary classification systems include a greater number of attributes such as wave and tidal energy, water circulation patterns, and habitat typing (FGDC 2012, Heady et. al. 2014). The Nature Conservancy (Heady et. al. 2014) classifies the Eel River estuary as a "riverine estuary." Such estuaries are defined as being generally linear and seasonally turbid (especially in upper

reaches), and possibly subjected to high current velocities. These estuaries are also sedimentary “sinks” and may be associated with a delta, bar, barrier island and other depositional features. They also tend to be highly flushed (with a wide and variable salinity range) and seasonally stratified. These estuaries are often characterized by a V-shaped channel configuration and a salt wedge (Heady et. al. 2014).

The region has a Mediterranean climate with cool wet winters, and warm dry summers. The study area exhibits mild weather throughout the year characterized by cool, foggy summers and cool, rainy winters. The average area rainfall in Ferndale during the 30 years between 1992 and 2021 was 42.9 inches, varying between an annual low of 19.9 inches and an annual high of 67.2 inches (Humboldt County 2022). Fog and low overcast clouds are common within the area, especially during the evening and early morning hours. Large and intense cyclonic storms lasting several days occur periodically in northern California and have generated flood-producing rainfall (e.g., Harden, et. al. 1995, Sloan et. al. 2001). Rainfall totals in the higher elevation areas of the Wildcat Hills can be considerably greater due to orographic (uplift of air mass as it passes over hills and mountains) effects. Collectively, the geology, steep slopes, intense land use, and heavy precipitation generates much mass wasting and widespread erosion each year that contributes to the sediment yield out of the basin (Brown and Ritter 1971, Sloan et. al. 2001). Brown and Ritter (1971) reports that the annual suspended sediment yield out of the Eel River basin is more than 15 times that of the Mississippi River and more than four times that of the Colorado River.

Streamflow characteristics of the lower Eel River basin reflect the regional climate. Tributary streams respond quickly to precipitation in the surrounding hills as surface runoff enters the channels from the steep hillslope areas. High flows are limited to the wet season between October and April. Baseflow conditions prevail throughout the dry season. Flow in the Eel River, Salt River and Wildcat tributaries is perennial. Restricted drainage of Project and adjacent lands due to backwater effects of prolonged high flows on the Eel River has triggered routine flooding of the lowland areas in recent decades.

## Site Hydrology and Drainage

The Project Area lies within a large multi-parcel, leveed-off area located on the south side of the Eel River delta. A large portion of the Project Area is hydrologically constrained by levees (berms). The area is segregated from the Pacific Ocean by a long, linear dune field and separated from the Eel and Salt Rivers by constructed levees lying north of the Inner Marsh and bordering Mill and Smith creeks (Figure 2-4). To the south, the site is bordered by the Wildcat Hills. Shaw and Russ creeks are the main tributaries entering the study area from the Wildcat Hills. Because of the high sediment loads originating from the marine mudstones that dominate the Wildcat Hills, there are large and extensive alluvial fans that build out onto the south side of the Eel River delta plain.

The Project Area was significantly altered by anthropogenic action following Euro-American settlement of the Eel River Estuary. Much of the Project Area was originally covered by tidal marshes or poorly drained wetlands. The area was converted to agricultural production by the construction of levees, draining of marshes, ditching, and alteration of tidal and freshwater stream networks. Land use in the Project Area and adjacent areas is still primarily in agricultural production. The Project Area also includes areas of estuarine and freshwater marshes, coastal sand dunes, tidal marsh, freshwater streams, remnant slough channels, and active tidal channels.

Over time, a combination of natural and anthropogenic actions further altered the Project Area and adjacent lands. The Project Area was cut off by diking from beneficial sediment supplies brought in by Eel River and upland flooding. Much of the area experienced subsidence due to decay of organic soils and tectonic action. Alluvial fan growth was beneficial to agricultural production in some portions of the Project Area but blocked drainage from other portions. During this time, portions of the original Centerville Slough channel

network filled in due to lack of tidal flushing. The cumulative effects of long-term changes have impaired conditions for agricultural lands. Some areas are permanently flooded, poorly drained, or otherwise no longer suitable for agricultural production.

There has been a systematic destruction of the southern dune fields from overwash since 1998, which has impacted portions of the Project Area. The shoreline south of the Eel River has been eroding since 1948 (Figure 3.7-2). The area behind the larger southern degraded dune, locally referred to as Angel's Camp, has experienced occasional flooding by wave overwash. Under existing conditions, Angel's Camp is permanently flooded because overwash and stormflow is trapped in the low areas, creating unsuitable conditions for agricultural production. Overwash deposits have filled drainage ditches and former channels.

Currently, tributary flow moves onto and through the Project vicinity via the elevated alluvial fan channels of Russ and Shaw creeks or the Creamery Ditch on the Russ Ranch and Timber and The Wildlands Conservancy (TWC) properties. These flows generally travel northward until they intersect or are directed to drainage ditches (Figure 2-4). These ditches also flow northward into the remnant Centerville Slough channel and then Cutoff Slough. Water then exits the Project Area through the Cutoff Slough tide gates, ultimately discharging to the Salt River located further to the northeast. Some of the lowest-lying terrain occurs on lands owned by the O'Rourke Foundation, located east of the TWC property and outside the Project Area. This area, bordered by Mill and Smith creeks, is drained by a system of remnant slough channels equipped with culverts and tide gates, with runoff directed northwestward into Cutoff Slough opposite the Inner Marsh.

There are four Wildcat Hill tributary watersheds that contribute freshwater inflow to the Project Area. The total drainage area for all tributary watersheds is 5.88 square miles and includes the following watersheds: Russ Creek (3.63 mi<sup>2</sup>); Creamery Ditch (0.16 mi<sup>2</sup>); Shaw Creek (1.19 mi<sup>2</sup>), and tributaries draining to Angel's Camp and the head of the Western Drainage Ditch (0.93 mi<sup>2</sup>).

## Tidal Exchange

Historically, a majority of the Project Area was tidal wetland, hosting a network of estuarine sloughs and an important component of the Eel River Estuary. A mixed semidiurnal tidal cycle exchanges ocean water through the Eel River mouth with the estuary twice daily. The U.S. Fish and Wildlife Service (USFWS) computed tidal datums for the head of Cutoff Slough below the tide gate using NOAA procedures (NOAA 2003). The tidal datums are listed in Table 3.10-1. The procedure extends the results from 31 months of observations collected by the Wildlands Conservancy below the Cutoff Slough tide gate from December 2017 to July 2021<sup>1</sup>. Tidal datums from the NOAA North Spit Gage at Humboldt Bay (Station ID: 9418767) were used as the reference gage.

**Table 3.10- 1: Cutoff Slough and North Spit Tidal Datums (elevation datum – feet – NAVD 1988)**

Datum	North Spit	Cutoff Slough Below Tide Gate
Mean Higher High Water (MHHW)	6.51	6.80
Mean High Water (MHW)	5.80	6.18
Mean Tide Level (MTL)	3.36	4.36
Mean Low Water (MLW)	0.91	2.54
Mean Lower Low Water (MLLW)	-0.34	1.74
Maximum Water Level (Observed)	9.88	12.52
Minimum Water Level (Observed)	-2.90	-1.17

<sup>1</sup> There are some gaps in the record resulting from periods when the gage was non-operational or not recording data correctly.

Water levels in Cutoff Slough are influenced by Eel River discharge which may elevate tidal datums. On February 27, 2019, when water levels at Fernbridge reached a gage height of 25.62 feet, the 5th highest stage in 88 years of record, water levels reached approximately 12 feet elevation (NAVD-88) and overtopped the Cutoff Slough tide gate structure. Low tides at Cutoff Slough are elevated above local low ocean tides (North Spit) because of storage in the estuary, shoals in the Eel River mouth and connecting channels, Eel River discharge, and channel friction loss between the Eel River mouth and the Cutoff Slough tide gate.

## Site Water Quality

Surface and ground water quality measurements for salinity and temperature have been collected by TWC staff and Kamman Hydrology & Engineering (KHE) across the Project Area at 31 different locations between 2014 to 2018. Monitoring results are summarized below.

### *Salinity*

Water quality in site drainages is controlled by the mixing of a variety of source waters, including:

- Seasonally varied amounts of rainfall and freshwater inflow from the Wildcat tributaries having salinity less than one part per thousand (ppt);
- Shallow unconfined groundwater displaying relatively constant salinity concentrations, which vary spatially from brackish to marine<sup>2</sup> across the Project Area;
- Freshwater inflow from the three artesian wells; and
- Leakage from the Cutoff Slough tide gates that displays seasonal salinities that are generally fresh in winter and marine in summer.

Salinities across the site predominantly display seasonal variability – fresh to brackish concentrations vary spatially and temporally through the winter but return to near marine conditions throughout the summer. Freshwater runoff from artesian wells maintains perennial freshwater conditions in discrete areas.

In general, the shallow groundwater table beneath the site occurs at an elevation of 2.5 feet NAVD88. This depth to water is very shallow, especially in low-lying areas. There appears to be a strong east west summer salinity concentration gradient within the shallow groundwater, with salinity ranging from 24 to 25 ppt immediately behind the dunes decreasing to around 10 to 15 ppt at the center of the Project Area, to 5 ppt at the far east side of the Project Area. The seasonal fluctuations in shallow groundwater salinity concentrations reflect winter freshwater recharge to the shallow groundwater. Because many internal ditches and remnant slough channels are deeper than the shallow water table, groundwater discharges into the channels and contributes to surface water salinity. The freshwater from the artesian wells originates from a much deeper confined aquifer(s). Salinity concentrations from the artesian aquifer(s) is constant and does not vary seasonally as the aquifer(s) is too deep to be influenced by seasonal recharge at the site.

### *Temperature*

Surface water temperatures display a seasonal trend of warmest during July and August and coolest temperatures occurring in early January. The temperature of freshwater inflow from Russ Creek generally ranges between 10 and 20 degrees Celsius (°C) or 50 to 68 degrees Fahrenheit (°F) although temperatures as low as 5 degrees C° (41° F) were recorded in early January 2016. Temperature ranges on other surface

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<sup>2</sup> For purposes of this report, marine salinity refers to salinities that range from 25- to 32-ppt in concentration. Hypersaline salinities are those greater than 32-ppt and reflect the concentration of salts in stagnant waters due to evaporation.

waters within the Project Area follow a similar trend except summer peak temperatures can approach over 25°C (77°F) within the Inner Marsh and Cutoff Slough at the north end of the Project Area.

Water temperatures in the shallow unconfined groundwater display less seasonal variability than surface waters with temperatures generally ranging from 12°C (54°F) in winter and up to 17°C (63°F) in summer, although temperatures as low as 8°C (46°F) were recorded in early January 2016. The water temperature in the deeper confined aquifer remained constant at 13°C (55°F) over the monitoring period.

### **Climate Change and Sea Level Rise**

Warming atmospheric and ocean temperatures are leading to rising sea levels. According to the State of California Sea Level Rise Guidance (OPC 2018), based on high emissions the projected sea level rise (SLR) ranges for the Humboldt Bay North Spit tide gauge by 2050 are 1.2 feet (50% probability), 1.5 feet (66% probability), and 2.3 feet (0.5% probability). Local rates of SLR are driven by a combination of changes in regional sea level and by local vertical land movement. Patton et al. (2017) evaluated local rates of vertical land movement in the Humboldt Bay region. They established that vertical land movement (or uplift rate) in most of the Humboldt Bay region was negative (i.e., downward movement). Negative uplift rates increase the net rate of local SLR. The most negative local uplift rates are located at Hookton Slough in southern Humboldt Bay, where uplift rates are between -3.0 and -4.0 millimeters per year (mm/yr). Patton et al. (2017) focused on tidal gages in Humboldt Bay, but they also resurveyed a level line across the Eel River valley along the US-101 highway corridor between Fernbridge and Scotia, CA. At Fernbridge, the uplift rate is between -3.0 and -2.0 mm/yr indicating downward movement. Uplift rates increased moving up-valley becoming positive near Fortuna, CA. At Scotia, CA uplift rates are between 2.0 and 3.0 mm/yr. Although direct measurements have not been made in the Centerville Slough area, it is inferred from Patton et al. (2017) that vertical movement in the Eel River Estuary is downward, leading to heightened rates of local SLR.

There are numerous scenarios for projecting future SLR rates that are based on differing assumptions about global climate change, physical response to climate change, and climate change adaptation policies. Representative Concentration Pathways (RCP) are a set of greenhouse gas concentration scenarios developed by IPCC (2014) to evaluate potential climate change futures. RCP 8.5 represents a “business as normal” approach and generally used to describe a worst-case scenario. RCP 4.5 is described by IPCC (2014) as an intermediate scenario. The resultant projections of SLR rates for 2050 are similar for most RCP scenarios (Griggs et al. 2017). After 2050, the RCP projections start to diverge because of differing assumptions about carbon emission levels. Anderson (2018) developed projections of local SLR rates for North Spit Humboldt Bay by combining estimates of regional SLR rates with Patton et al. (2017) estimates of vertical land movement. Table 3.10-2 lists the median (50% probability) projections of local SLR developed by Northern Hydrology & Engineering (2018) for RCP 4.5 and 8.5 and accounts for the negative vertical land motion.

**Table 3.10-2: Local Median Sea Level Rise Projections (feet) for North Spit Humboldt Bay Relative to Year 2000 (NHE 2018)**

Year	RCP 4.5	RCP 8.5
2030	0.69	0.69
2050	1.25	1.31
2100	2.79	3.31
2150	4.30	5.35
2200	5.87	7.74

In addition, according to the Eel River Valley Groundwater Sustainability Plan, sea level rise may extend the existing tidal influence farther inland and increase salinity levels in inundated soils and waterways, thus impacting existing groundwater dependent vegetation communities and possibly shifting vegetation towards more salt-tolerant species assemblages (Humboldt County 2022).

### Beneficial Uses of Surface Waters

The current 2018 Basin Plan prepared by the North Coast Regional Water Quality Control Board (NCRWQCB) identifies the beneficial uses of surface waters and groundwater within its region (NCRWQCB 2018). The Basin Plan assigns beneficial uses by Hydrologic Units and Sub Areas. The Project is located within the Eel River Hydrologic Unit (111.00) and Lower Eel River Hydrologic Area, which includes the following existing beneficial uses:

- Municipal and Domestic Supply
- Agricultural Supply
- Industrial Service Supply
- Groundwater Recharge
- Freshwater Replenishment
- Navigation
- Water Contact Recreation
- Non-Contact Water Recreation
- Commercial and Sport Fishing
- Cold Freshwater Habitat; Wildlife Habitat
- Rare, Threatened, or Endangered Species
- Migration of Aquatic Organisms
- Spawning, Reproduction, and/or Early Development
- Shellfish Harvesting
- Estuarine Habitat
- Native American Culture

The beneficial uses provide the basis for determining appropriate water quality objectives for the region (NCRWQCB 2018).

### Surface Water Quality

In accordance with Section 303(d) of the Federal Clean Water Act, state governments must present the U.S. Environmental Protection Agency (U.S. EPA) with a list of “impaired water bodies,” defined as those water bodies that do not meet water quality standards, even after point sources of pollution have been equipped with the minimum required levels of pollution control technology. The Clean Water Act Section 303(d) list assigns impaired water bodies by Hydrologic Areas and Sub Areas. The Project is located within the Lower Eel River Hydrologic area, which is listed as impaired for sediment and water temperature (USEPA 2007).

Placement of a water body on the Section 303(d) list acts as the trigger for developing a Total Maximum Daily Load (TMDL), which is a pollution control plan for each water body and associated pollutant/stressor on the list. The TMDL identifies the quantity of a pollutant that can be safely assimilated by a water body without violating water quality standards. A TMDL for sediment and temperature in the Lower Eel River was adopted by the United States Environmental Protection Agency (USEPA) on December 18, 2007. The TMDL includes numeric targets, source analysis, and sediment loading rates within the watershed (USEPA 2007).

## **Drainage and Floodings**

Flood hazards within the Project Area are related to both overbank flows from the Eel River, storm runoff from the Wildcat tributaries, and marine wave overwash (e.g., Image 3.10-1 and Image 3.10-2). Floodwaters from both the Eel River and Wildcat tributaries periodically overtop the channel banks and spill over the gently sloping lands within the Project Area. Both sources carry large volumes of sediment contributing to delta and alluvial fan building, maintaining delta elevations in the face of sea level rise and tectonic subsidence. The flood magnitudes of 1861/62, 1955 and 1964 events were all in excess of a 100-year recurrence flood, inundating a majority of the Project Area and depositing significant volumes of sediment, particularly along the lower Salt River (e.g., Hofmann and Rantz 1963, Young 1963, Wannanean et. al. 1971).

A 100-year flood on the lower Eel River would inundate the entire river delta and a majority of the Project Area including the perimeter levee system that defines the Project study area. However, flooding within the Project Area occurs on a more frequent basis due to the existing perimeter levee and backwater effects associated with the Cutoff Slough tide gate. During Eel River flood events with a one-year or greater recurrence interval, the elevated river and estuary levels restrict drainage from the site through the Cutoff Slough tide gates. This creates a backwater effect that prevents runoff entering the Project Area from the Wildcat tributaries from draining to the Eel River. Therefore, the magnitude and duration of site flooding is controlled more commonly by the duration of Eel River high water than the magnitude of Eel River or Wildcat tributary flow.

The Federal Emergency Management Agency (FEMA) delineates regional flooding hazards as part of the National Flood Insurance Program. According to local Flood Insurance Rate Maps, the majority of the Project Area is located within a 100-year floodplain (Humboldt County 2022b, Figure 3.10-1). All Wildcat Hills tributary channels occur within the flood zone within the Project Area. None of the Project Area is mapped within the Eel River Floodway. Floodways are the portion of a stream or river that carries peak runoff. Floodways cannot be filled or developed without causing increased flooding in other parts of the watershed.

In addition to natural flood hazards, flooding can occur as a result of inundation caused by failure of a dam, a result of seiches (i.e., earthquake-induced oscillating waves in an enclosed water body), tsunamis (i.e., earthquake-induced waves formed in the open ocean that reach a shoreline), or mudflows. The Project Area is not located near isolated bodies of water that would be subject to inundation by seiche. The topography of the Project Area is generally flat, eliminating the risk of landslides or other mass wasting events. However, the Project Area is located within a coastal area subject to inundation from tsunami (Humboldt County 2022c).





**Image 3.10-1 Eel River Estuary Inundation, Winter 2016** (Image Provided by B. Finney)



**Image 3.10-2 Coastal Flooding, November 2019** (Image Provided by Russ Ranch and Timber)

## Local Groundwater Basin and Beneficial Uses

The Project Area is located within the Eel River Valley Groundwater Basin (CDWR 2004). Existing groundwater wells located in and near the Project Area are shown in Figure 3.10-2 – Existing Groundwater Wells. The Eel River Valley Groundwater Basin is one of the largest groundwater basins in Humboldt County. The area includes the lower eight miles of the Van Duzen River Valley and the Eel River Valley. The groundwater system within the basin provides numerous benefits to the region, including rural residential and municipal water supplies, irrigation water for agriculture, and baseflow to streams and surface water bodies. The California Department of Water Resources has identified the Eel River Valley Basin as a medium priority basin under the Sustainable Groundwater Management Act (SGMA). Under SGMA, local entities are required to develop groundwater sustainability plans for high- and medium-priority basins. In May 2020, the Humboldt County Board of Supervisors formed the Humboldt County Groundwater Sustainability Agency, which oversaw the development of the Eel River Valley Groundwater Sustainability Plan (GSP, Humboldt County 2022).

According to the Eel River Valley Groundwater Sustainability Plan, the primary water-bearing units within the groundwater basin are the alluvial aquifer and the underlying Carlotta formation. The alluvial aquifer is the most productive aquifer and most utilized aquifer in the groundwater basin. The alluvial aquifer is most prominent within the central portions of the lower Eel River Valley, where the thickness is in excess of 260 feet, and extends up the Van Duzen River Valley, thinning from approximately 125 feet thick at the confluence with the Eel River to less than 40 feet in the vicinity of Carlotta. Most wells in the alluvial aquifer are less than 100 feet deep. The surface waters of the Eel River are generally in direct contact and hydraulic connection with the alluvial aquifer.

Studies that supported the Eel River Valley Groundwater Sustainability Plan indicated that groundwater elevations within the groundwater basin are generally stable. The range in elevations between the spring and fall seasons is generally less than ten feet and the alluvial aquifer maintains a consistent gradient towards the ocean. The water budget indicates that groundwater storage within the groundwater basin is stable with no significant change between 2000 and 2020. The average annual groundwater use within the groundwater basin from water year 2011 through 2020 was 14,837 acre-feet, which includes: 12,559 acre-feet of Agricultural Irrigation; 1,733 acre-feet of Municipal Drinking Water; 414 acre-feet of Domestic Drinking Water; and 132 acre-feet of other uses.

In the groundwater basin applicable to the Project, the groundwater gradient flows from the upper reaches of the basin in the east towards the west and the Pacific Ocean. The groundwater levels in the unconfined aquifer in the Project Area are largely governed by the ocean water level. The fresh groundwater flows from the upper reaches of the basin towards the Project Area where the aquifer is hydraulically connected with the subsurface ocean water column. The saline groundwater from the ocean and inner tidal areas is denser than the freshwater flowing from the upper reaches, which causes the saltwater to migrate inland and under the Project Area. The saltwater and fresh groundwater meet and mix through advection and dispersion, creating a transition zone in the shallow unconfined aquifer. Generally, the inland extent of the saltwater intrusion is limited by the fresh groundwater levels that are higher as the land surface increases inland. The location of the transition zone in the Project Area will vary as the hydraulic conditions vary seasonally. In the winter months when there is significant rainfall and when the Eel River and tributaries are flowing high the fresh groundwater gradient is higher which forces the transition zone west. During the dry months, the regional groundwater gradient decreases and the transition zone moves inland. The water quality (salinity) of the groundwater within the shallow unconfined aquifer at the Project Area is a function of the location of the transition zone and varies from saline to fresh.

The 2018 Basin Plan prepared by the NCRWQCB (2018) identifies the beneficial uses of groundwater within its region. The Basin Plan assigns the following existing beneficial uses for groundwater:

- Municipal and Domestic Supply
- Agricultural Supply
- Industrial Service Supply
- Industrial Process Supply
- Native American Culture

Groundwater pumping for irrigation accounts for almost all of the water use in the Project Area. Groundwater is pumped seasonally for irrigation within the Project Area during the months of June through September. Irrigation usage and groundwater withdrawals (water use) would not change under Project conditions.

### 3.10.3 Regulatory Framework

#### **Federal**

##### ***Clean Water Act***

The Clean Water Act (CWA) enacted by Congress in 1972 and amended several times since, is the primary federal law regulating water quality in the United States and forms the basis for several state and local laws throughout the country. It established the basic structure for regulating discharges of pollutants into Waters of the United States. It also gave the EPA the authority to implement federal pollution control programs, such as setting water quality standards for contaminants in surface water, establishing wastewater and effluent discharge limits for various industry categories, and imposing requirements for controlling nonpoint source pollution. At the federal level, the CWA is administered by the EPA and U.S. Army Corps of Engineers (USACE). At the state and regional levels in California, the CWA is administered in part and enforced by the State Water Resources Control Board (SWRCB) and the nine RWQCBs.

Section 303(d) of CWA requires state governments to present the EPA with a list of “impaired water bodies,” defined as those water bodies that do not meet water quality standards, even after point sources of pollution have been equipped with the minimum required levels of pollution control technology. In accordance with CWA Section 303(d), the State of California periodically identifies “those waters within its boundaries for which the effluent limitations ... are not stringent enough to implement any water quality standard applicable to such waters.” In 1992, EPA added the Lower Eel River to California’s 303(d) impaired waters list due to elevated sedimentation/siltation and temperature, as part of listing the entire Eel River basin. The NCRWQCB has continued to identify the Lower Eel River as impaired in subsequent listing cycles, the latest being 2014-2016. The primary purpose of the TMDLs for the Lower Eel River is to ensure that beneficial uses of freshwater habitat (such as salmonid habitat) are protected from elevated sediment and temperature levels. Sections 404 and 401 of the CWA require permitting and state certification for construction and/or other work conducted in “Waters of the United States.” Such work includes levee work, dredging, filling, grading, or any other temporary or permanent modification of wetlands, streams, or other water bodies. The Project would require both a CWA Section 401 Water Quality Certification from the RWQCB and a CWA Section 404 permit from USACE.

##### ***National Flood Insurance Program***

FEMA administers the National Flood Insurance Program (NFIP) to provide subsidized flood insurance to communities that comply with FEMA regulations limiting development in floodplains. FEMA also issues Flood Insurance Rate Maps identifying which land areas are subject to flooding. The maps provide flood

information and identify flood hazard zones in each community. The design standard for flood protection is established by FEMA, with the minimum level of flood protection for new development determined to be the 1-in-100 annual exceedance probability (i.e., the 100-year flood event). The Eel River Estuary Preserve (EREP) is entirely within the 100-year flood zone.

### ***National Pollutant Discharge Elimination System***

The National Pollutant Discharge Elimination System (NPDES) permit program was established by the CWA to regulate industrial and municipal discharges to surface Waters of the United States. NPDES permit regulations have been established for broad categories of discharges including point source municipal waste discharges and nonpoint source stormwater runoff. An NPDES permit is required when proposing to or discharging waste into any surface water of the state. The SWRCB issues NPDES permits to cities and counties through RWQCBs, and implements and enforces the NPDES General Permit for Stormwater Discharges Associated with Construction and Land Disturbance Activities (Order No. 2009-0009, as amended by Order No. 2010-0014). Order No. 2009-0009 took effect on July 1, 2010 and was amended on February 14, 2011. The Order applies to construction sites that include one or more acre of soil disturbance. Construction activities include clearing, grading, grubbing, excavation, stockpiling, and reconstruction of existing facilities involving removal or replacement. To obtain a permit, a discharger files a Notice of Intent to be included under the State's NPDES permit. General conditions of the permit require that dischargers must eliminate non-stormwater discharges to stormwater systems, develop and implement a SWPPP or functional equivalent (e.g., project specific water pollution control plan), and perform inspections of stormwater pollution prevention measures.

### ***Federal Antidegradation Policy***

The federal antidegradation policy is set forth in 40 Code of Federal Regulations (CFR) Section 131.12. It serves as a catch-all water quality standard to be applied where other water quality standards are not specific enough for a particular waterbody, or where other water quality standards do not address a particular pollutant. SWRCB Order No. 68-16 incorporates the federal antidegradation policy into the state policy for water quality control and ensures consistency with federal CWA requirements. This federal regulation establishes a three-part test for determining when increases in pollutant loadings or other adverse changes in surface water quality may be permitted, including consideration of existing instream uses and water quality.

### ***National Wild and Scenic Rivers Act***

The National Wild and Scenic Rivers System was created by Congress in 1968 (Public Law 90-542; 16 U.S.C. 1271 et seq.) to preserve certain rivers with outstanding natural, cultural, and recreational values in a free-flowing condition for the enjoyment of present and future generations. The Act is notable for safeguarding the special character of these rivers, while also recognizing the potential for their appropriate use and development. It encourages river management that crosses political boundaries and promotes public participation in developing goals for river protection. Each river is administered by either a federal or state agency. Regardless of classification, each river in the National System is administered with the goal of protecting and enhancing the values that caused it to be designated.

The Eel River was designated a Wild and Scenic River on January 19, 1981 from the mouth of the river to 100 yards below Van Arsdale Dam. The primary agencies managing the river under the Wild and Scenic Rivers Act include the California Resources Agency, Bureau of Land Management, Six Rivers National Forest, Mendocino National Forest, and Round Valley Indian Tribes.

## State

### ***Porter Cologne Water Quality Control Act***

The Porter Cologne Water Quality Control Act (Porter-Cologne) is the primary statute covering the quality of waters in California. Under Porter-Cologne, the SWRCB allocates water rights, adjudicates water right disputes, develops state-wide water protection plans, establishes water quality standards, and guides nine RWQCBs state-wide. The joint authority of water allocation and water quality protection enables the SWRCB to provide comprehensive protection for California's waters. RWQCB boundaries are based on watersheds and water quality requirements are based on the unique differences in climate, topography, geology, and hydrology for each watershed. The RWQCBs regulate water quality under Porter-Cologne through the standards and objectives set forth in Water Quality Control Plans (also referred to as Basin Plans) prepared for each region. The current 2018 Basin Plan prepared by the NCRWQCB provides a definitive program of actions designed to preserve and enhance water quality and to protect beneficial uses of water in the North Coast Region.

Beneficial uses serve as a basis for determining appropriate water quality objectives for the region. To protect these beneficial uses, the Basin Plan sets forth water-resource protection objectives for inland surface waters spanning many parameters. Basin Plan parameters relevant to potential water quality impacts of Project actions include floating material, suspended material, settleable material, oil and grease, sediment, turbidity, pH, dissolved oxygen, temperature, toxicity, waste discharge and effluent limits, pesticides, and chemical constituents.

### ***Wetland Riparian Area Protection Policy***

The SWRCB adopted a State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State (Procedures), for inclusion in the forthcoming Water Quality Control Plan for Inland Surface Waters and Enclosed Bays and Estuaries and Ocean Waters of California. The Procedures consist of four major elements: 1) a wetland definition; 2) a framework for determining if a feature that meets the wetland definition is a Water of the State; 3) wetland delineation procedures; and 4) procedures for the submittal, review and approval of applications for Water Quality Certifications and Waste Discharge Requirements for dredge or fill activities. The Procedures, formerly known as the Wetland Riparian Area Protection Policy, has been renamed in order to communicate that the Procedures apply to all discharges of dredged or fill material to waters of the state, not just wetlands.

### ***California Coastal Act***

The California Coastal Act (Coastal Act) of 1976 requires any person proposing to develop in the coastal zone to obtain a Coastal Development Permit or obtain coverage under a Consistency Determination. The coastal zone extends from the State's three-mile seaward limit to an average of approximately 1,000 yards inland from the mean high tide of the sea. In coastal estuaries, watersheds, wildlife habitats, and recreational areas, the coastal zone may extend as much as five miles inland. In developed urban areas, the coastal zone may extend inland less than 1,000 yards. As defined by the Coastal Act, "development" of land above, in or beneath water includes:

- Placement or erection of any solid material or structure
- Discharge or disposal of any dredge material or a gaseous, liquid, solid, or thermal waste
- Grading, removing, dredging, mining or extraction of any material
- Change in the density or intensity of use of land (including land diversions)
- Construction, reconstruction, demolition, or alteration of the size of any structure

- Removal or harvesting of major vegetation other than for agricultural operations, kelp harvesting, and timber operations, which are in accordance with a Timber Harvest Plan issued by the California Department of Forestry and Fire Protection (CAL FIRE).

Section 30233 of the Coastal Act recognizes restoration as an allowable use and reason for placing fill material in coastal wetlands. Section 30236 of the Coastal Act provides for review of flood control projects. Under this policy it must be demonstrated that no other measure for protecting existing structures in the floodplain is feasible, and such protection is necessary for public safety or to protect existing development. Proposed projects must also incorporate the “best mitigation measures feasible.”

### ***Fish and Game Code Section 1602***

CDFW is responsible for conserving, protecting, and managing California’s fish, wildlife, and native plant resources. To meet this responsibility, the Fish and Game Code (Section 1602) requires an entity to notify CDFW of any proposed activity that that would substantially alter the bed, bank, or channel of a lake or stream, would substantially divert or obstruct the flow of water, or that would use material from the streambed. A Lake or Streambed Alteration Agreement (LSAA) includes avoidance and minimization measures necessary to protect those resources, and CDFW would review an LSAA for the Project prior to implementing stream alteration work.

## **Regional and Local**

### ***Humboldt County Code***

Under Title III - Land Use and Development, Division 3 - Building Regulations, Section 331-12, of the Humboldt County Code, a grading permit is required from the County for any project requiring grading in excess of 50 cubic yards. The purpose of the permit is to safeguard life, limb, property and the public welfare, including the protection of water resources and their related habitats by regulating grading and related activities on private and public property, to control and reduce erosion, to reduce sediment delivered to drainages and streams, and to protect fishery habitat and other biological resources by providing best erosion control and sediment management practices. The County code covering grading permits sets forth rules and regulations to control excavation, grading and earthwork construction, including fills and embankments and erosion and sedimentation controls.

Grading in excess of 5,000 cubic yards (3825 m<sup>3</sup>) shall be performed in accordance with the approved grading plan prepared by a civil engineer and shall be designated as "engineered grading." Application for a grading permit shall be accompanied by two sets of plans and specifications and supporting data consisting of a soils engineering report and engineering geology report. Grading plans must comply with County grading standards including erosion and sedimentation control.

### ***Humboldt County Eel River Area Local Coastal Plan***

#### **3.28 Hazards**

##### ***3.28 A. Development Policies***

1. *New development shall be consistent with the adopted Humboldt County Safety and Seismic Safety Element of the General Plan. Of particular interest, when siting new development, the Natural Hazards/Land Use Risk Rating Matrix in Chapter 3 of Volume 1 should be used in conjunction with Plates III. Plate III is a map delineating seismic zones relating to earthquake shaking as well as land stability and other natural hazard conformation.*

3. *Tsunamis--New development below the level of the 100 year tsunami run-up elevation described in Tsunami Predictions for the West Coast of the Continental United States (Technical Report H-78-26 by the Corps of Engineers) shall be limited to public access, boating, and public recreation facilities.*
4. *Flood Plains--No critical facilities should be permitted to locate within the 100 year flood plain. Utility lines may cross hazard zones if there is no reasonable alternative and provisions are made to mitigate the hazard. Non- critical facilities should be permitted in the 100 year flood plain only if adequate flood control measures, such as control works, compact fill, etc., that would result in a site being beyond or above the 100 year flood extend, are provided. Further, the County will continue to review development in light of and impose conditions consistent with the National Flood Insurance Program.*

### 3.41 Environmentally Sensitive Habitats

#### 3.41 F. Eel River

*\*\*\*30236. Channelizations, dams, or other substantial alterations of rivers and streams shall incorporate the best mitigation measures feasible, and be limited to (1) necessary water supply projects, (2) flood control projects where no other method for protecting existing structures in the flood plain is feasible and where such protection is necessary for public safety or to protect existing development, or (3) developments where the primary function is the improvement of fish and wildlife habitat.*

#### 3.41 F.1. Protection of Water and Fisheries Resources.

##### 3.41 F.a. Water Diversions:

*The Eel River is the principal coastal resource of this Planning Area. The County finds that the diversion of water from the Eel River, either individually or cumulatively will have a significant adverse impact on coastal resources. Specifically, diversion of water out of the Eel River basin could result in detrimental changes to coastal resources including: fisheries (both marine and freshwater), riparian systems, wildlife, wetlands systems, agriculture, recreation opportunities, sediment transport in the channel, disposition of sediment on farmlands, and increase the potential for saltwater intrusion in coastal aquifers.*

*For these reasons:*

- (1) All projects in and out of the Coastal Zone which may have a significant impact on instream flow regimes and coastal resources, shall overall, maintain in-basin beneficial uses of water, where feasible enhance instream beneficial uses of water, and prevent significant adverse effects to coastal resources.*
- (2) The County shall continue to pursue opportunities to restore and enhance, if possible, in-stream flows through such activities as participating in the re-licensing of the Potter Valley Dam.*
- (3) Any project not in conformance with these policies, in or out of the Coastal Zone, is inconsistent with this Local Coastal Plan and Section 30200 of the Coastal Act of 1976.*

##### 3.41 F.1.b. Eel River Fishery

*The Department of Fish and Game, in consultation with the County, local sports and fishing clubs, and property owners adjacent to the Eel River, should investigate opportunities and implement measures to augment and enhance anadromous fish runs in the Eel River. This should include: channel improvements, revision of fishing season opening day to better correlate to the fishery and hydrological conditions, and further study of harbor seal impacts on the fishery.*



### 3.41 F.2. Development and Uses Within the Eel River

*New development within stream channels shall be permitted when there is no less environmentally damaging feasible alternative, where the best feasible mitigation measures have been provided to minimize adverse environmental effects, and shall be limited to:*

- (a) Wetlands, fishery, and wildlife enhancement and restoration projects.*
- (b) Road crossings, consistent with the provisions of Section 3.41F4c.*
- (c) Maintenance dredging for flood control and drainage purposes consistent with the Transitional Agricultural Lands Policies and within areas planned for agriculture.*
- (d) Maintenance of levees, roads, fences, dikes, drainage channels, flood gates and tide gates including replacement.*
- (e) Development consistent with 3.41F below.*
- (f) Surface Mining and bank protection*
  - (2) Bank protection shall be permitted to:*
    - (a) Maintain necessary public or private roads.*
    - (b) Protect principal structures in danger from erosion.*
    - (c) Protect lands designated Agriculture Exclusive from erosion.*
  - (3) It is the policy of the County, based on the effectiveness of protection, costs, and habitat protection, to prefer:*
    - (a) Piling fence to rock hard points.*
    - (b) Rock hard points to continuous revetment.*
  - (4) Bank protection projects, including design and materials shall minimize adverse effects on fisheries, wildlife, and recreation.*
    - (a) Mitigation for rock hard points or continuous revetment shall include as a minimum:*
      - (i) Where feasible, planting of riparian vegetation shall be included within the revetment itself.*
      - (ii) Where feasible, planting and maintaining riparian vegetation within the riparian corridor.*
  - (5) Bank protection projects require permits from the Department of Fish and Game and the Army Corps of Engineers.*

### 3.41 G. Other Coastal Streams



3.41 G.2. *Within the Eel River Planning Area the following coastal streams (as mapped on USGS 7.5' Quads) have been identified:*

- |                                       |                      |
|---------------------------------------|----------------------|
| - Hawk Slough                         | - Centerville Slough |
| - Quill Slough                        | - Russ Creek         |
| - Hogpen Slough                       | - Reas Creek         |
| - Seven Mile Slough                   | - Salt River         |
| - Unnamed stream North of Loleta      | - Williams Creek     |
| - Intermittent streams on Table Bluff | - Coffee Creek       |
| - Morgan Slough                       | - Perry Creek        |
| - Smith Slough                        | - Barber Creek       |
| - Cutoff Slough                       |                      |

### 3.41 G.3

*New development within stream channels shall be permitted when there is no less environmentally damaging feasible alternative, where the best feasible mitigation measures have been provided to minimize adverse environmental effects, and shall be limited to:*

- a. *Wetlands, fishery, and wildlife enhancement and restoration projects.*
- b. *Road crossings, consistent with the provisions at Section 3.41G6e.*
- c. *Maintenance dredging for flood control and drainage purposes consistent with the Transitional Agricultural Lands Policies and within areas planned for agriculture.*
- d. *Maintenance of levees, roads, fences, dikes, drainage channels, flood gates and tide gates including replacement.*
- f. *New fences, so long as it would not impede the natural drainage or would adversely affect the stream environment or wildlife. (Typically, 2-3 strands of barbed wire with fence posts set outside of the stream channel would be consistent with this policy)*

### 3.41 G.9

*Natural drainage courses, including ephemeral streams, shall be retained and protected from development which would impede the natural drainage pattern or have a significant adverse effect on water quality or wildlife habitat. Stormwater outfalls, culverts, gutters, and the like, shall be dissipated, and, where feasible, screened. Natural vegetation within and immediately adjacent to the bankfull channel shall be maintained except for removal consistent with the provisions of this section.*

### 3.10.4 Evaluation Criteria and Significance Thresholds

Evaluation Criteria	Significance Thresholds	Sources
<p>Would the Project violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?</p>	<p>Non-compliance with the NPDES General Permit for Stormwater Discharges Associated with Construction and Land Disturbance Activities</p> <p>Alteration of the course of a stream, river, or waterway in a manner that creates erosion or siltation</p> <p>Creation of increased quantity of runoff such that capacity of storm drains would be exceeded</p>	<p>CEQA Guidelines Appendix G, Checklist Item X (a) (e)</p> <p>General Construction Permit (Order No. 2009-0009, as amended by Order No. 2010-0014 &amp; 2012-006)</p>
<p>Would the Project substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?</p>	<p>Creation of a deficit in aquifer volume or lowering of groundwater levels</p> <p>Creation of a substantial amount of new impervious surfaces that would interfere with groundwater recharge</p>	<p>CEQA Guidelines Appendix G, Checklist Item X (b) (e)</p>
<p>Would the Project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would result in substantial erosion or siltation on- or off-site?</p>	<p>Uncontrolled runoff from construction site</p>	<p>CEQA Guidelines Appendix G, Checklist Item X (c)(i)</p> <p>Humboldt County Grading, Excavation, and Erosion and Sediment Control Ordinance</p>
<p>Would the Project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?</p>	<p>Creation of a substantial amount of new impervious surfaces that would result in an increase in runoff from or within the Project Area</p>	<p>CEQA Guidelines Appendix G, Checklist Item X (c)(ii)</p> <p>FEMA flood protection standards</p>
<p>Would the Project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?</p>	<p>Installation of stormwater retention basins that do not comply with County standards, are not sustainable, and would increase erosion or sedimentation.</p>	<p>CEQA Guidelines Appendix G, Checklist Item X (c)(iii)</p>

Evaluation Criteria	Significance Thresholds	Sources
Would the Project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would impede or redirect flood flows?	Project actions would result in on-site or off-site flooding.	CEQA Guidelines Appendix G, Checklist Item X (c)(iv)
Would the Project, in flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?	Placement of facilities in a 100-year flood hazard area Non-compliance with the Humboldt County Flood Damage Prevention Ordinance	CEQA Guidelines Appendix G, Checklist Item X (d), and Item VIII (b) Humboldt County Flood Damage Prevention Ordinance
Would the Project conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	Conflict with Basin Plan or groundwater management planning.	CEQA Guidelines Appendix G, Checklist Item X (a) (e) Clean Water Act 303(d) listing for sediments

### 3.10.5 Methodology

Impact analysis germane to hydrology and water quality is based, in part, on the Project's preliminary hydraulic analysis prepared by the USFWS (USFWS 2022). Potential impacts to hydrology and surface water quality are evaluated for both construction and operational activities. The Project and operations are evaluated to determine compliance with applicable federal, State, and local permitting and design requirements related to storm water quality, flooding, and drainage. Potential impacts related to groundwater are evaluated. Flooding impacts are evaluated alongside the Project's compliance with local storm water requirements. Impact analysis also considers potential impacts to changes in inundation area, drainage rate, drainage patterns, and water quality during flood events.

### 3.10.6 Impacts and Mitigation Measures

**Impact HWQ-1: Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality.**

The Project is required to obtain and comply with necessary permits and comply with other Humboldt County and the NCRWQCB requirements, acting to prevent or reduce the potential for the Project and operations to violate any water quality standards or waste discharge requirements.

The greatest potential Project impacts to water quality would result from sediment mobilization during channel and wetland construction and operations as detailed in the Monitoring and Maintenance Plan (see Appendix D – Monitoring and Maintenance Plan). Construction and operation activities such as site clearing, grading, excavation, channel widening/deepening, material stockpiling, gated culvert removal and installation, demolition, and berm construction could leave soils exposed to rain or surface water runoff that may carry soil contaminants (e.g., nutrients or other pollutants) into waterways adjacent to the site, degrade water quality, and potentially violate water quality standards for specific chemicals, dissolved oxygen, suspended sediment, or nutrients. This impact would be potentially significant.

SWRCB Order No. 2009-0009 applies to public and private construction projects that include one or more acres of soil disturbance. Because the proposed Project is anticipated to disturb over one (1) acre of land, compliance with Order No. 2009-0009 would be required. Therefore, if construction and operation activities associated with the Project are not properly managed, applicable water quality standards and waste discharge requirements could be violated. The impact is considered potentially significant. Mitigation Measure HWQ-1, Mitigation Measure HWQ-2, and Mitigation Measure HWQ-3 have been integrated into the Project.

### **Mitigation Measure HWQ-1: Manage Construction Storm Water**

The Project and operations shall obtain coverage under State Water Resources Control Board Order No. 2009-0009-DWQ, Waste Discharge Requirements for Discharges of Storm Water Runoff Associated with Construction and Land Disturbance Activities, as amended by Order No. 2012-0006. In compliance with the NPDES requirements, a Notice of Intent (NOI) shall be prepared and submitted to the NCRWQCB, providing notification and intent to comply with the State of California General Permit. In addition, a Project specific Water Pollution Control Plan or functional equivalent will be prepared for pollution prevention and control prior to initiating site construction activities. The Project specific Water Pollution Control Plan shall identify and specify the use of erosion sediment control measures for avoidance of pollutants in stormwater runoff during construction related activities, and will be designed to address water erosion control, sediment control, off-site tracking control, wind erosion control, non-stormwater management control, and waste management and materials pollution control. A sampling and monitoring program shall be included in the Project specific Water Pollution Control Plan that meets the requirements of the NCRWQCB to ensure the included measures are effective. A Qualified Storm Water Pollution Prevention Plan Practitioner shall oversee implementation of the Plan, including visual inspections, sampling and analysis, and ensuring overall compliance.

The operations associated with the Monitoring and Maintenance Plan include but not limited to activities associated with sediment management and channel maintenance are not anticipated to require preparation and implementation of the Project specific Water Pollution Control Plan as per section I (C) of Order No. 2009-0009 DWQ, which lists activities that are not covered under the general permit: (24) Routine maintenance to maintain the original line and grade, hydraulic capacity, or original purpose of the facility and (25) Disturbance to land surfaces solely related to agricultural operations such as disking, harrowing, terracing and levelling and soil preparation.

### **Mitigation Measure HWQ-2: Implement Contractor Training for Protection of Water Quality**

All contractors performing demolition, construction, grading, operations or other work that could cause increased water pollution conditions at the site (e.g., dispersal of soils) shall receive training regarding the environmental sensitivity of the site and need to minimize impacts prior to the commencement of ground disturbing activities. Contractors also shall be trained in implementation of stormwater measures included in the Project specific Water Pollution Control Plan other Project permits for protection of water quality. The training shall be provided by a qualified Project engineer, water quality specialist, and/or biologist.

### **Mitigation Measure HWQ-3: In-Stream Erosion and Water Quality Control Measures During Channel Excavation and Operations**

Where excavation occurs to widen, deepen, construct, or maintain Project channels, ditches, drainage structures, and gated culverts, in-stream erosion and turbidity control measures shall be implemented. These measures include installation and maintenance of in-stream turbidity curtains, cofferdams and silt-fence along channel banks as specified in Project designs, specifications and erosion control plans. Additionally:

- Sufficient erosion control supplies will be maintained on site at all times, available for prompt use in areas susceptible to erosion during rain events;
- Disturbance of existing vegetation will be minimized to only that necessary to complete the work;
- The contractor will make adequate preparations, including training and providing equipment, to contain oil and/or other hazardous materials spills;
- Dewatering operations will be conducted where needed, with water disposed of appropriately (e.g., allowed to settle in an isolated area, or discharged to an upland location where it will not discharge back to surface waters);
- Vehicle and equipment maintenance will be performed off-site whenever practical; and
- All erosion and sediment control measures shall be maintained until disturbed areas are stabilized.

**Level of Significance:** Less than significant with mitigation

Implementation of Mitigation Measure HWQ-1, Mitigation Measure HWQ-2, Mitigation Measure HWQ-3, would mitigate potential impacts on water quality standards and waste discharge requirements to a less-than-significant level by complying with, and receiving coverage under, the NPDES General Permit for Discharge of Stormwater associated with construction and operational activities. The implementation of erosion and sediment control measures, consistent with the requirements of the site's NPDES General Permit for Discharge of Stormwater associated with Construction Activity and the Project specific Water Pollution Control Plan, would ensure that the Project and operations do not violate any water quality standards or waste discharge requirements. With implementation of Mitigation Measure HWQ-1, Mitigation Measure HWQ-2, Mitigation Measure HWQ-3, the Projects construction and operational impacts to water quality standards would be reduced to a less than significant level.

### **Invasive Plant Management**

During construction and operations, invasive plant species would continue to be managed through the regional Dense-flowered Cordgrass (*Spartina*) Eradication Program. Eradication methods would include top mowing, grinding, tilling, excavation, flaming and herbicide application. Removal of *Spartina* near waterways within the Project Area has the potential to contribute to erosion, decrease dissolved oxygen in receiving waters, and/or accidentally release herbicides into the environment, resulting in a potentially significant impact.

Potential impacts and mitigation measures for the removal of dense-flowered cordgrass using all of these methods, with the exception of flaming, were evaluated in the Final Programmatic Environment Impact Report for the Humboldt Bay Regional *Spartina* Eradication Plan (H.T. Harvey & Associates and GHD

2013), hereafter referred to as the 2013 Spartina PEIR. The 2013 Spartina EIR identified potential water quality impacts requiring mitigation, listed below.

- Impact WQ-1 related to degradation of water quality due to herbicide application
- Impact WQ-2 related to herbicide spills
- Impact WQ-3 related to fuel or petroleum spills
- Impact WQ-6 related to erosion and sediment control at staging and access areas and
- Impact WQ-7 related to decreased dissolved oxygen in receiving waters and are shown below.

Flaming would not require additional ground disturbance and would thus not result in a significant impact.

#### **Impact WQ-1: Degradation of Water Quality Due to Herbicide Application**

Treatment methods involving the use of herbicides have the potential to degrade water quality and subsequently affect beneficial uses of waters in the Management Area. Water quality could be affected by spills of herbicides or other hazardous materials, such as fuel (From 2013 Spartina PEIR, H.T. Harvey & Associates and GHD 2013, page 122).

#### **Impact WQ-2: Herbicide Spills**

Large volumes of herbicide or surfactant if spilled or misapplied could degrade water quality and cause temporary toxicity. As described for Impact WQ-1, above, controlled applications of registered herbicides (i.e., following label instructions) are not expected to degrade water quality because these materials degrade rapidly in the environment and do not represent high potentials for toxicity or bioaccumulation in marine or terrestrial organisms. However, if large volumes of herbicide or surfactant are spilled near the treatment site in an undiluted (neat) form, or misapplied, these events could degrade water quality and cause temporary toxicity (From 2013 Spartina PEIR, H.T. Harvey & Associates and GHD 2013, page 125).

#### **Impact WQ-3: Fuel or Petroleum Spills**

Spills of gasoline or other petroleum products, required for operation of motorized equipment, into or near open water could degrade water quality, with potential for toxicity or contaminant bioaccumulation. Gasoline or other petroleum products, such as oil and hydraulic fluids, required for operation of motorized equipment, could spill into or near open water. Large spill volumes could degrade water quality, with potentials for toxicity and contaminant bioaccumulation in marsh organisms. Water quality impacts also may occur if ignition fluids such as gasoline used for burning were inadvertently sprayed or spilled to surface waters. Gasoline, diesel, and other distilled petroleum products are more water-soluble than crude oils and heavier distillate fractions. However, they are also more volatile and therefore lost rapidly from water to the atmosphere. The lower molecular weight aromatic hydrocarbon compounds in petroleum products can be toxic to marine organisms at low exposure concentrations. Consequently, some toxicity to marine organisms could occur in the immediate vicinity of a spill, whereas environmental weathering processes reduce the toxicity of the spill with time (From 2013 Spartina PEIR, H.T. Harvey & Associates and GHD 2013, page 126).

#### **Impact WQ-6: Erosion/Sediment Control at Staging and Access Areas**

Temporary ground disturbance associated with site ingress/egress, staging, stockpiling, and equipment storage areas could occur in areas outside and adjoining treatment areas. These temporary disturbed areas have the potential to impact water quality from erosion and sediment mobilization. Rain and wind-induced erosion from these temporarily disturbed areas could carry

soil contaminants (e.g., nutrients or other pollutants) into waterways adjacent to treatment areas and degrade water quality standards for specific chemicals, dissolved oxygen, suspended sediment, or nutrients. (From 2013 Spartina PEIR, H.T. Harvey & Associates and GHD 2013, page 128).

### **Impact WQ-7: Decreased Dissolved Oxygen in Receiving Waters**

Treatment techniques (e.g., grinding) that increase and leave in place above ground biomass (wrack) could potentially result in decreased dissolved oxygen in receiving waters during the decay period, depending on where and how the wrack is deposited. Tidal currents and wind-induced waves could transport the wrack and debris into adjacent waters with low dissolved oxygen. In areas of poor tidal circulation, wrack and debris may accumulate, and further impede tidal exchange, further degrading dissolved oxygen. (From 2013 Spartina PEIR, H.T. Harvey & Associates and GHD 2013, page 129).

Mitigation measures from the 2013 Spartina PEIR have been incorporated in the Project; these mitigation measures were developed as part of the 2013 Spartina PEIR and have been carried forward from the prior CEQA process. Additionally, implementation of Mitigation Measure HWQ-1, Mitigation Measure HWQ-2, and Mitigation Measure HWQ-3 would further reduce the potential impacts associated with invasive plant management.

Application of the herbicide Imazapyr would also be used to treat dense-flowered cordgrass and European beachgrass. Use of Imazapyr in the dunes would limit potential impacts to surface waters because the dune restoration areas is generally hydrologically disconnected from surface waters. As described in Section 3.9.6, Imazapyr is safe for aquatic environments, where it dissipates from surface water within days, and would not adversely impact water quality during plant removal in the estuarine restoration area. If not properly managed and applied, the use of Imazapyr for treatment of dense-flowered cordgrass could result in potential impact to the environment, or potential impacts to the human health, such as direct unprotected exposure to herbicide mixtures. Mitigation Measure Spartina PEIR WQ-1: Managed Herbicide Control, Mitigation Measure Spartina PEIR WQ-2: Minimize Herbicide Spill Risks, Mitigation Measure Spartina PEIR WQ-3: Minimize Fuel and Petroleum Spill Risks, Mitigation Measure Spartina PEIR WQ-6: Designate Ingress/Egress Routes, Mitigation Measures Spartina PEIR WQ-7: Removal of Wrack, Mitigation Measure Spartina PEIR HHM-4: Avoid Health Effects to the Public and Environment from Herbicide have been incorporated into the Project. This mitigation measure was developed as part of the 2013 Spartina PEIR and has been carried forward from the prior CEQA process.

### **Mitigation Measure Spartina PEIR WQ-1: Managed Herbicide Control**

Herbicides shall be applied directly to plants and at low or receding tide to minimize the potential application of herbicide directly on the water surface, as well as to ensure proper dry times before tidal inundation. Herbicides shall be applied by a certified applicator and in accordance with application guidelines and the manufacturer label. The Control Program shall obtain coverage under the statewide General NPDES Permit for the Discharge of Aquatic Pesticides for Aquatic Weed Control in Waters of the United States.

### **Mitigation Measure Spartina PEIR WQ-2: Minimize Herbicide Spill Risks**

Herbicides shall be applied by or under the direct supervision of trained, certified or licensed applicators. Herbicide mixtures shall be prepared by, or under the direct supervision of trained, certified or licensed applicators. Storage of herbicides and surfactants on or near project sites

shall be allowed only in accordance with a spill prevention and containment plan approved by the NCRWQCD; on-site mixing and filling operations shall be confined to areas appropriately bermed or otherwise protected to minimize spread or dispersion of spilled herbicide or surfactants into surface waters.

### **Mitigation Measure Spartina PEIR WQ-3: Minimize Fuel and Petroleum Spill Risks**

Fueling operations or storage of petroleum products shall be maintained off-site, and a spill prevention and management plan shall be developed and implemented to contain and clean up spills. Transport vessels and vehicles, and other equipment (e.g., mowers) shall not be serviced or fueled in the field except under emergency conditions; hand-held gas-powered equipment shall be fueled in the field using precautions to minimize or avoid fuel spills within the marsh. For example, gas cans will be placed on an oil drip pan with a PIG® Oil-Only Mat Pad placed on top to prevent oil/gas contamination. Only vegetable oil-based hydraulic fluid will be used in heavy equipment and vehicles during Spartina control efforts. When feasible, biodiesel will be used instead of petroleum diesel in heavy equipment and vehicles during Spartina control efforts. Other, specific BMPs shall be specified as appropriate to comply with the Basin Plan and the other applicable Water Quality Certifications and/or NPDES requirements.

### **Mitigation Measure Spartina PEIR WQ-6: Designate Ingress/Egress Routes**

Temporary ground disturbance associated with site ingress/egress, staging, stockpiling, and equipment storage areas could occur in areas outside and adjoining work areas. Where areas adjacent to staging and stockpile areas are erosion prone, the extent of staging and stockpile shall be minimized by flagging their boundaries. An erosion/sediment control plan shall be developed for erosion prone areas outside the work area where greater than 0.25 acre (0.1 hectare) of ground disturbance may occur as a result of ingress/egress, access roads, staging and stockpile areas. The erosion/sediment control plan shall be developed by a qualified professional and identify BMPs for controlling soil erosion and discharge for treatment-related contaminants. The erosion/sediment control plan shall be prepared prior to any ground disturbing activities and implemented during construction (H.T. Harvey & Associates and GHD 2013, page 128).

### **Mitigation Measures Spartina PEIR WQ-7: Removal of Wrack**

Tidal flushing is anticipated to alleviate wracking throughout the Project Area. During site specific planning, tidal circulation will be visually assessed. In areas with relatively low tidal circulation, it will either be assumed that dissolved oxygen levels are depressed or monitoring will be conducted to determine if dissolved oxygen levels are depressed. In treatment areas located within or adjacent to waters known or expected to have depressed dissolved oxygen, if wrack greater than ¼ acre is generated during Project implementation, the wrack shall be removed from the treatment areas subject to tidal inundation or mulched finely and left in place.

### **Mitigation Measure Spartina PEIR HHM-4: Avoid Health Effects to the Public and Environment from Herbicide**

Please see Section 3.9.6 – Hazardous and Hazardous Materials for the full text of this mitigation measure.



**Level of Significance:** Less than significant with mitigation

Implementation of Mitigation Measure Spartina PEIR WQ-1, Mitigation Measure Spartina PEIR WQ-2, Mitigation Measure Spartina PEIR WQ-3, Mitigation Measure Spartina PEIR WQ-6, Mitigation Measure Spartina PEIR WQ-7, and Mitigation Measure Spartina PEIR HHM-4 would ensure that the Project's potential impacts to water quality resulting from eradication of Spartina would be reduced to a less than significant level.

### **Monitoring and Maintenance**

Following construction, long-term maintenance would be required to ensure the Project functions as designed. Maintenance needs will be primarily limited to the set-back berm, drainage infrastructure (channels, ditches, and gated culverts), vegetation management, back dunes, and sand fence (see Appendix D – Monitoring and Maintenance Plan). Management actions outlined in the Monitoring and Maintenance Plan include upland and in-channel construction to ensure the Project functions as designed over the long-term, maintaining channel and fluvial conveyance to support targeted habitats and drainage improvements to agricultural lands. Efforts to further eradicate Spartina would also continue. Operational implementation of monitoring and maintenance could result in local erosion, including areas near and within channels and ditches. Implementation of Mitigation Measure HWQ-1, Mitigation Measure HWQ-2, Mitigation Measure HWQ-3, Mitigation Measure Spartina PEIR WQ-6, Mitigation Measure Spartina PEIR HWQ-3, and Mitigation Measure Spartina PEIR HHM-4 would reduce the potential impacts associated with implementation of the Monitoring and Maintenance Plan (Appendix D) to a less than significant level.

#### **Mitigation Measure HWQ-1: Manage Construction Stormwater**

See Mitigation Measure HWQ-1 for full text of the mitigation measure.

#### **Mitigation Measure HWQ-2: Implement Contractor Training for Protection of Water Quality**

See Mitigation Measure HWQ-2 for full text of the mitigation measure.

#### **Mitigation Measure HWQ-3: In-Stream Erosion and Water Quality Control Measures During Channel Excavation and Operations**

See Mitigation Measure HWQ-3 for full text of the mitigation measure.

#### **Mitigation Measure Spartina PEIR WQ-1: Managed Herbicide Control**

See Mitigation Measure Spartina PEIR WQ-1 for full text of the mitigation measure.

#### **Mitigation Measure Spartina PEIR WQ-2: Minimize Herbicide Spill Risks**

See Mitigation Measure Spartina PEIR WQ-2 for full text of the mitigation measure.

#### **Mitigation Measure Spartina PEIR WQ-3: Minimize Fuel and Petroleum Spill Risks**

See Mitigation Measure Spartina PEIR WQ-3 for full text of the mitigation measure.

### **Mitigation Measure Spartina PEIR WQ-6: Designate Ingress/Egress Routes**

See Mitigation Measure Spartina PEIR WQ-6 for full text of the mitigation measure.

### **Mitigation Measures Spartina PEIR WQ-7: Removal of Wrack**

See Mitigation Measure Spartina PEIR HWQ-3 for full text of the mitigation measure.

### **Mitigation Measure Spartina PEIR HHM-4: Avoid Health Effects to the Public and Environment from Herbicide**

See Mitigation Measure Spartina PEIR HHM-4 for full text of the mitigation measure.

**Level of Significance:** Less than significant with mitigation

Implementation of Mitigation Measure HWQ-1, Mitigation Measure HWQ-2, Mitigation Measure HWQ-3, Mitigation Measure Spartina PEIR WQ-1, Mitigation Measure Spartina PEIR WQ-2, Mitigation Measure Spartina PEIR WQ-3, Mitigation Measure Spartina PEIR WQ-6, Mitigation Measure Spartina PEIR WQ-7, and Mitigation Measure Spartina PEIR HHM-4 would mitigate potential impacts on water quality standards related to Project monitoring and maintenance.

**Impact HWQ-2:** **Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin.**

There are groundwater wells located in and near the Project Area (Figure 3.10-2). Existing groundwater pumping that occurs for agricultural purposes on and near the Project Area would not change because of the Project. The introduction of new groundwater pumping for irrigation purposes or changes to existing groundwater demands would not occur. Some short-term lowering of the local shallow groundwater table may result from construction but would not be long in duration or detrimental to groundwater. The Project and operations include the enhancement and expansion of an existing internal slough network. Most internal channels already intersect the shallow unconfined groundwater table, which is near the ground surface in most portions of the Project Area during the winter and early spring months. Changes in shallow groundwater levels would not alter available groundwater storage capacity and available groundwater supply, as the shallow groundwater beneath the Project Area is independent from the deeper aquifer that supports existing water supply wells.

The high salinity and low permeability of the shallow unconfined aquifer preclude its use for water supply. Recharge to the deeper confined aquifers that host the existing water supply wells occurs outside of the Project Area in the Wildcat Hills (Humboldt County 2022). Thus, the introduction of higher salinity waters in association with the Project would not affect recharge of the deeper confined aquifer that supplies the existing site wells.

As stated in the Eel River Valley Groundwater Sustainability Plan (Humboldt County 2022), seawater intrusion is predominantly governed by seaward flow of fresh groundwater and the landward flow of seawater. The transition zone of the Lower Eel River has been evaluated in several studies, in 1952, 1975 and 2022. These studies concluded that the position of the freshwater-seawater transition zone iso-contours has remained approximately in the same position. The Project would not affect the predominant regional groundwater gradients in the vicinity of the Project and would therefore not be expected to cause a

change in the freshwater-seawater iso-contour locations. Any changes to the to the local groundwater gradients are expected to be minor and localized to the Project Area.

The Project and operations include the enhancement and expansion of an existing internal slough network. The sloughs, tributaries and drainage ditches that are tidally influenced have the potential to allow the migration of saltwater to the near surface aquifer and thus influence water quality. Most internal channels already intersect the shallow groundwater table, which is in close proximity to the ground surface. Because these channels already intersect the water table, the Project would not substantially dewater the local shallow aquifers any more than already occurs.

Additionally, there are several irrigation wells on or near the Project Area, with two being artesian. These wells produce freshwater that is used for irrigation and stock water. These wells are deeper and produce freshwater in close proximity to the ocean and transition zone, which is indicative of a confined aquifer with recharge areas outside of the influence of the ocean or transition zone. Because these wells are deeper, they would not be significantly impacted by increases in salinity resulting the expansion of the internal slough network.

When the tidal water levels in the sloughs and tidally influenced marsh areas are higher than the regional groundwater level, saline water would migrate in the direction of the lower groundwater levels, potentially increasing the salinity in subsurface soils. Tidal saline groundwater migrating through proposed berms would be intercepted by Cutoff Slough, remnant tidal sloughs and connected ditches. The influence of the infiltrated saline water would be muted in areas behind berms and gated culverts, thus limiting the migration of saline water into the Project Area. This is due to maintaining a low gradient between the groundwater levels behind the berm, gated culverts, and ditches / sloughs. The ditches / sloughs would gradually increase during a high tide event but would then drain during the ebb tide. With the low hydraulic gradient and clayey/silty clay soils in the areas behind the proposed berm, net migration of saline water into the near surface aquifer would be minimal.

Potential impacts from groundwater pumping, Project effects on groundwater recharge, and the potential increase in salinity of groundwater resources currently in use in and near the Project Area would be less than significant.

**Mitigation Measures:** No mitigation is necessary

**Level of Significance:** Less than significant

**Impact HWQ-3:** **Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces in a manner which would result in substantial erosion or siltation on- or off-site.**

### **On-Site Erosion or Siltation Potential**

Aside from the set-back berm, the Project Area is entirely pervious as salt marsh, tidal, and dune habitat or agricultural farmland areas. Existing and proposed berms are unpaved, although the compact soils in the berms have lower permeability. Existing impervious development on the Project Area is *de minimis* for the purposes of hydrologic impact analysis and limited to existing barns and related agricultural infrastructure. Additional structures or impervious surfaces are not proposed as part of the Project. An impact related to on- or off-site erosion resulting from the addition of impervious surfaces would not result.

The Project requires new excavation or dredging to re-construct historic tidal channels throughout the Project Area north to the Eel River and enhance existing drainage infrastructure. Fine sediment associated with ground disturbance could result in a significant impact if mobilized during or following construction (e.g., during the first significant post-construction rainfall). The Project does propose the beneficial reuse of excavation material to recontour the floodplain in specific areas. Soil to be beneficially reused would generally be placed to 1) build the set-back berms, 2) raise subsided land closer to tidal marsh elevation, or 3) build low profile tidal lagoon berms that have crest elevations below 9 feet and thus remain tidal wetland). All sediment reuse areas would be located within the FEMA flood zone and subject to potential localized remobilization during flood periods. However, as experienced during past flood events, the Project Area is more typically a location of sediment deposition versus source to receiving waters, especially when surrounded by levees.

The Project and operations would alter drainage patterns on the Project Area, although internal slough channels would be located and sized to optimize internal marsh circulation and water quality. Through hydraulic modeling (USFWS 2022) and established hydraulic geometry relationships for local area reference sites, internal channel dimensions have been designed to be in equilibrium with Project hydraulic conditions in order to minimize erosion, down-cutting and bank failure. Bioengineering methods would be used, as necessary, to stabilize sites of potential bank and berm erosion. Hard stabilization measures (e.g., rock slope protection) may also be incorporated, if necessary, to prohibit excessive erosion at notable energy transition points such as gated culverts. Sediment transport potential is low on the marsh plain where there is vegetation, slower velocities, and shallower depths than tidal channels. Tidal channels are expected to adjust size as the marsh plain accretes over time (USFWS 2022).

Apart from localized areas at new gated culverts, the reintroduction of tidal exchange to the excavated Project channels would not impart enough change or energy to increase erosion in any portion of the newly designed or improved channels. The post-excavation geometry for the channel network is intended to accommodate the increased tidal prism created through increased tidal exchange. Therefore, no additional channel expansion is anticipated. Any excess tidal or flood energy would simply maintain the construction channel geometry. Following the close of construction and operational ground disturbance near channels and drainage features, an increase in turbidity would be expected during the first significant rainfall. Following the first significant rainfall, post-construction channel erosion is expected to occur at natural rates and would not significantly impact downstream receiving waters without adversely impacting aquatic ecology. Required erosion control measures (e.g., Mitigation Measure HWQ-1 and Mitigation Measure HWQ-3) would reduce any turbidity associated with the first significant rainfall following ground disturbance. Measures to protect new set-back berms and existing levees from erosion would also be integrated into the Project design as it advances. Increases in potential erosion to on-site channels resulting from Project activities and operations would be less than significant.

### **Off-Site Erosion or Siltation Potential**

The Project would include ground disturbance throughout the Project Area. Implementation of the Project would increase the tidal prism in the Project Area and alter tidal and fluvial drainage patterns on- and off-site. Hydraulic modeling completed by the USFWS to inform the Project's design evaluated both on- and off-site hydrology considerations to achieve the objective of protecting and enhancing drainage on off-site properties adjacent to and near the Project Area.

Under current conditions, Shaw and Russ creeks deposit sediment throughout the agricultural lands within the Project Area. Under the proposed Project conditions, flow and sediment will be routed into the Centerville Slough marsh network. During infrequent, high Eel River stages, Shaw Creek and Russ Creek

flows would exceed their channel capacity and result in overbank flow and sedimentation patterns throughout the agricultural land in the Project Area, similar to existing conditions.

### ***East of the Project Area – Agricultural Properties and Lower Salt River***

The Project and operations would result in a significant increase in tidal prism exchange within the Project Area west of the new four-mile set-back berm (Figure 2-5). The set-back berm would be located on the eastern side of the Centerville Slough marsh network to prevent inundation of adjacent agricultural lands from tidal inundation and wave overwash, reducing the potential for off-site erosion or siltation on parcels east of the Project Area. The parcels of the Project Area will also benefit from the replacement of tide gates on the Cutoff Slough tide gate, which will reduce existing leakage and improve drainage efficiency.

The Project would not increase water levels to the outboard side of Cutoff Slough tide gate and lower Salt River, located east of the Project Area. Under existing conditions, these areas are already tidal and inundated regularly. The area draining through the existing Cutoff Slough tide gate would be reduced by the reroute of Russ Creek into the Centerville Slough marsh network. By improving the existing Cutoff Slough tide gate, reducing the drainage area, and expanding the salt marsh mosaic throughout the Project Area, water surface elevations on the inboard side of the Cutoff Slough tide gate would be reduced. Water surface elevations resulting from large Eel River flood events would be one-foot lower for a two-year event and 2.5 feet lower for a ten-year event on the inboard side of Cutoff Slough tide gate (USFWS 2022). This would reduce off-site erosion and siltation potential.

### ***South of the Project Area – Angel’s Camp and Centerville Road***

At the southern end of the Project Area, the set-back berm would run east-west at Angel’s Camp with a crest elevation of approximately 14 feet (Figure 2-5). The Project would not address existing flooding, sedimentation and erosion resulting from continued dune overwash, and it will not increase potential erosion or siltation. The crest elevation of the set-back berm would minimize levee overtopping from Eel River backwater flooding and prevent tidal inundation introduced from the restored Centerville Slough. The set-back berm would include a larger (e.g., five-foot) diameter culvert with a side-hinged flap gate installed to allow flow to drain from the marsh south of the Project Area through the culvert into the Project Area. The flap gate will prevent flows from moving off-site (south) into Angel’s Camp marsh located outside of the Project Area (USFWS 2022). The set-back berm at Angel’s Camp, including the large culvert with a flap gate, would protect Angel’s Camp and Centerville Road from off-site erosion or siltation.

### ***West of the Project Area – Dunes and Pacific Ocean***

Fluvial and/or tidal flooding within the Project Area would route north to the Eel River and would not significantly impact the dunes by overwashing from the east toward the Pacific Ocean. To the contrary, the Project includes restoration actions to enhance the back dunes to protect agricultural productivity by reducing dune overwash events. Off-site erosion in the dunes, beach, or Pacific Ocean west of the Project Area would not occur as a result of the Project.

### ***North of the Project Area – Eel River***

The restored tidal channel network would drain north through the Outer Marsh and into the Eel River (Figure 2-5). Construction and operational activities could result in short term erosion related to ground disturbance (e.g., grading, excavation). Following construction, implementation of the operational Monitoring and Maintenance Plan (Appendix D) would support annual review of the Project Area for signs of erosion, obstructed channels and ditches, damaged or failed set-back levees and internal access routes, and other unplanned sources of fine sediments that could route to the Eel River and contribute to off-site

turbidity. Monitoring would also occur following significant storm events. Construction or operational ground disturbance could result in erosion that could impair the Eel River, north of the Project Area, resulting in a potentially significant off-site impact. To reduce this potential impact to a less than significant level, Mitigation Measure HWQ-1, Mitigation Measure HWQ-2, and Mitigation Measure HWQ-3 has been incorporated into the Project. Implementation of these mitigation measures would control and minimize any resulting erosion and turbidity associated with ground Project and/or operational ground disturbances to protect the water quality in the Eel River, located off-site.

#### **Mitigation Measure HWQ-1: Manage Construction Stormwater**

See Mitigation Measure HWQ-1 for full text of the mitigation measure.

#### **Mitigation Measure HWQ-2: Implement Contractor Training for Protection of Water Quality**

See Mitigation Measure HWQ-2 for full text of the mitigation measure.

#### **Mitigation Measure HWQ-3: In-Stream Erosion and Water Quality Control Measures During Channel Excavation and Operations**

See Mitigation Measure HWQ-3 for full text of the mitigation measure.

**Level of Significance:** Less than significant with mitigation

Implementation of Mitigation Measure HWQ-1, Mitigation Measure HWQ-2, and Mitigation Measure HWQ-3 would mitigate potential impacts on related to potential off-site impacts in the Eel River to the north of the Project Area resulting from Project and operational ground disturbance within the Project Area.

**Impact HWQ-4:** **Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site.**

#### **Tidal and Fluvial Flooding**

Under existing conditions, portions of the historic Centerville Slough channel network have filled in due to lack of tidal flushing. A performance objective of the Project's hydraulic design is to rapidly drain flood waters from the Centerville Slough tidal basin originating from Eel River floods, upland flooding, or dune overwash (USFWS 2022). The vast majority of the study area is within the FEMA 100-year floodplain (Figure 3.10-1). The Project and operations would restore tidal flushing and improve drainage within the Project Area. Removal of the existing Inner Marsh levee would allow tidal flows and backwater flooding from the Eel River to move south into the restored salt marsh mosaic and Centerville Slough tidal network to improve ecosystem function while protecting agricultural uses to the east from flooding. The Project would result in an overall improvement in on- and off-site flooding, including future flooding related to sea level rise.

Fluvial flooding could originate from the upstream watershed and/or Eel River flood flows, both outside the Project Area. Fluvial flooding originating off-site would be accommodated by the Project's design and routed north to the Eel River through the restored tidal channel network. The hydraulic model prepared to

support the Project's design simulated Eel River extreme flood conditions to evaluate flood levels within the restored Project Area resulting from significant Eel River backflooding. Floodwater would fill the restored Centerville Slough basin. The new set-back berm would provide additional protection for areas to the east, both within and beyond the Project Area. The hydraulic model confirmed that proposed drainage infrastructure would allow rapid drainage following an extreme flood event (USFWS 2022). Any potential impact related to on- or off-site tidal and fluvial flooding would remain less than significant.

### ***Russ Creek***

Fluvial flow routing from the upper watershed would improve as a result of the Project. A new Russ Creek channel would be constructed starting where it crosses the EREP property boundary, through the Russ Creek gated culvert and into the restored marsh to connect with the new Centerville Slough tidal network (USFWS 2022). Based on the hydraulic model prepared to support the Project design, the new Russ Creek gated culvert would be capable of routing flood flows from two-year, five-year, and ten-year events without significant impacts to adjacent lands within or beyond the Project Area (USFWS 2022). With the exception of extreme Eel River and Russ Creek floods, private property east of the Project Area (O'Rourke Foundation) would no longer receive Russ Creek flows, which would decrease flood risk and improve drainage (USFWS 2022).

Based on observations and hydraulic modeling, under existing conditions, Russ Creek overtops its banks in its upper reaches of the Project Area on Russ Ranch & Timber private property (RRT) when discharge exceed approximately 160 cfs. Flows overtopping the west bank drain towards Creamery Ditch, Shaw Creek, and eventually reach Angel's Camp. Flows overtopping the east side flood the low-lying lands adjacent to the Smith Creek Levee and eventually into ditches that drain to the Cutoff Slough tide gate. Flow staying in Russ Creek eventually is routed towards the Cutoff Slough tide gate. Under proposed conditions, water overtopping the west bank flow towards Creamery Ditch and Shaw Creek, and into the exterior levee ditch on RRT. From there flow into the Centerville Slough marsh must pass through two gated culverts in the levee. Flows overtopping the east side route in the same manner as existing conditions. Flows staying in Russ Creek pass through the Russ Creek gated culvert and into the restored Centerville Slough tidal basin (USFWS 2022).

There are some minor differences in the flow distribution between existing and proposed conditions. The amount of flow staying in Russ Creek is relatively the same except for when the Eel River backwater exceed approximately nine feet elevation, which reduces the Russ Creek flow capacity down to about 140 cfs. There is a slight change in the distribution of overflow between the east and west sides. Under proposed conditions, there is a slight increase in overflow to the west side on RRT and a corresponding reduction in overflow to the east side (USFWS 2022). This dynamic is not detrimental to on- or-off site flood-related impacts. Any potential impact related to on- or off-site flooding associated with restoration actions in the Russ Creek watershed would remain less than significant.

### ***Angel's Camp, Centerville Road, Shaw Creek, Creamery Ditch, and Western Drainage Ditch***

Under existing conditions, Angel's Camp is permanently flooded because overwash and stormflow is trapped in low areas (USFWS 2022). Centerville Road also intermittently floods due to dune overwash and extended periods of inundation due to poor drainage throughout Angel's Camp. The Project would not address existing flooding and dune overwash experienced in the portion of the Angel's Camp marsh south of the Project Area including Centerville Road.

The Eel River would be able to back-flood Centerville Slough upstream to the new Angel's Camp portion of the set-back berm due to the removed Inner Marsh levee. The Project would also restore hydraulic conveyance in the Western Drainage Ditch by removing sediments resulting from previous overwash

events (USFWS 2022). Large Eel River flood events have the potential to temporarily increase water surface elevations in the Angel's Camp basin, Shaw Creek, and Creamery Ditch between flood events. Temporary increases in water surface elevations would be offset by improved drainage between flood events. Water surface elevations would increase at the mouth of Shaw Creek and in the Creamery Ditch due to the closure of gated culverts during peak flooding and as described above. Similarly, peak water levels in the Angel's Camp basin increase because the gated culvert would remain closed during peak flooding. Although peak water levels in the Angel's Camp basin would increase, they are lower on average over the long-term due to improved drainage into the new Centerville Slough channel. Long-term peak water levels at the confluence of Shaw Creek and Creamery Ditch would behave similarly – peak water levels would be higher but long-term day-to-day peaks would be lower (USFWS 2022). Hydraulic modeling completed for the Project indicates flooding in the drainage ditches would subside within three days. Within the Angel's Camp basin, water surface elevations are predicted to be two feet lower in four days following flood peaks due to improved drainage within the Project Area (USFWS 2022). Any potential impact related to flooding in Angel's Camp, Shaw Creek, Creamery Ditch, and the Western Drainage Ditch would remain less than significant.

Centerville Road does not currently experience fluvial flooding from the Eel River due to the existing levee and berm system within the Project Area. The new 14-foot elevation east-west berm would prevent flooding from the Eel River from inundating Centerville Road, consistent with existing conditions. The Project would not increase the exposure of Centerville Road to any future dune overwash events. Any potential impact related to flooding in Centerville Road would remain less than significant.

### ***Restored Centerville Slough Salt Marsh and Set-back Berm***

The expanded salt marsh mosaic would buffer dune overwash and wind-wave fetch, reducing erosion potential to the set-back berm. The four-mile set-back berm would prevent tidal inundation and fluvial flows from impacting agricultural properties to the east and other off-site properties, including agricultural parcels to the east, the portion of Angel's Camp located outside of the Project Area, and Centerville Road. A drainage ditch incorporated into the east side of the set-back berm would intercept overland flow and route into the salt marsh through the gated culverts in the berm (USFWS 2022). Three gated culverts within the eastern set-back berm would enhance drainage capacity, including during flood events. Redundant gated culvert structures would enhance long-term Project resiliency in the event of sedimentation. The culvert inverts would be set at six feet elevation, which would limit gated culvert closures due to tides or high Eel River water levels (USFWS 2022). The Centerville Slough marsh network would contain deep tidal channels to promote effective sediment transport (USFWS 2022). Any potential impact related to flooding in Centerville Slough would remain less than significant.

### ***Cutoff Slough***

The routing of Russ Creek into Centerville Slough marsh would improve drainage from lands adjacent to the Project Area that drain to the Cutoff Slough tide gate. While flood levels in the Eel River estuary and Salt River would be similar under proposed conditions, water surface elevations in Cutoff Slough inboard of the tide gate would on average decrease (USFWS 2022). This would reduce off-site flood-related impacts. Any potential impact related to flooding in Cutoff Slough would remain less than significant.

### **Dune Overwash**

Dune berms (back dunes) would be constructed on the west side of Angel's Camp where the coastal foredunes have eroded and failed (USFWS 2022). Flow intercepted east of the dunes would be routed to the north into tidal channels that drain into Centerville Slough. Captured sand would build the berm width



and elevation of the dune berms over time to provide long-term, self-maintaining protection for the construction Centerville Slough tidal channels. The back dunes would reduce flooding from overwash in the Project Area. No impact would result.

### Sea Level Rise

Under existing conditions, the Project Area is vulnerable to sea level rise. Over time, saltwater intrusion, tidal flooding, and fluvial flooding would increase. The future effects of sea level rise would be detrimental to agricultural production within and near the Project Area in the Eel River estuary. Although there is uncertainty in specific magnitude and timing of local SLR, there is certainty that SLR will continue. The Project's proposed system of new levees and rehabilitated levees would prevent flooding of areas behind levees for the foreseeable future. Over time, SLR would increase the elevation of Eel River floods within the estuary. Eel River floods are likely to start overtopping existing levees in the short term (10-30 years). The new levee system would provide two additional feet of protection, which would prevent levee overtopping from Eel River floods in the short term, but the levels may experience overtopping in the long term (100-200 years). A larger concern is that local SLR would cause chronic flooding of low-lying areas. Low lying areas behind levees would be the most impacted because they lack sediment supply to allow vertical accretion to raise ground levels. Low lying areas with access to Eel River sediment would be more resilient to local SLR because of the potential for ground elevation increase from sedimentation and vegetation growth. Maintaining existing conditions would likely lead to eventual drowning of low-lying area behind existing levees. Restoring Centerville Slough and adjacent marsh would provide low lying areas within the Project Area access to beneficial sediment from Eel River flooding. The combination of sediment and vegetation response would allow the salt marshes to accrete vertically at pace with SLR (USFWS 2022).

Sea level rise is also expected to increase the elevation of wave run up relative to the existing dune height and continue to increase dune erosion. Unaddressed, this would result in more frequent overwash events further impacting drainage and agricultural resources in the Project Area. Construction and operational maintenance of the back dunes would increase sea level rise resiliency related to wave run up and dune erosion.

The potential impact related to on- or off-site flooding related to sea level rise would remain less than significant.

**Mitigation Measures:** No mitigation is necessary

**Level of Significance:** Less than significant

**Impact HWQ-5:** **Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff.**

Potential sources of substantial additional polluted runoff include fine sediments and turbidity associated with ground disturbance and post-construction erosion. Uncontrolled, the impact is potentially significant. Implementation of monitoring and maintenance activities (Appendix D) would evaluate the Project Area for erosion risk on an ongoing basis, effectively reducing the potential for substantial additional sources of fine sediments and turbidity operationally. Implementation of Mitigation Measure HWQ-1, Mitigation Measure

HWQ-2, and Mitigation Measure HWQ-3 would reduce the potential impact to water quality to a less than significant level.

Additional sources of polluted runoff could result from the application of herbicides to eradicate Spartina or accidental spills of fuels and other fluids associated with heavy equipment during monitoring and maintenance activities. Uncontrolled, the impact is potentially significant. These potential impacts have been previously addressed by Mitigation Measure HWQ-3, Mitigation Measure Spartina PEIR WQ-6, Mitigation Measure Spartina PEIR WQ-7, and Mitigation Measure Spartina PEIR HHM-4, reducing the potential impact to a less than significant level.

An increase in recreational use of the site would also result in additional vehicular use within the Project Area. Vehicles would be traveling at slow velocities on internal roadways, resulting in a low potential to accidentally release motor fluids in the event of an accident. Such an occurrence would be uncommon and addressed via existing spill notification and clean up requirements and would not result in a significant impact.

#### **Mitigation Measure HWQ-1: Manage Construction Stormwater**

See Mitigation Measure HWQ-1 for full text of the mitigation measure.

#### **Mitigation Measure HWQ-2: Implement Contractor Training for Protection of Water Quality**

See Mitigation Measure HWQ-2 for full text of the mitigation measure.

#### **Mitigation Measure HWQ-3: In-Stream Erosion and Water Quality Control Measures During Channel Excavation and Operations**

See Mitigation Measure HWQ-3 for full text of the mitigation measure.

#### **Mitigation Measure Spartina PEIR WQ-6: Designate Ingress/Egress Routes**

See Mitigation Measure Spartina PEIR WQ-6 for full text of the mitigation measure.

#### **Mitigation Measures Spartina PEIR WQ-7: Removal of Wrack**

See Mitigation Measure Spartina PEIR HWQ-3 for full text of the mitigation measure.

#### **Mitigation Measure Spartina PEIR HHM-4: Avoid Health Effects to the Public and Environment from Herbicide**

See Mitigation Measure Spartina PEIR HHM-4 for full text of the mitigation measure.

**Level of Significance:** Less than significant with mitigation

Implementation of Mitigation Measure HWQ-1, Mitigation Measure HWQ-2, Mitigation Measure HWQ-3, Mitigation Measure Spartina PEIR WQ-6, Mitigation Measure Spartina PEIR WQ-7, and Mitigation Measure Spartina PEIR HHM-4 would mitigate potential impacts on water quality resulting from substantial additional polluted runoff.

**Impact HWQ-6:**            **Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would impede or redirect flood flows.**

The Project Area is located within the FEMA 100-year flood zone (Figure 3.10-1). The Project does not include new habitable structures into the FEMA-defined flood zone or floodway. However, the Project does include constructing new internal berms and gated culverts that would alter the distribution and routing of ordinary high waters within the Project Area. The backwater effects of Eel River high waters ultimately control the timing and rate of drainage from adjacent land. During all flood flow periods, the addition of new drainage infrastructure would increase the total conveyance capacity of drainage waters leaving the Project Area. Hydrodynamic modeling determined the Project would not increase the level or area of peak flooding above existing levels (USFWS 2022). Fluvial Eel River floodplain flows would not be impeded by the new set-back berm as the new berm is located within an existing diked basin that under current conditions bifurcates the Eel River floodplain, thus construction of the new set-back berm will not decrease the floodplain capacity or redirect floodplain flow paths. The hydraulic model confirmed that proposed drainage infrastructure would allow rapid drainage following an extreme flood event (USFWS 2022). Rapid drainage of floodwaters through the set-back berm into Centerville Slough would limit ponding on agricultural lands that could otherwise impact agricultural uses. The potential impacts of Project structures on impeding or adversely redirecting flood flows would be less than significant.

**Mitigation Measures:**            No mitigation is necessary

**Level of Significance:**            Less than significant

**Impact HWQ-7:**            **In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation.**

## **Flood Hazards**

The Project Area is located within the FEMA 100-year flood zone (Figure 3.10-1). Construction and operational ground disturbance associated with monitoring and maintenance activities would not occur during flood events. Application of herbicide to remove invasive plants would not occur during a predicted flood event, when rain would limit efficacy of treatment, or during windy conditions (see Mitigation Measure Spartina PEIR HHM-4), which can be associated with high rain and flood hazard events. Therefore, pollutants associated with equipment usage (e.g., fine sediments, fuels, and motor fluids) would not be released during a flood event. Erosion control measures would be implemented immediately following ground disturbance to reduce post-construction erosion during inundation to a less than significant level. The Project has been designed to allow for natural channel adjustment during high flow and flood events, which does inherently involve erosion as a natural geomorphic process. Sediment release from natural channel erosion would not release fine sediments into the Eel River estuary at levels greater than existing background turbidity in the lower Eel River during flood events. The potential impact related to flood hazards would be less than significant.

## **Tsunamis**

While the Project is a tsunami zone, there would be very limited pollutants in the Project Area that could be released during a natural disaster, given the Project Area is largely undeveloped. If an extreme tsunami event were to occur during construction, heavy equipment and associated diesel and fluids could be washed into the Eel River estuary and/or Pacific Ocean. In the event of a tsunami that was severe enough

to mobilize vehicles and heavy equipment, the cumulative environmental and human impact would be catastrophic and the impact directly attributable to the Project would be insubstantial by comparison. The potential impact would be less than significant.

### **Seiche**

The Project Area is not located in an area where seiches occur. No impact would result.

**Mitigation Measures:** No mitigation is necessary

**Level of Significance:** Less than significant

**Impact HWQ-8:** **Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan.**

A primary goal of the Project is to restore natural estuarine function of the Project Area, which would improve water quality to assist in the recovery and function of habitat for native species. The relevant water quality control plan is the NCRWQCB Basin Plan, which establishes thresholds for key water resource protection objectives for both surface waters and groundwater. The Project shall also obtain a NCRWCB CWA Section 401 Water Quality Certification. These regulatory requirements and associated requisite monitoring will ensure a conflict with the Basin Plan does not occur.

The Eel River is included on the Clean Water Act Section 303(d) list for sediment and temperature. A Total Maximum Daily Load (TMDL) has been issued (USEPA 2007). The TMDL emphasizes the habitat needs of anadromous salmonids, Tidewater Goby, and other aquatic species that would benefit from the Project. The TMDL aims to reduce detrimental effects of consumptive land uses and development, such as forest practices and agricultural production in the watershed. The Project is consistent with the Implementing and Monitoring Recommendations of the TMDL, including improvements to freshwater habitat and gated culvert enhancements. The Project would not conflict with the TMDL, and no impact would result.

Project actions would also not conflict with the State's groundwater planning in the Eel River Valley Basin under the Sustainable Groundwater Management Act, which primarily monitors groundwater use via pumping for agriculture and other consumptive purposes. Similarly, the Project does not conflict with the Eel River Valley Groundwater Sustainability Plan because the Project is not expected to change the groundwater gradients that define the groundwater iso-contours and govern the regional freshwater-seawater transition zone (Humboldt County 2022). Project actions would not consume or diminish groundwater in the Eel River Valley or Project Area. A less than significant impact would result.

**Mitigation Measures:** No mitigation is necessary

**Level of Significance:** Less than significant

## **3.10.7 Cumulative Impacts**

**Impact HWQ-C1:** **Project Result in a Cumulatively Considerable Contribution to Cumulative Impacts Related to Hydrology and Water Quality.**

Cumulative Projects identified in Table 3-1 largely represent a broader effort to restore ecosystem functions in the lower Eel River watershed and reduce erosion caused by storm damage and historic land uses. Individually, each of these projects is required to adhere to applicable local, state, and federal regulations

that protect water quality by adhering to the Clean Water Act, Coastal Act, and other application policies. Implementation of Mitigation Measure HWQ-1, Mitigation Measure HWQ-2, Mitigation Measure HWQ-3, Mitigation Measure Spartina PEIR WQ-6, Mitigation Measure Spartina PEIR WQ-7, and Mitigation Measure Spartina PEIR HHM-4 would mitigate potential impacts associated with the Project.

Another potential cumulative impact from implementation of local area projects is the increase in tidal prism exchanged through the Salt River channel. Several of the projects including the Salt River Ecosystem Restoration Project and Smith Creek Project would, in combination with the proposed Project, increase the volume of tidal storage and exchange through the mutually shared receiving Salt River channel that connects each Project Area to the Eel River estuary. Planned restoration on Cannibal Island, which is also located in the Eel River estuary, would further restore tidal prism exchange and salt marsh extent. The Ocean Ranch project on the north side of the Eel River would also contribute to possible changes in tidal and sediment exchange through the Eel River estuary. Designs for the Salt River Ecosystem Restoration Project and the proposed Project increase internal and Salt River channel dimensions to accommodate the increase in tidal prism exchange.

Cumulatively projects summarized in Table 3-1 would result in a net benefit to water quality and hydrology in the lower Eel River watershed and minimize potential impacts to a less than significant level.

**Mitigation Measures:** No mitigation is necessary

**Level of Significance:** Less than significant

### 3.10.8 References

- Brown, W. M., and J. R. Ritter. 1971. *Sediment transport and turbidity in the Eel River Basin, California*. United States Geological Survey Water-Supply Paper 1986, 70pp. Prepared in cooperation with the California Department of Water Resources. Available online: <https://pubs.usgs.gov/wsp/1986/report.pdf>.
- California Department of Fish and Game. 2010. *Lower Eel River watershed assessment*. Natural Resources Agency, California Department of Fish and Game, Coastal Watershed Planning and Assessment Program, Fortuna, California, USA.
- California Department of Water Resources (CDWR). 2004. *California's ground water*. California Department of Water Resources. Bulletin 118.
- Federal Geographic Data Committee (FGDC). 2012. *Coastal and marine ecological classification (CMEC) standard*. available at: [https://www.fgdc.gov/standards/projects/cmecs-folder/CMECS\\_Version\\_06-2012\\_FINAL.pdf](https://www.fgdc.gov/standards/projects/cmecs-folder/CMECS_Version_06-2012_FINAL.pdf).
- Griggs, G., Árvai, J., Cayan, D., DeConto, R., Fox, J., Fricker, H.A., Kopp, R.E., Tebaldi, C., Whiteman, E.A. (California Ocean Protection Council Science Advisory Team Working Group). 2017. *Rising Seas in California: An Update on Sea-Level Rise Science*. California Ocean Science Trust, April 2017.
- Harden. D.R. 1995. *A comparison of flood producing storms and their impacts in northwestern California*. in: K.M. Nolan, H.M. Kelsey, and D.C. Marron, eds. *Geomorphic processes and aquatic habitat in the Redwood Creek Basin, Northwestern California*. U.S. Geological Survey Professional Paper 1454. U.S. Govt. Printing Office, Washington, D.C. p. D1-D9.

- Heady, W. N., K. O'Connor, J. Kassakian, K. Doiron, C. Endris, D. Hudgens, R. P. Clark, J. Carter, and M. G. Gleason. 2014. *An inventory and classification of U.S. West Coast estuaries*. The Nature Conservancy, Arlington, Virginia, 81pp.
- Hofmann, W. and S. E. Rantz. 1963. *Floods of December 1955-January 1956 in the Far Western States Pt. 1, Description*. United States Geological Survey Water-Supply Paper 1650-A, 156 pp.
- H.T. Harvey & Associates and GHD. 2013. *Final Programmatic Environmental Impact Report for the Humboldt Bay Spartina Eradication Plan*, Volume 1. Prepared for the California State Coastal Conservancy. Oakland, California.
- Humboldt County, Humboldt County Groundwater Sustainability Agency. 2022. *Eel River Valley Groundwater Sustainability Plan*. Humboldt County Department of Public Works, Eureka, California, USA.
- Humboldt County. 2022b. *WebGIS – FEMA 100-year Flood Zone Layer*. <https://webgis.co.humboldt.ca.us/HCEGIS2.0/index.html> (11/29/2022)
- Humboldt County. 2022c. *WebGIS – Tsunami Zone Layer*. <https://webgis.co.humboldt.ca.us/HCEGIS2.0/index.html> (11/29/2022)
- IPCC. 2014. *Climate Change 2014: Synthesis Report. Contribution of Working Groups I, II and III to the Fifth Assessment*, Report of the Intergovernmental Panel on Climate Change; Pachauri, R.K., Meyer, L.A., Eds.; IPCC: Geneva, Switzerland, 2014; p. 151.
- McLaughlin, R. J., S. D. Ellen, M. C. Blake Jr., A. S. Jayco, W. P. Irwin, K. R. Aalto, G. A. Carver, and S. H. Clarke Jr. 2000. *Geology of the Cape Mendocino, Eureka, Garberville, and southwestern part of the Hayfork 30 x 60 minute quadrangles and adjacent offshore area, northern California*. United States Geological Survey Miscellaneous Field Studies 2336, 28pp.
- National Oceanic and Atmospheric Administration (NOAA). 2003. *Computational techniques for tidal datums handbook*. NOAA Special Publication NOS CO-OPS 2. U.S. Department of Commerce, National Oceanic and Atmospheric Administration, Maryland, USA.
- North Coast Regional Water Quality Control Board (NCRWQCB). 2018. *Water quality control plan for the North Coast Region. State of California*, North Coast Regional Water Quality Control Board, Santa Rosa, California, USA.
- Northern Hydrology & Engineering (NHE). 2015. *Humboldt Bay: sea level rise, hydrodynamic modelling, and inundation vulnerability mapping*. Prepared for the State Coastal Conservancy and Coastal Ecosystems Institute of Northern California.
- Northern Hydrology and Engineering (NHE). 2018. *Sea-level rise in the Humboldt Bay region*.
- Ocean Protection Council (OPC). 2018. *State of California Sea-Level Rise Guidance, 2018 Update*. California Natural Resources Agency, California Ocean Protection Council, Sacramento, California, USA.
- Patton, J.R., T.B. Williams, J. Anderson, and T.H. Leroy. 2017. *Tectonic land level changes and their contribution to sea-level rise, Humboldt Bay region*, Final Report, prepared for U.S. Fish and Wildlife Service.
- Sloan, J., J. R. Miller, and N. Lancaster. 2001. *Response and recovery of the Eel River, California, and its tributaries to floods in 1955, 1964, and 1997*. *Geomorphology* 36:129-154.

- United States Environmental Protection Agency (USEPA). 2007. *Lower Eel River total maximum daily loads for temperature and sediment*, 83pp. United States Environmental Protection Agency, Region 9, San Francisco, California, USA.
- United States Fish and Wildlife Service (USFWS). 2022. *Russ Creek and Centerville Slough Restoration Project Preliminary Hydraulic Analysis*. United States Fish and Wildlife Service, Arcata Fish and Wildlife Office, Arcata, California, USA.
- Waananen, A. O., Harris, P. P., and Williams, R. C. 1971. *Floods of December 1964 and January 1965 in the far western states*. U.S. Geological Survey Water Supply Paper 1866-A, 265 p.
- Young, L. 1963. *Floods near Fortuna, California*. Hydrologic Investigations Atlas HA-78. Available online: <https://pubs.usgs.gov/ha/078/plate-1.pdf>.

**Legend**

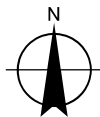
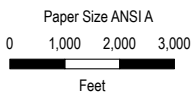
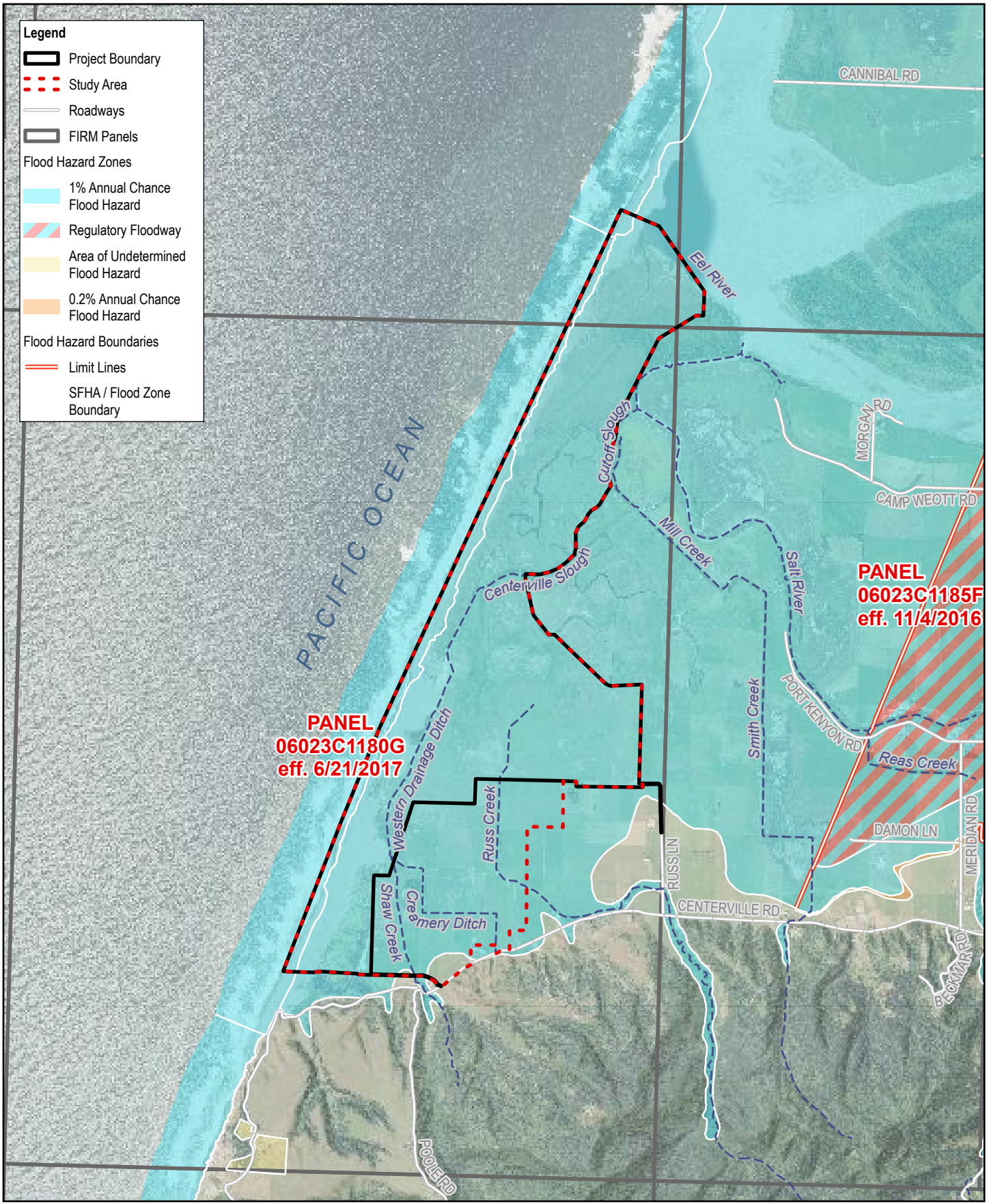
- Project Boundary
- Study Area
- Roadways
- FIRM Panels

**Flood Hazard Zones**

- 1% Annual Chance Flood Hazard
- Regulatory Floodway
- Area of Undetermined Flood Hazard
- 0.2% Annual Chance Flood Hazard

**Flood Hazard Boundaries**

- Limit Lines
- SFHA / Flood Zone Boundary



Humboldt County Resource Conservation District  
Russ Creek and Centerville Slough Restoration Project

Project No. 11187323  
Revision No. -  
Date Apr 2023

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

**FEMA 100-Year Floodplain**

**FIGURE 3.10-1**





## 3.11 Land Use and Planning

This section contains a discussion of the existing land use and planning setting for the proposed Project and surrounding area and evaluates the potential impacts related to land use and planning during construction and operation of the Project. To provide the basis for this evaluation, the Setting section describes the existing land use and zoning for the Project Area, and the Regulatory Framework section describes the regulatory background that applies to the Project. The Impacts and Mitigation Measures section establishes the thresholds of significance, evaluates potential land use and planning impacts, and identifies the significance of impacts. Where appropriate, mitigation measures are presented to reduce impacts to less-than-significant levels.

### 3.11.1 Study Area

For this section the study area is the same as the Project Area. Throughout this EIR, Project Area is synonymous with Project Boundary.

### 3.11.2 Setting

#### Existing Land Use

The Project Area is located near Ferndale, in Humboldt County. The area is bounded by the Pacific Ocean, the Eel River, Cut-off Slough and Centerville Road at the base of the Wildcat Hills. Described in detail in the Project Description (Chapter 2) and in Agricultural Resources (Section 3.2), the Project Area and broader Project vicinity reflect a strong tradition of ambitious land conversion and intensive agricultural management over the last 150 years. Agricultural use predominates to this day, with some localized recreational use as described in Recreation (Section 3.14), and few scattered residences nearby.

#### Surrounding Land Use

Land uses in the vicinity of the proposed Project mirror the Project Area, with agricultural use predominating, few residences, and minor recreational use intermixed throughout the Eel River Delta.

#### Coastal Zone, General Plan, Land Use and Zoning

The Project is in the Coastal Zone, with portions of the Project Area in both state and appeal jurisdiction (Figure 3.11-1). The County of Humboldt administers the Coastal Act in the local and appeal jurisdictions of the Project Area via the Local Coastal Program (LCP) Eel River Area Plan (ERAP). The ERAP was adopted by the Humboldt County Board of Supervisors on March 9, 1982 and certified by the State Coastal Commission on April 8, 1982. The ERAP contains policies related to coastal land use, as required by the California Coastal Act of 1976. The ERAP outlines numerous policies pertaining to the preservation and restoration of sensitive coastal habitat, as well as strong provisions in support of agriculture. All of these policies have influenced the development of the Project designs intended to address agricultural preservation and habitat restoration within the Coastal Zone generally, particularly within the jurisdiction of Humboldt County's ERAP area. In addition, policies in the Humboldt County General Plan that are not related to coastal land use (and that are not superseded by the policies of the EARP) may also apply to the Project Area. The 2017 General Plan Update was not certified by the Coastal Commission; therefore, the General Plan adopted in 1984 remains a guiding plan for the Project Area and surrounding unincorporated areas within the Coastal Zone. The California Coastal Commission administers the Coastal Act in the state

retained jurisdiction of the Coastal Zone and can utilize the ERAP as guidance when issuing a Coastal Development permit with the Coastal Act being binding.

The zoning of the Project Area is primarily Agriculture Exclusive, 60-Acre Minimum (AE-60) and Natural Resources (NR) (Figure 3.11-2). Approximately 1,430-acres, or 97 percent, of the Project Area is zoned for agricultural uses [AE-60/W,F,R,T]) and approximately 50-acres or three percent are zoned NR/R for natural resource use. Combining zones in the Project Area include Coastal Wetland Areas (W), Flood Hazard Areas (F), Streams and Riparian Corridors Protection (R), and Transitional Agricultural Lands (T).

The land use designations of the Project Area in the ERAP are consistent with zoning designations and are the same as those of the Humboldt County General Plan. The land use for the Project Area is Natural Resources (NR/R) and Agriculture Exclusive (AE), which includes prime agricultural lands (Figure 3.11-3). The management of fish and wildlife is a principally permitted use for natural resources zoned land. Conditionally permitted uses in the NR/R zone include watershed management, wetland management, boating facilities improvements, resource-related recreation, and coastal access facilities

Primary agricultural uses are limited to the production of food, fiber, plants, timber, timber agriculturally related uses, and agriculture related recreational uses. Principally permitted uses in AE include very-low intensity single family residential, general agriculture, timber production, cottage industry, and minor utilities to serve these uses. Conditionally permitted uses include wetland restoration, fish and wildlife management, watershed management, resource-related recreation, and coastal access facilities. AE-60 zoning requires a minimum parcel size is 60 acres, except divisions to 20 acres may be permitted where the parcel is subject to an agricultural preserve contract or agreement, such as the Williamson Act. A large portion of the Project Area is enrolled in Williamson Act contracts, which are further discussed in Agriculture and Forestry Resources (Section 3.2).

### 3.11.3 Regulatory Framework

#### **Federal**

##### ***Federal Farmland Protection Policies***

Loss of farmland is an important concern that is captured by the development of federal, state and local policies calling for protection of Prime, Unique or Statewide Important Farmland. Under the Federal Farmland Protection Policy Act (FPPA), projects are subject to FPPA requirements if they may irreversibly convert farmland (directly or indirectly) to nonagricultural use and are completed by, or with the assistance of, a federal agency. Reference Section 3.2 – Agriculture and Forestry Resources for a discussion of farmland protection and conversion.

#### **State**

##### ***Coastal Act Policy***

The proposed Project is within the California Coastal Act's Coastal Zone. Multiple Coastal Act policies governing land and marine resources apply to the proposed Project. Coastal Act Sections applicable to land use include:

##### **Section 30001.5 Legislative findings and declarations; goals**

*The Legislature further finds and declares that the basic goals of the state for the coastal zone are to:*



- (c) *Protect, maintain, and, where feasible, enhance and restore the overall quality of the coastal zone environment and its natural and artificial resources.*
- (d) *Assure orderly, balanced utilization and conservation of coastal zone resources taking into account the social and economic needs of the people of the state.*
- (e) *Maximize public access to and along the coast and maximize public recreational opportunities in the coastal zone consistent with sound resources conservation principles and constitutionally protected rights of private property owners.*
- (f) *Assure priority for coastal-dependent and coastal-related development over other development on the coast.*
- (g) *Encourage state and local initiatives and cooperation in preparing procedures to implement coordinated planning and development for mutually beneficial uses, including educational uses, in the coastal zone.*

*Section 30230 Marine resources; maintenance*

*Marine resources shall be maintained, enhanced, and where feasible, restored. Special protection shall be given to areas and species of special biological or economic significance. Uses of the marine environment shall be carried out in a manner that will sustain the biological productivity of coastal waters and that will maintain healthy populations of all species of marine organisms adequate for long-term commercial, recreational, scientific, and educational purposes.*

*Section 30233 Diking, filling or dredging; continued movement of sediment and nutrients*

- (a) *The diking, filling, or dredging of open coastal waters, wetlands, estuaries, and lakes shall be permitted in accordance with other applicable provisions of this division, where there is no feasible less environmentally damaging alternative, and where feasible mitigation measures have been provided to minimize adverse environmental effects, and shall be limited to the following:*
  - (1) *New or expanded port, energy, and coastal-dependent industrial facilities, including commercial fishing facilities.*
  - (2) *Maintaining existing, or restoring previously dredged, depths in existing navigational channels, turning basins, vessel berthing and mooring areas, and boat launching ramps.*
  - (3) *In wetland areas only, entrance channels for new or expanded boating facilities; and in a degraded wetland, identified by the Department of Fish and Game pursuant to subdivision (b) of Section 30411, for boating facilities if, in conjunction with such boating facilities, a substantial portion of the degraded wetland is restored and maintained as a biologically productive wetland. The size of the wetland area used for boating facilities, including berthing space, turning basins, necessary navigation channels, and any necessary support service facilities shall not exceed 25 percent of the degraded wetland.*
  - (4) *In open coastal waters, other than wetlands, including streams, estuaries, and lakes, new or expanded boating facilities and the placement of structural pilings for public recreational piers that provide public access and recreational opportunities.*
  - (5) *Incidental public service purposes, including, but not limited to, burying cables and pipes or inspection of piers and maintenance of existing intake and outfall lines.*
  - (6) *Mineral extraction, including sand for restoring beaches, except in environmentally sensitive areas.*

- (7) *Restoration purposes.*
- (8) *Nature study, aquaculture, or similar resource-dependent activities.*
- (b) *Dredging and spoils disposal shall be planned and carried out to avoid significant disruption to marine and wildlife habitats and water circulation. Dredge spoils suitable for beach replenishment should be transported for such purposes to appropriate beaches or into suitable longshore current systems.*
- (c) *In addition to the other provisions of this section, diking, filling, or dredging in existing estuaries and wetlands shall maintain or enhance the functional capacity of the wetland or estuary. Any alteration of coastal wetlands identified by the Department of Fish and Game, including, but not limited to, the 19 coastal wetlands identified in its report entitled, "Acquisition Priorities for the Coastal Wetlands of California", shall be limited to very minor incidental public facilities, restorative measures, nature study, commercial fishing facilities in Bodega Bay, and development in already developed parts of south San Diego Bay, if otherwise in accordance with this division. For the purposes of this section, "commercial fishing facilities in Bodega Bay" means that not less than 80 percent of all boating facilities proposed to be developed or improved, where such improvement would create additional berths in Bodega Bay shall be designed and used for commercial fishing activities.*
- (d) *Erosion control and flood control facilities constructed on watercourses can impede the movement of sediment and nutrients, which would otherwise be carried by storm runoff into coastal waters. To facilitate the continued delivery of these sediments to the littoral zone, whenever feasible, the material removed from these facilities may be placed at appropriate points on the shoreline in accordance with other applicable provisions of this division, where feasible mitigation measures have been provided to minimize adverse environmental effects. Aspects that shall be considered before issuing a coastal development permit for such purposes are the method of placement, time of year of placement, and sensitivity of the placement area.*

**Section 30241 Prime agricultural land; maintenance in agricultural production**

*The maximum amount of prime agricultural land shall be maintained in agricultural production to assure the protection of the area's agricultural economy and conflicts shall be minimized between agricultural and urban land uses through all of the following:*

- (d) *By developing available lands not suitable for agriculture prior to the conversion of agricultural lands.*
- (e) *By assuring that public service and facility expansions and non-agricultural development do not inhibit agricultural viability, either through increased assessment costs or degraded air and water quality.*

**Section 30242 Lands suitable for agricultural use; conversion**

*All other lands suitable for agricultural use shall not be converted to nonagricultural uses unless (1) continued or renewed agricultural use is not feasible, or (2) such conversion would preserve prime agricultural land or concentrate development consistent with Section 30250. Any such permitted conversion shall be compatible with continued agricultural use on surrounding lands.*

### Section 30270 Sea level rise

*The commission shall take into account the effects of sea level rise in coastal resources planning and management policies and activities in order to identify, assess, and, to the extent feasible, avoid and mitigate the adverse effects of sea level rise.*

Public Resource Code §30241 seeks to maintain the maximum amount of prime agricultural land to assure the protection of the area's agricultural economy and minimize conflicts between agricultural and urban land uses (see Section 3.2 – Agricultural Resources). Public Resource Code §30230 seeks to maintain, enhance, and, where feasible, restore marine resources. The California Coastal Commission, which has permit jurisdiction over the Project Area, will have to balance these policies when considering the Coastal Development Permit (CDP) for this Project.

### **State Lands Commission Policy**

The State Lands Commission (SLC) is a trustee agency for projects that could directly or indirectly affect sovereign land and their accompanying Public Trust resources or uses. Additionally, because the Project involves work on sovereign land, the SLC will act as a responsible agency under CEQA.

The SLC has jurisdiction and management authority over all ungranted tidelands, submerged lands, and the beds of navigable lakes and waterways across California. The SLC also has certain residual and review authority for tidelands and submerged lands legislatively granted in trust to local jurisdictions. All tidelands and submerged lands, granted or ungranted, as well as navigable lakes and waterways, are subject to the protections of the common law Public Trust Doctrine.

The State of California acquired sovereign ownership of all tidelands and submerged lands and beds of navigable lakes and waterways upon its admission to the United States in 1850. The state holds these lands for the benefit of all people of the state for statewide Public Trust purposes, which include but are not limited to waterborne commerce, navigation, fisheries, water-related recreation, habitat preservation and open space.

### **State Farmland Conservancy Program Act**

State farmland protection policy is laid out in the California Farmland Conservancy Program Act (CFCPA), (Public Resources Code 10201-10202). The CFCPA recognizes the importance of the state's agricultural lands economically, culturally, and in terms of food security, as well as the threat to those lands from urban development. The agricultural conservation strategy established by the CFCPA involves appropriating state funds for the voluntary purchase of agricultural easements, together with restrictions on development through local planning and zoning.

Under CEQA, the lead agency is required to evaluate agricultural resources in environmental analyses at least in part based on the Department of Conservation's (DOC) Farmland Mapping and Monitoring Program (FMMP). The state's system was designed to document how much agricultural land in California was being converted to non-agricultural land or transferred into Williamson Act contracts. Reference Section 3.2 – Agricultural and Forestry Resources for a discussion on state farm policies.

### **Williamson Act**

The California Department of Conservation administers the Williamson Act, described and discussed in Agricultural Resources (Section 3.2 – Agricultural and Forestry Resources), which is relevant to the Project Area. Reference Section 3.2.3 in Agricultural and Forestry Resources for a discussion of the Williamson Act.

## Regional and Local

### ***Humboldt County Eel River Area Local Coastal Plan***

The Project is in the Coastal Zone, and the County of Humboldt administers the Coastal Act in the Project Area via the ERAP. While the entire ERAP applies to portions of the Project within the appeal jurisdiction of the Coastal Zone, the following policies related to preservation and restoration of sensitive coastal habitat and agriculture are outlined below due to the special concern the ERAP addresses regarding agricultural and sensitive environments. The following policies of the ERAP are applicable to the Project:

#### 3.34 A. Identification of Agricultural Lands – Prime/Non-Prime

1. *Lands outside Urban Limit Lines that are prime agricultural lands based on the adopted definition of prime lands of the State of California shall be planned for continued agricultural use, and no division or development of such lands shall be approved which would lower the economic viability of continued agricultural operations on them.*
2. *Lands outside Urban Limit Lines that are not prime agricultural land, but are in agricultural use, have present or future potential for significant agricultural production, and/or are contiguous or intermixed smaller parcels on which non-compatible uses could jeopardize the agricultural use of adjacent agricultural lands shall be planned or continued agriculture.*

#### 3.34 B. Compatible Uses

1. *The zoning of all agricultural lands shall not permit any use that would impair the economic viability of agricultural operations on such lands; and a conditional use permit shall be required of any proposed use not directly a part of agricultural production of food or fiber on the parcel; except that on parcels of 60 acres or larger, a second house for parents or children of the owner-operator shall be considered a direct part of agricultural production.*

*Other uses considered compatible with agricultural operations include:*

- a. *Management for watershed*
- b. *Management for fish and wildlife habitat*
- c. *Recreational uses not requiring non-agricultural development under the control of the owner.*

#### 3.41 C. Transitional Agricultural Wetlands Identification and Development Policies

1. *Transitional Agricultural lands are wetlands as defined in Chapter 6 (Definitions) of this Plan.*
2. *Allowable uses in Transitional Agricultural Lands: Within transitional agricultural lands planned for Agriculture Exclusive, agriculture is the principal use in these areas but shall maintain long-term protection by ensuring new development is consistent with the provisions of this policy....”*
  - b. *Diking and filling for new development in transitional agricultural lands shall be limited to...the principal uses in agricultural exclusive designation, including construction of spillways and modification or repair of existing dikes threatened by erosion.*
  - c. *Dredging in transitional agricultural lands shall be limited to...maintenance and repair of existing tide gates, floodgates, dikes, levees and other drainage works, including replacement of drainage works damaged by flood or tidal surges.*

- e. *Mitigation for these uses by restoration of tidal action or removal of fill...is not feasible and shall not be required. Mitigation should where feasible take place in the Eel River Planning Area and where practicable as close as possible to the development.”*

With regard to the protection and enhancement of natural resources, Section 3.34 B states that management for watershed and fish and wildlife is a compatible use with agriculture.

In addition to the above guidelines, the following policies are applicable to the proposed Project.

Policy 3.41: *“Environmentally sensitive habitat areas shall be protected against any significant disruption of habitat values”*

Policy 3.41 1.a.(2): *“The County shall continue to pursue opportunities to restore or enhance, if possible, in-stream flows”*

Policy 3.41 F.6.a: *“long-term protection of riparian vegetation . . . should be provided. . . . To achieve these objectives, the County should work with property owners and affected State and Federal agencies”*

Policy 3.41 G.7: *“Natural drainage courses . . . shall be retained and protected from development which would impede the natural drainage pattern or have a significant adverse effect on water quality or wildlife habitat.”*

### **Humboldt County Code Land Use and Development Zoning Regulations**

Principal zones and land uses Agricultural Exclusive (AE) and Natural Resources (NR) are described in Section 3.11.2 above. Policies related to the combining zones Coastal Wetland Areas (W), Flood Hazard Areas (F), Streams and Riparian Corridors Protection (R), and Transitional Agricultural Lands (T) are described below:

Zoning Regulations Section 313-21 defines combining zone designations for Flood Hazard Area (F):

#### 21.1.1 Purpose. (Former Section CZ#A314-59(A))

*The purpose of these regulations is to minimize public and private losses due to flood and tsunami conditions in specific areas of the County.*

#### 21.1.2 Applicability. (Former Section CZ#A314-59(B))

*These regulations shall apply to all areas designated “F” on the Zoning Maps and to all lands situated within the areas of special flood hazard as identified on the Federal Insurance Administration’s Federal Insurance Rate Maps (FIRM) for Humboldt County. As applicable, these regulations also apply to all lands located below the level of the 100-year tsunami run-up elevations described in Tsunami Predictions for the West Coast of the Continental United States (Technical Report H-78-26 by the Army Corps of Engineers).*

#### 21.1.3 Modifications Imposed by Flood Hazard Regulations. (Former Section CZ#A314-59(C))

*These regulations shall be in addition to the requirements imposed by the principal zones, development regulations, and other Special Area Combining Zone regulations. Wherever the provisions of these regulations conflict with or are inconsistent in application with any other regulations the most restrictive regulation shall apply.*



21.1.5 Permitted Development in Tsunami Run-up Areas. (Former Section CZ#A314-59(E))

*New development below the level of the 100-year tsunami run-up elevation shall be limited to public access, boating, and public recreation facilities, agriculture, wildlife management, habitat restoration, ocean outtakes and infalls, pipelines, and dredge spoils disposal.*

Zoning Regulations Section 313-33 defines combining zone designations for Streams and Riparian Corridor Protection (R):

33.1.1 Purpose. (Former Section CZ#A314-63(A))

*The purpose of these regulations is to provide for the maintenance, enhancement, and, where feasible, restoration of water resources by restricting development, and by minimizing adverse effects of runoff, interference with surface waterflow, and alteration of natural streams, and by protecting riparian habitats.*

33.1.2 Applicability. (Former Section CZ#A314-63(B))

*These regulations shall apply to:*

- 33.1.2.1 *All streams, riparian corridors and riparian forests designated "R" on the Zoning Maps;*
- 33.1.2.2 *All perennial and intermittent streams as delineated on U.S. Geological Survey 7.5-minute quadrangles.*
- 33.1.2.3 *All riparian lands and coastal streams listed in the Coastal Land Use Plan.*

*\*\*\*It should be noted that additional stream protection regulations in Chapter 2 apply specifically to the Coastal Zone segments of the Mad and Eel Rivers.\*\*\**

33.1.3 Modifications Imposed by the Streams and Riparian Corridors Protection Regulations.

*These regulations shall be in addition to regulations imposed by the primary zone, development regulations, and other coastal resource special area regulations. Wherever the provisions of these regulations conflict with or are inconsistent in application with any other regulation, the regulation which is most protective of natural resources shall apply. (Former Section CZ#A314-63(C))*

33.1.5 Permitted Development within Coastal Stream Channels. (Former Section CZ#A314-63(E))

*New development within stream channels located within the County's Coastal Zone, shall be limited to the following uses:*

- 33.1.5.1 *Wetlands, fishery, and wildlife enhancement and restoration projects and small hydroelectric generating facilities;*
- 33.1.5.2 *Pipelines, utility lines, municipal water systems, wells in rural areas, and incidental public service purposes;*
- 33.1.5.3 *Road crossings, consistent with all of the applicable "Findings" provisions of Chapter 2. (See, Section 312-17, which sets forth findings required for all permits, and Section 312-39.11, which sets forth the Resource Protection Findings relating to Coastal Road Construction.)*
- 33.1.5.4 *Maintenance dredging for flood control and drainage purposes, consistent with the Transitional Agricultural Land Use regulations.*

33.1.5.5 *Maintenance of levees, roads, dikes, drainage channels, floodgates and tide gates including replacement;*

33.1.5.6 *Construction of new fences, so long as it would not impede the natural drainage;*

33.1.6 Definition of Coastal Riparian Corridors and Forests. (Former Section CZ#A314-63(F))

*For purposes of these regulations, riparian corridors on all perennial and intermittent streams located within the County's Coastal Zone, shall be defined as one of the following:*

33.1.6.1 *The larger of:*

33.1.6.1.4 *Along the Eel River and within riparian forests mapped in the Eel River Area Plan, 200 feet measured as the horizontal distance from the stream transition line. (Former Section CZ#A314-63(F)(1)(d))*

33.1.7 Permitted Development and Uses Within Riparian Corridors and Forests. (Former Section CZ#A314-63(G))

33.1.7.2 *New development within riparian corridors shall be limited to:*

33.1.7.2.1 *Maintenance dredging for flood control and drainage purposes consistent with the Transitional Agricultural Land Regulations;*

33.1.7.2.2 *Maintenance or replacement of flood control structures, roads, fences, drainage channels, levees, floodgates, and tide gates;*

33.1.7.2.3 *Wells in rural areas;*

33.1.7.2.4 *Replacement or construction of roads, bridges, pipelines, electrical utility lines, municipal water systems, and incidental public service purposes, provided that the length of the facilities within the riparian corridor shall be minimized, where feasible, by rights-of-way which cross streams at right angles and do not parallel streams within the riparian corridor;*

33.1.7.2.5 *Removal of trees for disease control, or public safety purposes, or for firewood for personal use;*

33.1.7.2.6 *New fences, as long as they do not impede natural drainage or would not adversely affect the stream environment or wildlife.*

33.1.7.2.9 *Public access trails provided that the length of the trail within the riparian corridor shall be minimized, where feasible, by rights of way which cross streams at right angles, which are kept as far up slope from the stream as possible, which involve a minimum of slope disturbance and vegetative clearing, and are the minimum width necessary. (Ord. 2277, Sec. 1, 8/27/2002)*

33.1.7.3 *Within riparian forests in the Eel River Planning Area: Conversion to agriculture is permitted on soils that are shown to be Class I or Class II, provided that a minimum 200 foot buffer of woody riparian vegetation remains between the boundaries of converted areas and the stream transition line.*

33.1.8 Bank Protection. (Former Section CZ#A314-63.1(A))

33.1.8.1 *Protection measures for the Mad and Eel River banks shall be permitted for the following purposes:*

33.1.8.1.1 *Maintenance of necessary public or private roads;*

33.1.8.1.2 *Maintenance of existing levees and dikes;*

33.1.8.1.3 *Protection of principal structures in danger due to erosion; and/or*

33.1.8.1.4 *Protection of lands zoned AE (Agricultural Exclusive) from erosion.*

33.1.9 Required Findings. (Former Section CZ#A314-63(H))

*A Coastal Development Permit for development or activity within stream channels and riparian corridors shall be approved only if the applicable Resource Protection and Impact Findings in Chapter 2, Procedures, Supplemental Findings, are made.*

33.1.10 Required Mitigation. (Former Section CZ#A314-63(I))

*The best feasible measures to mitigate adverse environmental effects of development within riparian corridors shall be provided, and shall, at a minimum, include the following:*

33.1.10.1 *Replanting of disturbed areas with riparian vegetation; or posting of a performance bond guaranteeing re-establishment of natural vegetation within two years (2yr). The mitigation plan for replanting and/or bonding shall be approved by the Hearing Officer.*

33.1.10.2 *Retaining snags, unless removal is required by CAL-OSHA regulations or for stream bank protection;*

33.1.10.3 *Retaining live trees with visible evidence of current use as nesting sites by hawks, owls, eagles, osprey, herons or egrets.*

Zoning Regulations Section 313-35 defines combining zone designations for Transitional Agricultural Lands (T):

35.1.1 Purpose. (Former Section CZ#A314-64(A))

*The purpose of these regulations is to permit agricultural use as a principal permitted use while providing that development in transitional agricultural lands is conducted in such a manner as to maintain long-term wetland habitat values and minimize short-term habitat degradation within these environmentally sensitive habitat areas.*

35.1.2 Applicability. (Former Section CZ#A314-64(B))

*These regulations shall apply to land containing transitional agricultural land designated "T" on the Zoning Maps, and to unmapped areas as defined in this Chapter, Section C...."*

35.1.9 Permitted Diking and Filling. (Former Section CZ#A314-64(I))

*Permitted diking and filling shall be limited to the following developments:*

35.1.9.1 *Principal permitted uses in the AE Agricultural Exclusive zone.*

35.1.9.2 *Construction of spillways and modification and repair of existing dikes threatened by erosion. Modification of dikes includes minor relocation where, for example, a river changes course necessitating relocation of the dike landward or seaward, provided however, that there is no significant increase in gross acreage under cultivation.*

35.1.9.5 *Wetland Restoration*

35.1.10 Permitted Dredging. (Former Section CZ#A314-64(J))

*Dredging in Transitional Agricultural land shall be limited to:*

- 35.1.10.2 Maintenance or replacement of levees, roads, fences, dikes, drainage channels, floodgates, and tide gates;*
- 35.1.10.3 Maintenance dredging for flood control and drainage purposes; and*
- 35.1.10.4 Wetlands, fishery and wildlife enhancement, and restoration projects.*

Zoning Regulations Section 313-38 defines combining zone designations for Coastal Wetlands (W):

38.1.1 Purpose. (Former Section CZ#A314-56(A))

*The purpose of these provisions is to establish regulations to provide that any development in coastal wetlands will not degrade the wetland, but will maintain optimum populations of marine or freshwater organisms and, where feasible, will enhance wetland resources.*

38.1.2 Applicability of the Wetland Area Regulations. (Former Section CZ#A314-56(B))

*These Wetland Area Regulations shall apply to lands containing wetlands designated "W" on the Zoning Maps, and shall also apply to unmapped wetlands. These regulations shall not apply to lands designated "T - Transitional Agricultural Lands," which are subject to the Coastal Transitional Agricultural Lands Regulations.*

38.1.5 Diking, Filling and Dredging. (Former Section CZ#A314-56(E))

*Permitted diking, filling and dredging shall be limited to the following developments:*

- 38.1.5.1 Wetland restoration;*
- 38.1.5.2 Hunting blinds and similar minor facilities;*
- 38.1.5.3 In open coastal waters, other than wetlands, including estuaries, new or expanded boating facilities and the placement of structural pilings for public recreational piers that provide access and recreation opportunities.*
- 38.1.5.4 In wetland areas only, entrance channels for new or expanded boating facilities.*
- 38.1.5.6 Access facilities consistent with the access inventory development recommendations of the Coastal Land Use Plans;*

38.1.8 Required Findings. (Former Section CZ#A314-56(H))

*The diking, filling, and dredging of wetlands shall be permitted only if the applicable Resource Protection Impact Findings in Chapter 2, Procedures, are made.*

38.1.9 Required Mitigation. (Former Section CZ#A314-56(I))

- 38.1.9.2 If the project involves diking or filling of a wetland, required minimum mitigation measures shall include the following:*
  - 38.1.9.2.1 Either acquisition of equivalent areas of equal or greater biological productivity or opening up equivalent areas to tidal action.*
    - 38.1.9.2.1.1 A restoration plan shall be prepared, pursuant to the Wetland Restoration Plan Procedures in Chapter 2, Procedures, of these*

*regulations, which includes provisions for purchase and restoration of an equivalent area of equal or greater biological productivity.*

*38.1.9.2.1.2 The mitigation site shall be purchased before the dike or fill development may proceed.*

*38.1.9.2.1.3 The site shall be protected permanently through the dedication of the land to a public agency capable of managing the resource or through open space easements or similar restrictions.*

*38.1.9.2.1.4 The restoration plan shall provide for appropriate public access to the restoration site.*

*38.1.9.2.2 Where no appropriate restoration sites are available, an in-lieu fee shall be required and paid to an appropriate public agency, which fee shall be of sufficient value for the purchase and restoration of an area of equivalent productive value or equivalent surface area.*

*38.1.9.3 Mitigation measures shall not be required for temporary or short-term fill or diking, if a bond or other evidence of financial responsibility is provided to assure that restoration will be accomplished in the shortest feasible time. For the purposes of this section, “short-term” generally means that the fill or dikes would be removed immediately upon completion of the construction of the project necessitating the short-term fill or diking.*

**Eel River Valley Groundwater Sustainability Plan**

The Eel River Valley Groundwater Sustainability Plan (GSP) presents a framework for sustainably managing groundwater resources within the Eel River Valley Groundwater Basin for economic, social, and environmental benefits. The Humboldt County Board of Supervisors adopted the plan for the Eel River Valley Groundwater Basin on January 25, 2022. Refer to Section 3.10 – Hydrology for more information regarding groundwater resources in the Project Area.

**3.11.4 Evaluation Criteria and Significance Thresholds**

Evaluation Criteria	Significance Thresholds	Sources
Would the Project physically divide an established community?	A physical barrier to movement dividing an established community that results in a complete physical separation from the rest of the neighborhood	CEQA Guidelines Appendix G, Checklist Item XI (a)
Would the Project cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?	Any such applicable goal/policy in the Humboldt County Land Use Designations and Zoning, Eel River Area Plan, and including consistency with Williamson Act	CEQA Guidelines Appendix G, Checklist Item XI (b)  Humboldt County Code Zoning Regulations  Eel River Area Plan  Williamson Act

### 3.11.5 Methodology

For the purposes of this impact analysis, a significant impact would occur if implementation of the proposed Project would result in inconsistencies or conflicts with the adopted goals and policies of the Coastal Act, Humboldt County Eel River Area Plan and/or applicable rules and regulations of the Humboldt County Zoning Code. Project components, including both construction and operation, have been compared to applicable state and local land use policies, applicable rules, and regulations.

### 3.11.6 Impacts and Mitigation Measures

**Impact: LU-1:                    Physically divide an established community.**

There are no residential uses within the Project Area. The Project Area is not part of an established community. The nearest community is Ferndale approximately four miles to the east. Therefore, the Project would not divide an established community. No aspect of the Project would physically divide the community of Ferndale. Therefore, this significance criterion is not applicable to the Project and is not discussed further.

**Mitigation Measures:**            No mitigation is necessary

**Level of Significance:**            No impact

**Impact: LU-2:                    Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect.**

The proposed Project would convert agricultural land in the Project Area, primarily within the channel footprint, to non-agricultural uses (marsh, wetlands, and berms), which may conflict with policies of the ERAP stipulating preservation of agricultural land and is considered a potentially adverse impact. However, the Project would improve the quality of surrounding agricultural lands by improving drainage and reducing dune overwash and saltwater damage to pasture lands, flooding, and related erosion. Therefore, the Project is consistent with policies relating to agricultural land preservation. These impacts of the Project on agricultural productivity are addressed in more detail in Section 3.2– Agricultural and Forestry Resources.

The Project Area land use designation is a combination of Agricultural Exclusive (AE), and Natural Resources (NR). The zoning of the Project Area is Agricultural Exclusive, 60-Acre Minimum (AE-60), and the zoning of the other portions of the Project Area is Natural Resources (NR/R). Conditionally permitted uses in the AE-60 zone include wetland restoration, fish and wildlife management, watershed management, and resource-related recreation. Thus, the proposed Project would be consistent with the applicable land use designations and zoning for the Project Area.

The Project would require a Conditional Use Permit (CUP) from Humboldt County for activities outside of the federal Wetland Reserve Easement, which would confirm the Project meets ERAP requirements. The Project would also require a Humboldt County grading permit. There are no habitat conservation plans or natural community conservation plans applicable to the Project. The proposed Project would be consistent with the other applicable goals and policies of the ERAP and the Humboldt County Code Zoning Regulations identified in Sections 3.11.2 and 3.11.3 above.

Because the Project is within both state and appeal jurisdiction in the Coastal Zone, it would require a consolidated Coastal Development Permit from the California Coastal Commission. Coverage under the Coastal Act will be sought by Natural Resources Conservation Service (NRCS) via a Coastal Zone Management Act (CZMA) Federal Consistency Determination, due to the federal easement on a portion of the Project Area. The Project is consistent with the natural resource protection requirements of the California Coastal Act.

All agency consultations, technical assistance, and permits would be completed prior to Project implementation. The Project would not result in impacts from conflicts with an applicable land use plan, policy, or regulation of an agency with jurisdiction over the Project.

Within the Project Area, the NRCS has worked cooperatively with the private landowners to acquire three Agricultural Conservation Easement Program - Wetland Reserve Easements (ACEP-WRE) on EREP totaling 1,078 acres and two easements on Russ property totaling 155 acres (Figure 2-3 – NRCS Easement Boundaries). These are perpetual conservation easements that seek to protect and restore wetland habitat while allowing limited livestock grazing in suitable habitat types.

The Project is consistent with applicable land use plans, policies, and regulations, including the Humboldt County Code Zoning Regulations, Eel River Area Local Coastal Plan, and Public Resources Code § 30241. The Project supports the preservation of agricultural land and complies with the Wetland Reserve Easements. The Project will acquire a CUP, County grading permit, and a CZMA Federal Consistency Determination. Therefore, the Project will have a less than significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect.

**Mitigation Measures:** No mitigation is necessary

**Level of Significance:** Less than significant

### 3.11.7 Cumulative Impacts

**Impact: LU-C-1: Would the Project result in cumulatively considerable contribution to a significant cumulative impact related to land use and planning.**

As discussed in Agricultural and Forestry Resources (Section 3.2), other projects in the Eel River Delta individually and collectively have a comparable potential to impact and benefit land use generally, and agricultural resources, specifically (see Table 3-1). Most of these projects share the common goal of restoring habitat while improving drainage on agricultural properties in the area. As described in this EIR, appropriate studies were undertaken to ensure that agricultural resources that could be impacted by the Project were identified, and that avoidance or offsetting measures reduce the impacts of the Project to known agricultural resources to a less-than-significant level. With the implementation of the Project, areas outside of and nearby the Project Area would have reduced risk of flooding and erosion, providing benefits for agricultural uses. These measures are consistent with Humboldt County Code Zoning Regulations, the Eel River Area Local Coastal Plan, and Public Resources Code § 30241. Therefore, the Project's incremental effect to agricultural resources is not cumulatively considerable and would not contribute to any significant impacts to agricultural resources that may be caused by other cumulative Projects. Altogether, any cumulative impacts on land use designations, particularly agricultural zoning, would be beneficial and would not be significant.

**Mitigation Measures:** No mitigation is necessary

**Level of Significance:** Less than significant

### 3.11.8 References



Humboldt County. 1984. *Humboldt County General Plan (HCGP) Volume I Framework Plan*.  
<https://humboldt.gov/DocumentCenter/View/4363/Framework-Plan-Volume-1-PDF>

Humboldt County. 1989. *Humboldt County General Plan Volume II Eel River Area Plan of the Humboldt County Local Coastal Program*. October.




Humboldt County. 2022. *Eel River Valley Groundwater Sustainability Plan*.  
<https://humboldt.gov/DocumentCenter/View/103630/ERV-B-GSP-final-Executive-Summary>

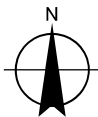
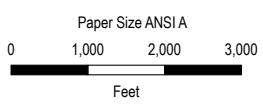
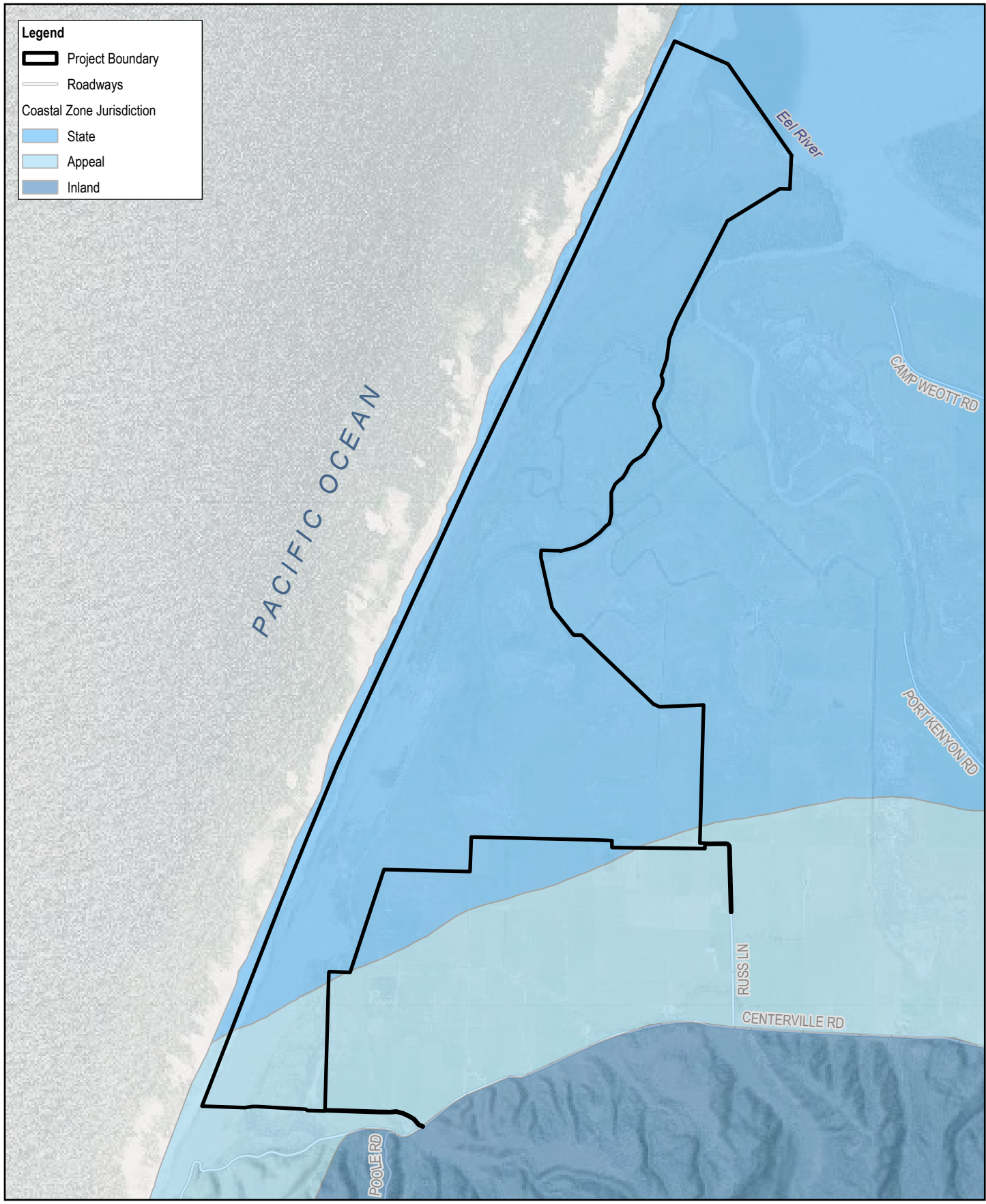


**Legend**

-  Project Boundary
-  Roadways

Coastal Zone Jurisdiction

-  State
-  Appeal
-  Inland



**Humboldt County Resource Conservation District  
Russ Creek and Centerville Slough Restoration Project**

Project No. 11187323  
Revision No. -  
Date Apr 2023





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

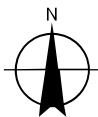
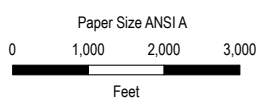
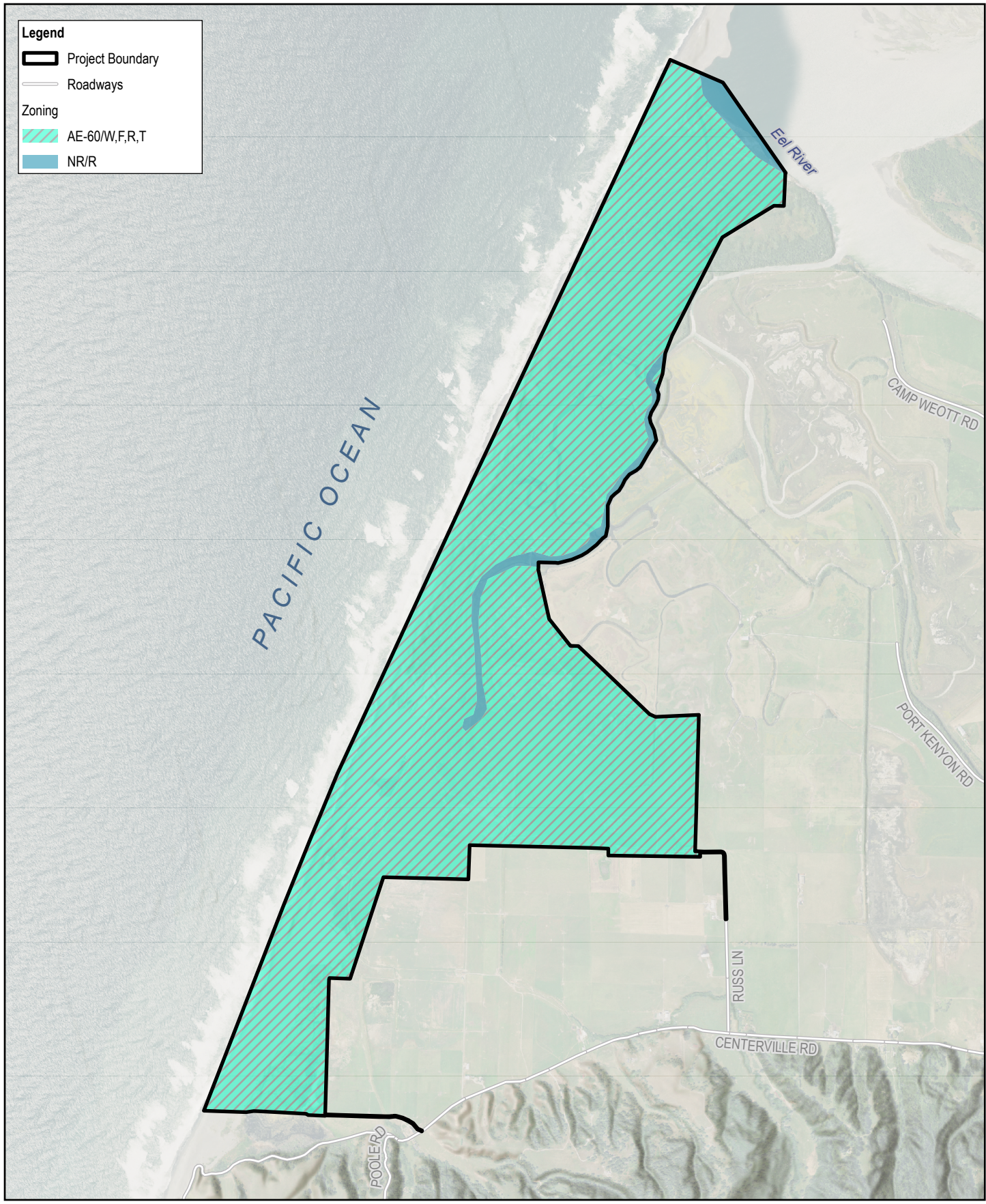
**Coastal Zone Jurisdiction**

**FIGURE 3.11-1**



**Legend**

-  Project Boundary
-  Roadways
- Zoning**
-  AE-60/W,F,R,T
-  NR/R



**Humboldt County Resource Conservation District  
Russ Creek and Centerville Slough Restoration Project**

Project No. 11187323  
Revision No. -  
Date May 2023





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

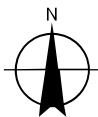
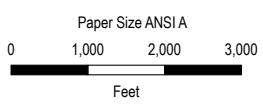
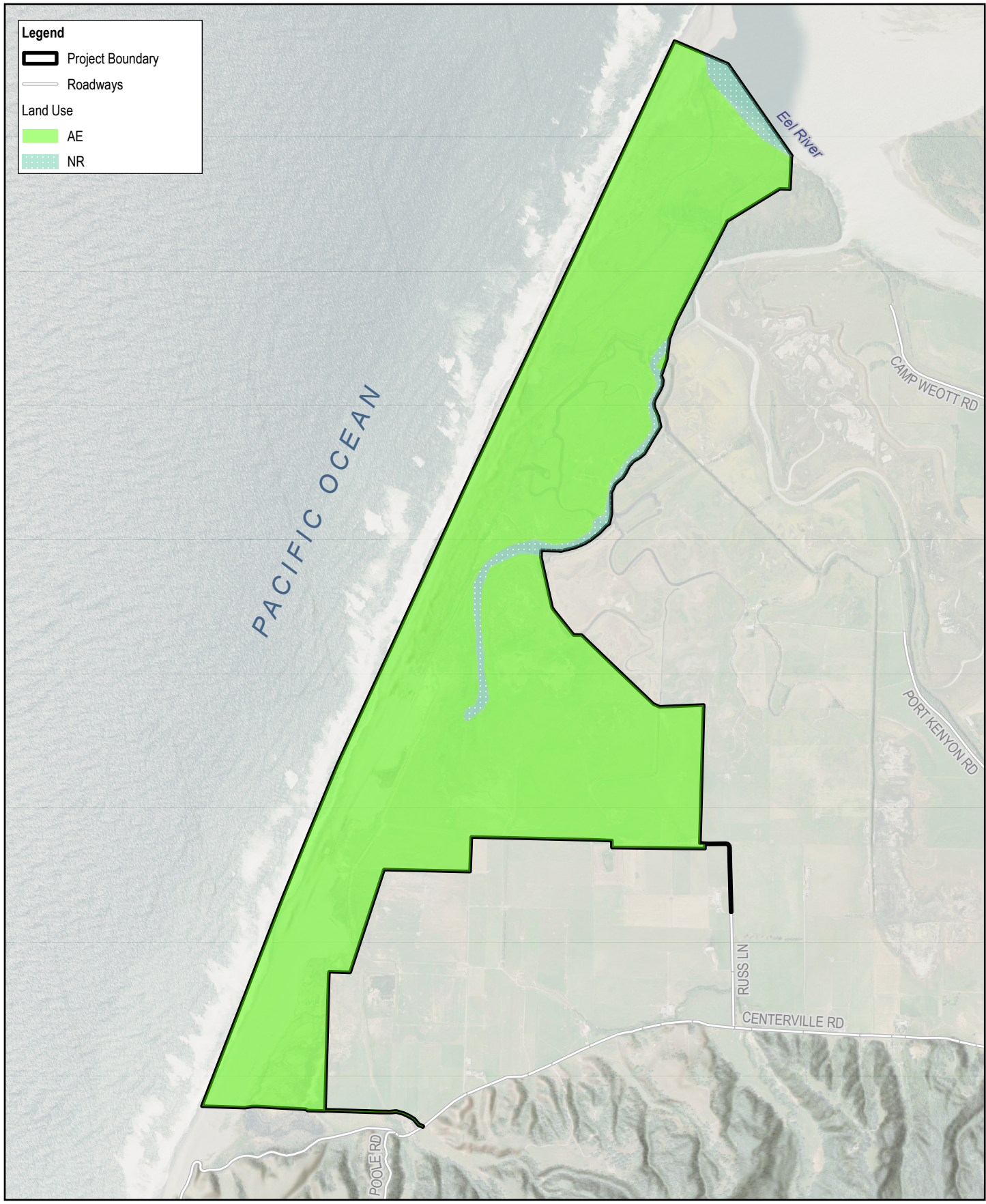
**Zoning**

**FIGURE 3.11-2**



**Legend**

-  Project Boundary
-  Roadways
- Land Use**
-  AE
-  NR



**Humboldt County Resource Conservation District  
Russ Creek and Centerville Slough Restoration Project**

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Map Projection: Lambert Conformal Conic  
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Grid: NAD 1983 StatePlane California I FIPS 0401 Feet

**Land Use**

**FIGURE 3.11-3**

## 3.12 Noise

This section includes existing conditions with regard to noise and vibration, a summary of applicable regulations, and evaluates the potential impacts related to noise and vibration during construction and operation of the Project. This section establishes the thresholds of significance, evaluates potential impacts, and identifies the impacts' significance. Where appropriate, mitigation is presented to reduce impacts to less-than-significant levels. This section focuses on noise impacts to humans. Potential noise impacts to wildlife are discussed in Section 3.4 – Biological Resources.

### 3.12.1 Study Area

The study area for this section includes the area within Project Boundary, which is equivalent to the Project Area, and a surrounding 0.25-mile buffer. No schools or businesses exist within the study area.

### 3.12.2 Setting

#### Fundamentals of Acoustics

Noise may be defined as objectionable or disturbing sound caused by its pitch or its loudness. Pitch is the height or depth of a tone or sound, depending on the relative frequency of the vibrations by which it is produced. Higher pitched signals sound louder to humans than sounds with a lower pitch. Loudness is the intensity of sound waves combined with the reception characteristics of the ear. Intensity may be compared with the height of an ocean wave in that it is a measure of the amplitude of the sound wave.

In addition to the concepts of pitch and loudness, there are several measurement scales which are used to describe noise in a particular location. A decibel (dB) is a unit of measurement that indicates the relative amplitude of a sound. The zero on the decibel scale is based on the lowest sound level that the healthy, unimpaired human ear can detect. Sound levels in decibels are calculated on a logarithmic basis. An increase of 10 decibels represents a ten-fold increase in acoustic energy, while 20 decibels is 100 times more intense, 30 decibels is 1,000 times more intense, etc. There is a relationship between the subjective noisiness or loudness of a sound and its intensity. Each 10 decibel increase in sound level is perceived as approximately a doubling of loudness over a wide range of intensities.

There are several methods of characterizing sound. The most common method in California is the A-weighted sound level or (dBA). This scale gives greater weight to the frequencies of sound to which the human ear is most sensitive. Because sound levels can vary markedly over a short period of time, a method for describing either the average character of the sound or the statistical behavior of the variations must be utilized. Most commonly, environmental sounds are described in terms of an average level that has the same acoustical energy as the summation of all the time-varying events. This energy-equivalent sound/noise descriptor is called Leq. The most common averaging period is hourly, but Leq can describe any series of noise events of arbitrary duration.

Since the sensitivity of noise receptors to noise increases during the evening and at night, and because excessive noise interferes with the ability to sleep, 24-hour descriptors have been developed that incorporate artificial noise penalties added to quiet-time noise events. The Day/Night Average Sound Level (Ldn) is average A-weighted noise level during a 24-hour day, obtained after addition of 10 decibels to levels measured in the night between 10:00 PM and 7:00 AM. The Community Noise Equivalent Level (CNEL) is a measure of the cumulative noise exposure in a community, with a 5 dB penalty added to evening (7:00 PM - 10:00 PM) and a 10 dB addition to nocturnal (10:00 PM - 7:00 AM) noise levels.



**Table 3.12-1 Definitions of Acoustical Terms**

<b>Term</b>	<b>Definitions</b>
Decibel, dB	A unit describing the amplitude of sound, equal to 20 times the logarithm to the base 10 of the ratio of the pressure of the sound measured to the reference pressure, which is 20 micropascals (20 micronewtons per square meter).
Frequency, Hz	The number of complete pressure fluctuations per second above and below atmospheric pressure.
A-Weighted Sound Level, dBA	The sound pressure level in decibels as measured on a sound level meter using the A-weighting filter network. The A-weighting filter de-emphasizes the very low and very high frequency components of the sound in a manner similar to the frequency response of the human ear and correlates well with subjective reactions to noise. All sound levels in this section are A-weighted, unless indicated otherwise.
L01, L10, L50, L90	The A-weighted noise levels that are exceeded 1%, 10%, 50%, and 90% of the time during the measurement period.
Equivalent Noise Level, Leq	The average A-weighted noise level during the measurement period.
Community Noise Equivalent Level, CNEL	The average A-weighted noise level during a 24-hour day, obtained after addition of 5 decibels in the evening from 7:00 PM to 10:00 PM and after addition of 10 decibels to sound levels in the night between 10:00 PM and 7:00 AM.
Day/Night Noise Level, Ldn or DNL	The average A-weighted noise level during a 24-hour day, obtained after addition of 10 decibels to levels measured in the night between 10:00 PM and 7:00 AM.
Lmax, Lmin	The maximum and minimum A-weighted noise level during the measurement period.
Ambient Noise Level	The composite of noise from all sources near and far. The normal or existing level of environmental noise at a given location.
Intrusive	That noise which intrudes over and above the existing ambient noise at a given location. The relative intrusiveness of a sound depends upon its amplitude, duration, frequency, and time of occurrence and tonal or informational content as well as the prevailing ambient noise level.

## Fundamentals of Groundborne Vibration

Ground vibration consists of rapidly fluctuating motions or waves with an average motion of zero. Several methods are typically used to quantify the amplitude of vibration including Peak Particle Velocity (PPV) and Root Mean Square (RMS) velocity. PPV is defined as the maximum instantaneous positive or negative peak of the vibration wave. RMS velocity is defined as the average of the squared amplitude of the signal, usually measured in decibels referenced to one micro-inch per second (in/sec) and reported in velocity decibels (VdB). PPV and VdB vibration velocity amplitudes are used in this analysis to evaluate the effect of vibration on buildings and people in the vicinity of construction activities.

Construction activities can cause vibration that varies in intensity depending on several factors. The use of piledriving and vibratory compaction equipment typically generates the highest construction-related groundborne vibration levels. Because of the impulsive nature of such activities, the PPV descriptor has been used routinely to measure and assess groundborne vibration and almost exclusively to assess the potential of vibration to induce structural damage and the degree of annoyance for humans.

The two primary concerns with construction-induced vibration, the potential to damage a structure and the potential to interfere with the enjoyment of life, are evaluated against different vibration limits. Studies have shown that the threshold of perception for average persons is in the range of 0.008 to 0.012 in/sec PPV. Human perception to vibration varies with the individual and is a function of physical setting and the type of vibration. Persons exposed to elevated ambient vibration levels, such as people in an urban environment, may tolerate a higher vibration level, whereas the opposite is true for people in rural areas.

Structural damage can be classified as cosmetic only, such as minor cracking of building elements, or may threaten the integrity of the building. Safe vibration limits that can be applied to assess the potential for damaging a structure vary by researcher and there is no general consensus as to what amount of vibration may pose a threat for structural damage to a building. Construction-induced vibration that can be detrimental to a building is very rare and has only been observed in instances where the structure is at a high state of disrepair and the construction activity occurs immediately adjacent to the structure.

### **Existing Noise and Vibration Environment**

Existing noise sources in the Project Area are associated with agricultural operations on the eastern portion of the Project Area and the Pacific Ocean along the western boundary of the Project Area. Sources include waste pumps, irrigation equipment, diesel generators, forklifts, livestock trucks, milk conveyance trucks, semi-trucks, tractors, and other vehicles and equipment. Truck traffic along Project roadways is the primary source of local noise. However, due to the Project Area's isolated location far removed from major roadways, time-averaged noise levels in most of the Project Area are generally low. Due to the Project location along the coast, and on the Eel River delta, wind both elevates background noise levels, and can attenuate heavy equipment noise. There are no known existing vibration sources in the Project Area.

### **Sensitive Receptors**

Land uses that are generally sensitive to noise are residential areas, schools, convalescent and acute care hospitals, some recreational areas, churches, and other religious facilities. The only sensitive receptors identified near the Project Area are rural residences, of which there are none within the Project Area and four within the 0.25-mile buffer.

## **3.12.3 Regulatory Framework**

### **Federal**

The United States Department of Labor Occupational Safety and Health Administration (OSHA) requires employers protect workers from the hazardous noise. OSHA establishes standards for occupational noise exposure per 29 Code of Federal Regulations (CFR) 1910.95. Noise exposure specific to the construction industry is enforced by OSHA per 29 CFR 1926.52 (Occupational Noise Exposure) and 1926.101 (Hearing Protection).

No other federal standards related to noise and vibration would be applicable to the Project.

### **State**

The California Department of Industrial Relations, Division of Occupational Safety and Health (Cal/OSHA) requires employers to control worker noise exposure. Cal/OSHA regulates noise exposure per the General Industry Safety Orders, Article 105 and California Code of Regulations (CCR) Title 8, Sections 5095-5100.

Development planning best practices include use of either CNEL or Ldn as noise/land use compatibility criteria. California considers CNEL and Ldn to be equivalent for planning purposes. CNEL-based standards apply to noise sources whose noise generation is preempted from local control (such as from on-road vehicles, trains, airplanes, etc.) and are used to make land use decisions as to the suitability of a given site for its intended use. Since local jurisdictions cannot regulate the noise generator, entities exercise land use planning authority on the receiving property.

California has established guidelines for acceptable community noise levels to ensure that noise exposure is considered in any development, as shown in Table 3.12-2.

**Table 3.12-2 California Land Use Compatibility Guidelines for Exterior Community Noise (Community Noise Exposure CNEL, dB)**

Land Use	Normally Acceptable	Conditionally Acceptable	Normally Unacceptable	Clearly Unacceptable
Residential – Low Density Single Family, Duplex, Mobile Homes	Below 60	55-70	70-75	Above 75
Residential – Multi-Family Homes	Below 65	60-70	70-75	Above 75
Transient Lodging: Motels, Hotels	Below 65	60-70	70-80	Above 80
Schools, Libraries, Churches, Hospitals, Nursing Homes	Below 70	60-70	70-80	Above 80
Auditoriums, Concert Halls, Amphitheaters	-	Below 70	-	Above 65
Sports Arena, Outdoor Spectator Sports	-	Below 75	-	Above 70
Playgrounds, Neighborhood Parks	Below 70	-	67-75	Above 72.5
Golf Courses, Riding Stables, Water Recreation, Cemeteries	Below 75	-	70-80	Above 80
Office Buildings, Business Commercial and Professional	Below 70	67-77	Above 75	-
Industrial, Manufacturing, Utilities, Agriculture	Below 75	70-80	Above 75	-

Source: State of California Governor's Office of Planning and Research, General Plan Guidelines, 2003.

Notes:

**Normally Acceptable:** Specified land use is satisfactory based upon the assumption that any buildings involved are of normal conventional construction, without any special noise insulation requirements.

**Conditionally Acceptable:** New construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed noise insulation features included in the design. Conventional construction, but with closed windows and fresh air supply systems or air conditioning would normally suffice.

**Normally Unacceptable:** New construction or development should generally be discouraged. If new construction or development does proceed, a detailed analysis of the noise reduction requirements must be made and needed noise insulation features included in the design.

**Clearly Unacceptable:** New construction or development should generally not be undertaken.

## Regional and Local

The Humboldt County General Plan Noise Element (Chapter 13) addresses short-term noise performance standards (Humboldt County 2017). The short-term noise standard maximum levels (Lmax) for daytime noise (6:00 AM to 10:00 PM) vary by zoning classification, ranging from 65 dBA to 80 dBA. Nighttime Lmax levels (10:00 PM to 6:00 AM) range from 60 dBA to 70 dBA. Per General Plan Standard N-S7 (Short-term Noise Performance Standards [Lmax]) Exception 4, the short-term noise standards do not apply to heavy equipment and power tools used during permitted construction projects (Humboldt County 2017). As the Project is located entirely within the Coastal Zone, the Humboldt County General Plan does not apply to the Project.

### ***Humboldt County Eel River Area Plan Local Coastal Program***

The Eel River Area Plan (ERAP) of the Humboldt County Local Coastal Program does not address noise. Given the ERAP does not include policies that address noise, the applicable 2017 Humboldt County General Plan policies have instead been used as guidance for impact analysis. As the 2017 Humboldt County General Plan does not apply to the Project Area, these policies are advisory.

No other local standards related to noise and vibration would be applicable to the Project.

## 3.12.4 Evaluation Criteria and Significance Thresholds

The Project would cause a significant impact related to noise, as defined by the CEQA Guidelines (Appendix G), if it would:

- Result in the generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the Project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies;
- Result in generation of excessive groundborne vibration or groundborne noise levels; or
- Be located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, and expose people residing or working in the Project Area to excessive noise levels.

The evaluation and significance thresholds are summarized in the following table.

Evaluation Criteria	Significance Thresholds	Sources
Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the Project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	Land Use/Noise Compatibility Standards (Table 3.12-2)	CEQA Guidelines Appendix G, Checklist Item XIII (a)  Humboldt County General Plan Table 3.12-2 – Land Use/Noise Compatibility Standards
Would the Project result in the generation of excessive vibration or groundborne noise levels?	Peak particle velocity of 0.3 in/sec (based on Caltrans vibration guidelines)	CEQA Guidelines Appendix G, Checklist Item XIII (b)  Caltrans Transportation and Construction Vibration Guidance Manual



Evaluation Criteria	Significance Thresholds	Sources
For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the Project expose people residing or working in the Project Area to excessive noise levels?	Location of Project in area exposed to effects of airport noise	CEQA Guidelines Appendix G, Checklist Item XIII (c)

### 3.12.5 Methodology

The noise and vibration impact assessment considers Project construction noise impacts (short term), and Project operations (long term) for the Project Area. Given the ERAP does not include policies that address noise, the applicable 2017 Humboldt County General Plan policies have instead been used as guidance for impact analysis.

For purposes of this section, short-term impacts assume that construction would be phased into two to four construction seasons based on available funding and sequencing for earthwork with construction water management. Each season would span approximately May through the end of October, as feasible with dry weather and allowable permitting windows. Upon completion, Project operational activities would cause occasional increases above background levels in various locations throughout the Project Area similar to existing operational activities.

For construction noise, the potential for impacts was assessed by considering several factors, including the proximity of Project-related noise sources to noise-sensitive land uses (i.e., sensitive receptors), typical noise levels associated with construction equipment, the potential for construction noise levels to interfere with daytime activities, and the duration that sensitive receptors would be affected. For operational noise, the potential for impacts was assessed by evaluating the noise generation potential of noise sources, proximity of sensitive receptors, and the potential for operational noise to remain within the established local limits at the nearest receptors.

The Caltrans guidelines for vibration are the basis for the significance criteria for annoyance and potential building damage. Caltrans recommends a vibration limit of 0.5 in/sec PPV for buildings structurally sound and designed to modern engineering standards, 0.3 in/sec PPV for buildings that are found to be structurally sound but where structural damage is a major concern, and a conservative limit of 0.08 in/sec PPV for very old buildings or buildings that are documented to be structurally weakened. This analysis assumes that proposed construction areas would not be in the vicinity of structurally weakened structures. Based on Caltrans guidance, this analysis establishes 0.3 in/sec PPV as the significance threshold for construction vibration to avoid damage to buildings from vibration sources.

### 3.12.6 Impacts and Mitigation Measures

**Impact NOI-1: Result in generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the Project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies.**

Construction of the proposed Project would temporarily increase noise in the vicinity of Project due to construction activities. The temporary noise increases would result from use of construction equipment, as

well as from increased traffic as construction workers commute to and from the Project Area. Noise levels would be consistent with the United States Department of Transportation (USDOT) Federal Transit Administration (FTA) reference noise levels summarized in Table 3.12-3 below (USDOT FTA 2006).

**Table 3.12-3 Construction Equipment Reference Noise Levels as Measured at 50 Feet**

Equipment	Noise Level (dB)	Equipment	Noise Level (dB)
Drill rig truck	84	Jackhammer	85
Horizontal Boring Hydraulic Jack	80	Large Generator	82
Front end loader or Backhoe	80	Paver or Roller	85
Excavator	85	Dump truck	84

Source: (USDOT FTA 2006)

Sound from a point source is known to attenuate at a rate of -6 dB for each doubling of distance. For example, a noise level of 85 dB Leq as measured at 50 feet from the noise source would attenuate to 79 dB Leq at 100 feet from the source and to 73 dB Leq at 200 feet from the source to the receptor. Based on the reference noise levels in Table 3.12-2, the noise levels generated by construction equipment at the Project Area may reach a maximum of approximately 85 dB Leq at 50 feet during site excavation and construction.

Given the ERAP does not include policies that address noise, the 2017 Humboldt County General Plan Standard N-S7 (Short-term Noise Performance Standards [Lmax]) has been used as guidance for impact analysis. As noted in Section 3.12.3, construction noise from permitted projects is exempt from the General Plan noise standards; however, Standard N-S7 has been used to advise this impact analysis.

The Project Area is rural and generally undeveloped with four residences in proximity to the Project Area. There are no residences in the Project Area. Two existing residential structures along Centerville Road are situated approximately 100 to 250 feet from the Project Area southern boundary; however, the distance from these residences to the proposed construction activity within the Project Area would be far greater.

Per General Plan Standard N-S7, the short-term daytime Lmax for agricultural zoned properties is 80 dBA. Each of the four parcels with residences in proximity to the Project Area have an agricultural zoning classification. Per Table 3.12-2, the maximum noise anticipated during construction would be 85 dBA. Given the distance from the Project construction to residences within proximity of the Project Boundary and the rates of sound attenuation, the noise levels during construction would be below the 80 dBA daytime Lmax threshold for land agricultural zoning classifications. The impact would therefore be less than significant.

Construction-related noise would be short-term and limited to daytime hours of construction as defined in Section 2.6.1 of the Project Description. While the maximum noise levels generated during construction could result in short-term increases in noise, the nearest residential receptor would not experience unacceptable interior noise levels. The transient and short-term increase in noise related to Project construction would not expose persons to unacceptable noise levels and would not represent a permanent, stationary increase in noise. A less than significant impact would occur.

Operational activities associated with the Project include maintenance of access routes, invasive species removal (using passive and active restoration techniques), and other site maintenance, management, and monitoring activities. Noise generated within the Project Area during these activities would not measurably exceed the existing background noise levels because only infrequent vehicular access, repairs, and maintenance would be required. Additionally, as Project operational activities generally occur well inside the

Project Area boundary, there would be no sensitive receptors in proximity to this work. The incremental and short-term increase in noise in the Project Area related to Project operations would not expose persons to noise levels in excess of established standards and would not represent a substantial increase in noise. A less than significant impact would occur.

**Mitigation Measures:** No mitigation is necessary

**Level of Significance:** Less than significant

**Impact NOI-2: Result in generation of excessive vibration or groundborne noise levels.**

Construction of the Project would include installation of new culverts and gated culverts, the retrofit of existing tide gates, restoration of habitats, improved drainage, expansion of the tidal prism, and suppression of invasive species. Earth moving and earth compacting activities using heavy machinery would create groundborne vibrations and noise on a temporary and intermittent basis. Major sources of groundborne vibration such as impact pile drivers are not proposed as part of the Project.

Sheet piles may be placed as part of the final design of the gated culverts and/or placed for temporary water control. If used, sheet piles would be advanced or pushed into the ground with an excavator using non-vibratory techniques.

Table 3.12-4 presents typical vibration levels that could be expected from construction equipment at a distance of 25 feet as reported in the USDOT FHWA Construction Noise Handbook (USDOT FHWA 2006). Vibration levels would vary depending on soil conditions, construction methods, and equipment used.

**Table 3.12-4 Vibration Source Levels for Project Construction Equipment**

Equipment	PPV at 25 ft. (in/sec)	Approximate Lv at 25 ft. (VdB)
Large bulldozer	0.089	87
Loaded trucks	0.076	86
Jackhammer	0.035	79
Small bulldozer	0.003	58

*Source: (USDOT FHWA 2006)*

Large construction equipment, such as a bulldozer and/or excavator, would be used during the grading/excavation phase of the Project. As indicated in Table 3.12-4, vibration levels produced by a large bulldozer can reach 0.089 in/sec PPV at a distance of 25 feet. Vibration would be short-term and transitory, generated only during Project construction and operational activities involving heavy equipment.

Given the distances from the Project construction to the four residences, the vibration levels experienced at these buildings would be well below the 0.3 in/sec PPV threshold used to avoid cosmetic damage to buildings that are found to be structurally sound but where structural damage is a major concern. Vibration levels produced by other equipment proposed as part of the Project would also be well below the 0.3 in/sec PPV threshold. Therefore, the Project would result in a less than significant impact with regard to exposing persons to or generating excessive groundborne vibration or groundborne noise levels.

Vibration levels associated with the operation of gated culverts and heavy equipment to relocate sediment would be similar to those levels described above for construction. Therefore, vibration levels associated with operations would also be less than significant.

**Mitigation Measures:** No mitigation is necessary

**Level of Significance:** Less than significant

**Impact NOI-3:** **For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, expose people residing or working in the Project Area to excessive noise levels.**

As discussed in Section 3.9 (Hazards and Hazardous Materials), the Project is not located within an airport land use plan or within two miles of a public airport. Therefore, this significance criterion is not applicable to the proposed Project and is not discussed further in this section.

The Project is not located within the vicinity of a private airstrip. Therefore, this significance criterion is not applicable to the proposed Project and is not discussed further in this section. No impact would occur.

**Mitigation Measures:** No mitigation is necessary

**Level of Significance:** No impact

### 3.12.7 Cumulative Impacts

**Impact NOI-C-1:** **Would the Project result in a cumulatively considerable contribution to cumulative impacts from noise.**

Noise impacts generated by the Project would be, intermittent, short-term, and localized during both construction and operation. There are no other construction projects currently proposed for the Project Area that would result in a cumulative noise impact (see Table 3-1 for a list of cumulative considered projects). Projects considered in Table 3-1 would not occur at the same time or would be acoustically independent of the proposed Project. Given that the Project would not result in any significant new noise and there are no other projects currently proposed for the Project Area, the potential for cumulative noise-related impacts within the study area would be less than significant.

**Mitigation Measures:** No mitigation is necessary

**Level of Significance:** Less than significant

### 3.12.8 References

Humboldt County. 2017. *Humboldt County General Plan, Volume I, Chapter 13 Noise Element*. October 23.

Humboldt County. 2007. *Humboldt County General Plan, Volume II, Eel River Area Plan of the Humboldt County Local Coastal Program*. April.

United States Department of Transportation, Federal Transit Administration (USDOT FTA). 2006. *Transit Noise and Vibration Impact Assessment, United States Department of Transportation, Office of Planning and Environment*. May.

United States Department of Transportation, Federal Highway Administration (USDOT FHWA). 2006. *Highway Construction Noise Handbook*. August.

### 3.13 Public Services

This section evaluates the potential impacts related to public services during construction and operation of the Project. To provide the basis for this evaluation, the Setting section describes the existing public services within the Project Area, which is equivalent to the Project Area, and the Regulatory Framework section describes applicable federal, state and local regulations, policies and programs. Public services discussed in this section include fire protection, law enforcement, schools, parks, and other public facilities. The Evaluation section establishes the thresholds of significance and evaluates potential public services impacts.

#### 3.13.1 Study Area

The public services study area extends beyond the Project Boundary (Project Area) and includes the service capacity of the surrounding area, including the City of Ferndale to the east.

#### 3.13.2 Setting

##### **Public Services**

##### ***Fire Protection***

Founded in 1897, the Ferndale Volunteer Fire Department (FVFD) is responsible for the preservation and protection of life and property for the City of Ferndale and the surrounding rural area. The Ferndale Fire Protection District (FFPD) is a special district responsible for providing fire protection services, through the FVFD, to the City of Ferndale and the unincorporated communities of Grizzly Bluff, Arlynda Corners, Centerville, Port Kenyon, Wildcat Ridge, and the remainder of the Eel River bottoms south of the Eel River.

The active powers of the FFPD include structural fire protection and suppression, rescue, and emergency medical services. Latent powers include water supply and storage for fire suppression purposes. While the FFPD is responsible for structural fire protection and emergency medical responses, California Department of Forestry and Fire Protection (CAL FIRE) retains responsibility for grass and forest fires. The FFPD has joint responsibility for grass and forest fires within the District through a mutual aid agreement with the CAL FIRE. The FFPD also has mutual aid agreements with the Loleta and Fortuna Fire Protection Districts. These mutual aid agreements allow the districts to enter into agreements for services, including emergencies which have the potential to overwhelm the resource capabilities within a single district. This enables the FFPD to maintain preparedness for a disaster beyond their capacity, without the need to expand and create an additional facility.

The FFPD has a district boundary of 45 square miles and a total response area of 104 square miles. The District's current boundaries encompass the area from the Pacific Ocean on the west to the Eel River on the north and east, and to Upper Bear River Road on the southern border. The entirety of the Project Area is within the FFPD district boundary. The FVFD has one rescue truck, three fire engines (pumpers), two water tenders, a utility truck and other assorted equipment.

##### ***Law Enforcement Services***

The Humboldt County Sheriff's Office provides a variety of public safety services countywide (court and corrections services) and law enforcement services for the unincorporated areas of the county. The

California Highway Patrol is responsible for enforcing traffic laws on roadways within the unincorporated areas and on state highways throughout the county.

The Sheriff's Office Operations Bureau is made up of seven units under the command of the Undersheriff. The most visible of these units is the Patrol Unit. Sheriff's Deputies assigned to the Patrol Unit are responsible for responding to emergency calls for service, criminal investigations, and crime prevention through neighborhood and beat patrols. Patrol has one main station in Eureka, substations in Garberville, Hoopa and McKinleyville, and six resident deputy posts.

The Sheriff's Office has mutual aid agreements with cities and the California State Highway Patrol. Mutual aid is an agreement between agencies where the agency of jurisdiction can request manpower or resources from allied agencies or agencies within the surrounding areas. These agencies could be local or state agencies.

### ***Public Schools***

The study area is located within the Ferndale Unified School District. School age persons in the Project Area requiring public schooling from kindergarten through eighth grade attend Ferndale Elementary School, located at 164 Shaw Avenue in Ferndale approximately three miles east of the Project. Public high school students attend Ferndale High School, located at 1231 Main Street in Ferndale approximately 3.5 miles east of the Project.

### ***Parks***

The study area is undeveloped for recreational use, although, passive recreation use currently occurs on the Eel River Estuary Preserve (ERP) portion of the Project. Centerville Beach County Park is immediately south of the Project Area. Russ Park, four miles east, and Fireman's Park, three miles east, in the Francis Creek watershed provide hiking trails and public parking facilities. Other public recreation facilities or access points in the Eel River Delta include (north of the Eel River) Crab Park, Pedrazzini Boat Launch, Cannibal Island and Camp Weott Road. South of the Eel River recreation points include Guthrie Creek, Fleener Creek, and Lost Coast Headlands.

## **3.13.3 Regulatory Framework**

### **Federal**

There are no federal regulations governing public services that apply to the Project.

### **State**

There are no state regulations governing public services that apply to the Project.

### **Regional and Local**

#### ***Humboldt County General Plan Goals and Policies***

Due to the Project being entirely located within the coastal zone, the following goal from the Humboldt County General Plan is not required and is only advisory regarding public services.

4720 Policies

1. Proposed development shall be adequately serviced by water supplies for fire protection or shall have a letter from an appropriate fire protection agency indicating that adequate fire protection can be provided.

**Humboldt County Eel River Area Local Coastal Plan**

There are no Local Coastal Plan regulations governing public services that apply to the Project.

**3.13.4 Evaluation Criteria and Significance Thresholds**

Evaluation Criteria	Significance Thresholds	Sources
Would the Project create substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services:		
Fire protection?	Project would require relocation or construction of public infrastructure which would have significant environmental effect	CEQA Guidelines Appendix G, Checklist Item XIX (a)
Police protection?	Project would require relocation or construction of public infrastructure which would have significant environmental effect	CEQA Guidelines Appendix G, Checklist Item XIX (a)
Schools?	Project would require relocation or construction of public infrastructure which would have significant environmental effect	CEQA Guidelines Appendix G, Checklist Item XIX (a)
Parks?	Project would require relocation or construction of public infrastructure which would have significant environmental effect	CEQA Guidelines Appendix G, Checklist Item XIX (a)
Other public facilities?	Project would require relocation or construction of public infrastructure which would have significant environmental effect	CEQA Guidelines Appendix G, Checklist Item XIX (a)

**3.13.5 Methodology**

Potential impacts to public services are evaluated for construction and operational activities. The evaluation considers whether the Project would affect the county's existing public services, including fire protection and law enforcement, by affecting the current service ratios/response times.

### 3.13.6 Impacts and Mitigation Measures

**Impact: PS-1:**            **Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for fire protection.**

Fire response services in the Project Area are provided by FVFD. The Project would not increase population; therefore, it is not anticipated that the Project would increase the need for fire protection or emergency medical services or affect service ratios or response times of these public services. The fire hazard at the site is low because the Project Area is predominantly open pasture and/or agricultural wetlands kept moist by summer fog, wetted channels, periodic precipitation, and irrigation. An increase in fire response would not occur. Public access would be provided by a trail and kayak put in and take out locations on the EREP portion of the Project. Operational public access, site maintenance, management, and monitoring would not include activities that would result in an elevated fire risk above existing conditions. The impact would be less than significant.

**Mitigation Measures:**        No mitigation is necessary

**Level of Significance:**        Less than significant

**Impact: PS-2:**            **Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for police protection.**

The Project Area is within the jurisdiction of the Humboldt County Sheriff's Office. The majority of the Project Area is currently not regularly used by the public, although limited recreational use does occur on the EREP portion of the Project. Future public access would increase compared to existing conditions. Public access to the Project Area would occur via Centerville Road to Russ Lane, public roadways. The need for law enforcement or emergency response related to operational public access would be low and infrequent; new public facilities would not be required to accommodate operational public access. The Project would not substantially increase use or access or increase the area needing regular patrol by the Humboldt County Sheriff's Office. Additional patrol would not be required. The impact would be less than significant.

**Mitigation Measures:**        No mitigation is necessary

**Level of Significance:**        Less than significant



**Impact: PS-3:**            **Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for schools.**

The Project would not result in an increase in population and therefore would not create a need for new schools or increase any school population. The Project would not affect school funding. Therefore, no impact would occur, and this significance criterion is not discussed further.

**Mitigation Measures:**        No mitigation is necessary

**Level of Significance:**        No impact

**Impact: PS-4:**            **Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for parks.**

The nearest public recreational facility is the Centerville Beach County Park. The Project Area is bordered on the west by a public beach. Neither the Centerville Beach County Park or the bordering public beach would be affected by construction or operation of the Project. The Project would not require the expansion of additional public recreational facilities to maintain service ratios in parks and would not require the expansion of other public facilities. The Project does include an expansion of public access on private property. As discussed above, operational use of the Project Area for recreation and nature study purposes would not result in the need for new public services or facilities. Therefore, no impact would occur, and this significance criterion is not discussed further.

**Mitigation Measures:**        No mitigation is necessary

**Level of Significance:**        No impact

**Impact: PS-5:**            **Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for other public facilities.**

There are no other public facilities in the Project Area, and the Project would not require the addition of other facilities. Therefore, no impact would occur, and this significance criterion is not discussed further.

**Mitigation Measures:**        No mitigation is necessary

**Level of Significance:**        No impact

### 3.13.7 Cumulative Impacts

**Impact: PS-C-1:**        **Would the Project result in a cumulatively considerable contribution to cumulative impacts related to public services.**

Impacts associated with the proposed Project are primarily short-term, construction-related impacts, and specific to a particular location and time. However, ongoing maintenance and monitoring activities may include vegetation removal and treatment, ongoing riparian planting and/or repeated excavation, reworking of deposited sediments, site maintenance, management, repair, and monitoring. Construction and operational activities would neither contribute to nor cause a significant cumulative impact since the Project's impacts are less than significant, and it is unlikely that other projects would impact the same public services at the same time during the construction window. Projects considered in Table 3-1 are largely associated with other small- and large-scale restoration and public benefits efforts in the lower Eel River Valley. Projects considered in Table 3-1 are individually unlikely to impact public services. Therefore, the proposed Project would not contribute to a significant cumulative impact relative to public services.

**Mitigation Measures:**        No mitigation is necessary

**Level of Significance:**        Less than significant

### 3.13.8 References

Humboldt County. 2007. *Eel River Area Plan of the Humboldt County Local Coastal Program*.

Humboldt County. 2017. *Humboldt County General Plan*. April 2.

## 3.14 Recreation

This section evaluates the potential impacts related to recreation during construction and operation of the Project. To provide the basis for this evaluation, the Setting section describes the physical context. The Regulatory Framework section describes the applicable federal, state and local regulations affecting the Project area and the proposed Project. The Evaluation Criteria, Impacts, and Mitigation Measures sections establish the thresholds of significance, evaluate potential recreational impacts, and identify the significance of impacts and feasible mitigation measures if necessary.

### 3.14.1 Study Area

The study area extends beyond the Project Boundary (which is equivalent to the Project Area) and includes the recreational capacity of the surrounding area, including the City of Ferndale to the east.

### 3.14.2 Setting

#### Physical Context

The Project Area encompasses 1,480-acres owned by The Wildlands Conservancy (TWC), Russ Ranch and Timber, L.L.C. (RR&T) and the Linda S Russ Revocable Trust. Together this area of land extends from the mouth of the Eel River south to Centerville Road and the base of the Wildcat Hills. Centerville County Park beach is at the southwestern edge of the Project Area. Centerville Road is the southern boundary of the Project Area.

Much of the Eel River Estuary Preserve (EREP) owned by TWC was known as the “Occidental Marsh,” and for good reason; this section of the historic Occidental Ranch was crisscrossed by a navigable Centerville Slough and a vast network of channels, terminal ponds and wetlands that lent itself more reliably to boat travel than any other mode of transportation. Centerville Slough extended south through the entire Project Area to the historic town and port of Centerville, which lay at the base of the Wildcat Hills near Centerville County Park.

The Project is located on contiguous private parcels, some of which are managed solely for agricultural production, and some of which have historically been managed for combined agricultural production and recreational use. During its incarnation as the Connick Ranch, EREP was managed for a combination of agricultural use and private recreational use, including duck hunting and equestrian use. Since 2008, the EREP has been managed for combined agricultural production, hunting, outdoor education, and limited recreational use. All parcels have experienced more than a century of management for intensive agricultural production and livestock grazing. Impacts to the land have included construction of dikes, bridges and roads, barns, fences and other infrastructure as well as infilling and re-routing of creeks and waterways, reclamation of hundreds of acres of tideland, conversion of landforms and more.

Historic access to the Project Area occurred in early years via the dunes, then later via Port Kenyon Road, through historic Occidental Ranch, now the O’Rourke Foundation Property. By the 1920s access to the Project Area occurred primarily via Russ Lane or Centerville Road. Currently, there are two private roads that provide access into the Project Area. The primary access to the TWC EREP is gained from Russ Lane via Centerville Road. Extending from Centerville Road to approximate post mile (PM) 0.41, Russ Lane is within County jurisdiction. North of PM 0.41, the road is private and TWC has an easement for use with the underlying property owned by Harville Ranch L.L.C.. The easement is approximately 1,800 feet long. Harville Ranch L.L.C. utilizes its property and adjoining properties for cattle grazing and hay production,

utilizing the easement area for both hay storage and to facilitate cattle movement between pastures. The other two private roads used to access the Project Area are via Centerville Road and are located on RR&T and Jack and Linda Russ properties. Those properties are solely managed for agricultural operations, and no public access is allowed. Some trespass, primarily OHV use, and minor duck hunting, occurs via Centerville Beach. Centerville Road and the southern 0.41-mile portion of Russ Lane are maintained by Humboldt County.

## Existing Recreational Features

The sole use of RR&T land and Jack and Linda Russ property is agricultural production; public recreation is prohibited there. No recreation is proposed for those properties as a part of the Project.

The Connick Ranch was acquired by TWC in 2008. At the time of acquisition, the property had been leased by the former owner, Tom Connick, to RR&T for decades of livestock grazing. TWC inherited the management of this lease with the property and continued managing it from 2008 to 2012. In 2012, that lease was mutually terminated, and a new lease was let with Robert and Tim Miranda. The current grazing lease is now held by Jay Russ.

Duck hunting is extremely popular in the Eel River Delta and has been since the nineteenth century. The Occidental Marsh was particularly popular with area residents. Beginning at least as early as 1939 the Connick family held a lease with the Centerville Gun Club (CGC), and public hunting was thereafter discouraged. Early resident John Rusk recalled being appointed a “deputy sheriff on the marsh to keep the poachers from getting the ducks ahead of the gun club hunters...(t)he Occidental Marsh was rented to the gun club.” The Eel River Gun Club (ERGC), a separate entity, took over the lease in 1954. In 2015 the ERGC changed their name to the Eel River Waterfowl Association (ERWA). The ERGC/ERWA leases 40 acres on the EREP.

In addition to TWC’s maintenance of the ERWA hunting lease, TWC encourages non-consumptive recreation on the EREP through scheduled and docent-led visits. Generally, the site is popular with bird watchers, hikers and equestrians. Like Centerville Beach County Park, just south of the Project Area, visitation to the EREP is low, possibly due to its novelty or lack of advertisement, but more likely due to its isolation. Overall visitation to the EREP since acquisition has been documented and includes members of the ERGC, school groups, birders, equestrians and other guests. Visitation appears to hold steady at an annual average of approximately 492 visitors per year, an estimated 72% of whom are ERGC members.<sup>1</sup> Table 3.14-1, below, summarizes the level and type of usage at the EREP since 2008. The “Other” category includes weekend and weekday visitors, researchers and TWC volunteers. “Visits” by agricultural lessees, deliveries, ranger travel on and off the EREP, consultant travel in the course of Project development and so forth has not been counted and is considered insignificant. The primary recreation use at the EREP as measured by visitation levels and impacts to the land (such as construction and improvement of ponds) is duck hunting. Secondary uses at the EREP include walking, horseback riding, and passive observation of wildlife.

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<sup>1</sup> ERGC/ERWA visitation is an estimate based upon a high of 10 hunter members, three days/week during the three month regular season, plus a one month extended goose season combined with a low of half that, then averaged. It is probably that visitation levels depend upon weather, hunting conditions, personal schedules and other factors. These visitation numbers do not include ERGC work parties, blind preparation and so forth.

**Table 3.14-1 EREP Visitation Levels**

Year	Duck Club	Students	Birders	Other Recreation	Total
2008	360	10	33	40	443
2009	360	30	5	10	405
2010	360	30	20	20	430
2011	360	10	7	40	417
2012	360	30	20	63	473
2013	360	25	40	17	442
2014	360	85	200*	100**	745
2015	260***	249	64	162	735
2016	360	15	24	184	583
2017	360	11	8	92	471
2018	360	9	10	70	449
2019	360	2	16	65	443
2020	360	0	4	52	416
2021	360	13	6	68	447
2022****	360	3	9	105	477

**Notes:** \*A rare gyrfalcon was observed on or near TWC property in 2014 causing an extensive and unforeseen level of visitation, and congestion, to the Project area for one day.  
 \*\* The Fish Passage Forum hosted a special meeting and tour focused on the Eel River Delta in November 2014, resulting in a one-day peak in visitation to the Ferndale area.  
 \*\*\* El Nino conditions, or perhaps migratory patterns, resulted in a poor hunting season on the EREP, hence the lower estimated visitation.  
 \*\*\*\*2022 values are based on January-August visitation counts

TWC obtained a Humboldt County Conditional Use Permit (PLN-2017-1 3564) and Coastal Development Permit (PLN-2020-1 6306) in 2021 which approved public access on the EREP for three days per week while TWC staff is on duty. Since approval of the three days per week of public access was conditioned on certain improvements being made which have not yet been completed, EREP is still open only on a reservation basis and therefore has not experienced an increase in visitation. Visitor serving site improvements approved included as a vault toilet, improved parking area, ADA pathways, and signage.

EREP is currently only open on a reservation basis but is permitted to be open three days a week. Baseline for visitation is based on the permitted condition of being open three days per week for visitation. For purposes of comparison to visitation and recreation in other areas, the Humboldt Bay National Wildlife Refuge (Refuge) in Loleta conveniently located adjacent to Highway 101, averages approximately 24,500 visitors for the entire complex, and approximately 13,000 for the visitor center in Loleta alone. The complex includes the Salmon Creek, Hookton Slough, and Dunes Units. Friends of the Dunes on Manilla near Highway 255 estimates 6-7,000 visitors per year to their public access locations on the coast of Humboldt Bay. Friends of the Dunes has a visitor center, a series of hiking trails open seven days/week, and they provide school and education tours as well as hosts events and fundraisers. EREP is likely to be different from these other locations partially due to the proximity to heavily travelled areas. The EREP has a greater relative distance from a major thoroughfare, such as Highway 101 and 255. The remoteness of EREP and travel time from Highway 101, would require the average tourist at least half a day, including 1 hour of travel time. The Refuge and Friends of the Dunes properties also have more visitor serving infrastructure including visitor centers, signage on major highways, as well as established marketing networks.

Other public recreation facilities or access points in the Eel River Delta include (on the north side of the Eel River) Crab Park, Pedrazzini Boat Launch, Cannibal Island and Camp Weott Road. On the south side of the Eel River recreation points include Centerville County Park, Riverside Ranch, Guthrie Creek, Fleener Creek, and Lost Coast Headlands. Centerville Beach County Park, the nearest recreational facility, and a prominent local feature, is a modestly used destination for beachcombers, surf fishermen, driftwood harvesters, equestrians, and OHV users. Set at the base of the Wildcat Hills just north of Cape Mendocino, its scenic beauty highlights the dramatic scenery and sense of remoteness of the Lost Coast and Eel River Delta. In the 2010s, visitation was estimated at 10-30 visitors per day on weekends, although this value varies seasonally.

**Proposed Recreational Usage and Features**

TWC’s goal is to manage the EREP for agricultural production, outdoor education, recreation and habitat enhancement. While TWC currently manages limited visits to the site via guided tours, in 2021, California Coastal Commission’s issued Coastal Development Permit approved EREP to be open three days per week for the public.

The Project proposes to expand public access at EREP to seven days per week while TWC staff is on-duty, with the intent of maintaining hunting access and increasing public visitation rates. EREP would promote passive recreational activities such as equestrian use, hiking, nature viewing, biking, kayaking and beach access. Public access would be limited to designated locations such as the existing parking area at the Headquarters Barn, established footpaths, access roads, berm tops and kayak launches (Figure 2-5). TWC would continue providing guided tours oriented towards the education of visitors and school children about nature, wetlands, estuary systems and agriculture as practiced in the Coastal Zone. Interpretative signs in combination with TWC full-time staff would educate the public on the ecological setting and compatible agricultural uses.

Based on surrounding and similar uses, it is reasonable to assume EREP could receive up to 7,500 visitors per year were it open seven days a week. Current entitlements allow for being open three days per week, or up to approximately 4,300 annual visitors. TWC expects increases in visitation would slowly increase annually, as more people learn about the EREP’s increased hours of operation. With increased awareness and outreach to potential visitors, TWC proposes visitation of 7,500 people annually. Scenarios of increased visitation and associated assumptions are illustrated in Table 3.14-2 below.

**Table 3.14-2 Estimated Average Visitor Scenarios for EREP**

	Permitted baseline	Proposed visitation	Expected change between permitted baseline and proposed visitation
Days open annually	156.4	365.0	208.6
Daily visitation rate	27.4	20.5	Daily visitation reduced
Average annual visitors	4,286.0	7,500.0	3,214.0
Daily vehicle trips*	36.5 total trips (18.3 one-way trips)	27.4 total trips (13.7 one-way trips)	Daily trips reduced

**Notes:** \*Assuming 1.5 people per vehicle. This number does not include staff vehicle trips which are anticipated to remain similar to current conditions.

\*\*School groups are likely to have a higher carpool rate; therefore, reducing the number of daily trips.

\*\*\*Number of visitors are based on annual averages; however, non-hunting visitors are likely to increase in the summer and decrease in the winter, resulting in higher or lower actual daily rates.

The proposed Project includes several features that either exist or are proposed for modification or installation consistent with TWC’s agricultural operations and outdoor education mission.

### ***Kayak Launch***

Up to three kayak launches would be installed near the restored Centerville Slough and Cutoff Slough tide gates both on the EREP to support post-Project monitoring and maintenance, aquatic educational programs, and limited recreational use by visitors (Figure 2-5). Recreational use of this features is anticipated to be fairly light.

### ***Access Road Improvements***

In order to ensure the viability of continued agricultural operations and management within and around the Project Area and maintain the intent of the drainage easement agreements, a variety of minor access improvements are proposed to existing access roads which will include small drainage culvert replacements, re-graveling existing access roads, placement of signs and fencing. These improvements would be compatible with NRCS ACEP-WRE and also used for ongoing and future habitat management and enhancement work. Given the anticipated increase in EREP visitors as described above, improvements to the access road extending beyond the County maintained portion of Russ Lane are proposed. These improvements include graveling existing shoulders for use as turnouts, installing informational signs and gates as measures to improve wayfinding for visitors and shared road use with Harville Ranch L.L.C. agricultural operations.

### ***Interpretive Signage***

Interpretive signs would be located strategically throughout the EREP portion of the Project Area to educate public about the Project, surrounding area, and provide wayfinding information. Interpretative signage would be installed at each put in and take out to inform visitors of appropriate kayaking locations and tidal conditions.

## **3.14.3 Regulatory Framework**

### **Federal**

There are no federal regulations that apply to the proposed Project related to recreational resources in Humboldt County.

### **State**

#### **California Department of Conservation**

The California Department of Conservation administers and supports a number of highly successful programs, including the Williamson Act, the California Farmland Conservancy Program, the Williamson Act Easement Exchange Program, and the Farmland Mapping and Monitoring Program. These programs are designed to preserve agricultural land and provide data on conversion of agricultural land to urban use. The Department of Conservation is responsible for approving Williamson Act Easement Exchange Program agreements.

#### **Williamson Act**

The California Land Conservation Act of 1965, commonly referred to as the Williamson Act, has been the State's primary agricultural land protection program since its enactment. It is a non-mandated state program administered by counties and cities to preserve agricultural land and discourage the premature conversion of agricultural land to urban uses. The act authorizes local governments and property owners to (voluntarily)

enter into contracts to commit agricultural land to specified uses for 10 or more years. Once restricted, the land is valued for taxation based on its agricultural income rather than unrestricted market value, resulting in a lower tax rate for owners. In return, the owners guarantee that these properties remain under agricultural production for an initial 10-year period. The contract is renewed automatically unless the owner files a notice of nonrenewal, thereby maintaining a constant 10-year contract. Currently, approximately 70 percent of the state's prime agricultural land is protected under this act. Participation is on a voluntary basis by both landowners and local governments and is implemented through the establishment of agricultural preserves and the execution of Williamson Act contracts.

Termination of a Williamson Act contract through the nonrenewal process is the preferred method to remove the enforceable restriction of the contract. Cancellation is reserved for unusual situations. In order to approve tentative cancellation, a board or council must make specific findings based on substantial evidence that a cancellation is consistent with the purposes of the act or in the public interest.

Recreational use is an accepted and compatible use of land contracted under the Williamson Act. By definition, an "agricultural preserve" "means an area devoted to either agricultural use, as defined in subdivision (b), recreational use as defined in subdivision (n), or open-space use as defined in subdivision (o), or any combination of those uses and which is established in accordance with the provisions of this chapter." (Public Resources Code § 51201 (d))

### **California Coastal Act**

The Project area is within the Coastal Zone. The California Coastal Act contains numerous policies relevant to recreation, particularly in relation to allowable uses of diking, filling, or dredging of open coastal waters, wetlands, estuaries and lakes. The following Coastal Act sections are germane to this analysis:

#### **Section 30210 Access; recreational opportunities; posting**

*In carrying out the requirement of Section 4 of Article X of the California Constitution, maximum access, which shall be conspicuously posted, and recreational opportunities shall be provided for all the people consistent with public safety needs and the need to protect public rights, rights of private property owners, and natural resource areas from overuse.*

#### **Section 30211 Development not to interfere with access**

*Development shall not interfere with the public's right of access to the sea where acquired through use or legislative authorization, including, but not limited to, the use of dry sand and rocky coastal beaches to the first line of terrestrial vegetation.*

#### **Section 30212 New development projects**

- (a) *Public access from the nearest public roadway to the shoreline and along the coast shall be provided in new development projects except where (1) it is inconsistent with public safety, military security needs, or the protection of fragile coastal resources, (2) adequate access exists nearby, or (3) agriculture would be adversely affected. Dedicated accessways shall not be required to be opened to public use until a public agency or private association agrees to accept responsibility for maintenance and liability of the accessway.*

#### **Section 30213 Lower cost visitor and recreational facilities; encouragement and provision; overnight room rentals**

*Lower cost visitor and recreational facilities shall be protected, encouraged, and, where feasible, provided. Developments providing public recreational opportunities are preferred.*



*The commission shall not: (1) require that overnight room rentals be fixed at an amount certain for any privately owned and operated hotel, motel, or other similar visitor-serving facility located on either public or private lands; or (2) establish or approve any method for the identification of low or moderate income persons for the purpose of determining eligibility for overnight room rentals in any such facilities.*

*Section 30214 Implementation of public access policies; legislative intent*

- (a) *The public access policies of this article shall be implemented in a manner that takes into account the need to regulate the time, place, and manner of public access depending on the facts and circumstances in each case including, but not limited to, the following:*
- (1) *Topographic and geologic site characteristics.*
  - (2) *The capacity of the site to sustain use and at what level of intensity.*
  - (3) *The appropriateness of limiting public access to the right to pass and repass depending on such factors as the fragility of the natural resources in the area and the proximity of the access area to adjacent residential uses.*
  - (4) *The need to provide for the management of access areas so as to protect the privacy of adjacent property owners and to protect the aesthetic values of the area by providing for the collection of litter.*
- (b) *It is the intent of the Legislature that the public access policies of this article be carried out in a reasonable manner that considers the equities and that balances the rights of the individual property owner with the public's constitutional right of access pursuant to Section 4 of Article X of the California Constitution. Nothing in this section or any amendment thereto shall be construed as a limitation on the rights guaranteed to the public under Section 4 of Article X of the California Constitution.*
- (c) *In carrying out the public access policies of this article, the commission and any other responsible public agency shall consider and encourage the utilization of innovative access management techniques, including, but not limited to, agreements with private organizations which would minimize management costs and encourage the use of volunteer programs.*

*Section 30233 Diking, filling or dredging; continued movement of sediment and nutrients*

- (a) *The diking, filling, or dredging of open coastal waters, wetlands, estuaries, and lakes shall be permitted in accordance with other applicable provisions of this division, where there is no less feasible less environmentally damaging alternative, and where feasible mitigation measures have been provided to minimize adverse environmental effects, and shall be limited to the following:*
- (3) *In wetland areas only, entrance channels for new or expanded boating facilities; and in a degraded wetland, identified by the Department of Fish and Game pursuant to subdivision (b) of Section 30411, for boating facilities if, in conjunction with such boating facilities, a substantial portion of the degraded wetland is restored and maintained as a biologically productive wetland. The size of the wetland area used for boating facilities, including berthing space, turning basins, necessary navigation channels, and any necessary support service facilities, shall not exceed 25 percent of the degraded wetland.*

- (4) *In open coastal waters, other than wetlands, including streams, estuaries, and lakes, new or expanded boating facilities and the placement of structural pilings for public recreational piers that provide public access and recreational opportunities.*
- (7) *Restoration purposes.*
- (8) *Nature study, aquaculture, or similar resource dependent activities.*
- (c) *In addition to the other provisions of this section, diking, filling, or dredging in existing estuaries shall maintain or enhance the functional capacity of the wetland or estuary. Any alteration of coastal wetlands identified by the Department of Fish and Game, including, but not limited to, the 19 coastal wetlands identified in its report entitled, "Acquisition Priorities for the Coastal Wetlands of California", shall be limited to very minor incidental public facilities, restorative measures, nature study, commercial fishing facilities in Bodega Bay, and development in already developed parts of south San Diego Bay, if otherwise in accordance with this division.*

Section 30240 Environmentally sensitive habitat areas; adjacent developments

- (a) *Environmentally sensitive habitat areas shall be protected against any significant disruption of habitat values, and only uses dependent on those resources shall be allowed within those areas.*
- (b) *Development in areas adjacent to environmentally sensitive habitat areas and parks and recreation areas shall be compatible with the continuance of those habitat and recreation areas.*

## Regional and Local

### **County Administration of the Williamson Act**

Humboldt County Board of Supervisors (Board) first adopted guidelines for the Williamson Act locally on June 24, 1969. The Board, in June of 2002, adopted the first comprehensive update to the local Guidelines since 1978 to reflect major changes to the Williamson Act, including the 1998 adoption of Government Code Section 51296, otherwise known as the Farmland Security Zone (FSZ). The FSZ allowed property owners enrolled in this program to have the option of extended contracts, from 10 years to a 20-year term, and in exchange, receive an additional 35 percent tax reduction. The FSZ is designed for prime lands or lands designated on the Important Farmland Series Maps and applies to lands lying within three miles of the adopted Sphere of Influence of incorporated cities.

### **Humboldt County Eel River Area Local Coastal Plan**

The proposed Project is in the Coastal Zone, and the County of Humboldt administers the Coastal Act in the Project area via the LCP Eel River Area Plan (ERAP). The ERAP was certified by the Coastal Commission in 1982 and last updated in 1995. The ERAP outlines numerous policies pertaining to the preservation and restoration of sensitive coastal habitat, with strong provision for recreation, a primary use in this area zone AE. ERAP policies have influenced the development of the proposed Project, and the Project designs are intended to address recreation in the context of agricultural production and habitat restoration within the Coastal Zone generally, and within the jurisdiction of Humboldt County's ERAP area, particularly.

*The ERAP contains the definition of Recreation, to wit: "Recreation, Private, and Noncommercial" – clubs or recreation facilities operated by a nonprofit organization and open only to bona fide members of such nonprofit organization and their guests (ERAP, C6-P6).*

Various sections of the ERAP provide guidance to evaluation of the proposed Project and its impacts. These are outlined by Section, below.

## 2.20 Coastal Act Goals and Policies

*The state legislature, by enacting the Coastal Act of 1976, adopted the following basic goals for the Coastal Zone*

- (a) Protect, maintain and, where feasible, enhance and restore the overall quality of the coastal zone environment and its natural and man-made resources.*
- (b) Assure orderly, balanced utilization and conservation of coastal zone resources, taking into account the social and economic needs of the people of the state.*
- (c) Maximize public access to and along the coast and maximize public recreational opportunities in the coastal zone consistent with sound resource conservation principles and constitutionally protected rights of private property owners.*
- (d) Assure priority for coastal-dependent development over other development on the coast.*
- (e) Encourage state and local initiatives and cooperation in preparing procedures to implement coordinated planning and development for mutually beneficial uses, including educational uses, in the coastal zone.*

## 3.25 Recreational and Visitor Serving Uses

*\*\*\* 30213. (Part) Lower cost visitor and recreation facilities ... shall be protected, encouraged, and, where feasible, provided. Developments providing public recreational opportunities are preferred.*

*\*\*\* 30222. The use of private lands suitable for visitor-serving commercial recreational facilities designed to enhance public opportunities for coastal recreation shall have priority over private residential, general industrial, or general commercial development, but not over agriculture or coastal-dependent industry.*

*\*\*\* 30223. Upland areas necessary to support coastal recreational uses shall be reserved for such uses, where feasible.*

*\*\*\* 30220. Coastal areas suited for water-oriented recreational activities that cannot readily be provided at inland water areas shall be protected for such uses.*

*\*\*\* 30221. Oceanfront land suitable for recreational use shall be protected for recreational use and development unless present and foreseeable future demand for public or commercial recreational activities that could be accommodated on the property is already adequately provided for in the area.*

*\*\*\* 30252. The location and amount of new development should maintain and enhance public access to the coast by assuring that the recreational needs of new residents will not overload nearby coastal recreation areas by correlating the amount of development with local park acquisition and development plans with the provision of onsite recreational facilities to serve the new development.*

### 3.25 A. Acreage Reservation

- 1. Land suitable for water oriented and other recreational purposes, and for visitor serving facilities, have been identified in the Eel River Planning Area as indicated on the plan maps.*
- 2. It is the policy of this County to prefer the private sector as the provider of visitor-serving facilities. To this end land has been reserved in each planning area for visitor-serving uses and the County discourages public agencies from establishing visitor-serving facilities, beyond the level of overnight campgrounds and picnic areas and other non-commercial day use facilities such as interpretive centers, boat launching facilities, etc.*

### 3.25 B. Recreational Opportunities

1. *The County encourages the provision of on-site recreational opportunities in major new development.*

### 3.28 Hazards A. Development Policies

3. *Tsunamis—New development below the level of the 100 year tsunami run-up elevation described in Tsunami Predictions for the West Coast of the Continental United States (Technical Report H-78-26 by the Corps of Engineers) shall be limited to public access, boating, and public recreation facilities. (ERAP C3-P16)*

### 3.34 Agriculture A. Compatible Uses

1. *The zoning of all agricultural lands shall not permit any use that would impair the economic viability of agricultural operations on such lands; and a conditional use permit shall be required of any proposed use not directly a part of agricultural production of food or fiber on the parcel; except that on parcels of 60 acres or larger, a second house for parents or children of the owner-operator shall be considered a direct part of agricultural production. Other uses considered compatible with agricultural operations include:
 
  - a. *Management for watershed*
  - b. *Management for fish and wildlife habitat*
  - c. *Recreational uses not requiring non-agricultural development under the control of the owner*
  - d. *The erection, construction, alteration, or maintenance of gas, electric, water or communications transmission facilities. (Radio or television transmitting antennae shall require a conditional use permit; but such a development shall not in concept be considered incompatible with agricultural use per se.)*
  - e. *Farm labor housing and temporary labor camps of less than one year duration shall require a conditional use permit. (ERAP C3 – P25)**

### 3.36 Recreation

*\*\*\* 30213. (Part) Lower cost visitor and recreational facilities...shall be protected, encouraged, and, where feasible, provided. Developments providing public recreational opportunities are preferred.*

*\*\*\* 30220. Coastal areas suited for water-oriented recreational activities that cannot readily be provided at inland water areas shall be protected for such uses.*

*\*\*\* 30221. Oceanfront land suitable for recreational use shall be protected for recreational use and development unless present and foreseeable future demand for public or commercial recreational activities that could be accommodated on the property is already adequately provided for in the area.*

*\*\*\* 30222. The use of private lands suitable for visitor-serving commercial recreational facilities designed to enhance public opportunities for coastal recreation shall have priority over private residential, general industrial, or general commercial development, but not over agriculture or coastal-dependent industry.*

*\*\*\* 30223. Upland areas necessary to support coastal recreational uses shall be reserved for such uses, where feasible.*

\*\*\* 30250.(c) *Visitor-serving facilities that cannot feasibly be located in existing developed areas shall be located in existing isolated developments or at selected points of attraction of visitors.*

\*\*\* 30253.(4) *New development shall minimize energy consumption and vehicle miles traveled.*

**3.36 A. Findings for Permitting of Recreational Facilities**

1. *Public or private recreational facilities and visitor-serving facilities shall be permitted only where the following findings are made by the Planning Commission:*
  - a. *The proposed development includes adequate on-site services for water, waste disposal, parking and other facilities necessary to serve the proposed use.*
  - b. *The proposed development would not create traffic flows detrimental to agricultural or forestry uses in the Planning Area; except that where the proposal includes a showing that such adverse impacts will be mitigated through road improvements or other means within two years of project approval, the development shall be approved;*
  - c. *No location within an Urban Limit Area is more feasible.*
  - d. *The development does not constitute conversion of agricultural or timber lands inconsistent with the requirements of this chapter*
  - e. *In the case of visitor serving facilities, that an established recreational use exists in the immediate area, or will be provided by the development, for which the visitor-serving facility is appropriate commercial service.*

**3.36 C. Public Recreation**

*It is the policy of this County to prefer the private sector as the provider of visitor-serving facilities. To this end, land has been reserved, as shown on the Plan Map, for private commercial visitor-serving uses; and the County discourages public agencies from establishing visitor-serving facilities, beyond the level of overnight campgrounds and picnic areas in public parks.*

**3.36 D. Tourist Commercial Development**

*Tourist commercial development shall be approved only as designated on the Area Plan map because of possible conflicts with existing agriculture.*

**3.14.4 Evaluation Criteria and Significance Thresholds**

Evaluation Criteria	Significance Thresholds	Sources
Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	Project would accelerate the physical deterioration of existing recreational facilities that substantially impacts their use or ability to function	CEQA Guidelines Appendix G, Checklist Item XVI (a)
Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	Project would require expansion or construction recreational facilities which would have significant environmental effect	CEQA Guidelines Appendix G, Checklist Item XVI (b)

The following sections describe the anticipated environmental impacts on recreational resources due to the Project.

### 3.14.5 Methodology

The impact analysis included in this section is based on usage patterns, interviews and other information collected by the County of Humboldt, TWC, and its partners.

### 3.14.6 Impacts and Mitigation Measures

**Impact REC-1:**            **Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated.**

Visitation to surrounding parks and recreational facilities is low. Nearby Centerville Beach County Park might experience a slight increase in visitation correlated to new visitor trips to EREP. This slight increase in visitation to Centerville Beach County Park is not anticipated to result in a substantial physical deterioration of the facility. The Project will not contribute to or facilitate beach closures and the EREP would only be accessible to the public by private request at levels that are compatible with current land management and easement agreements. The impact is less than significant.

**Mitigation Measures:**            No mitigation is necessary

**Level of Significance:**            Less than significant

**Impact REC-2:**            **Include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment.**

The Project includes several recreational features that have the potential to have an adverse physical effect on the environment. These include multiple kayak launches, minor access improvements, and signage. The potential environmental impacts associated with construction of the proposed recreational facilities and the overall Project are evaluated as part of this EIR. To reduce the operational physical effect on the environment from visitors to the area, signage would clearly mark and delineate public access features and areas of access. Interpretive panels are also proposed to educate visitors about the ecological and agricultural compatibility of the Project, as well as to communicate rules intended to avoid recreational-agricultural conflicts.

The Project includes multiple kayak put in/take out areas near the restored Centerville Slough. The initial and ongoing purpose of these facilities are to enable the landowner and Project partners to conduct the extensive post-Project biological, hydrological and water quality monitoring that would be required as part of the permit conditions for the Project. Following implementation, visitors would also be able to use the facilities for educational and recreational purposes. These features are proposed for an isolated and low-elevation part of the EREP. Thus, the facilities are likely to remain unnoticeable to surrounding areas, with no adverse aesthetic impacts anticipated.

A key question regarding potential adverse impacts related to the proposed Project is whether the proposed improvements would serve to attract high numbers of visitors not currently visiting the EREP. As discussed above, visitation to parks in this area of Humboldt County is relatively low. Visitation to areas distant from

the Highway 101 corridor tends to be even lower. Given a visit to the EREP would require at least a several hour commitment of time by the average tourist, it seems unlikely that visitation would increase measurably as a result of the proposed Project. Nevertheless, if visitation increased to 7,500 people annually, on average, less than 20 vehicles and people are likely to visit to the site daily. Even visitation under approximately 30,000 people annually would continue to remain below 110 total daily trips. The air quality, energy consumption, greenhouse gas, and transportation impacts from this increased number of visitors would not produce significant environmental impacts, as described in Sections 3.3, 3.6, 3.8, 3.15, respectively. Therefore, the proposed Project features would not have a significant adverse impact on the environment.

Public access would be allowed within the EREP, in areas that would not conflict with existing agricultural uses. Given the anticipated increase in EREP visitors, improvements to the access road extending beyond the County maintained portion of Russ Lane are proposed. These improvements would include graveling existing shoulders for use as turnouts to improve safety, installing informational signs and gates as measures to improve wayfinding for visitors and shared road use with Harville Ranches L.L.C. agricultural operations. These measures would reduce potential conflicts between existing site uses and increase safety for visitors, residents, and employees.

The Humboldt County 1983 General Plan, 2008 Draft General Plan land use designation of the Project area, and the Eel River Area Plan LCP land use designation of the Project area (Agricultural Exclusive), preserves the land for agricultural purposes, but allows recreation as a primary use. Therefore, the Project is compatible with land use designations. TWC obtained a Humboldt County Conditional Use Permit (PLN-2017-1 3564) and California Coastal Commission Coastal Development Permit (PLN-2020-1 6306) in 2021 which approved improved public access amenities and expanded public access on the EREP for three days per week while TWC staff is on duty. Additional visitation would require a County Conditional Use Permit, which would be sought prior to the implementation of expanded recreation use. Furthermore, all state laws addressed above provide clear and consistent policy direction to provide, increase or enhance recreational and open space opportunities. The Project's recreational components would not have an adverse physical effect on the environment; therefore, the impact would be less than significant.

**Mitigation Measures:** No mitigation is necessary

**Level of Significance:** Less than significant

### 3.14.7 Cumulative Impacts

**Impact REC-C-1: Cumulative Impacts to Recreational Resources.**

There are no recreational resources that would be impacted by the Project. Other plans or projects underway in the area include ongoing planning efforts by CDFW and others to develop a project and new public access program at the Ocean Ranch Unit of the ERWA and at Riverside Ranch near Salt River. Access to the Ocean Ranch Unit and Riverside Ranch would not overlap with visitors traveling Centerville Road. No information would suggest substantial cumulative impacts of recreational demands resulting from the Project or related projects nearby. These measures are consistent with Humboldt County Eel River Area Plan policies. Therefore, the Project's incremental effect to recreational resources is not cumulatively considerable and would not contribute to any significant impacts to recreational resources that may be caused by other cumulative Projects.

**Mitigation Measures:** No mitigation is necessary

**Level of Significance:** Less than significant

### 3.14.8 References

None.



## 3.15 Transportation

This section evaluates the potential impacts to transportation during construction and operation of the proposed Project. To provide the basis for this evaluation, Section 3.15.2 describes the existing conditions related to transportation for the Project Area, and the Regulatory Framework section describes the regulatory background that applies to the Project. The Evaluation section establishes thresholds of significance, evaluates potential transportation impacts, and identifies the significance of impacts.

### 3.15.1 Study Area

For impact assessment related to transportation impacts, the Project Boundary, which is equivalent to the Project Area, and adjoining public roadways was used as the study area. Impact assessment related to transportation considered a broader, regional study boundary reflective of applicable uses.

### 3.15.2 Setting

The following information discusses the transportation-related context in which the proposed Project would be constructed and operated, including a description of the roadway network and public transit, pedestrian, and bicycle facilities in the Project Boundary (Project Area).

#### Roadways

U.S. Highway 101 and State Route 211 are highways that provide regional access to the Project Area. The 2020 annual average daily traffic reported for these highways in the vicinity of the Project Area ranged from 24,400 for U.S. Highway 101, and 6,000 for State Route 211 (Caltrans 2020). According to the 2022 Humboldt County Association of Governments (HCAOG) Regional Transportation Plan, highways in Humboldt County currently provide adequate facilities and level of service (HCAOG 2022).

Access to the Project Area is currently limited. Centerville Road and Russ Lane, rural roads with limited traffic, would provide localized access to the Project Area. Both are County roadways that provide access to farms, residences, Centerville Beach and other land uses in the Project Area. The current intersection of Centerville Road and Russ Lane is an unsignalized intersection with a stop-sign at Russ Lane on to Centerville Road. These roadways have a low volume of use. Traffic counts would be less along Russ Lane, which provides access to the Project Area, one residence, and farms. Within the Project Area, the first 0.4 miles of Russ Lane closest to Centerville Road is a public roadway. North of the public portion, the road is private and TWC has an approximately 1,800 foot long easement for use with the underlying property owned by Harville Ranch L.L.C..

Since 2008, TWC has recorded the number of EREP visitors annually which has ranged from the lowest annual total of 405 visitors in 2009 to the highest of 745 in 2014. TWC obtained a Humboldt County Conditional Use Permit (PLN-2017-1 3564) and Coastal Development Permit (PLN-2020-1 6306) in 2021 which approved public access on the EREP for three days per week while TWC staff is on duty. Since approval of the three days per week of public access, EREP has not experienced an increase in visitation.

#### Pedestrian and Bicycle Facilities

As specified in the Humboldt County Regional Transportation Plan, all streets, roadways, and highways in Humboldt County are open to bicycle use (HCAOG 2022). Humboldt County's bikeways are generally classified according to Caltrans' definitions for Class I, II, and III bikeways, as defined below.

**Class I “Bike Path”:** A separated, surfaced right-of-way designated exclusively for non-motorized use (can be solely for bicyclists, or can be shared with pedestrians and/or equestrians). The minimum width for each direction is 8 feet (1.5 meters), with a 5 feet (2.4 meter) minimum width for a bi-directional path.

**Class II “Bike Lane”:** Within the roadway, a lane for preferential bicycle use, at least 4 feet wide or 5 feet when next to a gutter or parking. Established by a white stripe (on roadway) and “Bike Lane” signs. Adjacent vehicle parking and motorist crossflow is allowed. On a two-way road, a bike lane is required on both sides.

**Class III “Bike Route”:** A roadway that does not have a Class I or II bikeway, where bicyclists share a travel lane with motorists. Sometimes created to connect other bikeways. Can be established by a “Bike Route” sign, but not required.

**Unclassified bikeway:** Streets, roadways, and highways without features to qualify as Class I, II, or III.

Per the Humboldt County Regional Transportation Plan, no Class I, II, or III bikeways are presently located on or adjacent to the Project Area, or along Centerville Road and Russ Lane (HCAOG 2022). Additionally, no pedestrian improvements, including sidewalks, are located at the Project Area or along local roadways in the Project Area.

## Public Transit

Public transit in Humboldt County is primarily provided by the Humboldt Transit Authority (HTA), a joint powers authority established in 1975 between Humboldt County and the cities of Arcata, Eureka, Fortuna, Rio Dell and Trinidad. HTA operates and maintains the Redwood Transit System, the Willow Creek Transit Service, and the Southern Humboldt Transit Systems. Also, under contract, HTA operates and maintains the Eureka Transit System, and provides paratransit administrative services for the region. Several community and social service organizations throughout Humboldt County also provide transportation services aside from public transit and paratransit. Public transit service and facilities are not presently provided at or near the Project Area, including along Centerville Road or Russ Lane, or within the City of Ferndale to the east of the Project Area. Additionally, the Humboldt County Regional Transportation Plan does not identify plans for future transit facilities within the Project Area.

## Airports

Of the nine public use airports in Humboldt County, the nearest to the Project Area is Rohnerville Airport, located approximately ten miles east of the Project Area. The Project Area is not located within land use compatibility zones around Rohnerville Airport, or in the vicinity of a private airport.

### 3.15.3 Regulatory Framework

#### Federal

There are no federal regulations that apply to the proposed Project related to transportation.

#### State

Caltrans has discretionary authority with respect to highways under its jurisdiction. State highways in Humboldt County are under the jurisdiction of Caltrans District 1. Caltrans issues encroachment permits and permits to operate the movement of oversized or excessive load vehicles on State roadways, such as U.S. Highway 101 and State Route 211. Caltrans also requires a Transportation Management Plan for any

traffic restrictions and detours that could affect the highway system, which must be prepared in accordance with the California Manual on Uniform Traffic Control Devices.

### **Senate Bill 743: Vehicle Miles Traveled (VMT)**

SB 743 created a process to change the way that transportation impacts are analyzed under CEQA. Specifically, SB 743 required the Governor’s Office of Planning and Research (OPR) to amend the CEQA Guidelines to provide an alternative method for evaluating transportation impacts, which was done in early 2016. OPR required that VMT become the primary metric or measure of effectiveness (MOE) for determining the significance of transportation impacts across California (Section 15064.3(a)). A project’s effect on automobile delay no longer constitutes a significant impact under CEQA. Generally, vehicle miles traveled is the most appropriate measure of transportation impacts. For the purposes of this section, “vehicle miles traveled” refers to the amount and distance of automobile travel attributable to a project. Other relevant considerations may include the effects of the project on transit and non- motorized travel. Except as provided in subdivision (b)(2) below (regarding roadway capacity), a project’s effect on automobile delay shall not constitute a significant environmental impact” (15064.3). The updated CEQA Guidelines lists the criteria for analyzing transportation impacts for proposed land use projects in Section 15064.3, subsection b, as follows:

*“(1) Land Use Projects. Vehicle miles traveled exceeding an applicable threshold of significance may indicate a significant impact. Generally, projects within one-half mile of either an existing major transit stop or a stop along an existing high quality transit corridor should be presumed to cause a less than significant transportation impact. Projects that decrease vehicle miles traveled in the project area compared to existing conditions should be presumed to have a less than significant transportation impact.”*

*“(2) Transportation Projects. Transportation projects that reduce, or have no impact on, vehicle miles traveled should be presumed to cause a less than significant transportation impact. For roadway capacity projects, agencies have discretion to determine the appropriate measure of transportation impact consistent with CEQA and other applicable requirements...”*

Effective July 1, 2020, all lead agencies must analyze a project’s transportation impacts using VMT (Caltrans 2020). OPR also published the Technical Advisory on Evaluating Transportation Impacts in CEQA (OPR, 2018) which contains guidance on methodology and recommendations for establishing screening criteria and thresholds for VMT evaluation. Humboldt County has not yet adopted VMT thresholds against which the Project would be compared. However, in the absence of an applicable local threshold, OPR recommends an extremely conservative threshold of 15% below Baseline VMT per employee for employment-based projects. Caltrans has also published a Vehicle Miles Traveled-Focused Transportation Impact Study Guide (TISG, Caltrans 2020) that provides guidance regarding Caltrans review of a land use project’s transportation analysis using VMT. This guidance is not binding on public agencies, but is consistent with the guidance from OPR.

## **Regional and Local**

### **County of Humboldt General Plan Policies**

As the Project is entirely located within the coastal zone, the following goal from the Humboldt County General Plan is not required and is only advisory regarding transportation.

C-G1: Circulation System Safety and Functionality

*A safe, efficient, accessible and convenient circulation system in and between cities, communities, neighborhoods, hamlets, and adjoining regions taking into consideration the context-specific needs of all users, consistent with urban, suburban, rural or remote community character.*

**Humboldt County Eel River Area Local Coastal Plan**

3.41E: Road Construction Within Watersheds Containing Wetlands

*Road construction within watersheds containing wetlands, as identified on the sensitive habitat maps, other than for timber harvest purposes (road construction controls for this activity are currently regulated by the California Department of Forestry in Timber Harvest Plans), shall employ suitable techniques and measures necessary to prevent erosion and minimize surface run-off (Humboldt County 2007).*

**Humboldt County Association of Governments (HCAOG) Regional Transportation Plan**

The HCAOG is a joint powers authority comprising the County of Humboldt and the seven incorporated cities, each with a seat on the Board of Directors. Under its authority as the Regional Transportation Planning Agency (RTPA) for Humboldt County, HCAOG adopts and submits an updated Regional Transportation Plan to the California Transportation Commission and Caltrans every five years. The Regional Transportation Plan is a long-range (20-year) transportation planning document for Humboldt County. The most recent five-year update of the RTP was adopted in 2022. The Regional Transportation Plan does not currently establish vehicular level of service criteria for County roadways in the Project Area. The Regional Transportation Plan does indicate plans for a Class III bikeway along Centerville Road extending from the Ferndale city limit to the east of the Project Area to Centerville Beach to the west of the Project Area, but the project timeline remains uncertain (HCAOG 2022).

**Humboldt County Regional Bicycle Plan**

The Humboldt Regional Bicycle Plan is a 20-year planning document that is updated every five years. The primary goal stated in the 2018 Update of the Regional Bicycle Plan is to create the safest conditions for bicyclists by providing bikeways and improving roadways to eliminate barriers to bicycle travel (HCAOG 2018). Projects identified as priorities in the current Regional Bicycle Plan are anticipated to be implemented over a five-year period. One such project is a proposed Class III bikeway along Centerville Road extending from the Ferndale city limit to the east of the Project Area to Centerville Beach and south to Guthrie Creek Land.

**3.15.4 Evaluation Criteria and Significance Thresholds**

Evaluation Criteria	Significance Thresholds	Sources
Would the Project conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities?	Conflict with Humboldt Bay Area Plan, Regional Bicycle Plan, Regional Trails Master Plan, Regional Pedestrian Plan, or Regional Transportation Plan	CEQA Guidelines Appendix G, Checklist Item XVII (a)

Evaluation Criteria	Significance Thresholds	Sources
Would the Project conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)?	Result in significant increase in VMT relative to an established threshold	CEQA Guidelines Appendix G, Checklist Item XVII (b)  OPR Technical Advisory
Would the Project substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	Non-conformance with defined safety regulations or roadway design standards, or otherwise create unsafe conditions	CEQA Guidelines Appendix G, Checklist Item XVII (c)
Would the Project result in inadequate emergency access?	Increases in traffic, road closures, or insufficient emergency access during construction or inadequate design features to accommodate emergency vehicle access and circulation during operation  Greater than zero incidences of delayed emergency access	CEQA Guidelines Appendix G, Checklist Item XVII (d)

### 3.15.5 Methodology

This impact analysis below evaluates the potential for the Project to conflict with the County’s adopted plans and policies related to circulation, including the Humboldt County General Plan, Regional Transportation Plan, Eel River Area Local Coastal Plan, and Regional Bicycle Plan. The analysis also evaluates the potential for the Project to have short-term or long-term impacts on roadways, emergency access, or on the safety of vehicular traffic, bicyclists, and pedestrians.

### 3.15.6 Impacts and Mitigation Measures

**Impact TR-1: Conflict with a program plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities.**

There are no existing public transit routes, bicycle routes or pedestrian facilities located along the access routes to the Project Area, including Russ Lane and Centerville Road. Project construction activities would, therefore, not impact the performance or safety of such routes or facilities.

Both the Humboldt County Regional Transportation Plan (HCAOG 2022) and the Humboldt Regional Bicycle Plan (HCAOG, 2018) envision the future establishment of a Class III bicycle route along Centerville Road in the general Project Area. Because the Project would not alter the configuration of Centerville Road or its intersection with Russ Lane, it would not preclude the future establishment of a Class III bicycle route in the area. The Humboldt County Regional Transportation Plan does not identify proposed public transit routes in the Project Area.

Humboldt County is considered rural and does not have a Congestion Management Agency or an adopted Congestion Management Program. Therefore, no conflict with an applicable congestion management program would occur. This significance criterion is not applicable to the proposed Project and is not discussed further.

## Construction

Construction traffic for the Project would result in a short-term increase in construction-related vehicle trips on U.S. Highway 101, State Route 211, Centerville Road, and Russ Lane. Construction would result in vehicle trips by construction workers and haul-truck trips for delivery and disposal of construction materials to and from the Project Area. The number of construction-related vehicles traveling to and from the site would vary on a daily basis but is anticipated to be up to 30 per day; however, it is not expected that traffic control would be required as a component of this Project as access routes are limited, and sediment re-use would be contained within the Project Area so there would be no sediment off-haul.

Because the Project would balance the cut and fill (approximately 750,000 cubic yards) on-site through various beneficial reuses, as described in Section 2.5.10 (Beneficial Re-use of Sediment) the number of haul truck trips over the course of construction would be low.

Construction vehicles and workers would utilize County highways and roadways to travel to the site. Construction activity would not, however, require any excavation or other work within a Caltrans or County right-of-way of local highways and roadways, and would not require the closure of Centerville Road. Within the Project Area, internal private roadways may be closed or restricted for a discrete portion of the Project during culvert installation and re-graveling of the roads. The first 0.4 miles of Russ Lane nearest Centerville Road would also require short-term, temporary lane closure. The Project would not permanently block or impact usage of public roadways and would improve public access to the Project Area after construction.

As required by the Caltrans, Project work that requires the movement of oversized or excessive load vehicles on State roadways, such as U.S. Highway 101 and State Route 211, would require a transportation permit issued by Caltrans. Additionally, a Transportation Management Plan would be required for any traffic restrictions and detours that could affect the highway system, which would be prepared in accordance with the California Manual on Uniform Traffic Control Devices. With required compliance with the Caltrans permit for movement of any oversized or excessive load vehicles, the temporary impact of haul-trucks on the circulation system would be less than significant.

The Project adheres to Section 3.41E of the Humboldt County Eel River Area Local Coastal Plan, which pertains to road construction within watersheds containing wetlands. See Section 3.7.6 – Impact GEO-4 for further elaboration about erosion and surface run-off (Humboldt County, 2007).

## Operation

Operational trips to the Project Area would occur to support recreation and nature study, as well as site maintenance, management, and monitoring. Section C-G1 of the Humboldt County General Plan seeks to develop a safe, efficient, accessible and convenient circulation system in and between cities, communities, neighborhoods, hamlets, and adjoining regions taking into consideration the context-specific needs of all users, consistent with urban, suburban, rural or remote community character. The Humboldt County General Plan (2017), Humboldt County Eel River Area Local Coastal Plan (2007), and Humboldt County Regional Transportation Plan (2022) do not currently establish level of service criteria for County roadways in the Project Area.

The Humboldt County Regional Bicycle Plan (HCAOG 2022) and Regional Transportation Plan (HCAOG, 2018) include plans for a Class III bikeway along Centerville Road extending from the Ferndale city limit to Centerville Beach to the west. The Project would not preclude the use of Centerville Road as a future Class III bicycle lane as envisioned in the HCAOG Regional Transportation Plan and Regional Bicycle Plan, because it would not change the configuration of the roadway or its roadway capacity for automobiles, existing speed limits, or result in a substantial increase in automobile travel comparative to existing conditions. Therefore, the Project would not conflict with the HCAOG Regional Transportation Plan and Regional Bicycle Plan. An operational impact would not result.

Operational site maintenance, management, and monitoring trip generation would be similar to existing conditions. However, the Project proposes to expand public access to seven days per week, with the intent of maintaining hunting access and increasing public visitation rates, resulting in an overall increase in visitation on EREP only. TWC expects increases in visitation which would slowly increase annually, as more people learn about the EREP's increased hours of operation. The proposed annual visitation is 7,500 people annually.

Due to the lack of public transit to the site, the increase in trip generation related to the Project would not increase demand. The Project would not result in increases to motor vehicle speeds and would not substantially increase exposure of bicyclists and pedestrians to vehicle conflict areas. The maximum proposed annual visitation of 7,500 people equates to 20.5 people daily. Presumably vehicles would include 1.5 or more passengers, resulting in fewer than 27.4 total trips to and from the Project Area daily (13.7 one-way trips), on average. Queuing of traffic onto Centerville Road would not occur. Therefore, the potential conflict of the Project with adopted plans regarding public transit, bicycle, and pedestrian facilities would be less than significant.

**Mitigation Measures:** No mitigation is necessary

**Level of Significance:** Less than significant

**Impact TR-2: Would the Project conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)?**

CEQA Guidelines Section 15064.3, subdivision (b) establishes the criteria for analyzing transportation impacts. This Section determines that, for land use projects, "Vehicle miles traveled exceeding an applicable threshold of significance may indicate a significant impact. [...] A lead agency has discretion to choose the most appropriate methodology to evaluate a project's vehicle miles traveled, including whether to express the change in absolute terms, per capita, per household or in any other measure. A lead agency may use models to estimate a project's vehicle miles traveled and may revise those estimates to reflect professional judgment based on substantial evidence. Any assumptions used to estimate vehicle miles traveled and any revisions to model outputs should be documented and explained in the environmental document prepared for the project." Cal. Code Regs. tit. 14 § 15064.3.

The OPR Technical Advisory provides various screening criteria related to VMT that quickly identify when a project should be expected to cause a less than significant impact without conducting a detailed VMT study. According to the OPR Technical Advisory, projects that generate fewer than 110 trips per day can be assumed to cause a less than significant transportation impact (OPR 2018). The Project would not create new buildings, new employees, increase the length of roadway, add new roadways, or increase the number of travel lanes. The proposed annual visitation of 7,500 people equates to 20.5 people daily. Due to carpooling and bus use for educational visits, it is likely the Project would result in fewer than 27.4 total trips

(13.7 one-way trips) to the Project Area daily. Any operational increase due to maintenance or increased use by the public would generate less than 110 total trips per day. Visitation under approximately 30,000 people annually would continue to remain below 110 daily trips. Therefore, the impact would be less than significant.

**Mitigation Measures:** No mitigation is necessary

**Level of Significance:** Less than significant

**Impact TR-3: Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment).**

The Project would generate a temporary increase in traffic on local roadways related to the transport of materials to and from the site. Vehicles would access the Project Area from Russ Lane via Centerville Road; construction of the Project would require limited, short-term lane closure of the first 0.4 miles of Russ Lane. The intersection of affected roadways would not be altered from existing conditions, and speed limits along the roadways would not be changed.

The rural roadway is straight and uniform in elevation with excellent sight distance. The roadway is rural with limited use and no intersections beyond Centerville Road. Potential conflicts with agricultural equipment using Russ Lane would be less than significant due to the inclusion of signage for speed limits, Stop and Proceed signage at either end, gates at either end, an enhanced gravel turnout, and a resurfaced roadway. These improvements would provide a safe route around agricultural equipment using Russ Lane and control visiting traffic to avoid significant roadway hazards.

The Project design does not include any geometric or roadway hazards. Following construction, annual proposed visitation of 7,500 people would not result in queuing of traffic onto Russ Lane, Centerville Road or other roadways. Therefore, the potential for Project construction or operational activities to increase hazards due to a design feature or incompatible use would be less than significant.

**Mitigation Measures:** No mitigation is necessary

**Level of Significance:** Less than significant

**Impact TR-4: Result in inadequate emergency access.**

Within the Project Area, internal private roadways may be closed or restricted for a discrete portion of the Project during culvert installation and re-graveling of the roads. The first 0.4 miles of Russ Lane nearest Centerville Road is a public roadway in a rural setting. Short-term, temporary lane closures or delays may occur, but emergency access would not be restricted. The Project would not permanently block or impact usage of public roadways and would improve public access to the Project Area after construction. Vehicles traveling to the Project Area would not result in queuing along Russ Lane or Centerville Road that would block traffic or result in a delay to first responders. Such a minimal increase in traffic along roadways would not affect fire protection services or emergency response times to the Project Area or surrounding residences in the Project Area. The impact on emergency access would be less than significant.

**Mitigation Measures:** No mitigation is necessary

**Level of Significance:** Less than significant



### 3.15.7 Cumulative Impacts

**Impact TR-C-1:**           **Cumulatively considerable contribution to cumulative impacts related to transportation.**

The geographic scope for the analysis of cumulative impacts on transportation and circulation consists of the areas that use the same roadways as the Project. Cumulatively considered projects are summarized in Table 3-1. Construction of the Project may overlap with cumulative projects that would be under construction or would be reasonably foreseeable in the Project Area. However, no past, present, or reasonably foreseeable projects have been identified that would result in substantial changes in construction traffic, operational traffic, or changes to the circulation system in the Project Area.

As summarized in Impacts TR-1 through TR-4, Project construction and operational activities would not conflict with applicable programs, plans, ordinances and polices related to circulation in Humboldt County, would not increase hazards due to a design feature or incompatible use, would not adversely affect fire protection services or emergency response times to the Project Area or surrounding area. The Project would also would not decrease the performance or safety of public transit, bicycle, and pedestrian facilities, and would not preclude the future establishment of a Class III bicycle route in the area or result in a significant transportation impact related to VMT.

Therefore, the potential for cumulative impacts to occur related to transportation during construction and operation of the proposed Project activities would be less than significant.

**Mitigation Measures:**           No mitigation is necessary

**Level of Significance:**           Less than significant

### 3.15.8 References

- California Department of Transportation (Caltrans). 2020. *Vehicle Miles Travel-Focused Transportation Impact Study Guide*.
- Humboldt County Association of Governments (HCAOG). 2018. *Humboldt Regional Bicycle Plan, Update 2018*.
- Humboldt County Association of Governments (HCAOG). 2022. *20-Year Regional Transportation Plan (Variety in Rural Options of Mobility 2022-2042), 2022 Update*.
- Humboldt County. 2007. *Eel River Area Plan. Volume II*.  
<https://humboldt.gov/DocumentCenter/View/50843/Eel-River-Area-Local-Coastal-Plan>
- Humboldt County. 2017. *Humboldt County General Plan*. October.  
<https://humboldt.gov/DocumentCenter/View/61984/Humboldt-County-General-Plan-complete-document-PDF>
- State of California OPR. 2018. *Technical Advisory on Evaluation Transportation Impacts in CEQA*.

## 3.16 Tribal Cultural Resources

This section evaluates potential impacts on tribal cultural resources from construction and operation of the Project.

### 3.16.1 Study Area

Consistent with Section 3.4 – Cultural Resources, the study area for the Project is equivalent to the Area of Potential Effects (APE) in the Project’s cultural resources reports (Roscoe et al. 2016, 2022). The Project Area and adjacent access routes are within the APE. The APE includes all areas of direct impacts and includes potential impacts up to 10 feet below ground surface of the study area. The APE is located in Wiyot Indian tribe ancestral lands.

### 3.16.2 Setting

Tribal cultural resources include resources that are of specific concern to California Native American tribes, with knowledge of such resources limited to tribal people. Refer to Section 3.4 – Cultural Resources, for a discussion of prehistoric or historic archaeological sites, structures, or objects.

### 3.16.3 Regulatory Framework

#### Federal

There are no federal regulations which apply to tribal cultural resources.

#### State

##### **California Public Resources Code**

##### Section 21074

*California PRC Section 21074 details what can be considered a tribal cultural resource.*

*a) Tribal cultural resources are either of the following:*

- 1) Sites, features, places, cultural landscapes, sacred places and objects with cultural value to a California Native American tribe that are either of the following:*
  - a) Included or determined to be eligible for inclusion in the California Register of Historical Resources (CRHR).*
  - b) Included in a local register of historical resources as defined in subdivision (k) of PRC Section 5020.1.*
- 2) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of PRC Section 5024.1. In applying the criteria set forth in subdivision (c) of PRC Section 5024.1 for the purposes of this paragraph, the lead agency shall consider the significance of the resource to a California Native American tribe.*

- b) *A cultural landscape that meets the criteria of subdivision (a) is a tribal cultural resource to the extent that the landscape is geographically defined in terms of the size and scope of the landscape.*
- c) *A historical resource described in PRC Section 21084.1, a unique archaeological resource as defined in subdivision (g) of PRC Section 21083.2, or a “nonunique archeological resource” as defined in subdivision (h) of PRC Section 21083.2 may also be a tribal cultural resource if it conforms with the criteria of subdivision (a).*

### **Assembly Bill 52 (AB52)**

Assembly Bill 52 (Chapter 532, Statutes 2014), the Native American Historic Resource Protection Act, sets forth a proactive approach intended to reduce the potential for delay and conflicts between Native American and development interests. Projects subject to AB 52 are those that file a notice of preparation for an Environmental Impact Report or notice of intent to adopt a negative or mitigated negative declaration on or after July 1, 2016. AB 52 adds tribal cultural resources to the specific cultural resources protected under CEQA. Under AB 52, a tribal cultural resource is defined as a site, feature, place, cultural landscape (must be geographically defined in terms of size and scope), sacred place, or object with cultural value to a California Native American tribe that is either included or eligible for inclusion in the California Register of Historical Resources (CRHR) or included in a local register of historical resources. A Native American Tribe or the lead agency, supported by substantial evidence, may choose at its discretion to treat a resource as a tribal cultural resource. AB 52 also mandates lead agencies to consult with tribes, if requested by the tribe, and sets the principles for conducting and concluding consultation.

### **California Environmental Quality Act**

CEQA requires lead agencies to determine if a project would have a significant effect on tribal cultural resources. The CEQA Guidelines define a tribal cultural resource according to California PRC Section 21074.

While some tribal cultural resources include physical archaeological resources, described above, cultural resources are not limited to physical resources that have scientific significance. Tribal cultural resources also include cultural landscapes and non-unique archaeological resources. Non-unique resources are resources that are deemed culturally significant to a tribe, but do not contain information needed for scientific purposes, and may not be the best specimen in terms of quality, uniqueness, or age.

### **California Coastal Act**

The study area is within the Coastal Zone. The California Coastal Act (Coastal Act) contains policies relevant to cultural resources, particularly in relation to allowable uses of diking, filling, or dredging of open coastal waters, wetlands, estuaries, and lakes. The following Coastal Act sections are relevant to this analysis:

#### Public Resources Code Section 30116 Sensitive coastal resource areas

*“Sensitive coastal resource areas” means those identifiable and geographically bounded lands and water areas within the coastal zone of vital interest and sensitivity. “Sensitive coastal resource areas” include the following:*

- d) *Archaeological sites referenced in the California Coastline and Recreation Plan or as designated by the State Historic Preservation Officer.*

Public Resources Code Section 30244 Archaeological or paleontological resources

Where development would adversely impact archaeological or paleontological resources as identified by the State Historic Preservation Officer, reasonable mitigation measures shall be required.

Public Resources Code Section 30107.3 Environmental Justice

“Environmental justice” means the fair treatment of people of all races, cultures, and incomes with respect to the development, adoption, implementation, and enforcement of environmental laws, regulations, and policies.

**Local**

**Humboldt County Eel River Area Local Coastal Plan**

There are no policies within the Eel River Area Plan that regulate tribal cultural resources.

**3.16.4 Evaluation Criteria and Significance Thresholds**

Evaluation Criteria	Significance Thresholds	Sources
<p>Would the Project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code § 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:</p>		
<p>Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k)?, or</p>	<p>Adverse alteration of those physical characteristics of a tribal cultural resource that justify its eligibility for the NHRP, CRHR or as a unique archaeological resource</p>	<p>CEQA Guidelines Appendix G, Checklist Item XVIII (a) Public Resources Code 21074, 21080.3.1, 21080.3.2, and 5020.1</p>
<p>A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code § 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code § 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe?</p>	<p>Adverse alteration of those physical characteristics of a tribal cultural resource that is of significance to a California Native American Tribe</p>	<p>CEQA Guidelines Appendix G, Checklist Item XVIII (a) Public Resources Code 21074, 21080.3.1, 21080.3.2, and 5024.1</p>

**3.16.5 Methodology**

On June 1, 2022, formal AB 52 letters were sent to area tribal governments by the HCRCD, to provide notification of the decision to undertake a project and consultation opportunities. The letters were distributed

to the Tribal Historic Preservation Officers (THPOs) at the Blue Lake Rancheria, Wiyot Tribe, and Bear River Band of the Rohnerville Rancheria. On June 14, 2022, The Bear River Band requested formal consultation under AB 52. The Bear River Band THPO, HCRCD, and their consultants conducted a site visit on August 1, 2022. No areas of concern were identified; however, the THPO requested standard measures of inadvertent discovery. HCRCD did not receive responses to the formal AB52 letters from the Blue Lake Rancheria and Wiyot Tribe THPOs. Tribal consultation is completed for the Project.

### 3.16.6 Impacts and Mitigation Measures

**Impact TCR-1:** **Would the Project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code § 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k)?**

No resources that are listed or eligible for listing in the California Register of Historical Resources or in a local register of historical resources as defined in Public Resources Code section 5020.1(k) have been identified within the Project Area. Therefore, no impact will occur.

**Mitigation Measures:** No mitigation is necessary

**Level of Significance:** No impact

**Impact TCR-2:** **Would the Project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code § 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is a resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code § 5024.1?**

CEQA requires lead agencies to determine if a proposed project would have a significant effect on tribal cultural resources. The CEQA Guidelines define tribal cultural resources as: (1) a site, feature, place, cultural landscape, sacred place, or object with cultural value to a California Native American Tribe that is listed or eligible for listing on the California Register of Historical Resources, or on a local register of historical resources as defined in Public Resources Code Section 5020.1(k); or (2) a resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant according to the historical register criteria in Public Resources Code Section 5024.1 (c), and considering the significance of the resource to a California Native American tribe.

According to result of formal AB 52 consultation between consulting tribes and HCRCD, as well as findings of cultural resource investigations (see Section 3.4 – Cultural Resources), no known tribal cultural resources are located within or directly adjacent to the Project Area. Therefore, no impact associated with such resources is likely to occur.

However, since the Project Area is in ancestral Tribal territory it is possible that additional unrecognized surficial resources or subsurface archaeological deposits are present within the study area. If as-of-yet unknown tribal cultural resources are encountered during construction, invasive plant management or

maintenance activities, a significant impact could occur. Therefore, the Bear River Band THPO requested standard measures of inadvertent discovery. Mitigation measures identified in Section 3.4 – Cultural Resources are incorporated into the Project to reduce impact on cultural resources and tribal cultural resources.

#### **Mitigation Measure CR-1: Protocols for Inadvertent Discovery of Cultural Resources**

See Mitigation Measure CR-1 for full text of mitigation measure.

#### **Mitigation Measure CR-2: Protocols for Inadvertent Discovery of Human Remains**

See Mitigation Measure CR-2 for full text of mitigation measure.

**Level of Significance:** Less than significant with mitigation.

Implementation of Mitigation Measure CR-1 and Mitigation Measure CR-2 would reduce potentially significant impacts on tribal cultural resources to a less-than-significant level by providing a process for evaluation of any resources encountered during construction and avoidance or data recovery measures consistent with appropriate laws and requirements.

### 3.16.7 Cumulative Impacts

**Impact TCR-C-1: Would the Project contribute to a cumulatively significant impact to Tribal Cultural Resources?**

Cumulative effects analysis examines the current project effects taken together with effects of past projects and known projects in the foreseeable future. Future projects considered for cumulative impacts are identified in Table 3-1. Given that the Project would not result in any significant impacts to tribal cultural resources, and that the projects considered in Table 3-1 would not significantly affect tribal cultural resources in the Project Area, the potential for cumulative impacts to tribal cultural resources would be less than significant.

**Mitigation Measures:** No mitigation is necessary

**Level of Significance:** Less than significant

### 3.16.8 References

Roscoe and Associates. 2022. *A Cultural Resources Investigation Report for the Russ Creek and Centerville Slough Restoration Project*. Located in Ferndale, Humboldt County, California. Prepared for GHD. June.

Roscoe and Associates. 2016. *A Cultural Resources Investigation for the Connick and Russ Ranches, Eel River Estuary and Centerville Slough Enhancement Project*. Humboldt County, California. Prepared for California Trout. June.

## 3.17 Wildfire

This section evaluates the potential impacts related to wildfire resulting from construction and operation of the Project. To provide the basis for this evaluation, the Setting section describes the wildfire setting. The Regulatory Framework section describes the regulatory background that applies to the Project with regard to wildfire. The Impact Analysis section establishes the thresholds of significance, evaluates potential impacts from wildfire, and identifies the significance of such impacts.

### 3.17.1 Study Area

The study area for this section includes the Project Area (also referred to as the Project Boundary) and surrounding vicinity.

### 3.17.2 Setting

#### Site Description

The Project Area is generally undeveloped and heavily vegetated with a mix of invasive and native plant species typically found in marsh and dune habitats (see Section 3.4 – Biological Resources). Topography in the study area is generally flat (see Section 3.7 – Geology and Soils). The Project Area is located entirely within the Coastal Zone. Development in the Project Area vicinity is typical of rural agriculture, consisting of barns and isolated residences separated by agricultural fields and pasture.

#### Fire Protection

There are 39 fire departments providing fire protection to cities and unincorporated communities in Humboldt County (HCFCA 2020). The Project Area is within the Ferndale Fire Protection District served by the Ferndale Volunteer Fire Department (FVFD).

The California Department of Forestry and Fire Protection (CAL FIRE) is tasked with preventing and responding to wildfire emergencies within State Responsibility Areas (SRA). Incorporated cities, agriculture lands, and other areas where the local government is responsible for wildfire protection are designated as Local Responsibility Areas (LRA). CAL FIRE identifies Fire Hazard Severity Zones (FHSZ) in SRA and LRA throughout California. The zones are based on a hazard scoring system that reflect several criteria, such as availability of fuels, historical data, terrain, proximity to urbanized areas, and weather. Each of the fire hazard areas are categorized into areas of moderate, high, or very high fire hazard zones. The Project Area and surrounding lands within the Eel River valley are classified as LRA – Unincorporated and are not designated by a FHSZ (CAL FIRE 2007).

#### Wildfire Description

A wildfire is a non-structural fire that occurs in vegetative fuels, excluding prescribed fire. Wildfires can occur in undeveloped areas and spread to urban areas where the landscape and structures are not designed and maintained to avoid sparking fire. A wildland-urban interface is an area where development is located in proximity to areas prone to wildland fire and exists when a certain set of conditions are present. The National Fire Protection Agency (NFPA) describes the wildland-urban interface conditions as including, but not limited to, the amount, type, and distribution of vegetation; the flammability of structures in the area and their proximity to fire-prone vegetation and to other combustible structures, weather patterns and general climate conditions, topography, hydrology, and average lot size (NFPA 2009).

## Wildfire Occurrence and Spread

Vegetation is the main source of fuel for a potential wildfire. Unforested areas with sparse vegetation have a reduced wildfire exposure risk due to lower fuel loads. Densely vegetated and forested areas are more at risk to severe wildfire exposure hazards due to the abundance of available fuel.

Weather conditions such as temperature, humidity, and wind are factors that affect fire behavior. Higher temperatures and low humidity are indicative of higher fire risk, increasing the flammability of available fuels. Wind intensifies wildfire impacts by increasing a fire's rate of spread and range. During a wildfire, wind can carry embers far ahead of the fire, significantly increasing the fire's size and rate of spread. Flying embers can ignite spot fires, transport the fire across firebreaks, and endanger structures in rural wildlands, as well as those within and beyond the wildland-urban interface.

Topographic features such as slope affect fire behavior, specifically a fire's intensity, direction, and rate of spread. Fires in flat or gently sloping areas tend to burn slower, while fires moving upslope have a higher rate of spread. Existing hydrology also impacts fire behavior, as streams and rivers tend to channel winds, which can accelerate a fire's speed and direction. The presence of large hydrological features tends to increase humidity and can make these areas more resistant to the effects of fire (Humboldt County 2019).

### 3.17.3 Regulatory Framework

#### Federal

The federal government is responsible for responding to wildfires on federal lands. The United States Department of the Interior (DOI) Bureau of Land Management (BLM) manages wildfire response for the National Parks, wildlife refuges and preserves, other public lands, as well as Tribal reservations. The United States Department of Agriculture Forest Service (USFS) carries out wildfire management and response across the National Forests and Grasslands. The USFS and BLM are responsible for implementing the policies and procedures of the Healthy Forests Initiative and Healthy Forests Restoration Act (HFRA) when accomplishing hazardous-fuel reduction and vegetation-restoration projects on federal lands (USFS and BLM 2004).

The United States Department of Homeland Security (DHS) Federal Emergency Management Agency (FEMA) provides funding and support in response to large-scale emergencies and natural disasters. FEMA has established Incident Command System (ICS) training and standards under the National Incident Management System (NIMS). The basic characteristics of ICS coordination under NIMS are common terminology, modular organization, incident action planning, chain-of-command, accountability, and integrated communications (FEMA 2018). The ICS and NIMS are utilized by firefighting agencies to comprehensively manage emergency resources at all levels, from offsite administration to the fireground.

#### State

##### ***California Department of Forestry and Fire Protection***

CAL FIRE responds to emergencies, and protects and enhances forest, range, and watersheds providing social, economic, and environmental benefits to rural and urban residents in California. Pursuant to Public Resources Code (PRC) Sections 4201-4204 and Government Code Sections 51175-89, CAL FIRE has created FHSZ maps for the state that identify areas that are within SRA and LRA. These maps identify areas of significant fire hazards based on fuels, terrain, weather, and other relevant factors. The FHSZ zones then define the application of various mitigation strategies to reduce risks associated with wildland fires. Within SRA, CAL FIRE has designated areas as moderate, high and very high fire hazard severity



zones (PRC Section 4202). Outside of SRA and within LRA, CAL FIRE has established locations of very high fire hazard severity zones (VHFHSZ). The Project Area is located within an unclassified LRA, thus is not assigned as a specific FHSZ designation.

### **State of California Emergency Response Plan**

California has developed the State of California Emergency Response Plan to coordinate emergency services provided by federal, state, and local government agencies. The plan is administered by the State Office of Emergency Services (OES), which coordinates the responses of other agencies such as local fire and police agencies, emergency medical providers, California Highway Patrol (CHP), the CDFW and Caltrans (OES 2017).

### **California Public Resources Code**

The California PRC sets forth fire safety regulations that include the following:

- Earthmoving and portable equipment with internal combustion engines must be equipped with a spark arrester to reduce the potential for igniting a wildland fire (PRC Section 4442).
- Appropriate fire suppression equipment must be maintained during the highest fire danger period – from April 1 to December 1 (PRC Section 4428).
- On days when a burning permit is required, flammable materials must be removed to a distance of ten feet from any equipment that could produce a spark, fire, or flame, and the construction contractor must maintain the appropriate fire suppression equipment (PRC Section 4427).
- On days when a burning permit is required, portable tools powered by gasoline-fueled internal combustion engines must not be used within 25 feet of any flammable materials (PRC Section 4431).

## **Local**

### **Humboldt County Eel River Area Plan Local Coastal Program**

As the Project Area is located within the Coastal Zone, this section includes the policies and regulations from the Eel River Area Plan of the Humboldt County Local Coastal Program (LCP).

#### 3.28 Hazards

##### *A Development Policies*

#### 30253 New Development Shall:

*Minimize risks to life and property in areas of high geologic, flood and fire hazard.*

*Assure stability and structural integrity, and neither create nor contribute significantly to erosion, geologic instability, or destruction of the site or surrounding areas or in any way require the construction of protective devices that would substantially alter natural landforms along bluffs and cliffs.*

### **Humboldt County Operational Area Hazard Mitigation Plan**

The 2019 Humboldt County Operational Area Hazard Mitigation Plan (HMP) Update is the County's plan to identify and reduce hazards before any type of hazard event occurs (Humboldt County 201). The Hazard Mitigation Plan aims to reduce losses from future disasters such as dam failure, drought, earthquake, fish losses, flooding, landslide, severe weather, tsunami, and wildfire. The HMP also includes a vulnerability analysis and proposed initiatives designed to minimize future hazard-related damage.

### ***Humboldt County Emergency Operations Plan***

The 2015 Humboldt County Emergency Operations Plan (EOP) for the Humboldt Operational Area addresses the planned response to extraordinary emergency situations associated with natural disasters, technological incidents, and national security emergencies in or affecting Humboldt County (Humboldt County 2015). The EOP addresses integration and coordination with other governmental levels when required. The EOP accomplishes the following:

- Establishes the emergency management organization required to mitigate any significant emergency or disaster affecting Humboldt County.
- Identifies the policies, responsibilities, and procedures required to protect the health and safety of Humboldt County communities, public and private property, and the environmental effects of natural and technological emergencies and disasters.
- Establishes the operational concepts and procedures associated with field response to emergencies, County Emergency Operations Center activities, and the recovery process.

### ***Humboldt County Fire Safe Council***

A Fire Safe Council (FSC) is a public and private organization that comprise a council intended to minimize the potential for wildfire damage to communities and homeowners, while also protecting the health of natural resources. The Humboldt County FSC oversees the implementation of the Humboldt County Community Wildfire Protection Plan (CWPP). The CWPP is a planning tool, certified under the HFRA, to support projects that help residents and community groups prepare for the impacts of wildfire. In 2002, the Humboldt County Board of Supervisors formed the Humboldt County FSC, which produced the CWPP (Humboldt County 2019). The CWPP contains six goal areas:

1. Wildfire Ignition Prevention: Reduce human-caused wildfire ignitions;
2. Wildfire Preparedness: Increase community resilience and adaptation to wildfire;
3. Disaster Preparedness: Increase resident's ability to effectively prepare for and survive wildfire;
4. Fire Protection: Support fire protection for people, property, communities, and natural resources;
5. Restoration of Beneficial Fire: Restore beneficial fire at the landscape level; and
6. Integrated Planning: Maximize integration of planning efforts to improve community; and ecosystem resilience to wildfire.

The CWPP breaks the county down into 14 planning units in order to gain community feedback and to create individual plans relevant to the particular community. The Eel River basin, including the Project Area, is located within the Eel Planning Unit (Unit 10). The CWPP identifies: community assets and values at risk, the wildfire environment, fire protection capabilities, evacuation, community preparedness, wildfire prevention plans, community identified potential projects, and an action plan. The CWPP states that evacuation routes within the Eel Planning Unit will depend on the location of the community at risk and law enforcement recommendations based on fire behavior, wind patterns, traffic, and ingress of emergency vehicles (Humboldt County 2019). Evacuation from within this unit will take place traveling either north or south along US 101, or east along SR 211.

The Firewise Communities/USA Recognition Program teaches people living in the Wildland Urban Interface (WUI) how to adapt to living with wildfire by preparing for a fire before it occurs. This program empowers communities with tools and resources for reducing their wildfire risk and encourages neighbors to work together to take action to minimize losses from wildfire. No local FSC or recognized Firewise communities exist within the Eel Planning Unit.

### 3.17.4 Evaluation Criteria and Significance Thresholds

Under criteria based on Appendix G of the CEQA Guidelines, the Project would result in a significant impact if it was located in or near a State Responsibility Area or lands classified as very high fire hazard severity zones, and would result in any of the following:

Evaluation Criteria	Significance Thresholds	Sources
Would the Project substantially impair an adopted emergency response plan or emergency evacuation plan?	Project renders an established evacuation route or staging area inaccessible, or does not comply with local emergency response policies	Humboldt County Eel River Area Plan Local Coastal Program, Humboldt County HMP, Humboldt County EOP
Would the Project due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose Project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?	Regular use or storage of pollutant materials within an area vulnerable to prevailing winds, or upslope of established developments	CEQA Guidelines Appendix G, Checklist Item XX (b)
Would the Project require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?	Installation or maintenance of infrastructure that could exacerbate fire risk	CEQA Guidelines Appendix G, Checklist Item XX (c)
Would the Project expose people or structures to significant risks, including downslope or downstream flooding or landslides as a result of runoff, post-fire slope instability, or drainage changes?	Substantial modifications to the drainage and downslope pathway existing the Project Area.	CEQA Guidelines Appendix G, Checklist Item XX (d)

The following sections describe the anticipated environmental impacts due to wildfire risks from the Project.

### 3.17.5 Methodology

Impact assessment considered the environmental and topographical characteristics of the built and natural environment within the study area. The Project is located on low-lying agricultural and coastal lands in the Eel River basin adjacent to the Pacific Ocean. The Project Area is unforested, with vegetation throughout mostly consisting of low grasses and shrubs. The Project Area is pastoral and generally uninhabited, with few residential structures near the Project Area. The Project Area is typified by generally flat topography, crisscrossed by numerous hydraulic features. The Project Area is situated entirely within an unclassified LRA, with fire protection and emergency response services provided to the area by FVFD.

### 3.17.6 Impacts and Mitigation Measures

**Impact WDF-1: Substantially impair an adopted emergency response plan or emergency evacuation plan?**

Humboldt County Eel River Area Plan LCP does not have an independent emergency response or evacuation plan. The Humboldt County HMP and EOP do not designate specific evacuation routes or emergency shelter locations or include policies or procedures with which the Project would conflict. A review of the Tsunami Inundation Map for Emergency Planning – County of Humboldt (CGS 2021) indicates that the Project would not impair emergency response activities nor established evacuation routes. See Section 3.9 (Hazards and Hazardous Materials) for further discussion of the Project's effect on established emergency response and evacuation plans.

Once constructed, the Project would not modify or inhibit vehicular access along Centerville Road or Russ Lane, thus emergency response or evacuation via Centerville Road and Russ Lane would not be impeded. The Project would not permanently impede access to any existing roads and pedestrian ways within the Project Area. Therefore, the Project would not impair implementation of or physically interfere with an established emergency response or evacuation plan. No impact would occur.

**Mitigation Measures:** No mitigation is necessary

**Level of Significance:** No impact

**Impact WDF-2: Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose Project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?**

The Project Area is characterized by marsh and dune habitats in the coastal bottomland of the Eel River basin. The climate in the Project region is typified by prevailing onshore winds, fog, low to moderate temperatures, and moderate to high humidity. Topography within the Project Area is generally flat to gently sloping with many tidally influenced hydraulic features. A large portion of the Project Area is regularly inundated. The Project Area is heavily vegetated with grasses which could provide fuel in the event of an uncontrolled wildfire; however, creeks and drainages within the Project Area create a network of firebreaks which would potentially reduce wildfire rate of spread.

The Project Area contains no residential structures, and adjacent land generally consists of open agricultural pasture and farmland. The Project does not include construction of any structures for human occupancy.

Fire ignition risk associated with Project construction activities is low and limited to accidental ignition associated with a potential heavy machinery-related incident. The Project construction would not otherwise increase exposure to wildfire above existing conditions. The impact would be less than significant.

As described in Section 2.0 (Project Description), the Project operations could include the use of flaming treatments to control invasive *Spartina* growth within the Project Area. While unlikely, the use of flaming treatments represents a potential risk to people or structures if the flame application to target non-native vegetation is not properly controlled. Accordingly, flaming treatments would be implemented in coordination with CAL FIRE rules and all applicable regulations.

The use of flaming treatments to eradicate nonnative biomass reduces the amount of potential wildfire fuel and provides fire hazard reduction benefits that enhance public and firefighter safety. Reducing the fuel load via flaming treatments could also reduce the intensity of potential future uncontrolled grassland fires within the Project Area.

The high-humidity, generally flat topography, and tidally influenced hydrology cumulatively reduce wildfire ignition risk within the Project Area. The numerous water channels and regular inundation within the Project Area reduce the potential rate of wildfire spread. Flaming treatments would be carried out in accordance with applicable CAL FIRE regulations. Biomass reduction achieved by the Project would reduce the available fuel for a potential wildfire. Given these factors, the risk of wildfires resultant from flaming treatments is extremely low, thus potential impact is less than significant, and no mitigation is necessary.

**Mitigation Measures:** No mitigation is necessary

**Level of Significance:** Less than significant

**Impact WDF-3:** **Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?**

Project construction could result in a low fire ignition risk, associated with a potential heavy machinery incident. Given the Project Area consists of tidally influenced, coastal marshlands having a flat topography and characterized by a cool, humid climate, the risk of a wildfire within the Project Area is low. Given the hydrology, topography, and climate which characterizes the Project Area, flaming treatments associated with ongoing operation of the Project would not significantly exacerbate fire risk as discussed in Section 3.17 WDF-2 above. Therefore, the Project would not require installation or maintenance of infrastructure that may exacerbate fire risk. No impact would result.

**Mitigation Measures:** No mitigation is necessary

**Level of Significance:** No impact

**Impact WDF-4:** **Expose people or structures to significant risks, including downslope or downstream flooding or landslides as a result of runoff, post-fire slope instability, or drainage changes?**

The Project is located in the low-lying marsh and dune habitats adjacent to Russ Creek, the Eel River, and the Pacific Ocean. Topography within the Project Area is generally flat to gently sloping with many tidally influenced hydraulic features. The slopes present within the Project Area are generally low and gradual.

Because the Project is located in generally flat bottomlands, the risk of landslides associated with post-fire slope instability or changes in drainage is extremely low. Given the climate, coastal setting, and hydrological features within the Project Area, the risk of wildfire occurrence and lessen potential rate of spread is inherently low. The potential impact would be less than significant; thus no mitigation is necessary.

**Mitigation Measures:** No mitigation is necessary

**Level of Significance:** Less than significant

### 3.17.7 Cumulative Impacts

**Impact WDF-C-1: Would the Project contribute to a cumulatively significant impact to Wildfire?**

Projects within the Eel River estuary considered for cumulative impacts are listed in Table 3-1 located in Section 3.0. Potential wildfire impacts associated with these projects are generally limited to accidental ignition due to the use of construction equipment and associated materials. Given the Project Area environmental conditions and the unlikely occurrence of such accidental wildfire ignition, this impact is less than significant.

Invasive species removal, including flaming treatments, is proposed for the CDFW Eel River Wildlife Area Ocean Ranch Unit and Cannibal Island Restoration projects. This Project is located north and on the other side of the Eel River from the Project Area. As the Eel River presents a significant firebreak and the hydrology and topography of the Project Area naturally impedes wildfire spread, this impact is less than significant.

Given that the Project would not result in any significant wildfire-related impacts and considering other projects within the Eel River estuary, the potential for cumulative wildfire-related impacts within the study area would be less than significant.

**Mitigation Measures:** No mitigation is necessary

**Level of Significance:** Less than significant

### 3.17.8 References

- California Department of Forestry and Fire Protection (CAL FIRE). 2007. *Fire Hazard Severity Zones in State and Local Responsibility Areas*. [http://frap.fire.ca.gov/webdata/maps/statewide/fhszs\\_map.pdf](http://frap.fire.ca.gov/webdata/maps/statewide/fhszs_map.pdf)
- Federal Emergency Management Agency (FEMA). 2018. *ICS Review Document*. Extracted from - E/L/G 0300 Intermediate Incident Command System for Expanding Incidents, ICS 300.
- Humboldt County. 2019. Humboldt County Operational Area Hazard Mitigation Plan (HMP) Update. [https://humboldt.gov/DocumentCenter/View/78686/2019-08-15\\_HumboldtCountyHMP\\_Vol1\\_InitialReviewDraft?bidId=](https://humboldt.gov/DocumentCenter/View/78686/2019-08-15_HumboldtCountyHMP_Vol1_InitialReviewDraft?bidId=)
- Humboldt County. 2015. *Emergency Operations Plan – Humboldt Operational Area*. <https://humboldt.gov/DocumentCenter/View/51861/Humboldt-County-Emergency-Operations-Plan-2015>
- Humboldt County. 2017. *Humboldt County General Plan. Chapter 14: Safety Element*. <https://humboldt.gov/205/General-Plan>
- Humboldt County. 2019. *Humboldt County Community Wildfire Protection Plan*. <https://humboldt.gov/2431/CWPP-2019>
- National Fire Protection Agency. 2009. *Safer from the Start A Guide to Firewise-Friendly Developments*. <https://www.nfpa.org/-/media/Files/Training/certification/CWMS/SaferFromtheStart.ashx?la=en>
- State Office of Emergency Services (OES). 2017. *State of California Emergency Response Plan*. [https://www.caloes.ca.gov/wp-content/uploads/Preparedness/Documents/California\\_State\\_Emergency\\_Plan\\_2017.pdf](https://www.caloes.ca.gov/wp-content/uploads/Preparedness/Documents/California_State_Emergency_Plan_2017.pdf)

United State Forest Service and Bureau of Land Management (USFS and BLM). 2004. The Healthy Forests Initiative and Healthy Forests Restoration Act Interim Field Guide. <https://www.fs.usda.gov/projects-policies/hfi/field-guide/index.shtml>

## 4. Alternatives

### 4.1 Introduction

This chapter presents the alternatives analysis for the Project. Section 15126.6(a) of the CEQA Guidelines requires EIRs to “describe a range of reasonable alternatives to the project, or to the location of the project, which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project, and evaluate the comparative merits of the alternatives. An EIR need not consider every conceivable alternative to a project. Rather it must consider a reasonable range of potentially feasible alternatives that will foster informed decision making and public participation. An EIR is not required to consider alternatives which are infeasible. The lead agency is responsible for selecting a range of project alternatives for examination and must publicly disclose its reasoning for selecting those alternatives. There is no ironclad rule governing the nature or scope of the alternatives to be discussed other than the rule of reason.” This section of the CEQA Guidelines also identifies the purpose (15126.6[b]) which is for the EIR to identify ways to mitigate or avoid the significant effects that a project may have on the environment (Public Resources Code Section 21002.1). The discussion of alternatives shall focus on alternatives to the project or its location, which are capable of avoiding or substantially lessening any significant effects of the project, even if these alternatives would impede to some degree the attainment of the project objectives or be more costly.

The CEQA Guidelines further require that the alternatives be compared to the proposed project’s environmental impacts and that the “no project” alternative be considered (Section 15126.6[d] and [e]). CEQA Guidelines Section 15126.6(e)(1) states that the purpose of describing and analyzing the no project alternative is “to allow decision makers to compare the impacts of approving the proposed project with the impacts of not approving the proposed project.” The no project analysis is required to “discuss the existing conditions at the time the notice of preparation is published...as well as what would be reasonably expected to occur in the foreseeable future if the project were not approved, based on current plans and consistent with available infrastructure and community services” (Section 15126.6[e][2]). If the project is a “development project on identifiable property,” the “no project” alternative is the circumstance under which the project does not proceed. Here the discussion would compare the environmental effects of the property remaining in its existing state against environmental effects which would occur if the Project is approved. In certain instances, the no project alternative means “no build” wherein the existing environmental setting is maintained. This would be the case for the proposed Project.

#### 4.1.1 Identifying Project Alternatives

Numerous Project alternatives have been explored by the property owners, lead agency, funders, and project consultants. Ultimately, four alternatives were chosen to further analyze due to their potential feasibility to lessen differing environment impacts. The alternatives analyzed in this chapter in addition to the proposed Project include the following: (1) No Project Alternative, (2) Centerville Road Alternative, (3) Channel Size Alternative, and (4) Centerville Slough Outlet Alternative. The environmentally superior alternative is described in Section 4.3. Resource categories identified as having no impacts are not discussed below. These include Mineral Resources, Population and Housing, and Utilities and Service Systems. The impacts for those resource categories would be equivalent to the proposed Project, except the No Project Alternative in which the impacts would be less than the proposed Project.



## 4.2 Description of Alternatives

### 4.2.1 Alternative 1: No Project Alternative

Under the No Project Alternative, no modifications within the Project Boundary, which is equivalent to the Project Area, are proposed. The alternative maintains the existing levee and tide gate conditions and continues to preclude tidal exchange within the Project Area with no provisions for sea level rise adaptation, sediment management, drainage improvement or ecosystem restoration. The Project Area would continue to be managed similar to existing conditions but would do so under increasingly deteriorating conditions. There are no new internal channel, culvert, tide gate, dune, or levee improvements proposed under the No Project Alternative.

Agricultural operations in the Project Area under existing conditions face significant challenges to present and future operations, largely due to poor drainage and wave overwash events. These threats described in that chapter are compounded by sea level rise, saltwater intrusion, subsidence, channel aggradation and diminishing drainage capacity. Existing challenges to agricultural viability and operations would persist and worsen over time.

State and federally listed salmonids, as well as other aquatic organisms, have derived little to no biological benefit from the Project Area because it has been isolated from the Eel River estuary, for 150 years. The No Project Alternative provides no assistance in recovering Eel River Coho Salmon, Chinook Salmon, Steelhead Trout, and Tidewater Goby. The Project Area is within the southernmost extent of the Coastal Cutthroat trout's range, and the No Project Alternative would prevent its full biological expression in an estuarine setting, contributing to extirpation of the species.

#### Analysis

The No Project Alternative would have lesser impacts long-term than the proposed Project for all other resource categories except for Agricultural, Biological, and Hydrology, because overtime these resources would continue to degrade. Poor drainage and unchecked wave overwash would continue to occur in the Project Area. Therefore, under this scenario the resulting hydrologic deterioration of agricultural pastures within the Project Area and to the east is expected to be more severe given the continued wave overwash and no berm.

Under the No Project Alternative, the levees would continue to prevent full tidal exchange throughout most of the estuarine habitat in the Project Area and thus estuarine and salt marsh habitats would remain in a degraded state providing lower functioning habitat values for fish and wildlife. If the Project Area is left as it currently exists, recovery and enhancement of native species and habitat would be delayed, would not occur at all, or may continue to degrade. The No Project Alternative would not control or eradicate invasive plant species in tidal areas and would not improve public access or recreational opportunities.

Project goals and several supplementary objectives would not be attained with the No Project Alternative. The No Project Alternative would not improve tidal channel complexity within the Project Area, and the existing level of fluvial and tidal flood protection to adjacent agricultural properties to the east would continue to diminish over time. This alternative provides a far lower level of long-term protection and resiliency to the overall Project Area. The No Project Alternative would be environmentally inferior in regard to agricultural resources, biological resources, and hydrology and water quality as compared to the proposed Project.

## 4.2.2 Alternative 2: Centerville Road

The proposed Project, as described in Section 2.0, includes the construction of an east-west portion of the new set-back berm segment adjacent to Angel's Camp Marsh to prevent tidal inundation on adjacent agricultural lands and provide an equivalent level of riverine flood protection as existing conditions (See Figure 2-5 Proposed Project Components), similar to the existing levee currently separating the Inner Marsh from the Outer Marsh. Under the proposed Project, the land south of the east-west berm, including an approximate 300 ft segment of County Road, would continue to be vulnerable to dune overwash induced flooding. An alternative to elevating the east-west berm to 14 feet (NAVD88) to maintain existing flood conditions on southern properties would be to reduce the proposed elevation of the east-west berm to approximately 11 feet, reducing its overall footprint, and instead elevate a portion of Centerville Road to approximately 14 feet. Under Alternative 2, approximately 300 feet of Centerville Road would be elevated, generally within its current footprint, to prevent an increase in the riverine flooding frequency of the County Road and properties to the south (Figure 4-1). Raising the roadbed would require some expansion of the road footprint into adjacent wetlands. This alternative would also increase fluvial and tidal flooding on the property directly south of the east-west berm segment. Dune overwash would continue to flood Angel's Camp. Both the proposed Project and Alternative 2 would require the installation of culverts with flap gates in the east-west berm to direct overwash flows north to drain into Centerville Slough.

Construction to elevate Centerville Road would utilize the Centerville Beach parking area on Centerville Road as a staging and stockpile area. Centerville Road is a two-lane paved County road and temporary lane closures and traffic control would be required during construction. The road would be constructed using a mixture of onsite soils and imported fill and gravel.

This alternative would require land encroachment on adjacent properties. The lead agency consulted with the adjacent landowner in 2021 and 2022. This alternative was not favored by the landowner since it would increase fluvial flooding and inundation on their property, in addition to the encroachment.

### **Aesthetics**

Impacts associated with Alternative 2 would generally be similar to the proposed Project (less than significant or no impact). Raising the elevation of Centerville Road would impact views slightly more than the proposed Project due to the modifications directly to Centerville Road, however similarly to the proposed Project, Alternative 2 would not significantly impact views from adjacent properties or the public. Impacts to the existing visual character of the site and surrounding areas would be less than significant because the roadway would be raised in its current footprint and revegetation would occur in nearby areas that were disturbed during construction. The resulting higher elevation of the Roadway would not substantially alter views from the roadway or from public places adjacent to the roadway. Temporary visual impacts from the presence of construction equipment would generally be the same as the proposed Project since they include similar construction methods, equipment and schedules. Therefore, Alternative 2 would have equivalent aesthetic impacts as compared to the proposed Project.

### **Agricultural Resources**

Alternative 2 would have equivalent impact to agricultural resources with respect to conversions of agricultural land (less than significant), conflicts with agricultural zoning or a Williamson Act contract (less than significant), or other changes resulting in conversion of farmland (less than significant). Similar to the proposed Project, Alternative 2 would have less than significant impacts to agricultural resources, due primarily to the same proposed improvements in drainage and wave overwash protection that would

increase overall agricultural productivity within the Project Area and adjacent properties. Neither the proposed Project nor this alternative would have any impacts to forest resources as there are no forest resources on the Project site. Therefore, Alternative 2 is found to be commensurate in impact and benefit with regard to the proposed Project.

## **Air Quality**

The air quality impacts associated with the proposed Project were determined to be less than significant, particularly with implementation of Mitigation Measure AQ-1 (Dust Control Measures during Construction) which complies with the best management practices recommended by air districts to reduce construction-related dust. The same mitigation measure for the proposed Project would also be applicable to this alternative. By implementing Mitigation Measure AQ-1, Alternative 2 would reduce emissions associated with earth moving activities, reducing the potential impact to a less than significant level.

As with the proposed Project, Alternative 2 would have less than significant impacts to air quality related to criteria pollutants and other emissions. In comparison to the proposed Project, the expanded Project Area associated with Alternative 2 would result in construction occurring in closer proximity to one rural residence along Centerville Road (approximately 130 feet south of Centerville Road), therefore potentially exposing sensitive receptors to pollutant concentrations. However, construction would be short in duration. Due to the proximity to sensitive receptors, air quality impacts from Alternative 2 would be slightly greater than the proposed Project; however, would remain less than significant with implementation of Mitigation Measure AQ-1.

## **Biological Resources**

Biological resources impacts associated with the proposed Project were determined to be less than significant, particularly with implementation of mitigation measures (Mitigation Measure BIO-1, Mitigation Measure BIO-2, Mitigation Measure BIO-3, Mitigation Measure BIO-4, Mitigation Measure BIO-5, Mitigation Measure BIO-6, Mitigation Measure BIO-7, Mitigation Measure BIO-8, Mitigation Measure BIO-9 and Mitigation Measure BIO-10). Biological resources impacts associated with Alternative 2 would also be less than significant with implementation of mitigation measures. As with the proposed Project, this alternative would also provide a net benefit to terrestrial, avian and aquatic species by the introduction of a full tidal exchange into the Project Area and would recreate historic on- and off-channel ponds and the associated off-channel habitat associated within the historic Centerville Slough.

Biological resources impacts associated with this alternative would be similar to the proposed Project for all areas except Centerville Road. Raising the roadbed would require some expansion of the road footprint into adjacent wetlands. Temporary wetland impacts associated with construction would occur. However, this impact would be equivalent to the wetland impact caused from raising the crest elevation of the east-west berm in the proposed Project. Therefore, this alternative would have similar initial biological resources impacts than the proposed Project.

## **Cultural Resources**

As with the proposed Project, construction of Alternative 2 could unearth unknown cultural resources which would be a significant impact. The same mitigation measures for the proposed Project (Mitigation Measure CR-1 and Mitigation Measure CR-2) would also be applicable to this alternative. The potential for inadvertent discovery of cultural resources anticipated with this alternative could be slightly greater than with the proposed Project because more land would be subject to construction-related activities with this

alternative. However, with the incorporation of Mitigation Measure CR-1 and Mitigation Measure CR-2, Alternative 2 would have a less than significant impact on cultural resources.

## **Energy**

Energy considerations for Alternative 2 are the same as the proposed Project. Alternative 2 would have an equivalent less than significant impacts on energy resources.

## **Geology and Soils**

Geology and soil considerations for Alternative 2 are the same as the proposed Project. The same mitigation measures for the proposed Project (Mitigation Measure GEO-1, Mitigation Measure GEO-2, Mitigation Measure HWQ-1, Mitigation Measure HWQ-2, Mitigation Measure HWQ-3, and Mitigation Measure Spartina PEIR WQ-6) would also be applicable to this alternative and would reduce impacts to a less-than-significant level by requiring adherence to the recommendations in the geotechnical report so that Alternative 2 is designed and constructed in conformance with applicable design standards to control erosion during construction as well as providing a process for evaluation and protection of paleontological resources.

## **Greenhouse Gas Emissions**

As with the proposed Project, this alternative would result in a temporary increase in greenhouse gas (GHG) emissions, including exhaust emissions from on-road haul trucks, worker commute vehicles, and off-road heavy-duty equipment. As with the proposed Project, this alternative would also result in a less than significant impact for construction and operational activities and would have no impact related to conflicting or impeding state policy or regulatory initiatives. Alternative 2 would have equivalent impacts from GHG emissions.

## **Hazards and Hazardous Materials**

As with the proposed Project, construction of Alternative 2 could have the potential to create a significant hazard to the public or the environment from fuels and/or oils used during routine maintenance and repair operations. The proposed Project and Alternative 2 could also include the use of the hazardous material Imazapyr to treat invasive cordgrass, which would be a significant impact. The same mitigation measures for the proposed Project (Mitigation Measure Spartina PEIR HHM-1, Mitigation Measure Spartina PEIR HHM-3, Mitigation Measure Spartina PEIR HHM-4, and Mitigation Measure HWQ-3) would also be applicable to this alternative and would reduce the potential impact of implementing Alternative 2 to a less than significant level.

Temporary lane closures and traffic control would be required during construction of the elevated portion of Centerville Road for Alternative 2. Short-term, temporary lane closures or delays may occur, but emergency access would not be restricted. Once constructed, operational use of the Project would not modify transportation along public roadways. Thus, emergency response or evacuation via existing roadways would not change compared to existing conditions. As with the proposed Project, Alternative 2 would not impair implementation of an emergency response plan or evacuation plan, the potential impact related to temporary closures during construction would be less than significant.

## **Hydrology and Water Quality**

As with the proposed Project, this alternative would also be subject to the same permits and have to comply with the same Humboldt County and NCRWQCB requirements with regard to water quality standards or

waste discharge requirements as the proposed Project. The recommendations in the Geotechnical Study would also apply to this alternative. The extent of grading for Alternative 2 would be similar to the proposed Project, however construction of Centerville Road improvements would add additional risk of erosion. Hydrology and water quality impacts were determined to be less than significant with implementation of mitigation measures for the proposed Project which would also be applicable to Alternative 2 (Mitigation Measure HWQ-1, Mitigation Measure HWQ-2, Mitigation Measure HWQ-3, Mitigation Measures Spartina PEIR WQ-3, Mitigation Measure Spartina PEIR WQ-6, Mitigation Measures Spartina PEIR WQ-7, and Mitigation Measure Spartina PEIR HHM-4). However, impacts are anticipated to be significant for this alternative. Alternative 2 would include constructing the east-west berm to 11 feet, lower than the proposed Project. Because the east-west berm would be lower in elevation, the portion of Angel's Camp south of the Project Area (South Angel's Camp Basin) would be vulnerable to larger fluvial and tidal flood events. Alternative 2 increases the potential to exacerbate existing fluvial flooding on this southern property, creating a significant unavoidable flooding impact. Centerville Road would be raised to 14 feet, which would protect the roadway from floodwaters. This alternative would have negative hydrology (substantially altering the existing drainage) impacts; therefore, overall impacts are considered greater than the proposed Project.

### **Land Use**

The Project Boundary (Project Area) of the proposed Project and the expanded Project Boundary of Alternative 2 would not divide an established community. Centerville Road would continue to serve the few residential properties near the Project Area, similar to existing conditions. As with the proposed Project, Alternative 2 would convert a minor amount of agricultural land within the proposed channel footprint, however Project implementation would improve the quality of surrounding agricultural lands by improving drainage and reducing dune overwash and saltwater damage to pasture lands, flooding, and related erosion. Therefore, Alternative 2 would have an equivalent environmental impact (less than significant) due to a conflict with any land use plan, policy, or regulation.

### **Noise**

Similar to the proposed Project, implementation of this alternative would generate construction-related and maintenance noise associated with the use of heavy equipment within the Project Area. In comparison to the proposed Project, the expanded Project Area associated with Alternative 2 would result in construction occurring in closer proximity to one rural residence along Centerville Road. Due to the proximity to residential structures, noise impacts from Alternative 2 would be greater than the proposed Project; however, would remain less than significant.

### **Public Services**

It is anticipated that Alternative 2 would have minimal impacts to public services and utilities similar to the proposed Project. Both the proposed Project and this alternative propose to increase recreational use of the EREP portion of the Project Area which could minimally increase fire or police response to the area due to an emergency. Alternative 2 would not induce population growth and would not increase demand for other public services. Therefore, impacts to public services expected to occur under Alternative 2 would be less than significant and equivalent to what would occur under the proposed Project.

### **Recreation**

Recreational considerations for Alternative 2 are the same as the proposed Project. Alternative 2 would have equivalent less than significant impacts on recreational resources.

## Transportation

As with the proposed Project, Alternative 2 would not conflict with a transportation related plan, program, policy or ordinance and would not generate more than 110 vehicle trips per day. Other transportation-related impacts associated with this alternative would be slightly greater than with the proposed Project because construction would occur on Centerville Road; however, would remain less than significant.

Temporary lane closures and traffic control would be required during construction of the elevated portion of Centerville Road for Alternative 2. Short-term, temporary lane closures or delays may occur, but emergency access would not be restricted. The potential impact related to temporary closures during construction would be less than significant. Roadway design features would remain the same and therefore would not increase hazards. Once constructed, operational use of the Project would not modify transportation along public roadways. Thus, regular traffic and emergency response or evacuation via existing roadways would not change compared to existing conditions. Alternative 2 would have a less than significant impact on transportation.

## Tribal Cultural Resources

As with the proposed Project, construction of Alternative 2 could unearth unknown tribal cultural resources which could result in a significant impact. Alternative 2 would disturb a greater Project Area than the proposed Project. The same mitigation measures for the proposed Project (Mitigation Measure CR-1 and Mitigation Measure CR-2) would be applicable and implemented under Alternative 2 to reduce impacts to a less-than-significant level.

## Wildfire

Both the proposed Project and Alternative 2 would not require the installation or maintenance of associated infrastructure that may exacerbate fire risk or that result in temporary or ongoing impacts to the environment and would have equivalent impacts exposing people or structures to significant risks related to wildfire. Similar to the proposed Project, Alternative 2 could include the use of flaming treatments to manage invasive plants. As with the proposed Project, flaming treatments would be implemented in coordination with California Department of Forestry and Fire Protection (CAL FIRE) rules and all applicable regulations. Therefore, the impacts related to wildfires would be equivalent to the proposed Project and less than significant.

In order to increase the elevation of Centerville Road, temporary lane closures and traffic control would be required during construction. Short-term, temporary lane closures or delays may occur, but emergency access would not be restricted. Alternative 2 would not impair implementation of an emergency response plan or evacuation plan and the potential impact related to temporary closures during construction would be less than significant. Alternative 2 would have a greater, yet less than significant impact, related to wildfires.

### 4.2.3 Alternative 3: Centerville Slough Channel Size

The Preliminary Hydraulic Analysis (USFWS 2022) evaluated three options for sizing the constructed Centerville Slough tidal channels. Channel sizing requirements were adjusted by altering the target Mean Lower Low Water (MLLW) for Angel's Camp. Higher target MLLW values reduce total tidal prism and thereby channel width/depth. The three options were:

- Channel Size 1 (Smallest): Angel's Camp Target MLLW = 4.0 feet NAVD – MHHW 6.8 feet NAVD
- Channel Size 2: Angel's Camp Target MLLW (Medium) = 3.0 feet NAVD – MHHW 6.8 feet NAVD

- Channel Size 3 (Proposed Project, Largest): Angel’s Camp Target MLLW = 1.7 feet NAVD – MHHW 6.8 feet NAVD

All channels were designed to extend 24,000 feet from the Eel River to Angel’s Camp. The tidal lag between the Eel River and Angel’s Camp is about two hours for all channel options. All three channel sizes would support the re-establishment of tidal marsh hydrology with similar elevation ranges for establishing tidal marsh vegetation as well as to maintain equivalent riverine and tidal flows and stages on adjacent lands. The three channel alternatives had little effect on the water surface elevations at Cutoff Slough below the tide gate relative to existing conditions.

Channel size 3 provides the largest tidal range and was chosen as the proposed Project as it provides the lowest MLLW elevation relative to the other alternatives and providing the greatest drainage efficiency on adjacent lands. For the purposes of this analysis, Channel Size 1, the smallest size, was chosen as Alternative 3 (Figure 4-2a-c). This channel size results in a tidal range of 4.0 to 6.8 feet NAVD88. Alternative 3 would require the least amount of excavation to construct the channel and therefore would increase import fill volume to construct other Project components, such as the setback berm.

### **Aesthetics**

Impacts associated with Alternative 3 would be similar to the proposed Project (less than significant and no impact). The alternative channel size would be visually inconceivable from adjacent properties and Centerville Road due to the distance, existing vegetation and similarity to the surrounding landscape. Temporary visual impacts from the presence of construction equipment would generally be the same as the proposed Project since they include similar construction methods, equipment and schedules. Therefore, Alternative 2 would have equivalent aesthetic impacts as compared to the proposed Project.

### **Agricultural Resources**

Alternative 3 would have equivalent impact to agricultural resources with respect to conversions of agricultural land (less than significant), conflicts with agricultural zoning or a Williamson Act contract (less than significant), or other changes resulting in conversion of farmland (less than significant). Similar to the proposed Project, Alternative 3 maintains the project features that would increase overall agricultural productivity within the Project Area and adjacent properties to the east, including drainage improvements and dunes and berm construction to increase protection from wave overwash and tidal inundation. The smaller channel size would decrease the tidal range of the restored marsh areas and the long-term drainage efficiency of the surrounding agricultural land. Neither the proposed Project nor this alternative would have any impacts to forest resources as there are no forest resources on the Project site. As such the agricultural benefits for the Project Area are diminished somewhat with this alternative, relative to the proposed Project; however, remain less than significant.

### **Air Quality**

As with the proposed Project, construction of Alternative 3 could have the potential to significantly impact air quality with fugitive dust emissions during construction. The same mitigation measure for the proposed Project would also be applicable to this alternative. By implementing Mitigation Measure AQ-1, Alternative 3 would reduce emissions associated with earth moving activities and import of off-site fill material, reducing the potential impact to a less than significant level. Impacts from Alternative 3 would be slightly greater than the proposed Project due to the emissions related to the transportation of off-site fill; however, would remain less than significant with the incorporation of mitigation measures.

## Biological Resources

Biological resources impacts associated with the proposed Project were determined to be less than significant, particularly with implementation of mitigation measures (Mitigation Measure BIO-1, Mitigation Measure BIO-2, Mitigation Measure BIO-3, Mitigation Measure BIO-4, Mitigation Measure BIO-5, Mitigation Measure BIO-6, Mitigation Measure BIO-7, Mitigation Measure BIO-8, Mitigation Measure BIO-9 and Mitigation Measure BIO-10). Biological resources impacts associated with Alternative 3 would also be less than significant with implementation of mitigation measures. The smaller channel size proposed in Alternative 3 would reduce the grading footprint and the potential for direct temporary biological resource impacts related to construction. However, the smaller channel would result in a smaller marsh mosaic, ultimately reducing the area of restored habitat and associated ecosystem services. Alternative 3 would have a MLLW of 4.0 feet NAVD88, whereas the proposed Project would have a fuller tidal exchange with a MLLW of 1.7 feet NAVD88. As with the proposed Project, this Alternative would provide a net benefit to terrestrial, avian and aquatic species by the introduction of tidal exchange into the Project Area and would recreate historic on- and off-channel ponds and the associated off-channel habitat associated within the historic Centerville Slough. The biological impact of Alternative 3 is equivalent to the proposed Project.

## Cultural Resources

The potential impacts on cultural resources anticipated with this alternative are expected to be equivalent with the proposed Project because the same area of land would be subject to construction-related activities. However, as with the proposed Project, construction of the Project under Alternative 3 could unearth unknown cultural resources which would be a significant impact. The same mitigation measures for the proposed Project (Mitigation Measures CR-1 and CR-2) would also be applicable to this alternative.

## Energy

Energy considerations for Alternative 3 are generally the same as the proposed Project. Alternative 3 would have slightly greater impact on energy resources, though would remain less than significant. The smaller channel footprint would not generate the amount of fill material needed to build other Project features, such as setback berms; therefore, fill material would be imported to the site. The additional transportation of fill material would increase energy consumption for the Project. However, these activities would be temporary, would not interfere with the broader energy goals of the state, and the Project would not encourage activities that would result in the use of large amounts of fuel and energy in a wasteful manner. Therefore, Alternative 3 would have a less than significant impact on energy resources.

## Geology and Soils

Geology and soil considerations for Alternative 3 are the same as the proposed Project. The same mitigation measures for the proposed Project (Mitigation Measure GEO-1, Mitigation Measure GEO-2, Mitigation Measure HWQ-1, Mitigation Measure HWQ-2, Mitigation Measure HWQ-3, and Mitigation Measure Spartina PEIR WQ-6) would also be applicable to this alternative and would reduce impacts to a less-than-significant level by requiring adherence to the recommendations in the geotechnical report so that Alternative 3 is designed and constructed in conformance with applicable design standards to control erosion during construction as well as providing a process for evaluation and protection of paleontological resources.



## Greenhouse Gas Emissions

As with the proposed Project, this alternative would result in a temporary increase in GHG emissions, including exhaust emissions from on-road haul trucks, worker commute vehicles, and off-road heavy-duty equipment. However, Alternative 3 would have slightly greater impacts than the proposed Project because fill would be imported to the site to construct Project features; therefore, more vehicle trips and associated GHG emissions would be associated with this alternative. As with the proposed Project, this alternative would result in a less than significant impact for construction and operational activities and would have no impact related to conflicting or impeding state policy or regulatory initiatives.

## Hazards and Hazardous Materials

Alternative 3 would have equivalent hazards and hazardous materials impacts as the proposed Project. The same mitigation measures for the proposed Project (Mitigation Measure HWQ-3, Mitigation Measure Spartina PEIR HHM-1, Mitigation Measure Spartina PEIR HHM-3, and Mitigation Measure Spartina PEIR HHM-4) would also be applicable to Alternative 3 and would reduce the potential impacts to a less than significant level.

## Hydrology and Water Quality

As with the proposed Project, this alternative would be subject to the same permits and have to comply with the same Humboldt County and NCRWQCB requirements with regard to water quality standards or waste discharge requirements as the proposed Project. The recommendations in the Geotechnical Study would also apply to this alternative. Hydrology and water quality impacts were determined to be less than significant with implementation of mitigation measures for the proposed Project (Mitigation Measure HWQ-1, Mitigation Measure HWQ-2, Mitigation Measure HWQ-3, Mitigation Measures Spartina PEIR WQ-3, Mitigation Measure Spartina PEIR WQ-6, Mitigation Measures Spartina PEIR WQ-7, and Mitigation Measure Spartina PEIR HHM-4), and are anticipated to be less than significant for this alternative.

Alternative 3 proposes a smaller channel size. The Alternative 3 channel has minimum tides 1.24 feet higher than the corresponding minimum tide in the Eel River estuary. There is a clear difference in water surface profiles between this alternative channel and the proposed Project channel. The stages at Angel's Camp for Alternative 3 is over a foot higher than for the proposed Project channel. Achieving low water elevations in Angel's Camp is critical to allow water to drain from the South Angel's Camp Basin (the low area south of the Angel's Camp Levee) and from the off-easement areas of Shaw Creek and Creamery Ditch located on private land east of the east-west berm. The area behind the levees at Angel's Camp can only drain as low as the minimum elevations in Angel's Camp. The proposed Project channel size drains Angel's Camp to lower elevations and drains more quickly to low elevations than the channel size proposed in Alternative 3. As such the hydrology and water quality benefits for the Project Area are diminished somewhat with this alternative, relative to the proposed Project; however, remain less than significant.

## Land Use

The Project Area of the proposed Project and the expanded Project Area of Alternative 2 are not part of an established community and therefore would not divide an established community. As with the proposed Project, Alternative 2 would convert a minor amount of agricultural land within the proposed channel footprint, however Project implementation would improve the quality of surrounding agricultural lands by improving drainage and reducing dune overwash and saltwater damage to pasture lands, flooding, and related erosion. Therefore, Alternative 2 would have an equivalent environmental impact (less than significant) due to a conflict with any land use plan, policy, or regulation.

## Noise

Similar to the proposed Project, implementation of this alternative would generate construction-related and maintenance noise associated with the use of heavy equipment within the Project Area. Noise impacts from Alternative 3 would be equivalent (less than significant and no impact) to the proposed Project.

## Public Services

None of the alternatives would have a substantial adverse impact to public services. Alternative 3 would have an equivalent impact to public services as the proposed Project; a less than significant impact to fire and police protection and no impact to schools, parks, and other public facilities.

## Recreation

Recreational considerations for Alternative 3 are the same as the proposed Project. Alternative 3 would have equivalent less than significant impacts on recreational resources.

## Transportation

Transportation impacts associated with this alternative would be slightly greater than with the proposed Project because Alternative 3 would require the import of fill to the site to construct Project features. Therefore, Alternative 3 would generate more vehicle trips temporarily during construction. As with the proposed Project, Alternative 3 would have less than significant impacts to transportation and circulation.

## Tribal Cultural Resources

Alternative 3 would disturb an equivalent portion of the Project Area compared to the proposed Project. Therefore, as with the proposed Project, construction and maintenance activities could unearth unknown tribal cultural resources, which, if realized, could result in a significant impact. Mitigation Measures CR-1 and CR-2 would be applicable and implemented under Alternative 3 to reduce impacts to a less-than-significant level.

## Wildfire

Similar to the proposed Project, Alternative 3 could include the use of flaming treatments to manage invasive plants. As with the proposed Project, flaming treatments would be implemented in coordination with California Department of Forestry and Fire Protection (CAL FIRE) rules and all applicable regulations. Therefore, the impacts related to wildfires would be equivalent to the proposed Project and less than significant.

### 4.2.4 Alternative 4: Cutoff Slough Outlet

The Preliminary Hydraulic Analysis evaluated alternatives for locating the outlet of the restored Centerville Slough channel network (USFWS 2022). The Concept Restoration Plan developed as part of the Feasibility Assessment envisioned that the outlet of Centerville Slough would be located on a tributary to Cutoff Slough (Figure 4-3). Centerville Slough would enter Cutoff Slough a short distance downstream of the existing Cutoff Slough tide gate. Similar to the proposed Project, the perimeter levee separating the Inner Marsh from the Outer Marsh would be lowered in sections. However, unlike the proposed Project, Centerville Slough would not extend north into the Outer Marsh and towards the Eel River. Instead, Centerville Slough would be routed through the levee and then east into Cutoff Slough and ultimately Salt River. This alternative would increase tidal flow velocities in the receiving tidal channels and elevate the low

tides. The increase in tidal flow velocity could result in slough bank erosion in the lower reach of Cutoff Slough and Salt River and the elevated low tides could impede drainage from adjacent agricultural lands including drainage from the Cutoff Slough tide gate. This alternative would require less excavation than the proposed Project due to the shortened length of the restored Centerville Slough, therefore would require an import of fill to construct other Project components, such as the setback berm.

### **Aesthetics**

The alternative channel outlet location would be visually inconceivable from adjacent properties and Centerville Road due to the distance, existing vegetation and similarity to the surrounding landscape. Temporary visual impacts from the presence of construction equipment would generally be the same as the proposed Project since they include similar construction methods, equipment and schedules. Therefore, Alternative 2 would have equivalent aesthetic impacts as compared to the proposed Project.

### **Agricultural Resources**

Neither the proposed Project nor this alternative would have any impacts to forest resources as there are no forest resources on the Project site. Similar to the proposed Project, Alternative 4 maintains the Project features that would increase overall agricultural productivity within the Project Area and adjacent properties to the east, including drainage improvements and dunes and berm construction to increase protection from wave overwash and tidal inundation. However, by constructing the Centerville Slough outlet at Cutoff Slough, the tidal flow velocities would increase in the receiving tidal channels which would impede drainage from adjacent agricultural lands. Therefore, this Alternative would have potentially significant impacts to agricultural resources. These impacts are likely unmitigable. Alternative 4 would have a greater impact on agricultural resources from site hydrology that could result lower agricultural production and potential conversion of farmland to tidal or brackish marsh.

### **Air Quality**

As with the proposed Project, construction of Alternative 4 could have the potential to significantly impact air quality with fugitive dust emissions during construction. The same mitigation measure for the proposed Project would also be applicable to this alternative. By implementing Mitigation Measure AQ-1, Alternative 4 would reduce emissions associated with earth moving activities and import of off-site fill material, reducing the potential impact to a less than significant level. By routing Centerville Slough to an outlet at Cutoff Slough, less ground disturbance (therefore less emissions) would occur on-site north of the alternative outlet. Less volume of material would be excavated to restore Centerville Slough. Alternative 4 would not result in a cut/fill balance and fill would need to be imported to construction some Project components. Therefore, air quality impacts (i.e., emissions) associated with this Alternative would be slightly greater than the proposed Project due to the emissions related to the transportation of off-site fill. However, would remain less than significant with the incorporation of mitigation measures.

### **Biological Resources**

Biological resources impacts associated with the proposed Project were determined to be less than significant, particularly with implementation of mitigation measures (Mitigation Measure BIO-1, Mitigation Measure BIO-2, Mitigation Measure BIO-3, Mitigation Measure BIO-4, Mitigation Measure BIO-5, Mitigation Measure BIO-6, Mitigation Measure BIO-7, Mitigation Measure BIO-8, Mitigation Measure BIO-9 and Mitigation Measure BIO-10). Biological resources impacts associated with Alternative 4 would also be less than significant with implementation of mitigation measures. As with the proposed Project, this alternative would also provide a net benefit to terrestrial, avian, and aquatic species by the introduction of a full tidal

exchange into the EREP and RR&T and would recreate historic on- and off-channel ponds and the associated off-channel habitat associated within the historic Centerville Slough.

Alternative 4 would have fewer construction-related biological resources impacts and no temporary wetlands fill associated with tidal habitat construction north of the outlet location (outer marsh). Unlike the proposed Project, this Alternative would not require a temporary haul road in or adjacent to the western dune habitat in order to assist with construction of the channels in the outer marsh. Alternative 4 would have no impacts to potential beach layia habitat or dune habitat associated with the haul road. Therefore, this alternative would have lesser initial biological resources impacts than the proposed Project. However, in the long run, it is plausible that this alternative affords fewer benefits to aquatic biological resources in the absence of habitat restoration in the outer marsh area and resulting improvement of biological connectivity between the estuary and Eel River.

### **Cultural Resources**

The potential impacts on cultural resources anticipated with this alternative are expected to be less than with the proposed Project because less land would be subject to construction-related activities related to the tidal marsh restoration with this alternative. However, as with the proposed Project, construction of the Project under this alternative could unearth unknown cultural resources which would be a significant impact. The same mitigation measures for the proposed Project (Mitigation Measures CR-1 and CR-2) would also be applicable to this alternative, resulting in a less than significant impact.

### **Energy**

Energy considerations for Alternative 4 are generally the same as the proposed Project. Alternative 3 would have slightly greater impact on energy resources, though would remain less than significant. The shorter Centerville Slough footprint would not generate the amount of fill material needed to build other Project features, such as setback berms; therefore, off-site fill material would be imported to the site. The additional transportation of fill material would increase energy consumption for the Project. However, these activities would be temporary, would not interfere with the broader energy goals of the state, and the Project would not encourage activities that would result in the use of large amounts of fuel and energy in a wasteful manner. Therefore, Alternative 4 would have a less than significant impact on energy resources.

### **Geology and Soils**

Geology and soil considerations for Alternative 4 are the same as the proposed Project. The same mitigation measures for the proposed Project (Mitigation Measure GEO-1, Mitigation Measure GEO-2, Mitigation Measure HWQ-1, Mitigation Measure HWQ-2, Mitigation Measure HWQ-3, and Mitigation Measure Spartina PEIR WQ-6) would also be applicable to this alternative and would reduce impacts to a less-than-significant level by requiring adherence to the recommendations in the geotechnical report so that Alternative 4 is designed and constructed in conformance with applicable design standards to control erosion during construction as well as providing a process for evaluation and protection of paleontological resources.

### **Greenhouse Gas Emissions**

As with the proposed Project, this alternative would result in a temporary increase in GHG emissions, including exhaust emissions from on-road haul trucks, worker commute vehicles, and off-road heavy-duty equipment. However, Alternative 4 would have slightly greater impacts than the proposed Project because fill would be imported to the site to construct Project features; therefore, more vehicle trips and associated

GHG emissions would be associated with this alternative. As with the proposed Project, this alternative would result in a less than significant impact for construction and operational activities and would have no impact related to conflicting or impeding state policy or regulatory initiatives.

### **Hazards and Hazardous Materials**

Alternative 4 would have equivalent hazards and hazardous materials impacts as the proposed Project. The same mitigation measures for the proposed Project (Mitigation Measure HWQ-3, Mitigation Measure Spartina PEIR HHM-1, Mitigation Measure Spartina PEIR HHM-3, and Mitigation Measure Spartina PEIR HHM-4) would also be applicable to this alternative and would reduce the potential impacts to a less than significant level.

### **Hydrology and Water Quality**

As with the proposed Project, this alternative would be subject to the same permits and have to comply with the same Humboldt County and NCRWQCB requirements with regard to water quality standards or waste discharge requirements as the proposed Project. The recommendations in the Geotechnical Study would also apply to this alternative. Hydrology and water quality impacts were determined to be less than significant with implementation of mitigation measures for the proposed Project (Mitigation Measure HWQ-1, Mitigation Measure HWQ-2, Mitigation Measure HWQ-3, Mitigation Measures Spartina PEIR WQ-3, Mitigation Measure Spartina PEIR WQ-6, Mitigation Measures Spartina PEIR WQ-7, and Mitigation Measure Spartina PEIR HHM-4). However, impacts are anticipated to be significant for this alternative.

Alternative 4 would substantially alter the existing drainage and negatively impact off-site hydrology and agricultural resources. Preliminary estimates for the restored Centerville Slough at the point where it would enter Cutoff Slough yielded a tidal prism of 580 acre-feet. The channel dimensions of the receiving channel (Cutoff Slough and Salt Slough) are 1/6 to 1/3 of the predicted tidal channel dimensions for the restored Centerville Slough. As proposed in Alternative 4, routing the restored Centerville Slough into an outlet on Cutoff Slough would likely raise the minimum water surface elevation in Cutoff Slough and restrict drainage from adjacent lands draining to Cutoff Slough, but not within the restored Centerville Slough tidal basin. Similarly, minimum water surface elevations in the Salt River would be increased which would negatively impact drainage from Smith Creek, Riverside Ranch, and other tidal areas of the Salt River. Therefore, Alternative 4 would create significant adverse off-site flooding impacts which would have the potential to decrease agricultural productivity. These impacts are likely unmitigable. The hydrology and water quality impacts from Alternative 4 are considered greater than the proposed Project.

### **Land Use**

The Project Boundary (Project Area) of the proposed Project and the expanded Project Area of Alternative 2 are not part of an established community and therefore would not divide an established community. As with the proposed Project, Alternative 2 would convert a minor amount of agricultural land within the proposed channel footprint. However, similar to the proposed Project, implementation would improve the quality of surrounding agricultural lands by improving drainage and reducing dune overwash and saltwater damage to pasture lands, flooding, and related erosion. Therefore, Alternative 2 would have an equivalent environmental impact (less than significant) due to a conflict with any land use plan, policy, or regulation.

## Noise

Similar to the proposed Project, implementation of this alternative would generate construction-related and maintenance noise associated with the use of heavy equipment within the Project Area. Noise impacts from Alternative 3 would be equivalent (less than significant and no impact) to the proposed Project.

## Public Services

None of the alternatives would have a substantial adverse impact to public services. Alternative 4 would have an equivalent impact to public services as the proposed Project; a less than significant impact to fire and police protection and no impact to schools, parks and other public facilities.

## Recreation

Recreational considerations for Alternative 4 are the same as the proposed Project. Alternative 4 would have equivalent less than significant impacts on recreational resources.

## Transportation

Transportation impacts associated with this alternative would be slightly greater than with the proposed Project because Alternative 4 would require the import of fill to the site to construct Project features. Therefore Alternative 4 would generate more vehicle trips temporarily during construction. As with the proposed Project, Alternative 4 would have less than significant impacts to transportation and circulation.

## Tribal Cultural Resources

Alternative 4 is anticipated to result in less direct disturbance of the Project Area compared to the proposed Project. However, as with the proposed Project, construction and maintenance activities could still unearth unknown tribal cultural resources, which, if realized, could result in a significant impact. The same mitigation measures for the proposed Project (Mitigation Measure CR-1 and Mitigation Measure CR-2) would be applicable and implemented under Alternative 4 to reduce impacts to a less-than-significant level.

## Wildfire

Similar to the proposed Project, Alternative 2 could include the use of flaming treatments to manage invasive plants. As with the proposed Project, flaming treatments would be implemented in coordination with California Department of Forestry and Fire Protection (CAL FIRE) rules and all applicable regulations. Therefore, the impacts related to wildfires would be equivalent to the proposed Project and less than significant.

## 4.2.5 Environmentally Superior Alternative

Table 4-1 (Comparison of Alternatives to the Proposed Project) compares the significance of the potential impacts for the proposed Project with the alternatives considered in the preceding sections. State CEQA Guidelines Section 15126.6(e)(2) requires that if the No Project Alternative is the environmentally superior alternative, then the EIR must also identify which of the other alternatives is environmentally superior.

As described above, the proposed Project is an environmental restoration, agricultural protection, and drainage improvement project, and its primary adverse impacts (although still less than significant with mitigation for all resources categories) are related to air quality, biological resources, geology, greenhouse gas emissions, hazards, and hydrology and water quality. A number of these impacts are short-term conditions that would result from construction-related activities. The No Project Alternative would eliminate

these potential short-term construction-related impacts. However, this Alternative would forego the near and longer-term environmental benefits of the Project, both on and off-site, on fisheries, marsh, special-status wetland species habitat, and agricultural land resiliency to flooding and sea level rise. Based on the significant impacts to biological resources, agricultural resources, and hydrology and water quality, the No Project Alternative would not be considered the Environmentally Superior Alternative.

Alternative 2 (Centerville Road) would have similar construction and operational impacts relative to the proposed Project, except for hydrology and water quality. The exacerbated fluvial and tidal impacts to the South Angel’s Camp Basin would be significant and potentially unmitigable. Therefore, this alternative is judged to be environmentally inferior.

Relative to one another, the proposed Project and Alternative 3 (Channel Size) have similar construction and operational impacts. Alternative 3 would meet Project objectives, however the smaller channel size would restore less habitat and would provide less drainage efficiency improvements. Therefore, the proposed Project would provide greater Project benefits.

Due to the smaller extent of ground disturbance, Alternative 4 (Channel Outlet) would have fewer overall impacts compared to all other alternatives and the proposed Project. However, the impacts to agricultural resources and hydrology would be significant and potentially unmitigable; therefore, this alternative is judged to be environmentally inferior.

**Table 4-1 Comparison of Alternatives to the Proposed Project**

Resource Category	Proposed Project	No Project	Alternative 2 Centerville Road	Alternative 3 Channel Size	Alternative 4 Channel Outlet
Aesthetics	Less than significant	-	=	=	=
Agricultural Resources	Less than significant	+	=	=	+
Air Quality	Less than significant with mitigation	-	=	=	=
Biological Resources	Less than significant with mitigation	+	=	=	=
Cultural Resources	Less than significant with mitigation	-	=	=	=
Energy	Less than significant	-	=	=	=
Geology and Soils	Less than significant with mitigation	-	=	=	=
Greenhouse Gas Emissions	Less than significant with mitigation	-	=	=	=
Hazards and Hazardous Materials	Less than significant with mitigation	-	=	=	=
Hydrology and Water Quality	Less than significant with mitigation	+	+	=	+
Land Use	Less than significant	-	=	=	=
Noise	Less than significant	-	=	=	=
Public Services	Less than significant	-	=	=	=

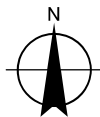
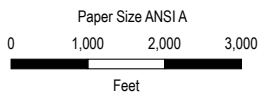
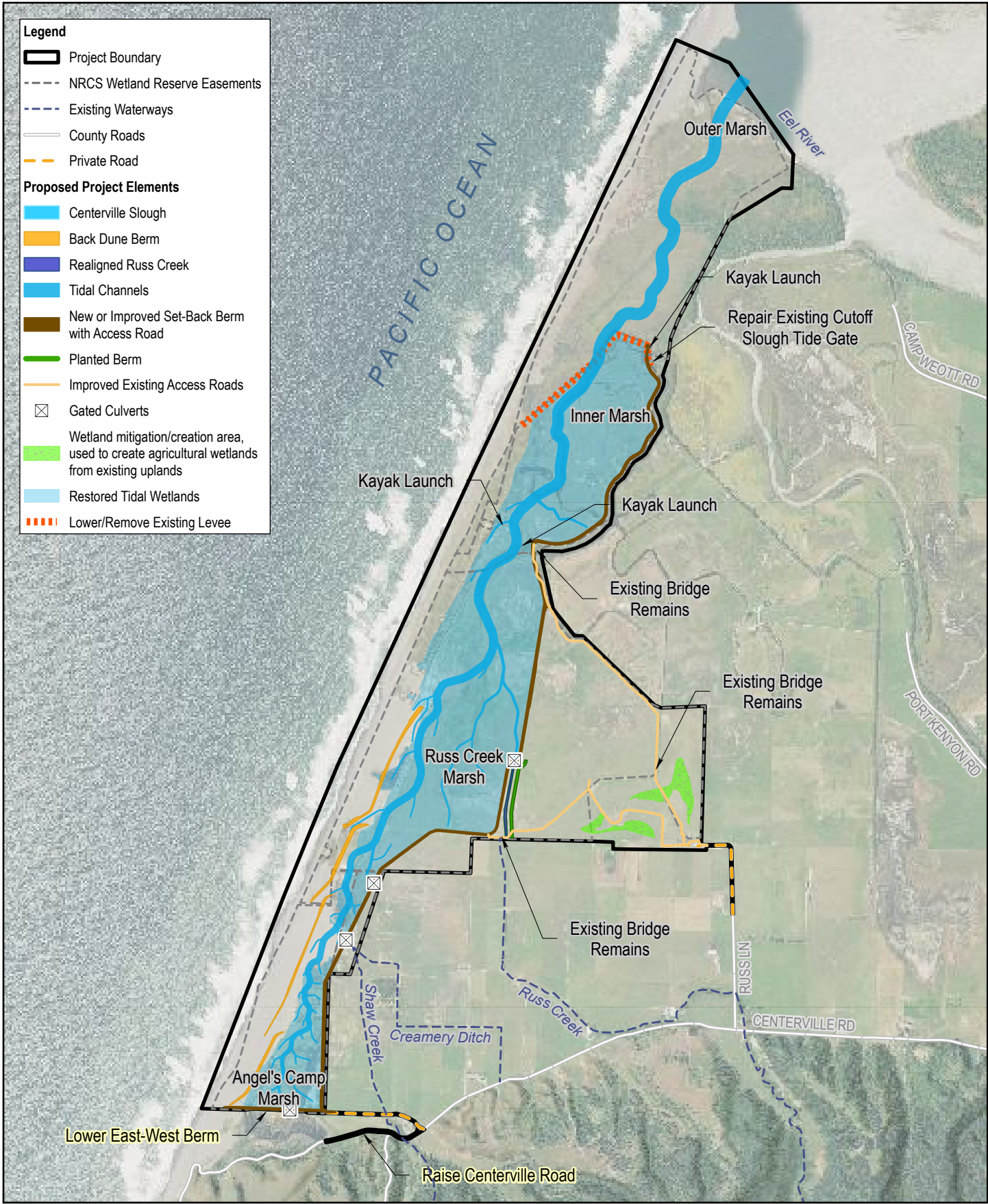
Resource Category	Proposed Project	No Project	Alternative 2 Centerville Road	Alternative 3 Channel Size	Alternative 4 Channel Outlet
Recreation	Less than significant	-	=	=	=
Transportation	Less than significant	-	=	=	=
Tribal Cultural Resources	Less than significant with mitigation	-	=	=	=
Wildfire	Less than significant	-	=	=	=

Notes: “-“ indicates an impact that is less than the proposed Project (environmentally superior)  
 “+” indicates an impact that is greater than the proposed Project (environmentally inferior)  
 “=” indicates an impact that is equal to the proposed Project (neither environmentally superior nor inferior)  
 “( )” revised/updated from the DEIR

### 4.3 References

USFWS. 2022. *Russ Creek and Centerville Slough Restoration Project Preliminary Hydraulic Analysis*. Prepared for USDA and HCRCD.





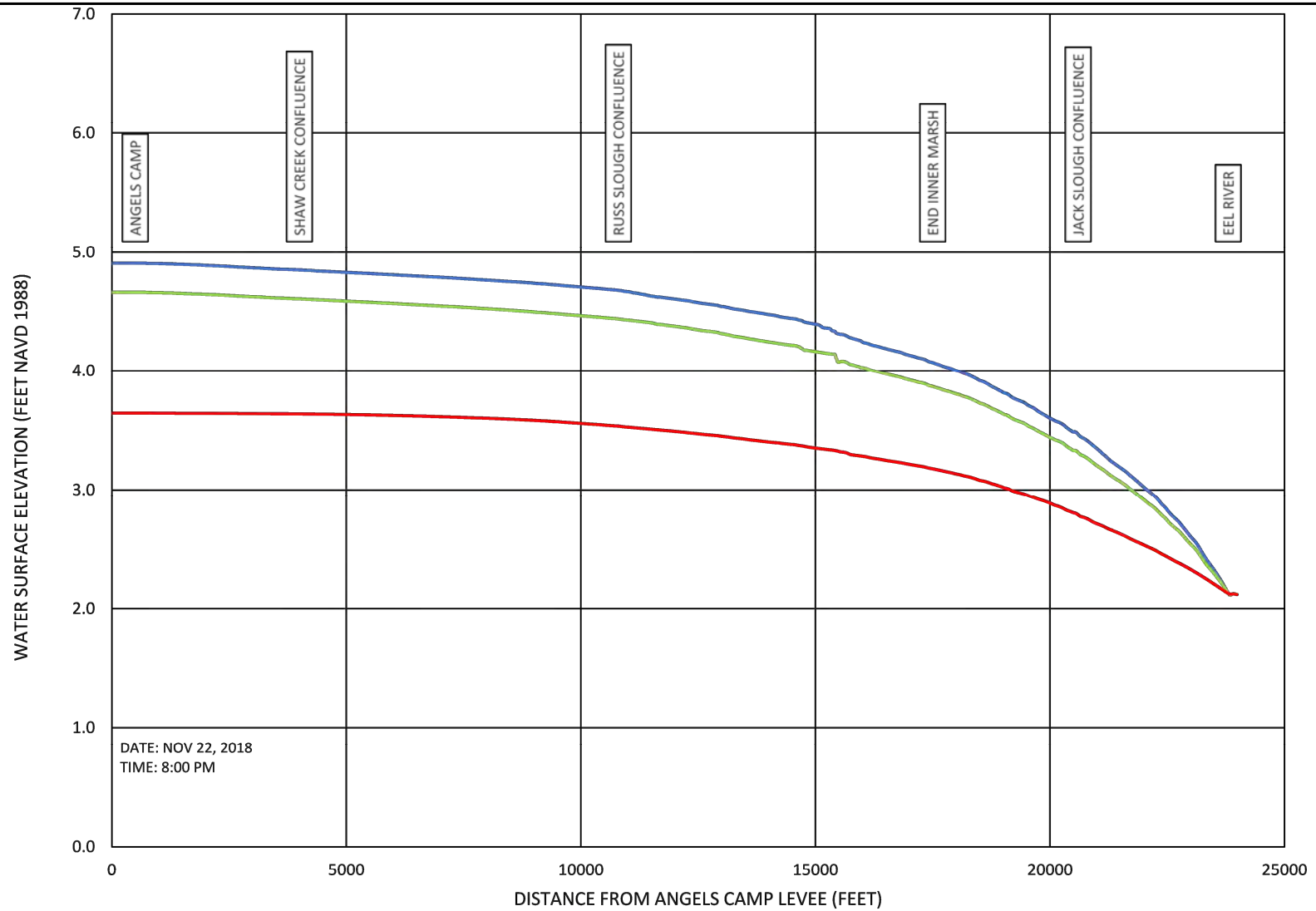
Humboldt County Resource Conservation District  
 Russ Creek and Centerville Slough Restoration Project

Project No. 11187323  
 Revision No. -  
 Date Apr 2023

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

Alternative 2: Centerville Road

FIGURE 4-1



— CHANNEL ALTERNATIVE 1    — CHANNEL ALTERNATIVE 2    — CHANNEL ALTERNATIVE 3



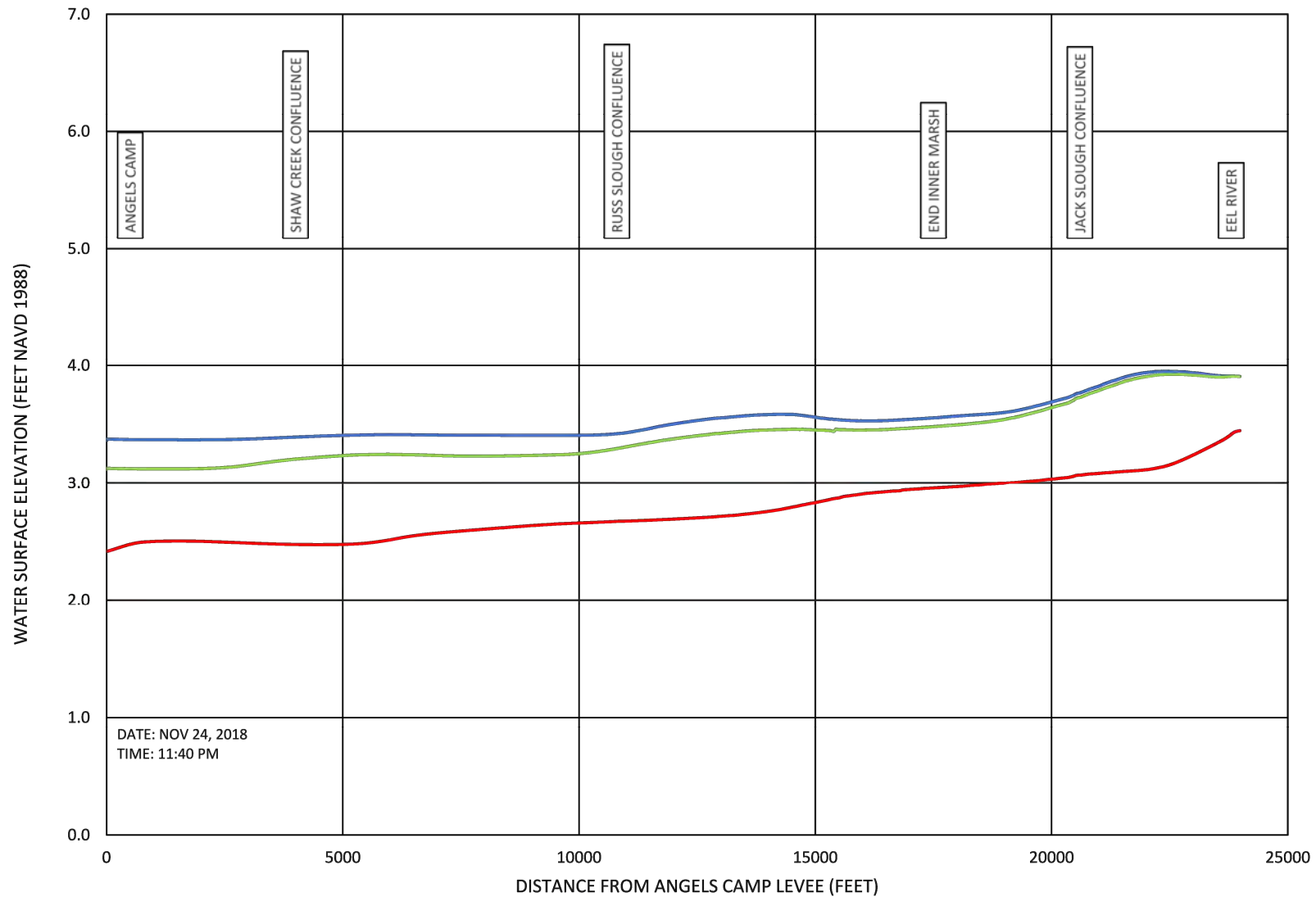
RUSS CREEK AND CENTERVILLE SLOUGH RESTORATION PROJECT  
PRELIMINARY HYDRAULIC ANALYSIS

**Alternative 3: Centerville Slough Channel Size**

Hydraulic Analysis (USFWS 2022) Figure 19: CENTERVILLE SLOUGH WATER SURFACE PROFILES  
- EEL RIVER LOWER LOW WATER 2.12 FEET

Humboldt County Resource Conservation District  
Russ Creek and Centerville Slough Restoration Project  
Project No. 11187323

**FIGURE 4-2a**



— CHANNEL ALTERNATIVE 1    — CHANNEL ALTERNATIVE 2    — CHANNEL ALTERNATIVE 3



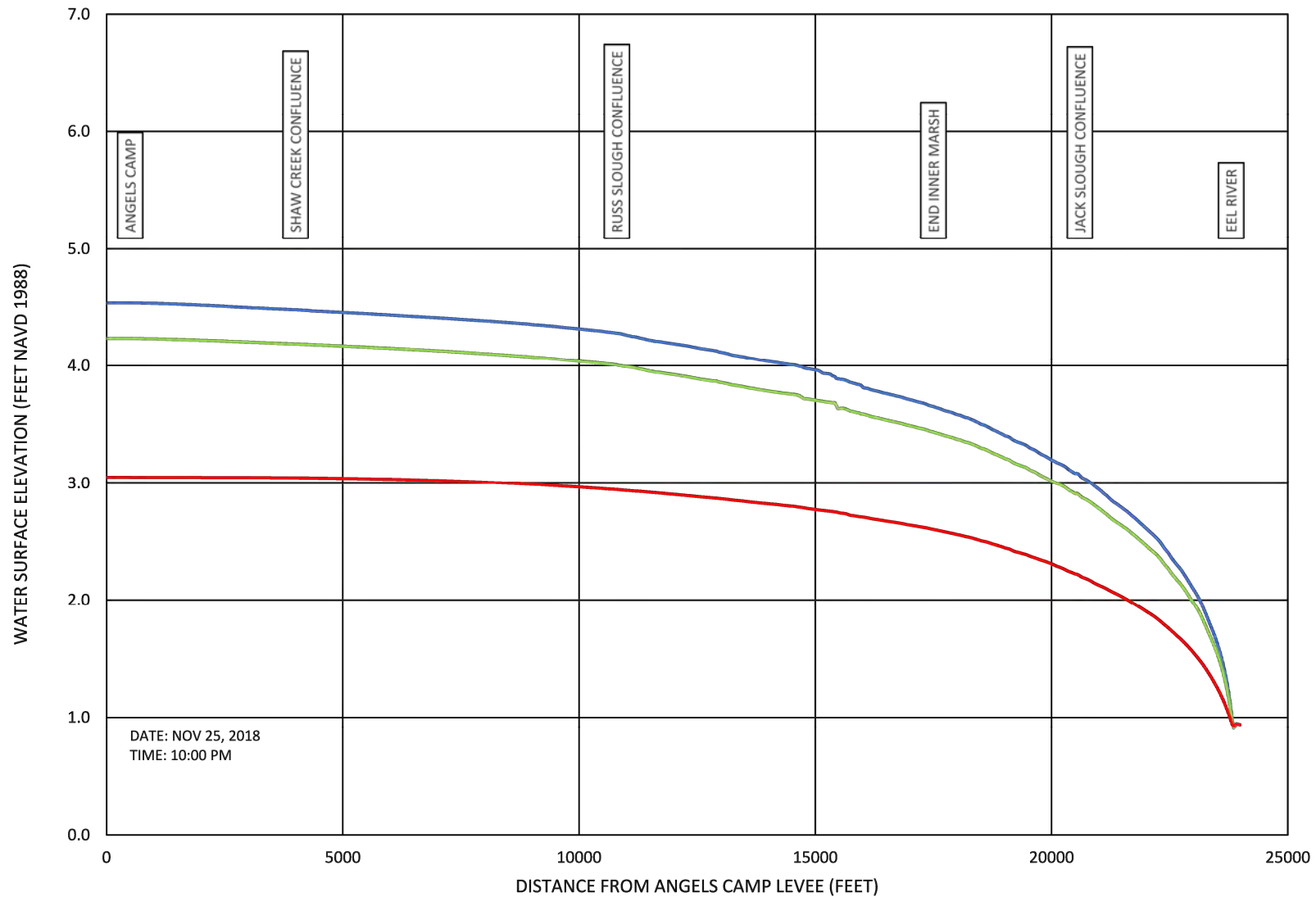
RUSS CREEK AND CENTERVILLE SLOUGH RESTORATION PROJECT  
PRELIMINARY HYDRAULIC ANALYSIS

**Alternative 3: Centerville Slough Channel Size**

Hydraulic Analysis (USFWS 2022) Figure 20: CENTERVILLE SLOUGH WATER SURFACE PROFILES - LOWER LOW WATER AT ANGELS CAMP

Humboldt County Resource Conservation District  
Russ Creek and Centerville Slough Restoration Project  
Project No. 11187323

**FIGURE 4-2b**



— CHANNEL ALTERNATIVE 1    — CHANNEL ALTERNATIVE 2    — CHANNEL ALTERNATIVE 3



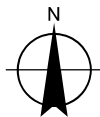
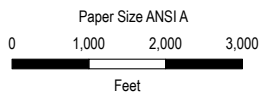
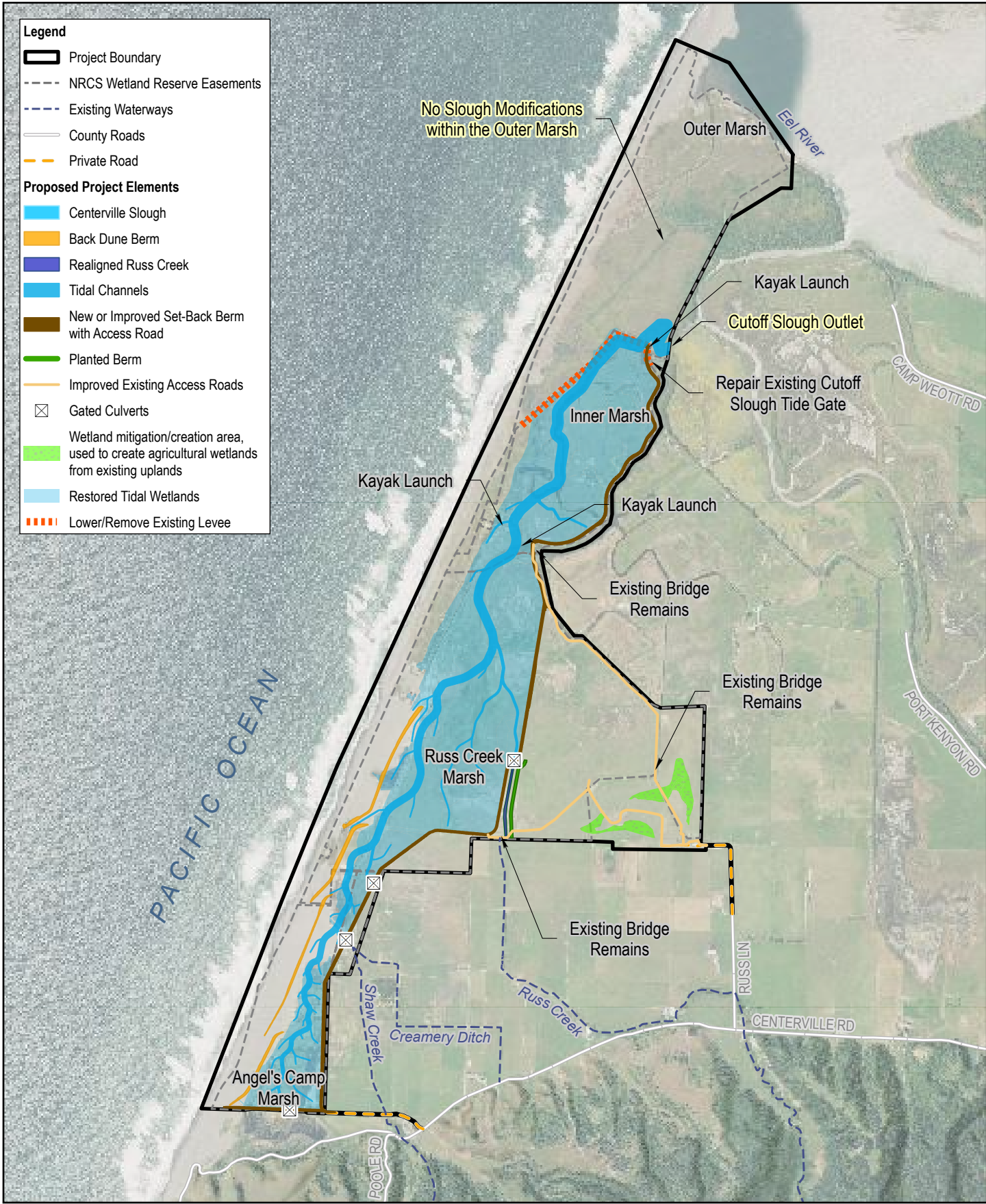
RUSS CREEK AND CENTERVILLE SLOUGH RESTORATION PROJECT  
PRELIMINARY HYDRAULIC ANALYSIS

**Alternative 3: Centerville Slough Channel Size**

Hydraulic Analysis (USFWS 2022) Figure 21: CENTERVILLE SLOUGH WATER SURFACE PROFILES - EEL RIVER EXTREME LOW WATER 0.94 FEET

Humboldt County Resource Conservation District  
Russ Creek and Centerville Slough Restoration Project  
Project No. 11187323

**FIGURE 4-2c**



Humboldt County Resource Conservation District  
Russ Creek and Centerville Slough Restoration Project

Project No. 11187323  
Revision No. -  
Date Apr 2023

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

Alternative 4: Cutoff Slough Outlet

FIGURE 4-3

## 5. Other CEQA Sections

### 5.1 Environmental Issues Determined Not to Be Significant

CEQA Guidelines Section 15128 requires an Environmental Impact Report (EIR) to briefly describe any possible significant effects that were determined not to be significant and were, therefore, not discussed in detail in the Draft EIR. Environmental resource categories resulting entirely in no impact determinations are summarized herein. For the purposes of this Draft EIR, an evaluation of mineral resources, population and housing, and utilities and service systems were eliminated from further consideration during the scoping phase of the environmental analysis for the reasons presented below.

#### 5.1.1 Mineral Resources

There are no existing mining operations in the Project Boundary, which is equivalent to the Project Area. The Project Area is primarily comprised of silt, clay, sand and water, and contains no known mineral resources available for extraction. There are no Surface Mining and Reclamation Act-designated parcels located within the Project Area. Although Humboldt County has not yet been included in the California Mineral Land Classification System by the State Mining & Geology Board to designate lands containing mineral deposits of regional or statewide significance, it is highly unlikely the Project Area would qualify for this designation. Therefore, no impact to mineral resources would result.

#### 5.1.2 Population and Housing

The proposed Project would not add any new homes or businesses, nor extend any new roads or development-related infrastructure on the site. The Project would not displace any housing or people, on or adjacent to the site. No aspect of the Project would induce substantial population growth or displace substantial numbers of housing or people. Therefore, no impact to population and housing would result. For further discussion of the Project's growth-inducing impacts, refer to Section 5.2 below.

#### 5.1.3 Utilities and Service Systems

There are no public water, wastewater, natural gas pipeline, or municipal sewer system utilities on site. Multiple irrigation and artesian wells within the Project Area provide water for agricultural and residential purposes; the Project would not require additional water usage and would not impact groundwater or aquifer storage or recharge (refer to Section 3.10 – Hydrology and Water Quality). The study area does not contain formal stormwater drainage infrastructure; however, a series of drainage ditches, dikes, and gated culverts direct water through pasture land and alongside roadways. The Project will improve drainage onsite to benefit agricultural operations. Drainage improvements are evaluated in Section 3.10 – Hydrology and Water Quality.

Solid waste from construction will be legally recycled or disposed of by the contractor at a local waste collection facility. Following construction, solid waste generated from use of the property by the landowners will be consistent with existing conditions. Pacific Gas & Electric (PG&E) and telecommunications utilities supply electrical power as well as phone/internet to structures in the Project Area including barns and associated agricultural infrastructure. The Project would not increase the usage of existing facilities in the



Project Area or require utility facility relocation. The Project would not induce population growth or result in land uses that would increase the demand for upgraded or additional facilities. Therefore, no impact to utilities and service systems would result.

## 5.2 Growth Inducement

CEQA requires that an EIR evaluate the growth inducing impacts of a proposed project. A growth-inducing impact is defined as follows:

*“[T]he ways in which the proposed project could foster economic or population growth, or the construction of additional housing either directly or indirectly, in the surrounding environment. Included in this are projects which would remove obstacles to population growth (CEQA Guidelines Section 15126.2[d]).”*

The Project is designed to improve geomorphic and ecosystem functions that would enhance habitat for native fisheries and aquatic species, support waterfowl and wildlife species, and benefit agricultural land management by more effectively managing onsite flooding and sedimentation. The Project does not involve construction of new housing, businesses, or other facilities that would result in direct growth inducement.

Construction of the Project is expected to occur over two to four seasons, approximately 120 days each between May and October. Given the relatively moderate construction period spread out over multiple seasons, and workforce needs (approximately 15-25 construction personnel per day), no new housing or services would be needed to support the temporary employment demand. Project operation would not result in new permanent employee opportunities because the Project would not include any components that would require additional employment. The Project would not remove an obstacle to additional growth and development in the area, such as removing a constraint on a required public utility or increasing capacity in the Project Area. Therefore, the proposed Project would not be a contributing factor to growth and the associated indirect effects of growth.

## 5.3 Significant and Unavoidable Impacts of the Proposed Project

In accordance with Section 21100(b)(2)(A) of CEQA and with Sections 15126(b) and 15126.2(b) of the CEQA Guidelines, the purpose of this section is to identify Project-related environmental impacts that could not be eliminated or reduced to a less-than-significant level with implementation of mitigation measures. The findings in this chapter are subject to final determination by the Humboldt County Resource Conservation District as part of its certification of the EIR. The analysis presented in Chapter 3 concludes that implementation of the proposed Project would not result in any significant and unavoidable impacts.

## 5.4 Significant Irreversible Environmental Changes

In accordance with CEQA Section 21100(b)(2)(B) and CEQA Guidelines Sections 15126(c) and 15126.2(c), the purpose of this section is to identify significant irreversible environmental changes that would be caused by the proposed Project.

Construction activities associated with the Project would result in an irretrievable and irreversible commitment of natural resources through the use of construction materials. The Project would require the commitment of energy resources to fuel and maintain construction equipment (such as gasoline, diesel and oil) during the construction period, as well as resources, such as concrete, steel, and other building materials to be used for the proposed improvements.

Following construction, energy consumption would be consistent with existing conditions. Energy consumption related to operation and maintenance or site visits for recreational and educational purposes at Eel River Estuary Preserve (EREP) would be *di minimis* and consistent with existing conditions. A ranger vehicle patrols the EREP portion of the Project once a day currently and this would continue into the foreseeable future. Increased recreational opportunities at the EREP could result in up to 73 daily vehicle trips. Ongoing site maintenance and management would require operational effort similar to existing conditions and current site maintenance and management. Therefore, operation of the Project would not result in a significant increase in dependence on non-renewable energy resources or in substantial increases in peak or base-period energy use.

## 5.5 Energy Resources

To guarantee that energy implications are considered in Project decisions, Appendix F, Energy Conservation, in the CEQA Guidelines requires that EIRs “include a discussion of the potential energy impacts of proposed projects, with particular emphasis on avoiding or reducing inefficient, wasteful and unnecessary consumption of energy.”

This analysis evaluates the use of energy resources (e.g., fuel and electricity) associated with the construction and operation of the Project. For construction, the analysis considers whether construction activities would use large amounts of fuels or energy, and whether they would be used in a wasteful manner. For energy used during operation and maintenance, the analysis evaluates the potential increase in energy use that would occur with implementation of the Project to determine whether large amounts would be used and whether they would be used in a wasteful manner.

Construction of the Project would require the use of fossil fuels (primarily gas, diesel, and motor oil) for a variety of activities, excavation, grading, demolition, and vehicle travel. The precise amount of construction-related energy consumption is uncertain. However, construction would not require a large amount of fuel or energy usage because of the moderate number of construction vehicles and equipment, worker trips, and truck trips that would be required for a Project of this scale (see Chapter 2 – Project Description). In addition, equipment idling times would be minimized either by shutting equipment off when not in use or reducing the maximum idling time to five minutes or less (as required by the California airborne toxics control measure Title 13, Section 2485 of the California Code of Regulations [CCR]). Therefore, Project construction would not encourage activities that would result in the use of large amounts of fuel and energy in a wasteful manner.

Following construction, as noted above in Section 5.4, daily activities would see only a minor increase in energy consumption from vehicle trips associated with additional visitors. Therefore, operation of the Project would not use large amounts of additional energy compared to baseline conditions. Energy would not be used in a wasteful manner.



## **6. List of Preparers**

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- Kristen Orth-Gordinier, Environmental Planner
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- Julia Clark, Spatial Consultant
- Sam Moose, Environmental Scientist
- Christian Hernandez, Botanist
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