

Item 6f - Exhibit 4: CEQA Notice of Determination  
Mitigated Negative Declaration



CEQA  
**NOTICE OF DETERMINATION**  
**Mitigated Negative Declaration**

**CITY OF EUREKA**

The City of Eureka, as the Lead Agency, is filing this Notice of Determination in compliance with Section 21108 or 21152 of the Public Resources Code.

**To:** Office of Planning Research  
P.O. Box 3044  
1400 Tenth Street, Room 121  
Sacramento, CA 95812-3044  
fax: 1-916-323-3018

County of Humboldt  
County Clerk  
825 5<sup>th</sup> Street  
Eureka, CA 95501

**FROM:** City of Eureka, Lead Agency  
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**12-2018-002**

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**SCH #: 2017082048**

**Project Title:** Elk River Estuary/Inter-Tidal Wetlands Enhancement and Coastal Access Project

**Project Applicant:** City of Eureka

**Case No:** C-17-0009/ED-17-0011

**Project Location:** : Bound by U.S. Highway 101 and Humboldt County's Tooby Road on the east and the North Coast Railroad Authority/Northwestern Pacific railroad (NCRA) on the west. The City's Waterfront Trail, waste water treatment facility, and private properties border the project on the north. The southern project boundary is bordered by private property. APNs: 302-181-031 and -002, 302-181-040, 305-181-005, and 302-181-039

**Zoning Designations:** Coastal Agriculture (AC)/Natural Resources (NR)

**General Plan Designations:** Agriculture (A)/Natural Resources (NR)

**Project Description:** The City of Eureka proposes to restore and enhance estuary and inter-tidal wetland habitats on approximately 114 acres adjacent to Elk River, create approximately 2.8 miles of navigable channels connected to Elk River Slough, as well as enhance public access to Elk River and Humboldt Bay with an approximately 1 mile extension of its Class 1 ADA Waterfront Trail, and the construction of a non-motorized boat launch, several causeways and viewing platforms, and a trail head parking area off Tooby Road.

Wetland restoration and enhancement is a conditionally permitted use in the zone districts where the project is located, and a Use Permit is required. A Coastal Development Permit will be processed in the future by the California Coastal Commission.

**Date of Project Application:** June 28, 2017

**Date of Project Approval:** November 13, 2017

**Findings:** This is to advise that on November 13, 2017, the Planning Commission of the City of Eureka, as the Lead Agency, approved the project described above, and made the following determinations and findings regarding the project.

1. The Planning Commission found that the proposed project will not have a significant effect on the environment.
2. A Mitigated Negative Declaration was prepared for this project pursuant to the provisions of CEQA.
3. The Planning Commission found that the Mitigated Negative Declaration was prepared pursuant to the provisions of CEQA.
4. The decision of the Planning Commission to adopt the Mitigated Negative Declaration was based on the whole record before it (including the initial study and any comments received).
5. The Planning Commission found that the Mitigated Negative Declaration reflects the City of Eureka's independent judgment and analysis.
6. Mitigation measures were made a condition of project approval.
7. A Statement of Overriding Considerations was not adopted for this project.
8. Findings were not made pursuant to the provisions of CEQA (CCR §15091)
9. The Planning Commission adopted a program for reporting on or monitoring the changes which it either required in the project or made a condition of approval to mitigate or avoid significant environmental effects.

This is to certify the Development Services Department, Community Development Division of the City of Eureka is the custodian of the documents or other material which constitute the record of proceedings upon which the Planning Commission's decision was based; and that the Mitigated Negative Declaration and the record of project approval are available to the general public for review during regular office hours at the City of Eureka, Development

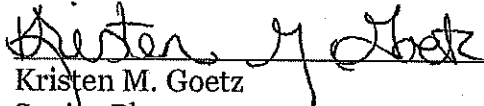
Date received for filing and posting at OPR: \_\_\_\_\_

Date received for filing and posting by the County Clerk (County Recorder): \_\_\_\_\_

Period for Posting by County Clerk: \_\_\_\_\_

*Note to the County Clerk: Pursuant to the CEQA Guidelines, Section 15075, the City of Eureka as Lead Agency is requesting that the Humboldt County Clerk post this Notice of Determination within 24 hours of receipt, for a period of at least 30 days. Thereafter, please return this notice to the City at the address above with a notation of the period it was posted.*

Services Department, Community Development Division, Third floor, 531 K Street, Eureka,  
CA 95501.

  
\_\_\_\_\_  
Kristen M. Goetz  
Senior Planner  
City of Eureka

November 14, 2017  
Date

Date received for filing and posting at OPR: \_\_\_\_\_

Date received for filing and posting by the County Clerk (County Recorder): \_\_\_\_\_

Period for Posting by County Clerk: \_\_\_\_\_

*Note to the County Clerk: Pursuant to the CEQA Guidelines, Section 15075, the City of Eureka as Lead Agency is requesting that the Humboldt County Clerk post this Notice of Determination within 24 hours of receipt, for a period of at least 30 days. Thereafter, please return this notice to the City at the address above with a notation of the period it was posted*



# City of Eureka

## INITIAL STUDY and MITIGATED NEGATIVE DECLARATION

### Elk River Estuary/Inter-Tidal Wetlands Enhancement and Coastal Access Project



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City of Eureka  
Elk River Estuary/Inter-Tidal Wetlands Enhancement  
and Coastal Access Project

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California Environmental Quality Act  
Administrative Draft  
Initial Study and Mitigated Negative Declaration  
State Clearinghouse # 2017-XX-XXX

Prepared for  
City of Eureka  
531 K Street  
Eureka, CA 95501

August 2017

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Appendix J	Greenhouse gas modeling methods

## **Project Title**

Elk River Estuary/Inter-Tidal Wetlands Enhancement and Coastal Access Project (project)

## **Project Applicant**

City of Eureka

## **State Clearinghouse**

#2017\_\_\_\_\_

## **Project Location**

The project is bound by U.S. Highway 101 and Humboldt County's Tooby Road on the east and the North Coast Railroad Authority/Northwestern Pacific railroad (NCRA) on the west. The City's Waterfront Trail, waste water treatment facility, and private properties border the project on the north. The southern project boundary is bordered by private property.

This project contains two distinct areas located on the north bank (Area 1 approximately 25 acres) and south bank (Area 2 approximately 89 acres) of the Elk River (Figure 1). Nearly all the property within the project area is owned by the City of Eureka and NCRA, with the exception of a small (1.3 acre) private parcel parallel to the south bank of Elk River that the City is attempting to acquire. The entire project encompasses approximately 114 acres. The project area is within the United States Geological Survey (USGS) Eureka quadrangle in Township 4 north, Range 1 west, Section 04 (coordinates are provided for the center point of Area 1).

## **General Plan Land Use Designation & Zoning**

Area 1: City property (APN 302-181-031, and 002), north of Elk River, has a Land Use designation and Zoning of Natural Resources (NR)

Area 2: City property (APN 302-181-040, and 305-181-005), a private parcel (APN 302-181-039), south of Elk River, have a Land Use designation of Agricultural and Zoning of Coastal Agriculture (AC).(Figure 1).

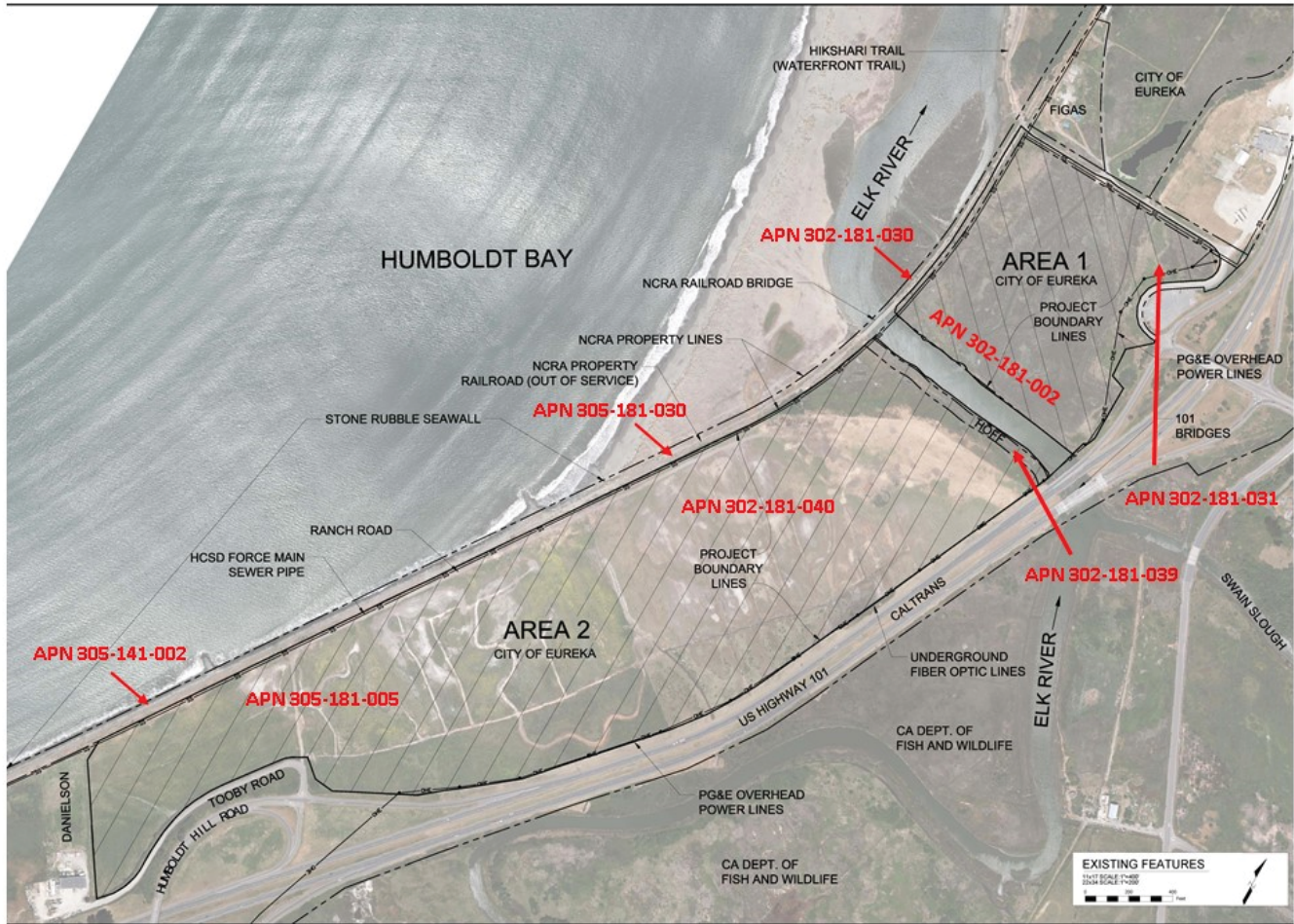


Figure 1. Map of project areas 1 and 2, including assessor parcels.

## Project Overview

The City of Eureka proposes to restore and enhance estuary and inter-tidal wetland habitats on approximately 114 acres adjacent to Elk River. The project would enhance and restore approximately: 78 acres of salt marsh, 13 acres of riparian habitat, and 13 acres of inter-tidal channels, which may provide nearly ten acres of valuable Eelgrass (*Zostera marina*) habitat (Figure 2).

The City also proposes to enhance public access to Elk River and Humboldt Bay with an approximately 1 mile extension of its Class 1 ADA Waterfront Trail, and the construction of a non-motorized boat launch, several causeways and viewing platforms, and a trail head parking area off Tooby Road. The project may also create approximately 2.8 miles of navigable channels connected to Elk River Slough.





The project is in the Elk River Slough complex, which historically included inter-tidal channels, salt marsh, windblown sand deposits, and riparian forest. The 1858 U.S. Coast Survey map (Figure 3) shows historic mudflats at the mouth of Elk River and along the entire project area shoreline. On the right bank of Elk River (Area 1), a salt marsh and inter-tidal channel complex were present. On the left bank of Elk River (Area 2), over wash from Humboldt Bay channels drained through salt marsh to Elk River, and a wind-blown sand upland ridge and sand spit dominated the left bank. A transportation corridor (trail) traversed a minor topographic/hydrologic divide between Elk River and Buhne Slough to the south.





Figure 3. Elk River Estuary Enhancement and Waterfront Trail Extension project area (USCS 1858).

Ultimately, the project area was diked off from Elk River Slough and drained to support agricultural development (Figure 4). The construction of the Northwestern Pacific Railroad (NWP) would also separate the project area from Humboldt Bay. The project area also became segmented with the construction of the Bucksport and Elk River Railroad grade in Area 1 and Highway 101. Over time, a sea wall was constructed to protect the NWP railroad from storm surges and waves and, secondarily, to protect the project area and other important infrastructure, such as the Humboldt Community Services District 's (HCSD) sewer line and Highway 101.

Elk River Slough is a tidal waterway, and the inter-tidal tributary channels behind tide gates in Area 1 and inboard ditch in Area 2 have a muted tide cycle. The broad habitat types mapped for existing conditions in the project area include open water, wetlands (salt, brackish, and freshwater), riparian, and upland (Table 1, Figure 5) (McBain Assoc. 2016).





Figure 4. Agricultural and transportation developments in the Elk River Estuary Enhancement and Waterfront Trail Extension project area (H.Co. 1939).

Table 1. Existing conditions broad habitat categories based on vegetation cover types were delineated for Areas 1 and 2. Categories were defined by vegetation and approximate elevation (NAVD 88): wetland habitats occur below 9 ft, riparian habitat occurs between 8 and 10 ft, and upland habitat above 10 ft.

<b>Broad Habitat Types</b>	<b>Area 1 (ac.)</b>	<b>Area 2 (ac.)</b>	<b>Total Acres</b>
Open Water	0.8	0.4	1.2
Salt Marsh	17.1	3.7	20.8
Seasonal Wetlands	1.3	68.9	70.2
Freshwater Wetlands	0.0	0.7	0.7
Riparian	0.0	0.2	0.2
Upland (Pasture, Coastal Scrub, road, and others)	5.8	15.0	20.8
<i>Total</i>	<i>25.0</i>	<i>88.9</i>	<i>113.9</i>

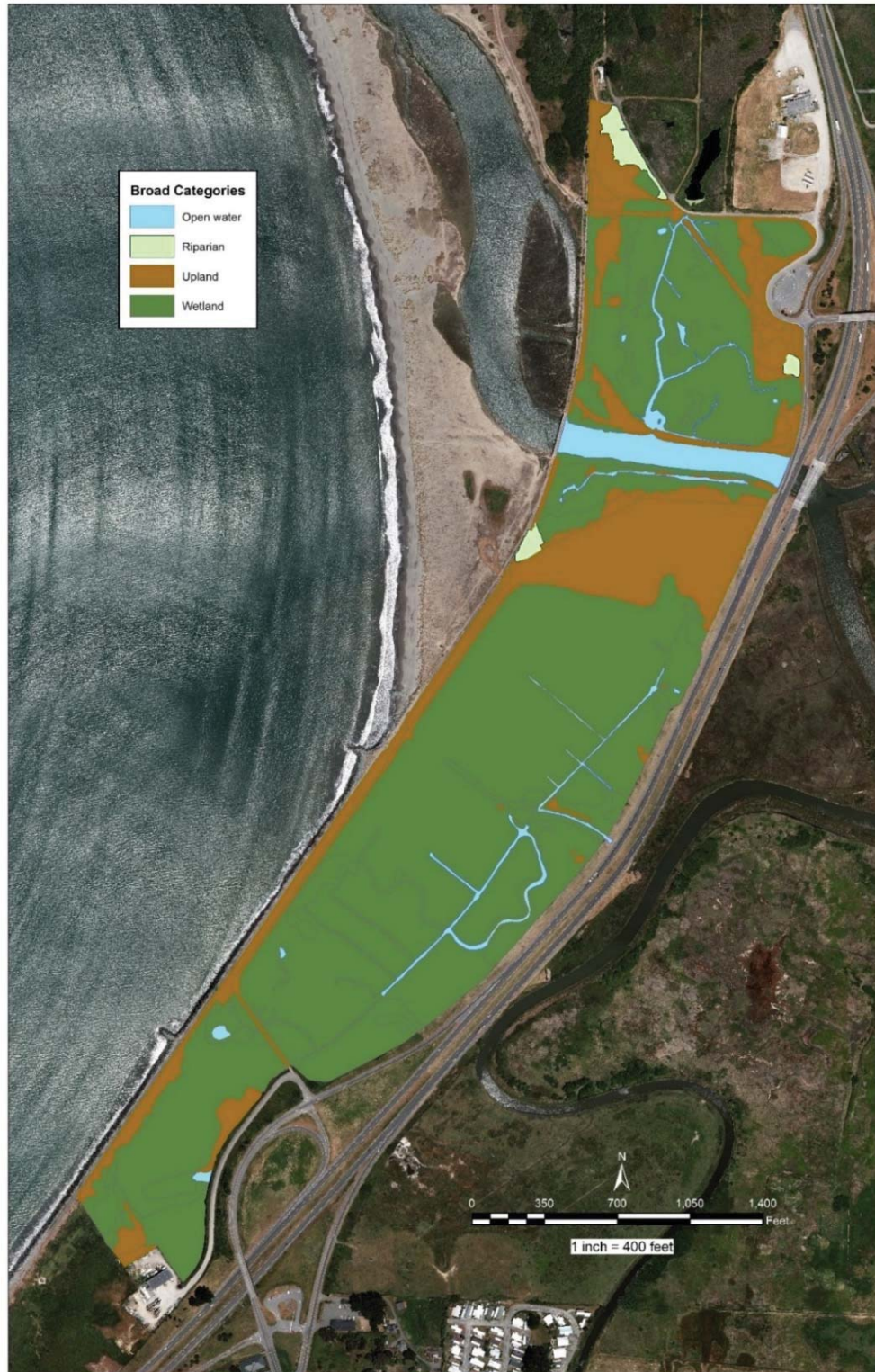


Figure 5. Existing broad habitat categories mapped in Areas 1 and 2 (McBain Assoc. 2016).



The project has multiple phases. Phase I of the project included preparing site assessments (topographic, hydrologic, vegetative, infrastructure, and cultural resources) and developing a constraint analysis. A collaborative stakeholder process was employed to review site constraints and conceptual design alternatives. Design review meetings were held seeking input and design concurrence with funding and regulatory agencies, including the State Coastal Conservancy (SCC), California Department of Fish and Wildlife (CDFW), the North Coast Regional Water Quality Control Board (NCWQCB), the California Coastal Commission (CCC), U.S. Army Corps of Engineers (USACE), the US. Fish and Wildlife Service (USFWS), and the National Marine Fisheries Service (NMFS). Modeling and engineering designs (30%) have been developed, and were utilized to describe the proposed actions that are the subject of this Initial Study (Appendix A). The City will issue a Notice of Intent to Adopt, and send the draft Initial Study and Mitigated Negative Declaration (MND) to the State Clearinghouse and release the document to the public for comment. The City's Planning Commission will hold a public hearing to receive comments and adopt findings for the MND. Permit applications are being prepared and will be submitted to the appropriate agencies when the City issues its Notice of Determination, at the completion of Phase I. Phase II will develop final engineering designs and a construction cost estimate. Construction and monitoring would occur in Phase III.

## Project Goals and Objectives

The goals of the proposed project are to restore and enhance the estuary and inter-tidal habitats on Elk River (Figure 6), and to increase public access to Elk River Spit, Elk River, and Humboldt Bay. The project area currently consists of pasture, coastal scrub, degraded seasonal wetlands dominated by pasture grasses, and salt marsh dominated by invasive *Spartina* (*Spartina densiflora*), lacking key ecosystem processes such as tidal exchange. The project will restore a functioning tidal marsh complex with native vegetation and a network of tidal channels to allow for full tidal exchange with Elk River. This will require the conversion of some degraded seasonal freshwater and brackish wetlands, currently used for livestock grazing, to inter-tidal wetlands (salt marsh) and tidal channels (open water, Eelgrass habitat, and mud flat). The project may establish up to 9.7 acres of new Eelgrass habitat, defined as open water 2 ft and lower (NAVD 88) (Table 2).

Project objectives include:

- Enhance existing salt marsh resiliency to sea level rise.
- Enhance and expand hydrologic connectivity through tide gate and dike removal, expansion of existing inter-tidal/estuary channels, and construction of new inter-tidal/estuary channels.
- Increase the tidal prism volume in the Elk River estuary, to assist with sediment routing in lower Elk River.
- Expand inter-tidal channel network with appropriate depths to provide Eelgrass habitat.
- Create salt marsh plains with a range of surface elevations to support low and high salt marsh species.
- Increase listed salmonid (Chinook Salmon (*Oncorhynchus tshawytscha*), Coho Salmon (*Oncorhynchus kisutch*), and Steelhead Trout (*Oncorhynchus mykiss*)) habitat quality and quantity in the Elk River estuary.
- Increase inter-tidal, brackish, and freshwater habitats for other important aquatic species including but not limited to Eelgrass, Olympia Oyster (*Ostrea lurida*), Dungeness Crab (*Metacarcinus magister*), Longfin Smelt (*Spirinus thaleichthys*), Tidewater Goby (*Eucyclogobius newberryi*), Humboldt Bay owl's clover (*Castilleja ambigua* ssp. *humboldtiensis*), Lyngbye's sedge (*Carex lyngbyei*), and Point Reyes bird's-beak (*Chloropyron maritimum* ssp. *palustre*).

- Remove invasive *Spartina* vegetation from salt marsh habitat.
- Create living shorelines (tidal ridges) as an alternative to hardened shorelines to help protect vital infrastructure such as Highway 101, Waterfront Trail, railroad grade, and underground sewer transmission line.
- Create and enhance riparian habitat.
- Create a non-motorized boat launch to provide access to Elk River Slough and Humboldt Bay.
- Extend the City's Waterfront Trail south through Area 1 and Area 2 to increase public access and recreation opportunities on Elk River estuary/spit and Humboldt Bay. The trail expansion will encourage an appreciation of the environment and the socio-cultural history of the area by providing opportunities for nature study, including up-close views of local vegetation/habitats, long-range views of Elk River Spit/Elk River/Humboldt Bay, and interpretive signs that include information regarding local habitats and cultural/historical sites.
- Continue to provide emergency access to underground and above ground utilities (Humboldt Community Services District (HCSD) and Pacific Gas & Electric (PG&E)).

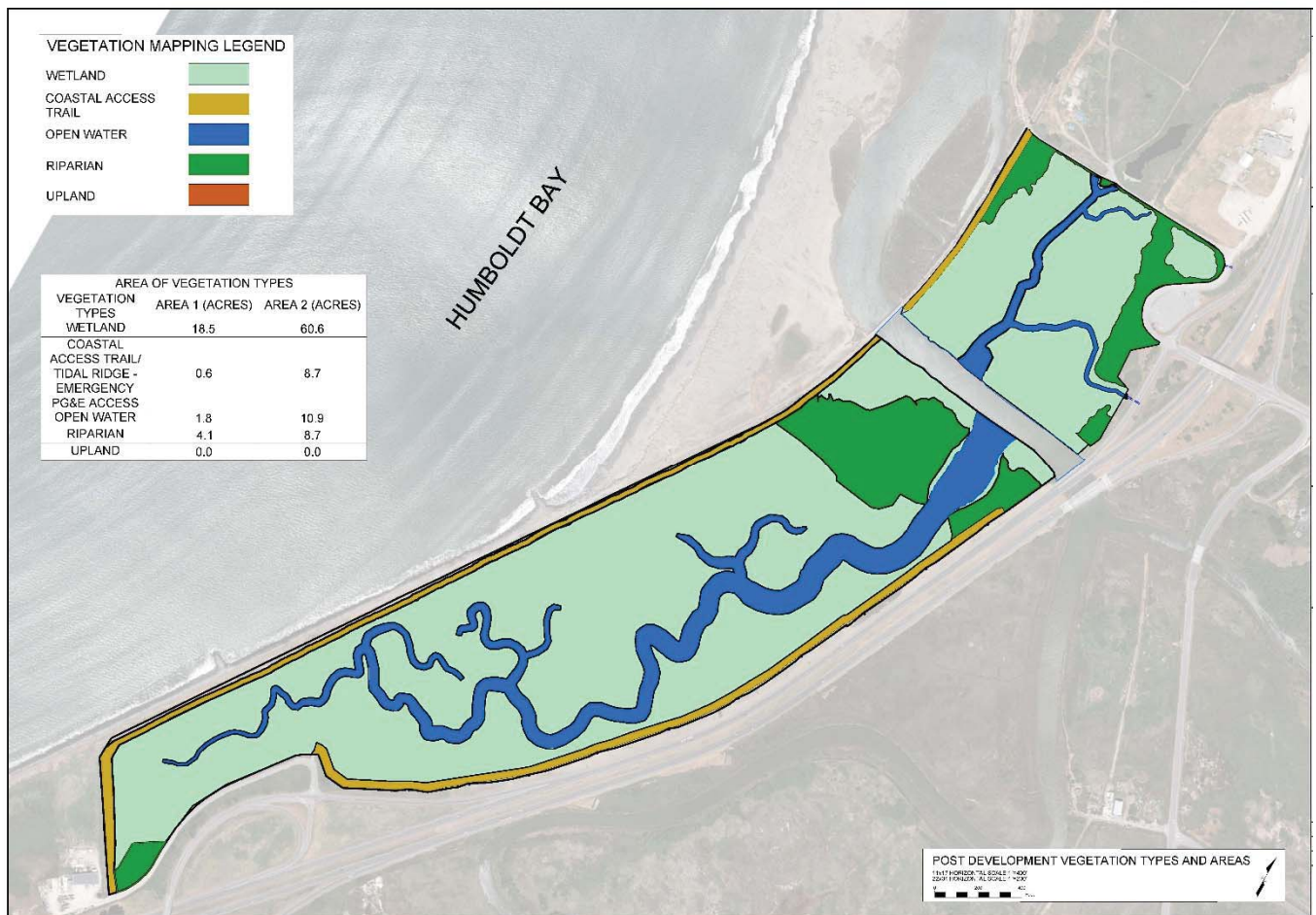


Figure 6. Overview of the estuary and wetland enhancement showing post-development wetlands, open channels, and riparian habitats.

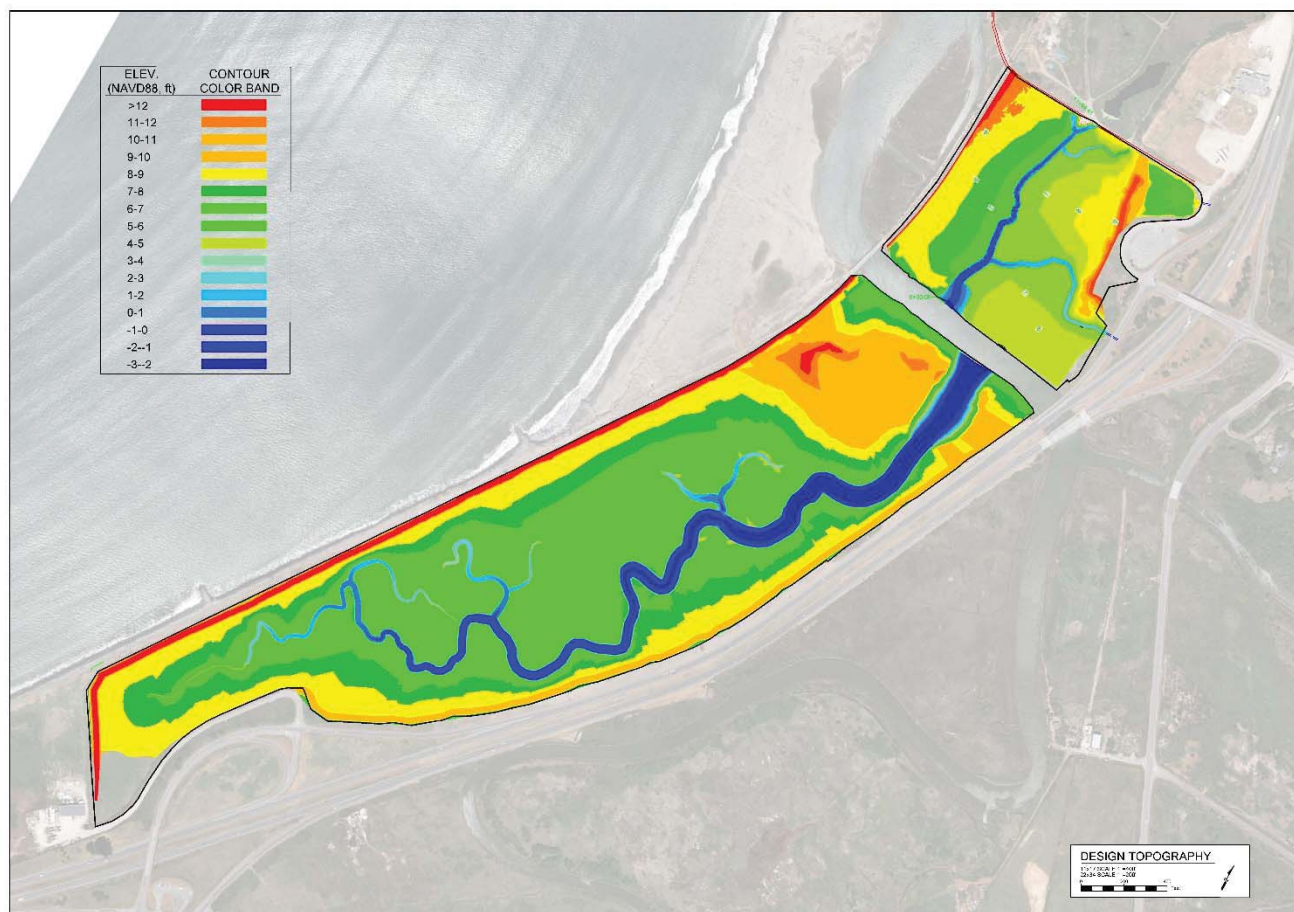


Figure 7. Anticipated post-construction 30% design topography showing intertidal channels with Eelgrass habitat and surrounding wetlands.

Table 2. Change in acres of pre- and post-project Eelgrass, wetlands (saltwater, brackish water, and freshwater), and riparian, open water, as well as pre- and post-project acres of upland habitat and road/trail networks.

Area 1	Pre	Post	Change	Area 2	Pre	Post	Change
Eelgrass	0	1.3	1.3	Eelgrass	0	8.4	8.4
Open Waters	0.8	0.5	-0.3	Open Waters	0.4	2.5	2.1
Wetlands	18.4	18.5	0.1	Wetlands	73.3	60.6	-12.7
Freshwater	0	0.7	0.7	Freshwater	0.7	0	-0.7
Brackish Marsh/Pasture	1.3	0	-1.3	Brackish Marsh/Pasture	68.9	0	-68.9
Salt Marsh	17.1	17.8	0.7	Salt Marsh	3.7	60.6	56.9
Riparian	0	4.1	4.1	Riparian	0.2	8.7	8.5
Upland	5.8	0	-5.8	Upland	13.8	0	-13.8
Road/Trail	0	0.6	0.6	Road/Trail*	1.2	8.7	7.5

\*1.2 acres of Ranch Road is converted to trail.

## **Supporting Studies**

The following analyses and studies of the project area have been conducted to support the project: 30% project designs (Appendix A), constraints analysis and conceptual design analysis (Appendix B), vegetation survey report (Appendix C), elevation summary for vegetation (Appendix D), soil and geotechnical survey results (Appendix E), hydrology evaluation (Appendix F), results of nine-quadrangle search for special status species (Appendix G), synthesis of existing fisheries data and potential fisheries impacts assessment (Appendix H), and conceptual design modeling support technical memorandum Appendix I). Field data collection occurred within the project study area, while record searches and other special studies may include information outside of the identified study area.

## **Description of Proposed Actions: Area 1 North of Elk River**

Area 1 is approximately 25 acres of existing salt marsh that is maintained by a muted tide cycle supported by dikes and tide gates on Elk River Slough (Figure 8). Area 1 is composed of diked former tidelands and fill from the Highway 101 Herrick Avenue interchange and NCRA railroad. Proposed actions in Area 1 include: restoring hydrologic connectivity with Elk River and enhancing salt marsh resiliency to sea level rise, expanding intertidal channel area and depth to create new Eelgrass habitat, creating variable salt marsh topography, creating riparian habitat, eradicating *Spartina*, and providing public access and recreational opportunities.





Figure 8. Existing conditions of the Elk River Estuary Enhancement Project, Area 1.

### **Restore Hydrologic Connectivity with Elk River and Enhance Salt Marsh Resiliency to Sea Level Rise**

To restore and maximize hydrologic connectivity with Elk River, two existing tide gates (Figure 9) and most of the dike separating Elk River from Area 1 will be removed. Short segments of the dike may be retained to provide wildlife habitat. The abandoned Bucksport Elk River railroad grade will also be removed to improve hydrologic connectivity and create additional salt marsh habitat. Excavated material will be utilized to fill in-board ditches. Filling in-board ditches will focus the tidal prism in the main channels and reduce sedimentation of these channels. The property owners of the three existing tide gates on the northern boundary of Area 1 (Figure 10) will need to maintain and, when necessary, repair these tide gates to prevent salt water inundation of their properties. There may be an opportunity in the future to install a fish friendly tide gate draining the City's property to the north of Area 1 to expand overwintering habitat for listed salmonids in these freshwater wetlands.





Figure 9. Existing dike and tide gates on right bank of Elk River in Area 1, that will be removed.

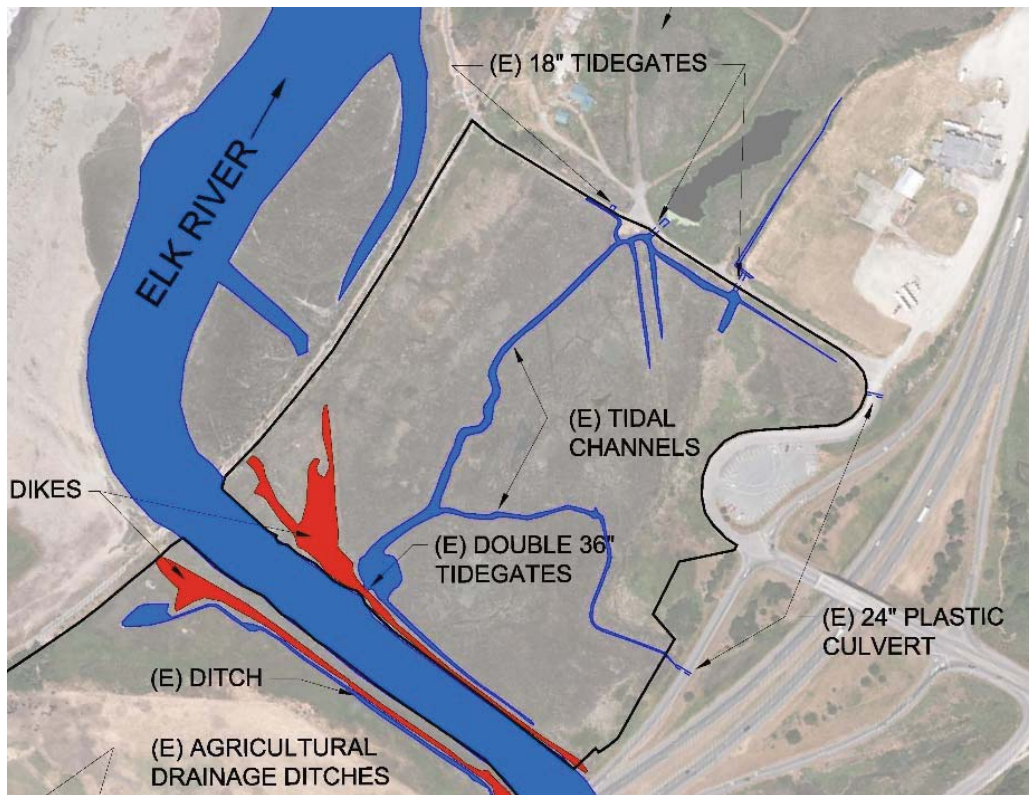


Figure 10. Location of the three existing 18 in culverts on the northern boundary of Area 1.

### **Expand Intertidal Channel Area and Depth to Create New Eelgrass Habitat**

The width and depth of 3,385 ft of existing channels will be increased to maximize Eelgrass habitat (less than 2 ft elevation NAVD 88), in addition to developing 2,395 ft of new tidal channels. The maximum channel depth in Area 1 will be equal to the thalweg depth of the adjacent reach of Elk River. The new channel widths have been modeled, to accommodate the projected salt marsh elevations and tidal prism volume, and on other naturally formed channels that drain similar salt marsh plains, in Humboldt Bay. It is anticipated that the channel widths will adjust and stabilize after the project is completed, while channel depths are not expected to adjust. The existing eastern inter-tidal channel will be widened and extended to the culvert under Highway 101. Additionally, new secondary intertidal estuary channels will be excavated to provide low velocity and shallower aquatic habitat and extend up to the culverts under Pound Road with an outlet bay. A freshwater marsh will be created in the northeast corner of Area 1 at the outlet of a culvert that seasonally conveys freshwater in flow to Area 1. Several salt marsh depressions will be excavated adjacent to inter-tidal channels where high tides can inundate these areas to form pond habitats.

### **Create Variable Salt Marsh Topography**

All excavated material will be used on-site within Area 1 to create salt marsh hummocks and marsh plain, a living shoreline on a gradient from 5 to 9 ft (NAVD 88) will merge with the Waterfront Trail extension prism. The salt marsh hummocks will function as islands for multiple bird species. The varying elevation of these hummocks and living shoreline will also support the migration of salt marsh habitat to higher elevations as sea levels rise.

### **Creation of Riparian Habitat**

Excavated materials will be reused on-site to increase elevations for riparian habitat in Area 1 by 4 acres after project construction. These riparian areas will be planted with appropriate native riparian species.

### **Eradicate Spartina**

Area 1 is included within the geographic limits of the approved *Humboldt Bay Regional Spartina Eradication Plan* (HBHRCD 2015). Approved methods included in the eradication plan that will be applied to Area 1 include mowing, grinding, tilling, excavating, crushing as well as approved herbicide application of the invasive Spartina.

Excavation and grading activities, including dike and railroad grade removal, inter-tidal channels and tidal depressions, and living shoreline, will provide a mechanical support to Spartina removal to be used in conjunction with manual removal methods. Periodic Spartina removal will likely be necessary to prevent the re-establishment of this invasive species in Area 1.

In addition to standard Spartina methods, a plot of Spartina less than half an acre will be treated with experimental remediation methods (Figure 11, Figure 12). The experimental zone will be flooded with salt water for an extended period (approximately three months) during project construction. It is hypothesized that the salt water will help treat Spartina and reduce regrowth rates.





Figure 11. Spartina dominated salt marsh and fill from Highway 101 looking west in Area 1.

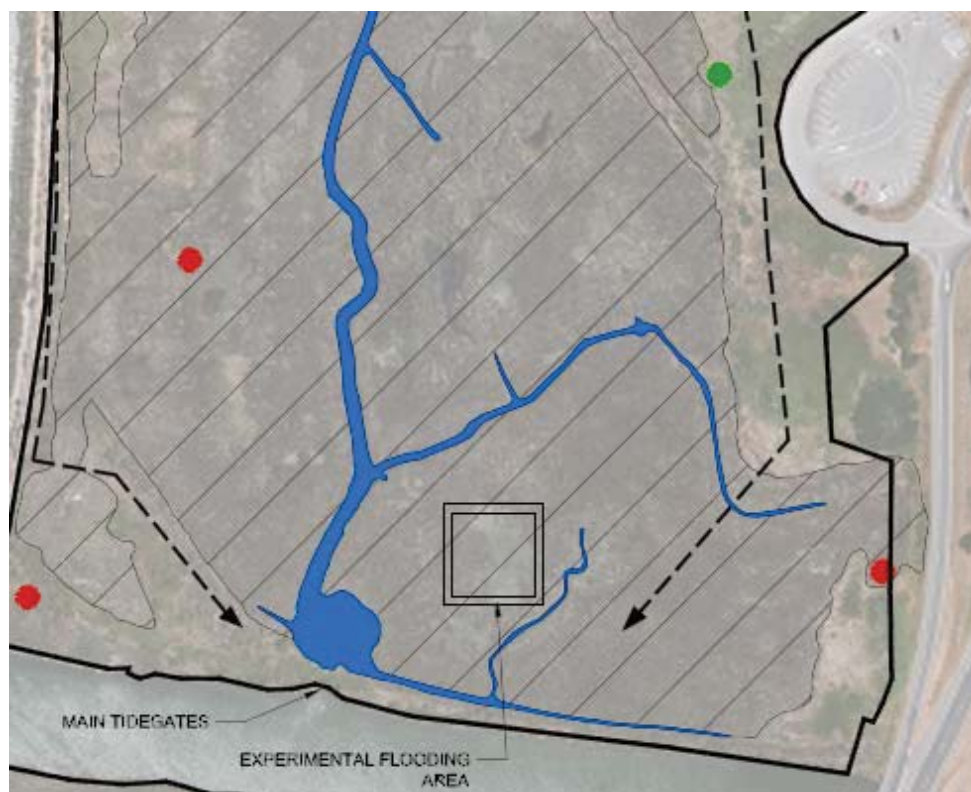


Figure 12. Location of Area 1 Spartina flood experiment. Red dots indicate location of Humboldt Bay Owl's Clover. Green dots indicate location of Lyngbye's Sedge. Both are sensitive plant species (Sheet C-14).

## **Provide Public Coastal Access and Recreational Opportunities**

A public trail causeway will provide access to a viewing platform in Area 1 alongside salt marsh/pond/inter-tidal channel habitats. The City will amend its license with the NCRA to extend its Waterfront Trail on their property in Area 1. The City will seek funding to extend its Class 1 ADA Waterfront Trail through the NCRA property to Elk River Slough, and through Area 2. The trail in Area 1 will be extended by approximately 1,000 ft and will be paved.

The trail is proposed to be 14 ft wide (5 ft for each lane) with an additional 2 ft of shoulder on each side (14 ft total width). The side slope of the trail will be 1:3. The general design characteristics of the Waterfront Trail extension include:

- Minimum Tread Width: 10 ft
- Minimum shoulder width: 2 ft on each side of trail tread surface where space allows
- Minimum setback from railroad track centerline to obstructions or edge of trail tread: 8.5 ft on tangent sections of tracks and 9.5 ft on curved sections of tracks
- Minimum Design Speed: 20 miles per hour for emergency and approved maintenance vehicles only
- Maximum Gradient: 5%
- Minimum Curve Radius: 90 ft
- ADA Accessibility: The trail would be ADA accessible

Additional Waterfront Trail extension design specifications include:

- Signage and Striping

The Waterfront Trail extension would include yellow centerline striping and additional warning signage and striping approaching intersections with existing roads and railroad crossings. In addition, signage would be added along the trail warning users of curves, bends, and other hazardous situations.

- Speed Control

Speed control would be maintained through signage, striping, speed bumps, or other surface irregularities.

- Bollards

If determined necessary, bollards could be installed at trail intersections and entrances to prevent vehicles from entering the trail, with a maximum separation of 5-ft between bollards. Bollards could be located adjacent to the trail with a removable center bollard for emergency and maintenance access. Bollards would not be located in travel lanes. Bollards would be designed to be visible to bicyclists and others, especially at night time, with reflective materials and appropriate striping guiding bicyclists around the center bollards.

- Drainage

Design standards for the project require a 2% cross slope, except along cut sections where uphill water must be collected in a ditch and directed to a catch basin, in which case water would be directed under the trail in a drainage pipe of suitable dimensions.

The project will also include the installation of a non-motorized boat launch at the northern edge of Area 1 (Figure 14). This location can utilize the existing inter-tidal channel that will be deepened and widened to form a bay so the public can launch kayaks and other floatation devices. The maze of inter-tidal channels could serve a dual function of providing Eelgrass habitat and public navigation opportunities.



## Summary of Proposed Actions: Area 1

Area 1 is presently a degraded inter-tidal wetland that will be restored to a fully tidal estuary. The channel network will be expanded, providing coastal access opportunities with the extension of the City's Waterfront Trail, construction of a non-motorized boat launch, an elevated causeway, and a viewing platform (Figure 13). The following summary of proposed activities for Area 1 will be utilized in this Initial Study's impact assessment.

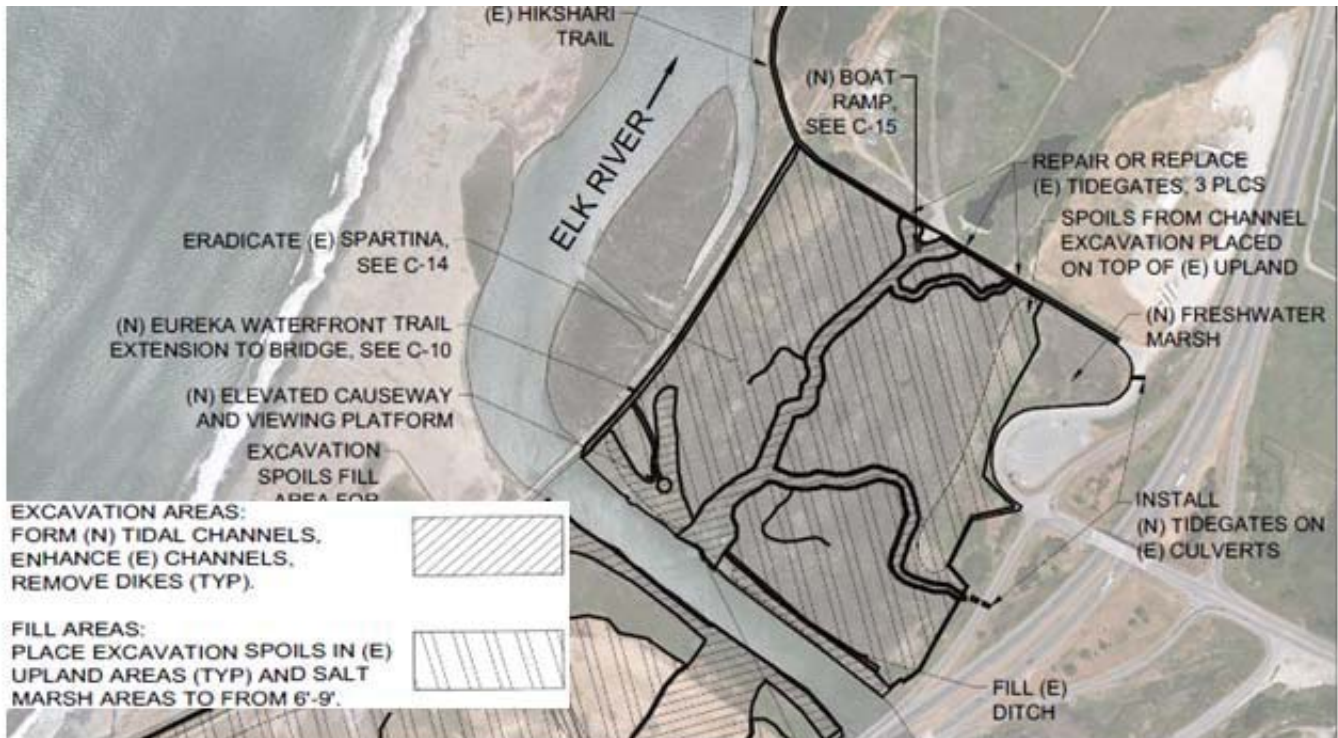


Figure 13. Overview of Area 1 design elements. Excerpted from Appendix A (30% project designs). (References to C-14 and C-15 refer to other pages with this design set (Appendix A)).

- Timing

Construction will occur when stormwater runoff is not likely (July 1<sup>st</sup> through October 31<sup>st</sup>) for the duration of construction activities.

- Access and staging

Clear and grade project access and staging area off Pound Road in the northwest corner of Area 1. The fenced construction yard and equipment staging area will be 100 ft x 100 ft and will include a fueling and lubrication area, job site trailer, generator, parking areas, and a porta pottie. The fueling area will be approximately 20 ft x 20 ft and be underlain by an impermeable plastic membrane covered with 12 in of soil. Fuel and lubricants will be stored in 55 gallon drums on top of containment pallets (Figure 14).



Figure 14. Construction yard and staging area located in the northwest corner of Area 1.

- Install erosion control protection measures

Install best management erosion control protection measures prior to project implementation, including:

- Construction will only occur between July 1st and October 31st when the ground surface is dry and to reduce the chance of stormwater runoff occurring during construction and when background Elk River freshwater inputs are at summer baseflow thresholds. Excavated materials shall not be stockpiled over winter. Sediment control measures shall be in place while materials are being stockpiled to minimize sediment and pollutant transport from the project site.
- Placement of fill in the project area will occur when the area is not inundated by tide water.
- Excavation shall include handling of saturated soils. Saturated soils shall be dewatered and/or transported saturated in a manner that prevents excess discharge or spillage of soils or water within the project area. All excavations will be repurposed on site, and off-site hauling of saturated soils will thus not occur. A silt fence will be installed around the perimeter of temporary stockpiles of saturated soils to prevent runoff from leaving the site.
- During construction, a silt fence will be deployed to isolate work areas from existing channels, and to trap suspended sediment that might leave the construction site if stormwater runoff were to occur. If the silt fence is not adequately containing sediment, the construction activity shall cease until remedial measures are implemented that prevent sediment from entering the waters below.

- No construction materials, debris, or waste, shall be placed or stored where it may be allowed to enter or be placed where it may be washed by rainfall into waters of the U.S./State.
- Soil and material stockpiles shall be properly protected to minimize sediment and pollutant transport from the construction site.

Details regarding these and other Best Management Practices (BMPs) included in this project are detailed in Sections 1-18 of this Initial Study document. Dewatering will follow the general conditions for all fish capture and relocation activities, established by NOAA (Biological Opinion 151422SWR2009AR00566 3/21/2012 and Federal Consistency Determination 3/28/2013).

- Seal tide gates and isolate work area

Close gate valve discharging into Area 1 from City's property to the north to minimize the residual wetted channel area during low tides and allow water quality to convert to salt water prior to the closing of the tide gates on Elk River. During a minus tide, seine nets will be used to passively encourage any fish remaining in the residual channel and pool behind the tide gate out into Elk River. The two existing tide gates currently connecting Elk River to Area 1, will be closed following seine netting effort during a minus tide to hydrologically isolate Area 1 prior to construction.

- Dewater work area

Establish bypass pumping system in two locations that will divert storm water, if any, entering the site from properties to the north and east directly into Elk River. Dewatering during excavations (as necessary) will rely on gasoline-powered trash pumps. The trash pumps will be set up on a containment pallet to prevent fuel spills.

The first earthen sump will be excavated at the confluence of the drainage ditches running along the northern boundary of the Site (Figure 15). An electric pump with a float valve will draft water from the sump. A pipe will be routed along the northern shoulder of Pound Road across the railroad tracks and into a tidal channel over which the Waterfront Trail crosses that discharges to Elk River.

A second earthen sump will be placed in the pool behind the Elk River tide gates. Water will be pumped and dispersed into a containment area (straw bales lined with geotextile fabric) to settle out fine sediments before the water filters into the ground and into the mainstem Elk River. The containment area will be installed in a small upland area near the southwest corner of Area 1.

Additionally, water from the residual pool behind the Elk River tide gates will be pumped into a half acre experimental Spartina eradication area or dispersed onto vegetated, upland areas surrounded with hay rolls (filter beds, Figure 16). The filter beds will capture silt particles and will drain to Elk River.





Figure 15. Area 1 dewatering schematic showing planned dewatering set up near Pound Road.

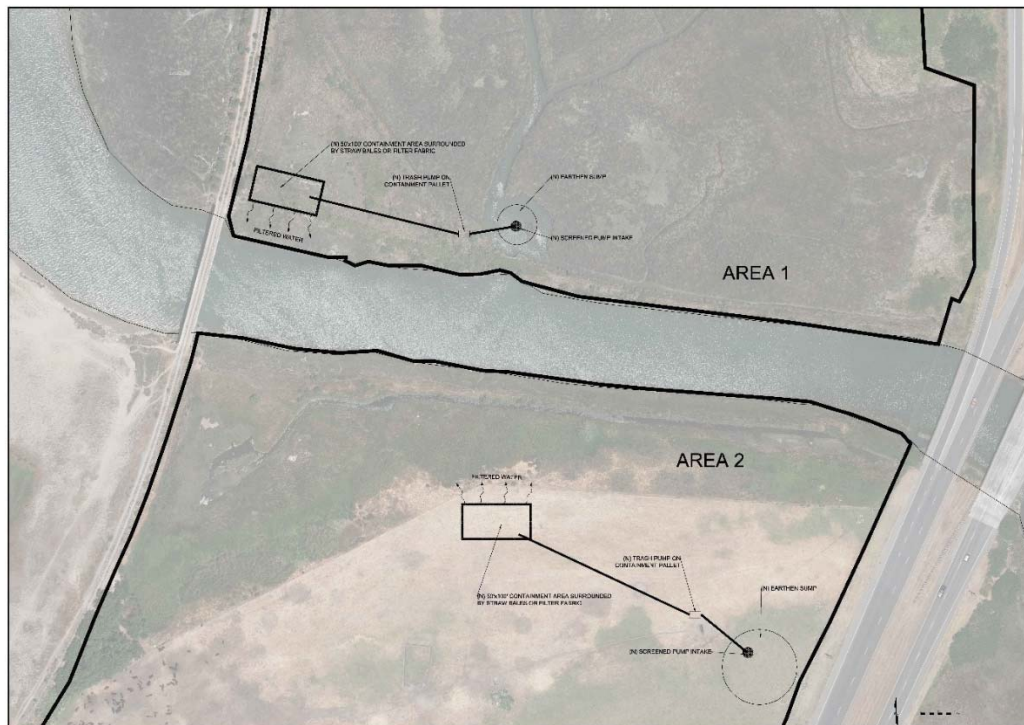


Figure 16. Area 1 and Area 2 dewatering schematic showing planned dewatering set up near the main Elk River tide gates (Area 1) and channel development activities in Area 2.

- Replace or repair tide gates and enhance drainage

Replace or repair three existing tide gates and concrete headwall on the northern project boundary, if necessary, to avoid flooding adjacent properties. Excavate the inlet and outlet of the existing culvert that drains the County's roadside ditch at the northeast corner of the site (Figure 17). The freshwater marsh area at the outlet of this culvert will be excavated. The excavated soil will be used to raise and level the existing berm (old railroad grade) to elevation 9.0 ft (NAVD 88). A rock-lined overflow weir in the berm that allows freshwater to overflow from the wetland into the salt marsh will be created. This work will also expose the outlet of the existing culvert that drains the area east of the Highway 101 onramp at the southeast corner of the site.

- Excavate and enlarge (widen and deepen) inter-tidal channels

Excavate 3,385 ft of existing and 2,394 ft of new inter-tidal channels. Tidal ponds or depressions will also be excavated and interspersed amongst the channels (Figure 17). Excavation activities may occur from both sides of the channels depending on the width of the channel and the reach of the excavator. The entrance of the main navigation channel into Area 1 will be widened where the tide gate structure was removed and the channel will be deepened to provide low tide access, as it extends north to the location of the proposed non-motorized boat access. Additional tributary inter-tidal channels will be widened and deepened as they are extended east. All excavated material will be used to construct design features within Area 1.



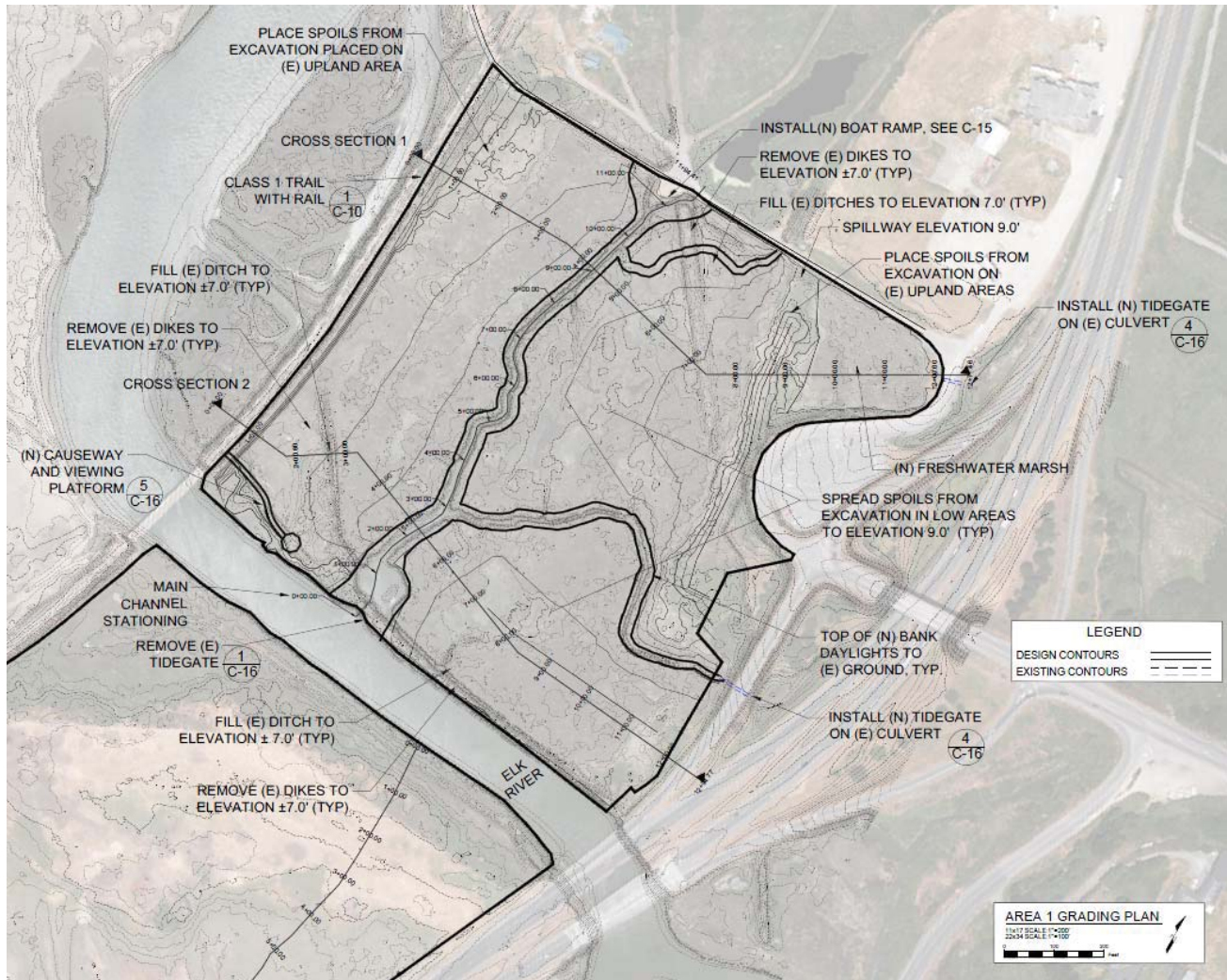


Figure 17. Area 1 grading schematic showing location of primary cut and fill activities and focal design features .

- Excavate interior dikes and abandoned railroad grade

Interior dikes within Area 1 (inside of the dikes on Elk River) will be excavated to restore natural topography in the estuary and salt marsh plain (200 CY of excavation). Interior dikes will be lowered as well as the abandoned Bucksport and Elk River railroad grade west of the Pound Road Park and Ride lot.
- Place and grade fill and large wood debris

Excavated soil will be left in stockpiles or windrows and allowed to dry out before attempting to spread it to conform to the design topography. Throughout Area 1, fill (reuse of excavated materials) will be placed to fill artificial depressions and linear in-board ditches, and spread over the existing marsh plain between channels to raise the salt marsh plain surface elevation. Soil will also be used to form tidal mounds/hummocks (islands) and to increase the elevation of upland areas. Hummocks may be graded to promote habitat diversity and provide roosting habitat for shore birds. Approximately 18,000 CY will be excavated and graded onsite with no export of materials. Several large wood debris currently in Area 1 along with imported large wood debris will be strategically placed to increase habitat diversity and cover for wildlife.

- Construct ADA Waterfront Trail extension

The Waterfront Trail will be extended 1,000 ft from its current terminus north of Area 1 southward into the NCRA and City property parallel to the railroad grade to Elk River (Figure 18). The Class 1, non-motorized paved trail will be parallel to the existing railroad, located atop 1,520 CY of fill derived from on-site excavation to expand the rail road prism. The trail is proposed to be 14 ft wide (5 ft for each lane) with an additional 2 ft of shoulder on each side (14 ft total width). The side slope of the trail will be 1:3.

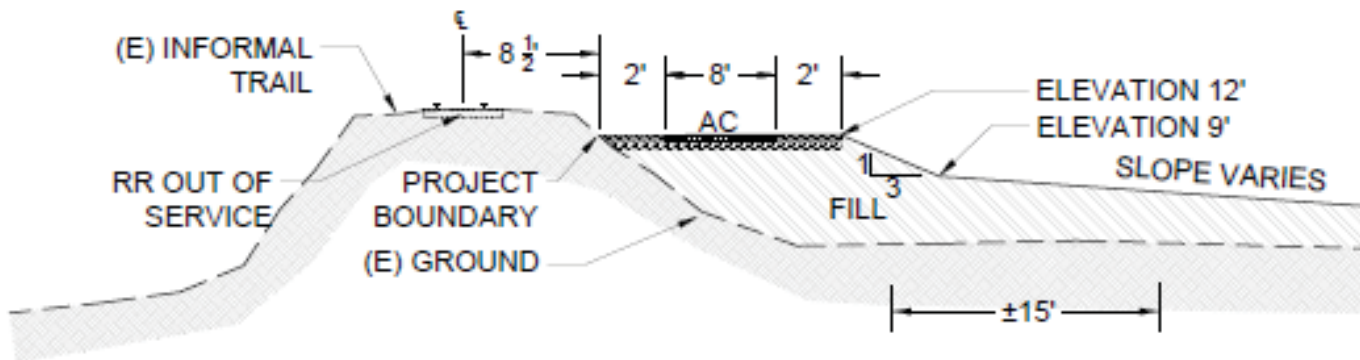


Figure 18. Conceptual Waterfront Trail extension cross section showing trail width, slope ration, and fill elevation relative to the existing railroad grade (Appendix A, Sheet C-11).

- Construct an elevated causeway and viewing platform

An elevated salt marsh viewing trail causeway (250 ft total length and 3 ft wide) and platform (10 ft x10 ft) will be constructed of aluminum, plastic, or treated lumber atop helical anchors drilled into the marsh plain (Figure 19 - Figure 21). The causeway and viewing platform will be elevated 1 ft to 7 ft above the marsh below and will include railings compliant with City Building Code and ADA regulations and will be 4.5 ft high (Figure 22). Interpretive signage will be installed on posts set into concrete footings.

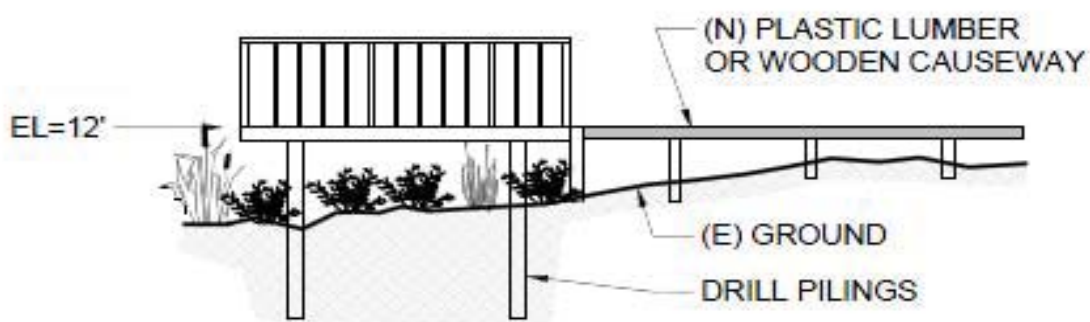
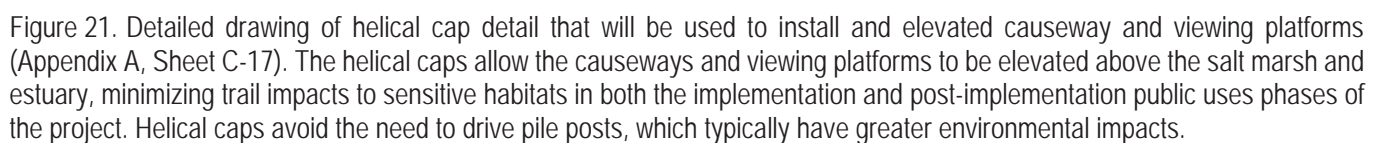
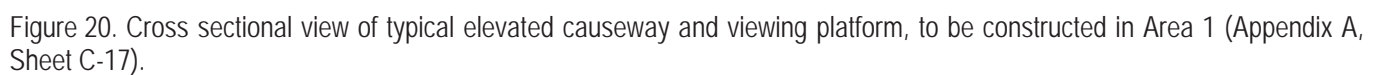


Figure 19. Conceptual diagram of elevated causeway and viewing platform (Appendix A, Sheet C-17).





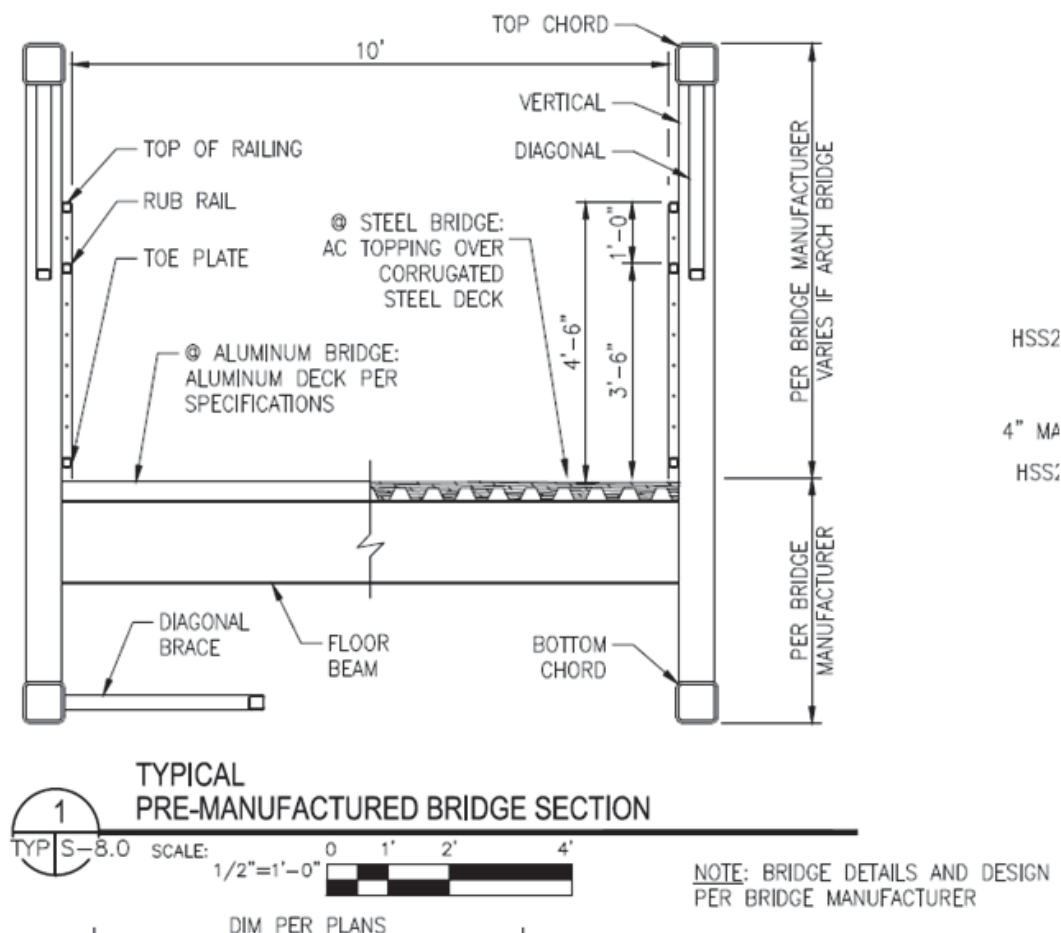


Figure 22. Typical cross section showing height of railings on elevated causeway and viewing platform, designed to meet City Building Code and ADA regulation requirements.

- Construct non-motorized boat access

Non-motorized boat access will be provided at the north end of the widened and deepened navigation channel near the terminus of Pound Road. The boat ramp will be a textured, 12% to 15% sloping, concrete ramp approximately 15' wide and 30' long, extending from above mean annual maximum tides to minus 1 foot below mean lower low tides. It will have a 12" tall wall on one edge with a galvanized or aluminum pipe railing to hold onto. There will be 20 CYs of 4" crushed foundation rock, 10 CYs of Class 2 Aggregate Base, and 15 CYs of poured concrete below and within its footprint.

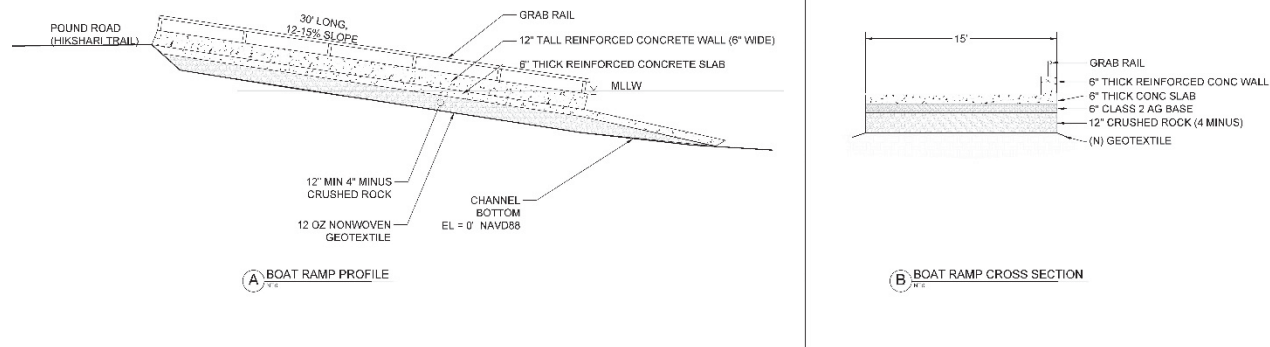


Figure 23. The Area 1 boat ramp will use a concrete slab or a similar material (Appendix A, Sheet C-16).

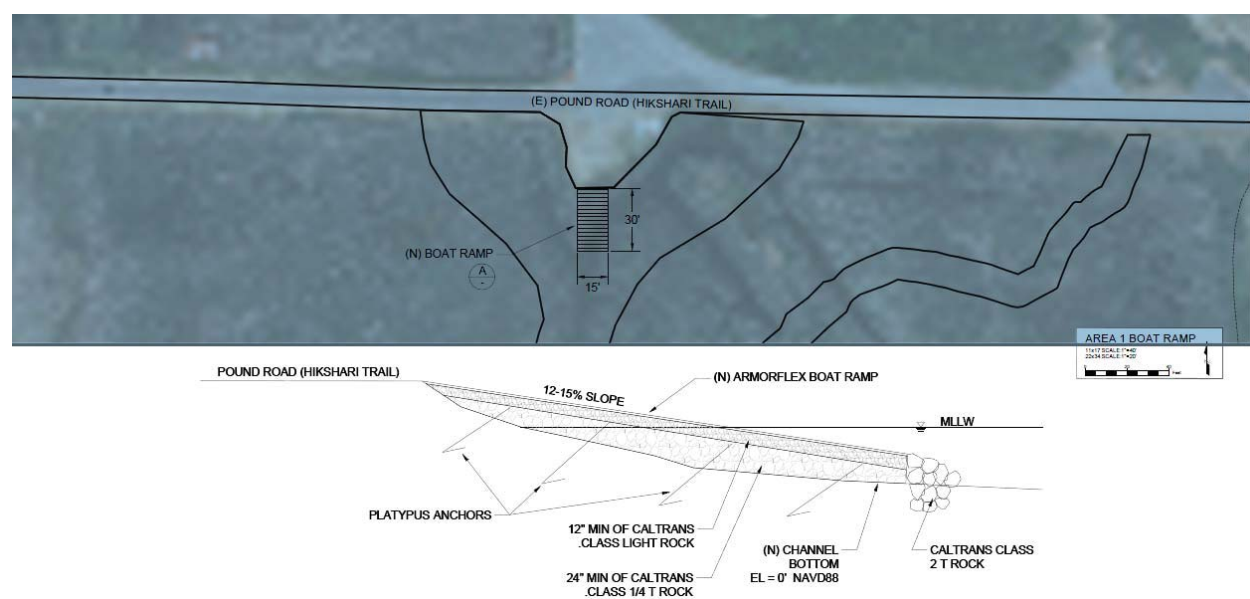


Figure 24. Area 1 boat ramp specifications showing location, dimensions, cross sectional view, and materials (Sheet C-16).

- Eradicate Spartina

Invasive Spartina will initially be removed with the use of an aquatic tracked vehicle ("Marsh master") and heavy equipment during construction to disturb the upper 6 inches of soil while excavating channel areas and grading fill areas. Remaining Spartina areas will be treated with mechanical and hand labor, or herbicide eradication methods currently utilized on Humboldt Bay and approved under the Humboldt Bay Regional Spartina Eradication Plan (HBHRCD 2015). Approved methods included in the eradication plan that will be applied to Area 1 include mowing, grinding, tilling, excavating, or treating the invasive Spartina with approved herbicides.

Additionally, a small ( $< \frac{1}{2}$  acre) experimental flood area will be constructed to test the efficacy of flooding Spartina with salt water as a remediation treatment. A 100 ft x 100 ft area will be enclosed with a temporary earthen berm and flooded with salt water pumped from behind the closed tide gates on Elk River for at least three months. The berm will be graded to merge with the new salt marsh plain. This activity is not covered under the approvals already obtained by the regional plan (HBHRCD 2015) (Figure 12). Monitoring and retreatment will continue for at least three years.

- Remove Elk River Slough tide gates

The tide gates and concrete headwalls on the mainstem Elk River will be removed following excavation to allow natural tidal inundation of Area 1 and not impede navigation. The tide gates are metal pieces bolted to a concrete wall and can be removed on a single low tide cycle. Removal will leave two big circular holes in the concrete wall and will immediately result in a non-muted tidal cycle. The concrete structure will subsequently be removed by excavators, one with a jack hammer and the other with a thumb and bucket during ebbing tides. Adjacent dikes will be excavated from either side of the concrete wall. Concrete and tide gates will be disposed off-site.

- Excavate dikes

The dikes south of Area 1 parallel to Elk River will be breached and lowered to be consistent with adjacent salt marsh surface topography, several discontinuous segments of dike will be retained to provide shorebird/waterfowl roosting habitat.

- Remove access and staging

Access and staging areas will be removed, and be regraded to be consistent with adjacent natural surface topography and revegetated. The temporary stormwater bypass system will be dismantled.

- Revegetation

Plant approximately 4 acres of riparian areas with appropriate native species.

## **Description of Proposed Actions: Area 2 South of Elk River**

Nearly all of Area 2, approximately 89 acres, is owned by the City of Eureka, except for a 50-foot-wide strip of private land (1.3 acres) parallel to Elk River, on the left bank (Figure 25). Area 2 is composed of diked former tidelands and a windblown sand formation parallel to Elk River Slough. Construction of a rock seawall and the Northwestern Pacific (NWP) railroad bed has isolated Area 2 from Humboldt Bay. Large waves during extreme tides and storm surges wash through the sea wall introducing saltwater to Area 2 that supports seasonal brackish water wetlands. Construction of Highway 101 and the off-ramp for Humboldt Hill Road, and Tooby Road on the eastern boundary isolated Area 2 from Elk River.

There is a minor topographic divide along the southern boundary that separates Area 2 from private property to the south and Buhne Slough drainage complex. There are two culverts with tide gates that allow stormwater from Area 2 to drain beneath Highway 101 to Elk River. The City has leased Area 2 to a local rancher who uses the area to graze livestock. This management practice has also provided suitable seasonal grazing habitat for Aleutian geese in the winter and spring (Figure 26).





Figure 25. Proposed Elk River Estuary Enhancement Project Area 2.



Figure 26. Project Area 1 grazed pasture and Aleutian goose habitat.

There is no freshwater inflow to Area 2. Winter precipitation forms temporary ponds and fills ditches and historic tidal channels. This stormwater drains east to Elk River via culverts with tide gates, under Highway 101. A naturally occurring windblown sand formation creates upland habitat parallel to Elk River and along a portion of the NWP railroad. This site feature, 13.8 acres in extent, is an upland but currently supports annual grassland vegetation due to grazing livestock. There are remnants of the historic inter-tidal channels, but most of Area 2 is drained by a network of linear agricultural ditches. Approximately 68.9 acres is brackish wetlands dominated by pasture grasses and forbs, ranging in elevation from 3 ft to 7 ft (NAVD 88). Most of Area 2 is not infested with *Spartina*, except for a small 0.02-acre area with a muted tide cycle along the south bank of Elk River.

Vehicular access to Area 2 is from the Highway 101 Humboldt Hill off ramp and Tooby Road. A dirt road extends from Tooby Road to the western boundary and then runs north to the upland area near Elk River Slough. A HCSD forced main sewer line runs north from King Salmon through the City's properties in Area 2 and Area 1 parallel to the eastern boundary of the railroad properties all the way to the Elk River Waste Water Treatment Plant.

Recent king tides and storm surges have washed away railroad ballast, forming delta-like deposits on the City's grazed pasture (Figure 27).





Figure 27. The existing railroad grade after the 2015-2016 king tides and storm surge erosion, showing fill of Area 2 wetlands.

Proposed actions in Area 2 include: enhance hydrologic connectivity with Elk River, create intertidal channel network and new Eelgrass habitat, create variable salt marsh topography, restore riparian habitat, eradicate *Spartina*, and provide public coastal access.

### **Enhance Hydrologic Connectivity with Elk River**

The dike on Elk River will be breached in multiple locations. The existing dilapidated 12-inch culvert will be removed to reconnect the muted tide area north of the sand formation with Elk River. A large new tributary channel will be excavated to connect the area south of the sand formation directly to Elk River. An inter-tidal channel network will be created that extends from the Elk River approximately 4,200 ft to the southern boundary at the end of Tooby Road. Based on local salt marsh vegetative survey areas adjacent to the channels, less than approximately 9 ft (NAVD 88) in elevation should become salt marsh.

During the winter and spring rainfall events, freshwater will create brackish water conditions as stormwater flows through the inter-tidal channels seasonally, to Elk River. In the future, if Caltrans chooses to increase connectivity with Elk River, the southernmost culvert in Area 2 could be connected via a culvert through the proposed tidal ridge parallel to Highway 101 to the City's new tidal channel network. This secondary connection with Elk River would facilitate movement of aquatic species between Area 2 if Caltrans wants to replace their culvert and remove the tide gate as part of a separate and future action. Excavated material will be utilized to fill the agricultural drainage ditches. Filling in ditches will focus the tidal prism in the new tidal channel network and reduce sedimentation of new channels. To enhance hydrologic connectivity with Elk River, the elevation of the natural topographic divide at the southern end of Area 2 will be increased to approximately 12 ft (NAVD 88) to provide riparian habitat and maintain hydrologic integrity (Figure 28).

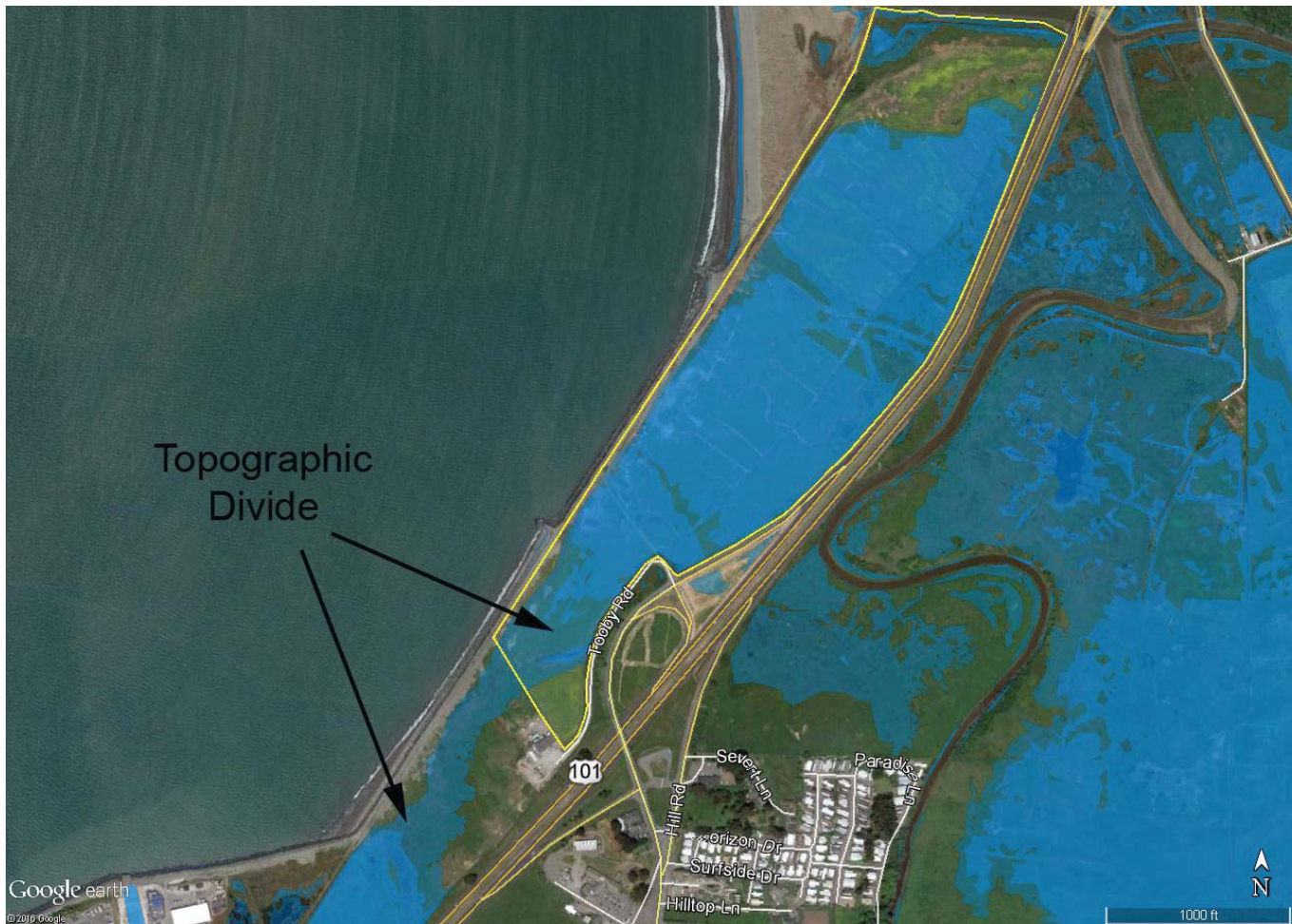


Figure 28. Potential tidal inundation during MHHW 5.6 ft (dark blue shading) and tidal expansion during MMMW 7.7 ft (NAVD 88) (light blue shading) beyond Area 2 to the south.

### **Create Inter-Tidal Channel Network to Support Eelgrass Habitat and Habitat for Other Aquatic Species**

The width and depth of the new main channel has been sized to maximize creating Eelgrass habitat. Channel sinuosity emulates historic channels in former salt marsh areas of Area 2 and adjacent areas of Elk River (Figure 29). The new inter-tidal channel network will extend south approximately 4,200 ft. The channel depth in Area 2 will range from -4 ft at Elk River Slough to +2 ft at its southern terminus. The new channel widths have been modeled to accommodate the projected salt marsh elevations and tidal prism volume, and on other naturally formed channels that drain similar salt marsh plains, in Humboldt Bay. It is anticipated that the channel widths will adjust and stabilize after the project is completed while channel depths are not expected to significantly adjust.

The new secondary inter-tidal channels will be excavated to provide low velocity and shallower aquatic habitat. Salt marsh depressions will be excavated adjacent to inter-tidal channels where high tides can inundate these areas to form pond habitats. See Appendix A, Sheets C-11A and B.





Figure 29. Historic Elk River inter-tidal channel sinuosity examples (1939 aerial photography Humboldt County).

### **Create Tidal Ridges and Living Shoreline Buffer**

Tidal ridges will be constructed, to contain mean annual maximum tides (8.8 feet NAVD 88 at North Spit tide gage), along the City's property boundaries parallel to the NCRA and Caltrans properties using fill materials excavated onsite. The western tidal ridge will provide a high platform 12 to 14 foot elevation (NAVD 88) for the extension of the ADA Waterfront Trail (14 ft wide) and emergency access for HCSD to their sewer line. A second tidal ridge, 10 ft to 12 ft in elevation (NAVD 88) (16 ft wide), parallel to Highway 101 extending north from Tooby Road will allow PG&E vehicular access to their nine electrical distribution poles. The western tidal ridge/Waterfront Trail inside slopes will be graded 3:1 down to 9 foot elevation and then grade to the top of the nearest tidal channel bank (Figure 30, Appendix A, Sheets C-11A, 11 B, and 12)). The tidal ridge/trail slope on NWP railroad side will be 3 to 1 and may be fortified with rock from the southern property boundary north approximately 2,720 feet to prevent erosion of the Waterfront Trail from wave wash through the sea wall. The tidal ridges will support tidal marsh vegetation along their side slopes below 9 ft elevation (NAVD 88), with transitional ecotone habitat along the top of the slope. The tidal ridge will prevent tidal inundation of Caltrans property and Highway 101 road base, as well as form a barrier to prevent rail road ballast from creating deltas in Area 2 salt marsh habitat. The tidal ridges will demonstrate a living shoreline approach to the protection of Highway 101, PG&E's access to electrical distribution poles, the Waterfront Trail, and the Elk River estuary's restored salt marsh.

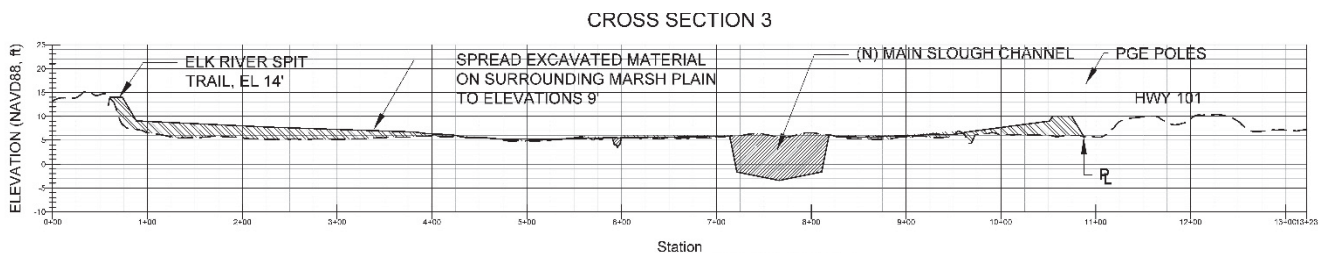


Figure 30. Typical cross section of living shoreline/tidal ridge parallel to Highway 101 in Area 2. Dark grey hatching (left) indicates Caltrans Highway 101 road prism. Light hatching (right) indicates living shoreline fill.

### **Create Variable Salt Marsh Topography**

Excavated material will be used on-site between newly excavated inter-tidal channels to create salt marsh plains from 6 to 9 ft (NAVD 88) (Appendix A, Sheets C-4B, 7, and 11A-B). Salt marsh hummocks greater than 9 ft in elevation will function as islands for shorebird and waterfowl species. The varying elevation of these hummocks will also support the migration of salt marsh habitat to higher elevations as sea levels rise.

Excavation of fill deposited on Area 2 wetlands from erosion of the NWP railroad ballast will restore approximately 1 acre of inter-tidal wetlands.

### **Creation of Riparian Habitat**

Decades of agricultural use has prevented the establishment of riparian vegetation in Area 2. Excavated sand material from the new tidal channel will be reused on-site to enhance the windblown sand formation and increase riparian habitat in Area 2. Other excavated materials will be used to enhance the existing topographic divide at the southern boundary of Area 2 to approximately 12 ft (NAVD 88) and link this area with the upland area along Tooby Road to create riparian habitat. These areas, above 9-foot elevation, will be planted with appropriate native riparian species, creating approximately nine additional acres of riparian habitat.



## **Eradicate Spartina**

Approximately 0.02 acres of existing salt marsh dominated by Spartina is located between the dike on the left bank of Elk River and the natural sand upland. Area 2 is also included within the geographic limits of the approved *Humboldt Bay Regional Spartina Eradication Plan* (HBHRCD 2015). Approved methods included in the eradication plan that will be applied to Area 1 include mowing, grinding, tilling, excavating, and crushing, as well as approved herbicide application of the invasive Spartina. Periodic maintenance will likely be necessary to prevent the re-establishment of this invasive species in Area 2.

## **Provide Public Coastal Access**

Within Area 2, the project will provide public coastal access via a 1-mile extension of the ADA Waterfront Trail to salt marsh and riparian habitats, Elk River Spit, Elk River Slough, and Humboldt Bay. The maze of inter-tidal channels will serve a dual function of providing Eelgrass habitat and public navigational opportunities by kayaks or other non-motorized watercrafts. The existing dirt road from Tooby Road to the NWP railroad will be removed. A paved public parking area and trailhead will be constructed at the southern end of Tooby road on the City's property. The Waterfront Trail will extend approximately one mile north to Elk River. The trail and tidal ridge parallel to the NCRA property will average 12 to 14 ft elevation (NAVD88). A public elevated causeway will also provide access out into the salt marsh plain and a viewing platform. A walking bridge may be installed at the northern end of Area 2, spanning the new channel entrance, to connect the Waterfront Trail extension, to the eastern tidal ridge. The eastern tidal ridge, located on the City's property will average 16 ft wide and 10 to 12 ft elevation (NAVD88) and provide PG&E access to their electrical distribution poles and be surfaced with crushed rock.

The Area 2 Waterfront Trail extension is proposed to be 14 ft wide (5 ft for each lane) with an additional 2 ft of shoulder on each side (14 ft total width). The side slope of the trail will be 1:3. The general design characteristics of the trail network include:

- Minimum Tread Width: 10 ft
- Minimum shoulder width: 2 ft on each side of trail tread surface where space allows
- Minimum setback from railroad track centerline to obstructions or edge of trail tread: 8.5 ft on tangent sections of tracks and 9.5 ft on curved sections of tracks
- Minimum Vertical Clearance: 8 ft (10 ft if emergency vehicles use trail)
- Minimum Design Speed: 20 miles per hour
- Maximum Gradient: 5%
- Minimum Curve Radius: 90 ft
- ADA Accessibility: the trail would be constructed to be ADA accessible

Additional Waterfront Trail design specifications similar to those described in Area 1 will be included.

## **Summary of Proposed Actions: Area 2**

Area 2 is presently a degraded farmed wetland that will be restored to an inter-tidal wetland with a network of tidal channels with Eelgrass habitat (Figure 31 - Figure 32). The inter-tidal area will be contained by tidal ridges that will also provide public and emergency vehicle access and riparian habitat. The City's Waterfront Trail will be extended approximately a mile and will have a new southern gateway for coastal access to Elk River Spit, Elk River Slough and Humboldt Bay. The following summary of proposed activities for Area 2 will be utilized in this Initial Study's impact assessment.

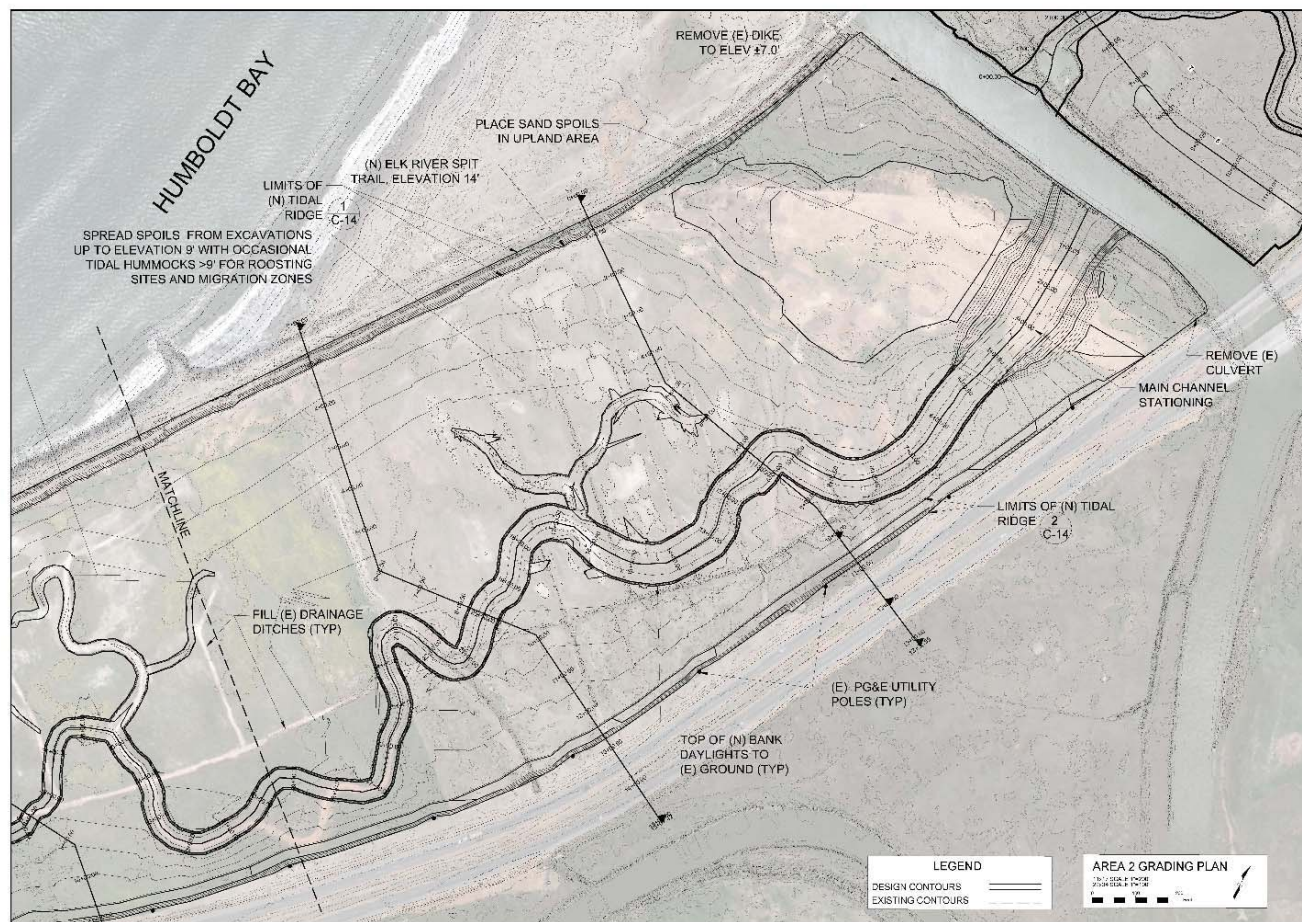


Figure 31. Overview of Area 2 design elements, northern end (Appendix A, Sheet 12A).



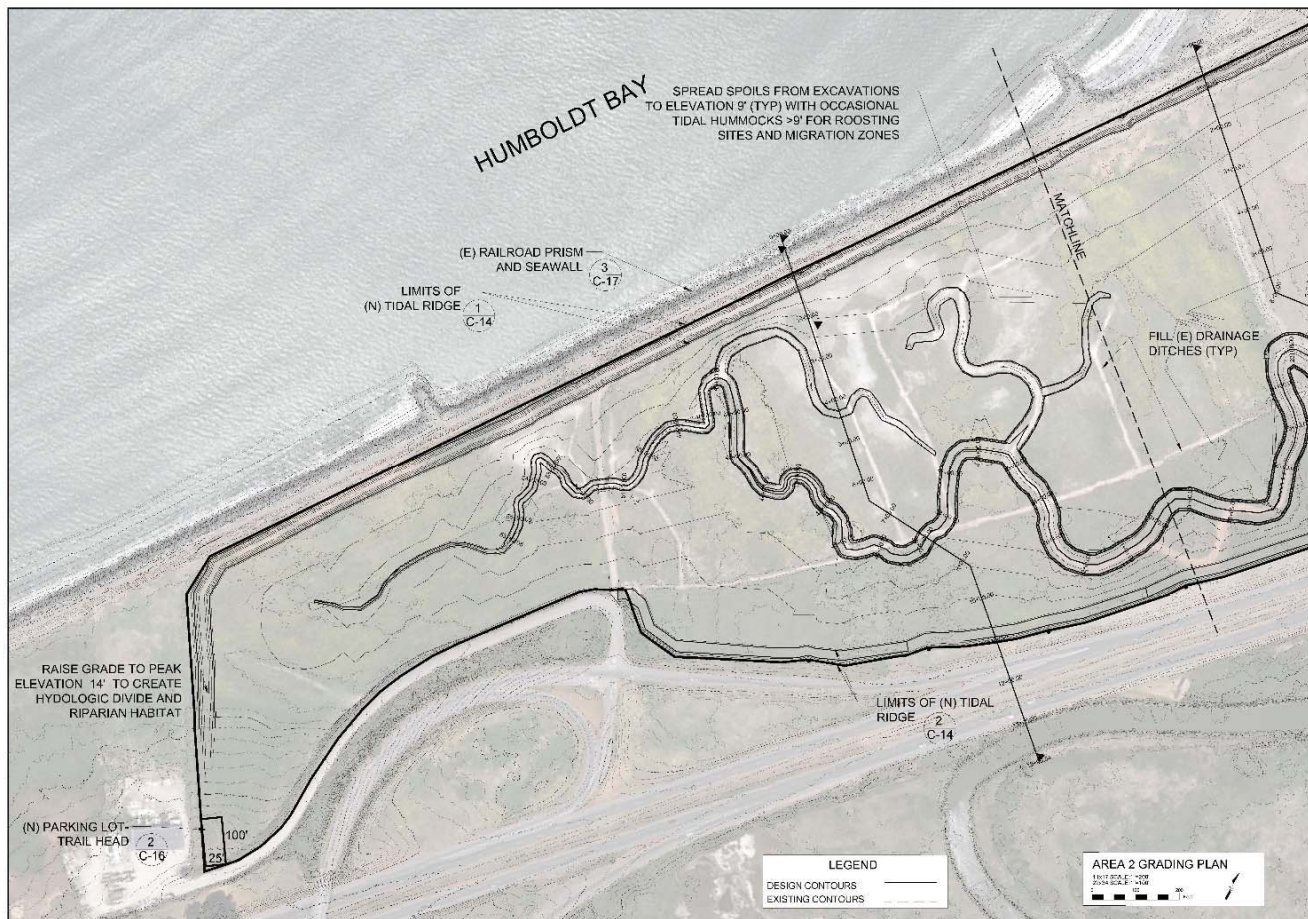


Figure 32. Overview of Area 2 design elements, southern end (Appendix A, Sheet 12B).

- Timing

Construction would occur when stormwater runoff is not likely (July 1<sup>st</sup> through October 31<sup>st</sup>) for the duration of construction activities.

- Access and staging

Establish a construction staging area. The staging area will be located on the upland area in the southeastern edge of the site, at the end of Tooby Road that will ultimately be paved to become the new public trailhead parking area, (Figure 32 and Appendix A, Sheet C-16). The staging area will be fenced and include a fueling and lubrication area. The fueling area will be approximately 20 ft x 20 ft and be underlain by an impermeable plastic membrane covered with 12" of soil. Fuel and lubricants will be stored in 55 gallon drums on top of containment pallets.

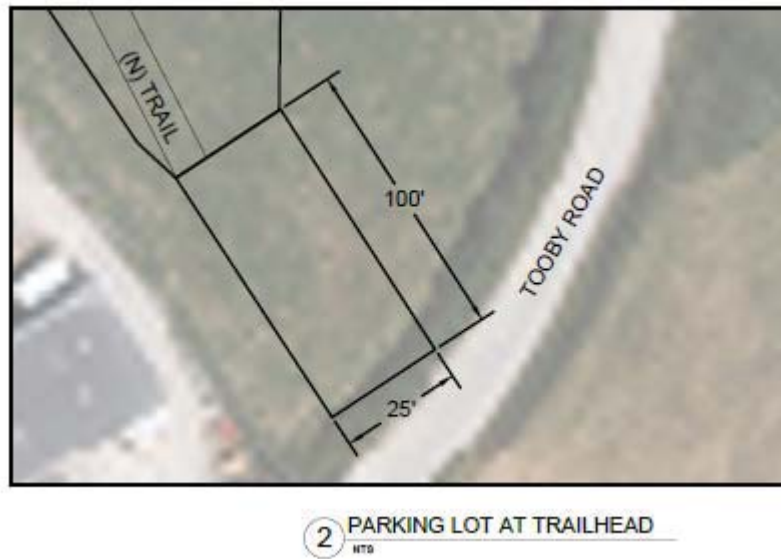


Figure 33. Location and dimensions of Area 2 staging area at the end of Tooby Road, which will become the new trail head parking lot and access point at the end of construction.

- Install erosion control protection measures  
Install best management erosion control protection measures prior to project implementation, including:
  - Construction will only occur between July 1st and October 31st when the ground surface is dry and to reduce the chance of stormwater runoff occurring during construction and when background Elk River freshwater inputs are at summer baseflow thresholds. Excavated materials shall not be stockpiled over winter. Sediment control measures shall be in place while materials are being stockpiled to minimize sediment and pollutant transport from the project site.
  - Placement of fill in the project area will occur when the area is not inundated by tide water.
  - Excavation shall include handling of saturated soils. Saturated soils shall be dewatered and/or transported saturated in a manner that prevents excess discharge or spillage of soils or water within the project area. All excavations will be repurposed on site, and off-site hauling of saturated soils will thus not occur. A silt fence will be installed around the perimeter of temporary stockpiles of saturated soils to prevent runoff from leaving the site.
  - During construction, a silt fence will be deployed to isolate work areas from existing channels, and to trap suspended sediment that might leave the construction site if stormwater runoff were to occur. If the silt fence is not adequately containing sediment, the construction activity shall cease until remedial measures are implemented that prevent sediment from entering the waters below.
  - No construction materials, debris, or waste, shall be placed or stored where it may be allowed to enter or be washed by rainfall into waters of the U.S./State.

- Soil and material stockpiles shall be properly protected to minimize sediment and pollutant transport from the construction site.

Details regarding these and other Best Management Practices (BMPs) included in this project are detailed in Sections 1-18 of this Initial Study document.

- Dewater work area

Pumping will occur continuously throughout construction to remove groundwater seepage. Water will be pumped to settling ponds to filter out fine sediments (Figure 16).

Excavate tidal and inter-tidal channels and depressions

Excavate Area 2 channels and depressions, starting at the south end of the property and working north to connect to Elk River (total volume 125,200 CY). Excavation activities may have to occur on both sides of the channels depending on the width of the channel and the reach of the excavator. Excavation will be volume neutral, as all excavated material will be used to construct design features within Area 2 (Figure 31 - Figure 32).

- Excavate railroad ballast deltas

Remove deltas (approximately 1 acre) formed east of the railroad ballast Area 2. The railroad ballast will be used on-site as part of the top surface of the tidal ridge surrounding Area 2. These areas will become inter-tidal wetlands.

- Place and grade fill, hummocks, and large wood debris

Excavated soil will be left in stockpiles or windrows and allowed to dry out before attempting to spread it to conform to the design topography. Approximately 125,200 CY will be excavated and graded onsite with no export of materials. Throughout Area 2, fill (reuse of excavated materials) will be placed to fill artificial depressions and linear in-board ditches, and spread between newly excavated channels to create a salt marsh plain with surface elevations ranging from 6 to 9 ft (NAVD 88). Soil will also be used to form tidal mounds/hummocks (islands) and to increase the elevation of upland areas. Hummocks may be graded to promote habitat diversity and provide roosting habitat for shore birds. Soil will also be used to increase the southern topographic divide to 12 ft in order to tidally separate Area 2 from private property to the south (Figure 32). Imported large wood debris will be strategically placed to increase habitat diversity and cover for wildlife

- Construct tidal ridges and Waterfront Trail

Tidal ridges will be constructed to contain mean annual maximum tides (8.8 feet NAVD 88 at North Spit tide gage) (maximum tide elevation of record at North Spit tide gage is 9.55 feet NAVD 88), from excavated materials, along the City's property boundary with the NCRA and Caltrans. The western tidal ridge will support an extension of the Waterfront Trail. The tidal ridge/trail slope on NWP railroad side will be 3 to 1 and may be fortified with rock rip from the southern property boundary north approximately 2,720 ft to prevent erosion of the Waterfront Trail from wave wash through the sea wall. The eastern tidal ridge will provide PG&E access to their electrical distribution poles. The tidal ridges will demonstrate how a living shoreline approach can protect transportation infrastructure from tidal inundation and restore salt marsh habitat.

The Waterfront Trail will extend from a parking lot at the southern end of Tooby Road approximately 1 mile north to Elk River, providing the public access to salt marsh, riparian habitats, Elk River Spit, Elk River Slough, and Humboldt Bay (Figure 31 and Appendix A). The trail is proposed to be 10 ft wide (5 ft for each lane) with an addition 2 ft of shoulder on each side (14 ft total width). The railroad base that has washed out onto the field (~200 CY) will be collected and used to surface portions of the tidal ridge/trail. The ADA Class 1 trail will be paved, but the eastern tidal ridge emergency access will be covered with crushed rock. The Waterfront Trail will accommodate emergency, City of

Eureka, NCRA, HCSD, and other approved vehicles.

- Construct trail parking

Paved parking will be constructed at the end of Tooby Road to provide access to Area 2 and the Waterfront Trail. (Appendix A, Sheet C-16).

- Construct an elevated causeway, viewing platform, and bridge

An elevated salt marsh viewing trail causeway (550 ft total length and 3 ft wide) and platform (10 ft by 10 ft) will be constructed of aluminum, plastic, or treated lumber atop helical anchors drilled into the marsh plain (Figure 19). The causeway and viewing platform will be elevated 1 ft to 7ft above the marsh below and will include railings compliant with City Building Codes and ADA and will be 4.5 ft high. An elevated causeway bridge may span the newly constructed main tidal channel. The bridge would be 100 ft long and may require helical piles. Interpretive signage will be installed on posts set into concrete footings.

- Eradicate Spartina

Spartina area (0.02 acres) will be treated with hand labor eradication methods currently utilized on Humboldt Bay and approved under the Humboldt Bay Regional Spartina Eradication Plan (HBHRCD 2015). Approved methods included in the eradication plan that will be applied to Area 2 include mowing, grinding, tilling, excavating, or treating the invasive Spartina with approved herbicides.

- Remove culvert

An existing 12-inch culvert will be removed along mainstem Elk River channel margin after excavation of the new Area 2 entrance channel is completed.

- Excavate dike

The dike parallel to Elk River will be breached and lowered to be consistent with adjacent surface topography. Several discontinuous segments of dike will be retained to provide waterfowl roosting habitat. A portion of the dike (approximately 200 ft) will be fully breached to allow for the new channel entrance into Area 2.

- Revegetation

Plant approximately nine acres of riparian areas with appropriate native species.

- Remove access and staging

Access and staging areas will be removed, regraded to be consistent with adjacent natural surface topography and revegetated. Temporary erosion control materials (silt fences and straw wattles) will be removed after weed-free straw mulch has been placed on bare surfaces.

## **Approvals Required**

The following regulatory approvals are required prior to project implementation:

### **Local Governments**

- Humboldt Bay Harbor Recreation and Conservation District – Shoreline Development Permit
- City of Eureka – Use Permit and Coastal Development Permit, although the City will defer to the Coastal Commission for the Coastal Development Permit, as there is state retained jurisdiction areas in Area 2.



### **State**

- North Coast Railroad Authority – Encroachment Permit and License Amendment (Waterfront Trail extension)
- North Coast Regional Water Quality Control Board – Water Quality Certification and Water Pollution Prevention Plan
- California Coastal Commission – Coastal Development Permit
- California Department of Fish and Wildlife – Streambed Alteration. Additionally, if a take of a listed species cannot be avoided, a Safe Harbor Agreements for Coho salmon and Long fin smelt will be obtained.

### **Federal**

- United States Army Corps of Engineers – Individual Permit
- National Oceanic and Atmospheric Administration – NMFS Endangered Species Act Section 7 Consultation for Coho salmon will be initiated if take of listed species cannot be avoided.
- United States Fish and Wildlife Service – Endangered Species Act Section 7 Consultation for Tidewater goby will be initiated if take of listed species cannot be avoided.

### **Tribal Consultation**

- Per Pubic Resources Code Section 21080.3

## Environmental Setting

This section includes a summary of the following:

- Ecosystem attributes
- Surface topography
- Hydrology
- Vegetation
- Wetlands
- Riparian habitat
- Fisheries
- Land use

### **Ecosystem Attributes**

Humboldt Bay and its estuaries, including Elk River, provide valuable habitats to many aquatic species, some of which are listed under the state and federal Endangered Species Acts (ESA) such as the Coho Salmon, Chinook Salmon, Steelhead trout, Longfin Smelt, and Tidewater Goby. Estuaries are important transition zones for juvenile salmonids moving from freshwater to saltwater and provide valuable over-winter juvenile habitat (NMFS 2016, Wallace et. al 2015), which may be a limiting factor in salmonid recovery. Functioning estuaries provide feeding areas and refuge from predators and increase the fitness of smolts entering the ocean. The Elk River estuary is a vital ecosystem component given the impaired conditions of much of the upstream habitat (NMFS 2016). The Elk River estuary is greatly reduced from its historic condition because of diking and filling of tidal wetlands. Additionally, the little remaining estuary habitat is severely channelized and degraded, suffering from a reduction in tidal function, urban development, land use practices, and other ecological strains. The proposed project will increase the areal extent of inter-tidal wetlands and create a network of tributary channels covering approximately 70 acres and 12.8 acres of riparian habitat associated with the estuary of Elk River. In particular, these types of habitats may offer valuable off-channel refugia for juvenile Chinook salmon in Elk River (Wallace pers. Comm. 2017).

Eelgrass has been mapped in the Elk River estuary between the project area and Humboldt Bay (Shlosser and Eicher 2012). Eelgrass has been observed (2017) immediately down river of the NWP railroad Bridge, but not in the reach of river between Area 1 and 2 of the project. The plant is typically found submerged in shallow subtidal and lower intertidal zones, generally below 2-foot elevation NAVD 88. Eelgrass provides important structure, habitat and food for a broad range of bird, fish and amphibian invertebrates (Schlosser and Eicher 2012). Eelgrass habitat is protected under federal and state law. Eelgrass is not currently present within the project area because it is separated from tidal influence by dikes, but one of the objectives of the proposed project is to create new Eelgrass habitat. Based on water depth and general habitat conditions, 9.7 acres of new habitat may be created by the project.

Both Areas 1 and 2 contain inter-tidal wetland habitats, including salt marsh and brackish marsh habitats (McBain Associates 2016). Elk River's intertidal wetlands are dynamic habitats within the estuary. Because tidal influence may extend further inland than saltwater intrusion, inter-tidal wetlands range from saline to brackish. Patterns of plant distribution vary in response to frequency and duration of tidal inundation, as well as other factors (Schlosser and Eicher 2012).

## **Surface Topography**

The surface topography of Area 1 ranges from 1 ft to greater than 14 ft in elevation (Figure 34). There is an elevated linear dike built along the north bank of the Elk River. The NCRA railroad grade is also elevated along the western border of Area 1 and 2. The surface topography of Area 2 ranges from 1 ft to more than 14 ft in elevation NAVD 88. An elevated dike and upland sand deposit feature that rises to 14+ ft separate Area 2 from the Elk River. The NCRA railroad grade is elevated between 10 and 12 ft along the western border of Area 2, and Highway 101 separates Area 2 from Elk River. Topography in both Area 1 and Area 2 indicate linear in-board ditch features were excavated to help drain these coastal marsh habitats for other uses.

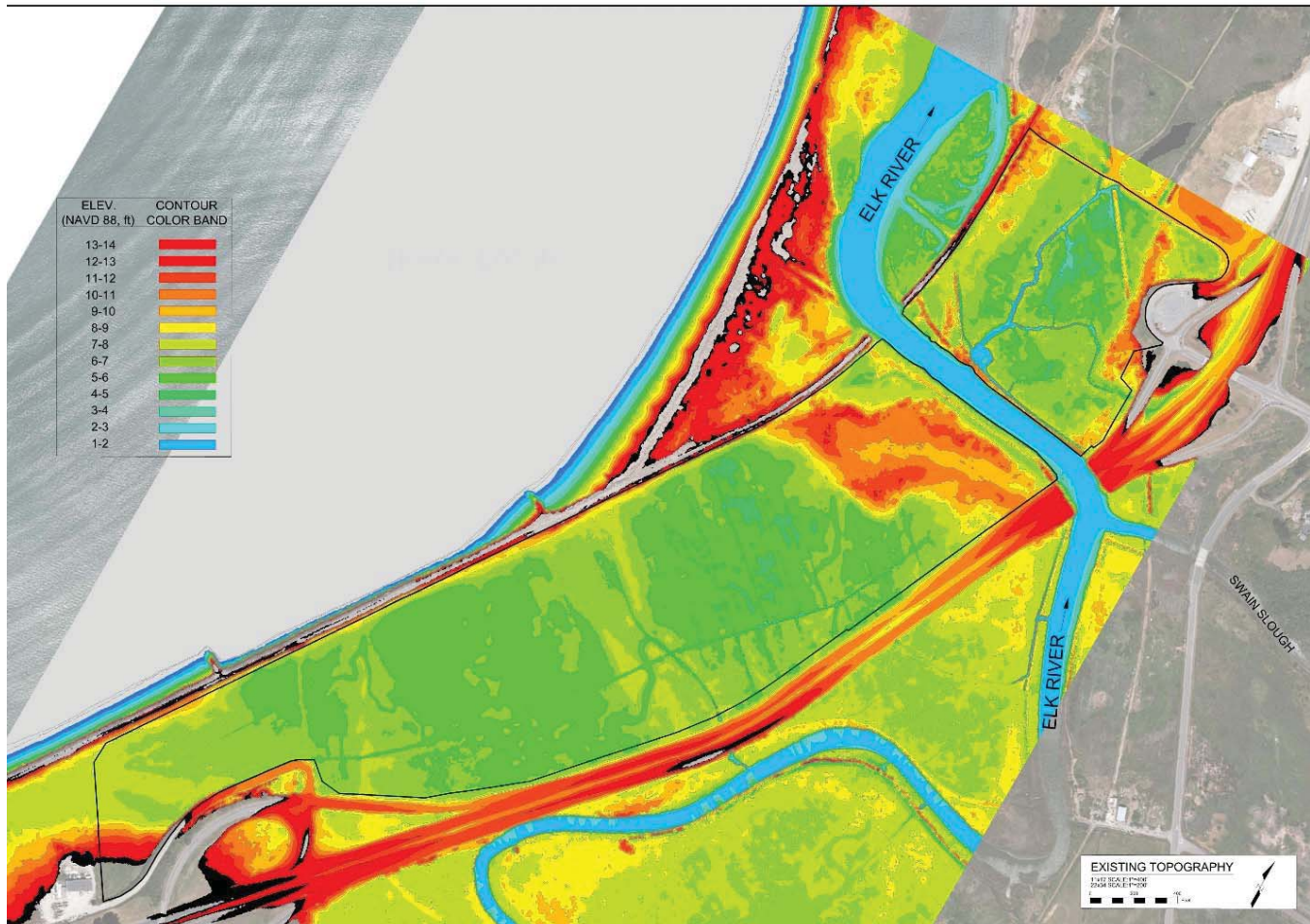


Figure 34. Existing surface topography for Area 1 and Area 2.

## **Hydrology**

The Elk River is the largest tributary to Humboldt Bay and is tidally influenced approximately 2.5 miles upstream from its mouth (Wallace et al. 2015). The low-gradient main channel of the Elk River is diked and channelized. There is a remnant tidal channel in Area 1 that have a muted tide cycle supported by two existing tide gates that the City has kept open (Figure 35). This tidal channel connects with multiple linear in-board ditch features that inundate an existing salt marsh environment, much of which is dominated by invasive *Spartina* (Figure 11). There are five water control structures that convey



stormwater runoff into Area 1, but only three have tide gates. The City often discharges freshwater to Area 1 from its open water/wetland/riparian complex to the north; thereby creating brackish water conditions particularly during the winter in the main channel and residual pool.

A windblown sand deposit parallel to Elk River and Highway 101 hydrologically separates Area 2 from the mainstem Elk River. In Area 2, there are two water control structures with tide gates that allow stormwater runoff to drain beneath Highway 101 and discharge to Elk River. Other than precipitation there is no freshwater inflow to Area 2. Linear in-board ditches were constructed to help drain Area 2 for agricultural and other uses (Figure 35). During extreme tides or storm surges large waves wash through the sea wall to the west of Area 2, and have eroded railroad ballast that is deposited as alluvial fans on the pasture and seasonal freshwater/brackish wetlands. This saltwater over wash combined with precipitation in the winter help support seasonal brackish water wetlands in Area 2.

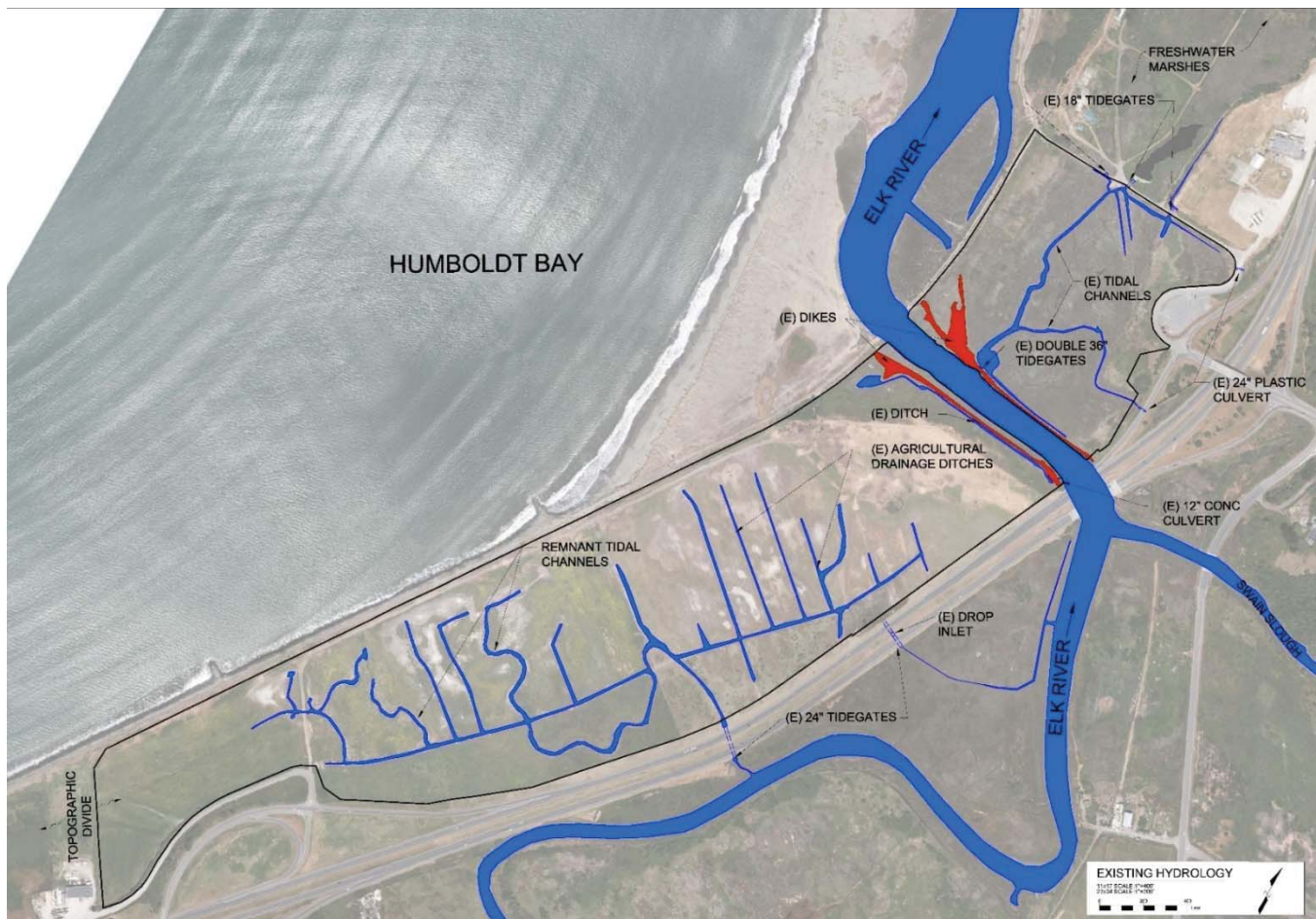


Figure 35. Existing hydrology within Area 1 and Area 2, showing the mainstem Elk River, limited tidal channels restricted by the Area 1 tide gates, and linear inboard ditches.

## **Vegetation**

Vegetation within project Areas 1 and 2 was surveyed and mapped during May 2016 (McBain Associates 2016). A copy of the full report for detailed vegetation mapping methods and results, including rare plant surveys, can be found in Appendix C. A simple classification system of biological habitat types (hereafter “biohabitats”) was developed for permitting purposes. The biohabitats were

grouped into broad categories of open water, wetland, riparian, and upland (Figure 36). These broad biohabitats were further subdivided into vegetation communities shown in Figure 37 and described in Appendix C. A subsequent field survey in the project area established the lower and upper elevations for salt marsh vegetation and lower elevation for riparian vegetation (McBain Associates 2017, Appendix D). Broad categories were operationally defined by approximate elevation: cover types mapped below approximately 9 ft are wetlands, cover types mapped above 9 ft were riparian or upland if they were human disturbed or grazed pasture, mean annual maximum tides rise to nearly 9 ft (Figure 36, Appendix A, Sheet C-6).

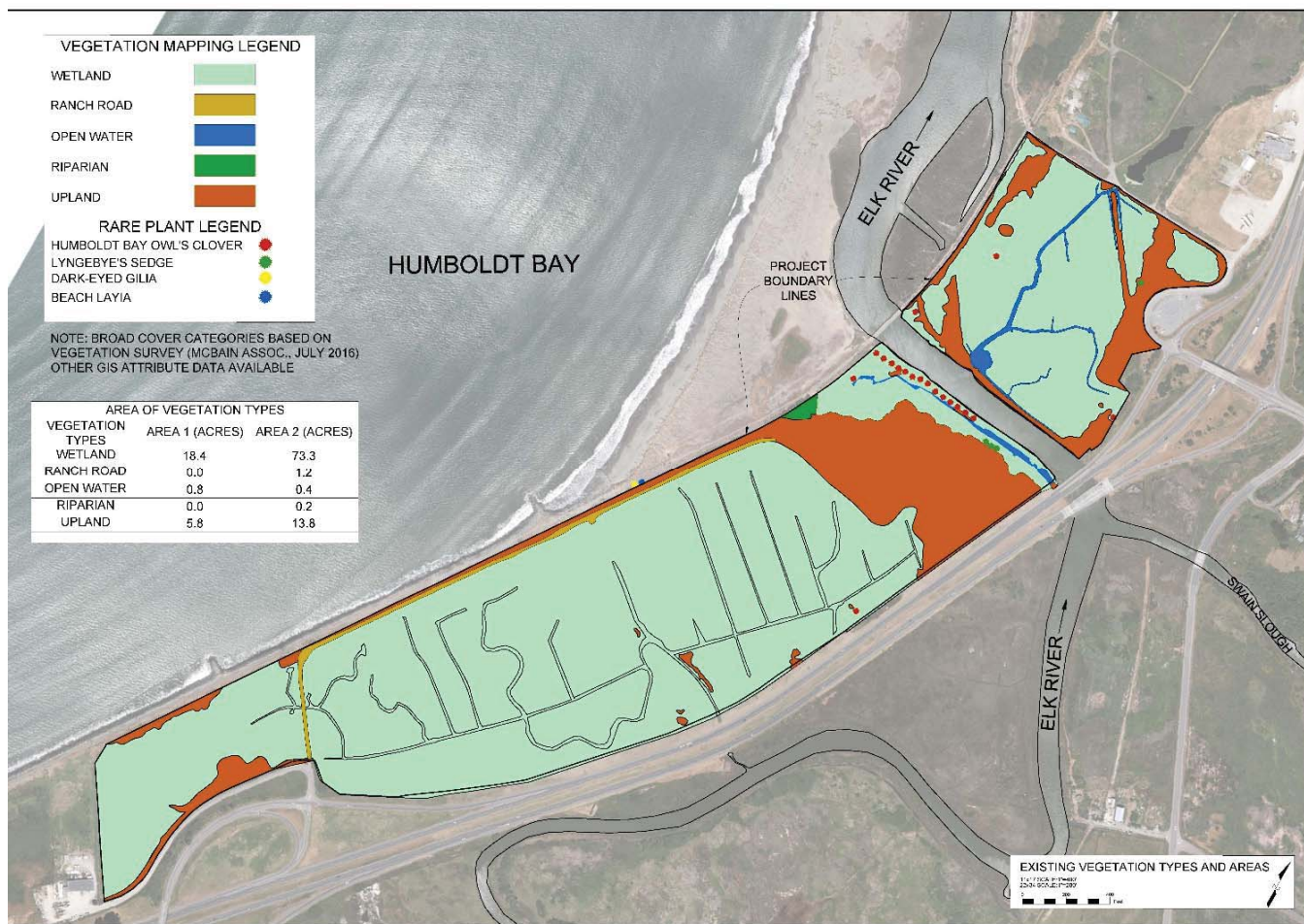


Figure 36. Existing vegetation types mapped in Areas 1 and 2.

## Wetlands

Wetlands are defined in Section 30121 of the California Coastal Act (1976) as "...lands within the coastal zone which may be covered periodically or permanently with shallow water and include saltwater marshes, freshwater marshes, open or closed brackish water marshes, swamps, mudflats, or fens." Wetlands are valuable habitat that provide essential ecosystem services such as water purification, flood control, shoreline stability, and habitat for a plant and animal species. As a result of diking, urban development, and land use practices, the historic footprint of wetland habitat in the Elk River estuary has been severely reduced. While formal wetland delineation has not been conducted within the project area, the location of approximately 110 acres of wetlands in Area 1 and Area 2 was identified based on

the presence of wetland plant species, topographic elevation, and area hydrology. The lower and upper elevational limits for wetland, riparian, and upland plant species were surveyed in Area 1 and 2. All areas less than 9 ft in elevation that were not open water were broadly identified as wetlands (Figure 5). Many of the areas designated as wetlands include several broad categories of wetlands including salt marsh (Area 1) and seasonal freshwater wetland-pasture and brackish water wetland-pasture (Area 2) (Figure 37). Wetlands are regulated by federal, state, and local agencies.

### **Riparian Habitat**

Area 1 and 2 have been heavily impacted by over a 150 years of land uses; native riparian habitat has been cleared to provide space for agricultural uses. Active grazing has prevented riparian vegetation becoming established in Area 2. Riparian habitat dominated by Hooker's willow (*Salix hookeriana*) has only been able to colonize a few patches in Area 1 and 2, but even these areas have been heavily impacted by homeless encampments. Limited tidal influences on areas above 9 ft in elevation allows riparian vegetation to become established in Area 1 and 2, if they are not grazed. Much of the upland area that is grazed will be planted and is expected to support approximately 13 acres of riparian habitat.



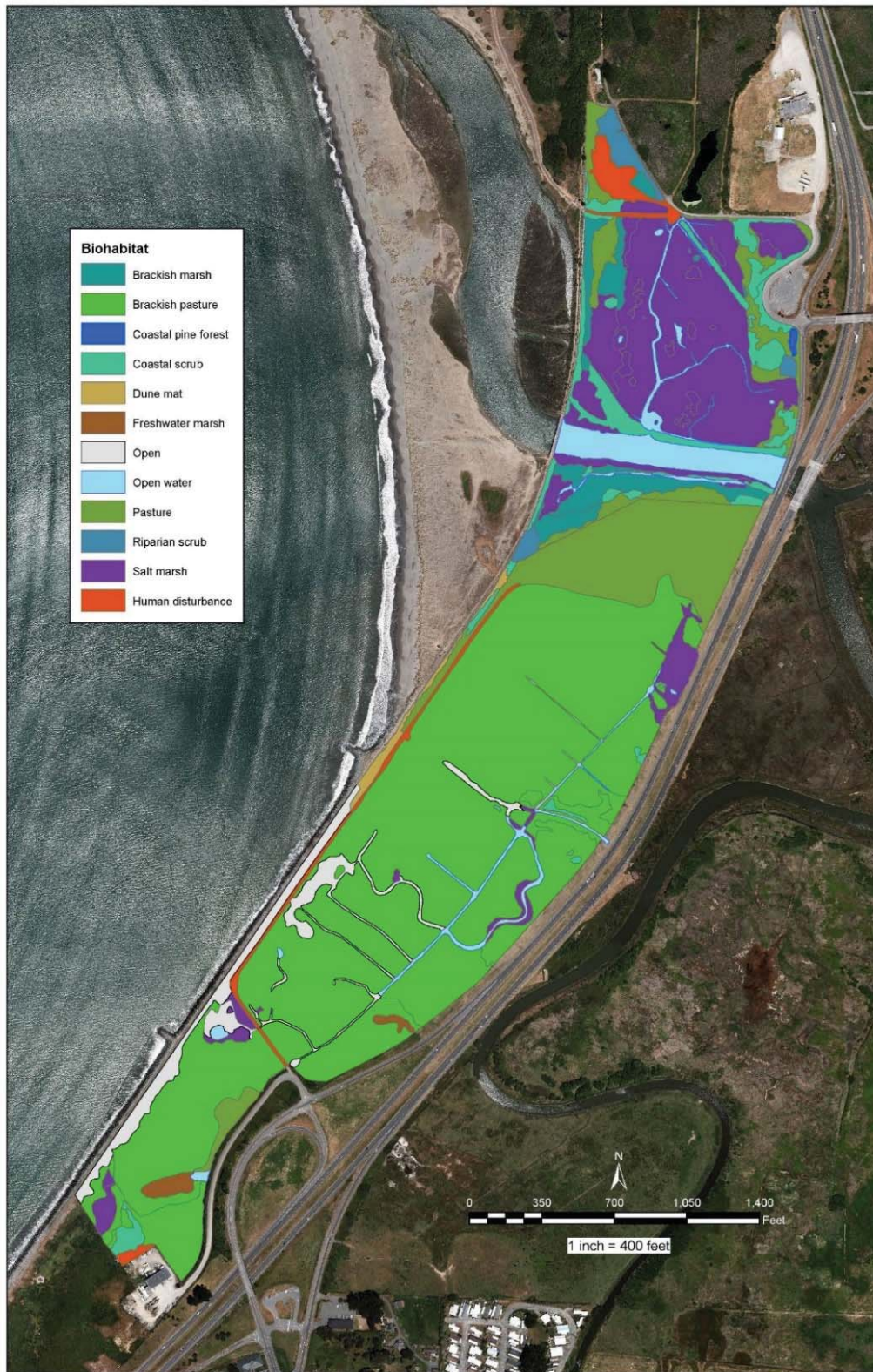


Figure 37. Existing biological land habitats, or "biohabitats," mapped in Areas 1 and 2. Biohabitats are further defined in Appendix B.

## **Fisheries**

Annual surveys conducted by CDFW in the lower mainstem Elk River (Site 3, Figure 38) immediately downstream of the project area identified a variety of marine species including: Threespine Stickleback (*Gasterosteus aculeatus*), Staghorn Sculpin (*Leptocottus armatus*), Starry Flounder (*Platichthys stellatus*), Shiner Surf perch (*Cymatogaster aggregata*), Dungeness Crab, Crangon Shrimp (*Crangon crangon*), Northern Anchovy (*Engraulis mordax*), Pacific Herring (*Clupea pallasii*), and Prickly Sculpin (*Cottus asper*) (Figure 38) (CDFW 2005, CDFW 2006, CDFW 2007, CDFW 2008, CDFW 2009) below. Surveys conducted upstream of the project area (Site 4, Figure 38) identified similar marine species. Small numbers of adult Cutthroat Trout (*Oncorhynchus clarkii clarkii*), and Pacific Lamprey were also observed at Site 4; both are State Species of Concern (Figure 38) (CDFW 2005, CDFW 2006, CDFW 2007, CDFW 2008, CDFW 2009).

Salmonids have also been monitored in Elk River by CDFW. Salmonids use non-natal sloughs and marshes to rear and for migration through Humboldt Bay, including the Elk River Slough (Wallace 2012). Salmonids currently utilizing the estuary include Chinook Salmon, salmon, northern California Steelhead, and Coast Cutthroat Trout (Wallace and Allen 2007, Wallace and Allen 2009, Wallace and Allen 2012). The project area is considered Critical Habitat and Essential Fish Habitat for Chinook and Coho Salmon, as well as northern California Steelhead Trout. These species utilize the Elk River estuary during all life stages (juvenile rearing through adult holding). Wallace et al. (2015) noted the value of estuary habitat for overwintering listed Coho Salmon, in particular. Region-wide overwintering habitat for juvenile coho salmon is considered a limiting factor in species recovery (NOAA 2014). The NOAA Southern Oregon/Northern California (SONC) Coho Recovery Plan (2014) prioritizes restoration actions that will increase overwintering habitat for Coho juveniles.

Tidewater Goby are listed as endangered under the Endangered Species Act. Tidewater Goby is a small fish, rarely exceeding 2" in length (USFWS 2005). Most individuals complete their life cycle in one year, but in northern California fish can live as long as 3 years (Chamberlain 2005). Tidewater Goby are exclusive to brackish habitats for their entire life cycle, and prefer water with salinity less than 12 parts per thousand (ppt), but can be found in water of 0-41 ppt. The project area is considered Critical Habitat for Tidewater Goby. Water samples collected on July 21 and July 27, 2016 by Humboldt State University's Fisheries Department for eDNA analysis at nine locations in the project area did not detect any Tidewater Goby (Kinziger 2016).

Longfin smelt (*Spirinus thaleichthys*) are an anadromous fish found in California's bay, estuary, and nearshore coastal environments from San Francisco Bay north to Lake Earl, near the Oregon border, including Humboldt Bay and the project area. Humboldt Bay presently ranks the second highest in abundance of Longfin Smelt. The species has been listed as endangered by the State of California. A small number of longfin smelt were observed by CDFW in the Elk River Estuary between 2005 and 2009 during winter months (CDFW 2005, CDFW 2006, CDFW 2007, CDFW 2008, CDFW 2009).

Green sturgeon (*Acipenser medirostris*) are anadromous and spend most their life cycle in the ocean. The project area is within the distribution range for green sturgeon. NMFS has established federally designated Critical Habitat in the project area for green sturgeon. Green sturgeon were not observed by CDFW during prior monitoring (CDFW 2005, CDFW 2006, CDFW 2007, CDFW 2008, CDFW 2009).

Eulachon (*Thaleichthys pacificus*) are listed as threatened under the Endangered Species Act. According to CDFW distribution of the species does include coastal streams of Humboldt Bay, including the Elk River. However, Humboldt Bay is at the most southern end of the known historic range of the species; eulachon are likely extirpated south of the Klamath River. Humboldt Bay and its tributaries have not been designated as critical habitat for Eulachon. Eulachon were not observed by CDFW during prior monitoring (CDFW 2005, CDFW 2006, CDFW 2007, CDFW 2008, CDFW 2009).

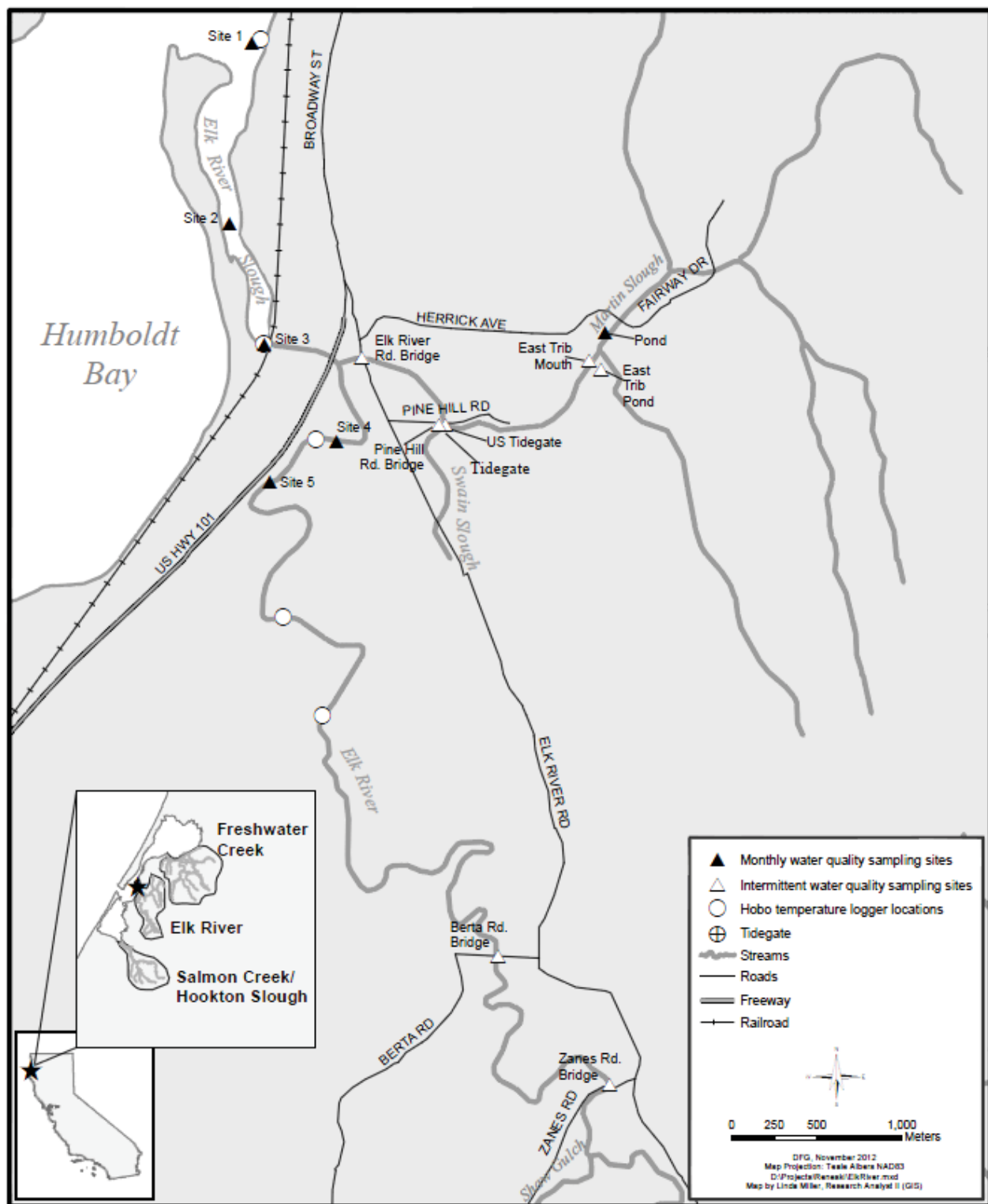


Figure 38. Site location map of CDFW water quality and fisheries sampling sites in the lower Elk River watershed. Figure from CDFW.



## **Land Use**

Area 1 is in the City's land use jurisdiction and is zoned Natural Resource (NR). Restoration and enhancement of coastal wetlands are allowable uses on NR zoned property. However, pursuant to the Coastal Act, Area 1 is in the State's retained jurisdiction. Therefore, proposed project activities, which are considered developments, will be subject to Coastal Commission authorization. The policies in Chapter 3 of the Coastal Act will apply to the proposed project activities. Existing zoning and regulatory policies are deemed to be compatible with the goal of the proposed project of expanding and enhancing the estuary and inter-tidal wetlands on Elk River. All applicable local, state, and federal regulatory authorizations will be secured for the proposed project prior to commencing work. Area 1 also includes NCRA property, zoned Public Facility, the site of Eureka's proposed extension of its Waterfront Trail. On the City's property and parallel to the railroad is a 30-foot right-of-way easement that HCSD holds for their sewer line.

Area 2 is in the City's land use jurisdiction and is zoned coastal agriculture. Pursuant to the Coastal Act, approximately 12.5 acres of Area 2 is in the State's retained jurisdiction pursuant to the Coastal Act, while the remainder of the area is in the City's Local Coastal Program (LCP) jurisdiction. Development will be subject to both the City's and Coastal Commission authorization. The City leases its property in Area 2 for livestock grazing. The use of Area 2 for livestock grazing also provides seasonal Aleutian goose with grazing habitat. In the past, Area 2 was used for bio-solids disposal; that use was discontinued in 2008. HCSD's forced main sewer line runs parallel to the NCRA's railroad grade in a 30-foot easement on the City's property.

The policies in the City LCP and in Chapter 3 of the Coastal Act apply to the proposed project activities. Existing zoning and regulatory policies are deemed to be supportive of the project goal of expanding and enhancing the estuary and inter-tidal wetlands on Elk River. However, there is an inherent conflict between policies to restore tidal wetlands whenever feasible and protect agricultural lands. As these are former tidelands their restoration can only occur in this location, while agricultural uses are prevalent on areas other than historic tide lands. Further, estuaries are valuable habitat for the recovery of protected Coho salmon, and naturally occur in the lower-most reaches of rivers such as Elk River. On the balance restoring former tidal wetlands and enhancing the estuary on Elk River are of greater priority in this unique coastal location than perpetuating agricultural uses on these public lands.

Caltrans property borders Area 2, but the proposed actions do not encroach on their property.

## Environmental Factors Potentially Affected

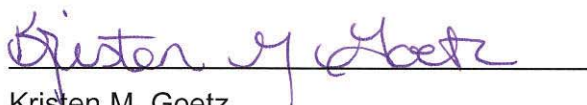
The environmental factors checked below would be potentially affected by this project, involving at least one impact that is a "Potentially Significant Impact" as indicated by the checklist on the following pages.

- |  |   |   |
|--|---|---|
| <input type="checkbox"/> Aesthetics                                    | <input checked="" type="checkbox"/> Agricultural Resources      | <input type="checkbox"/> Air Quality                        |
| <input checked="" type="checkbox"/> Biological Resources               | <input checked="" type="checkbox"/> Cultural Resources          | <input checked="" type="checkbox"/> Geology/Soils           |
| <input type="checkbox"/> Green House Gas Emissions                     | <input checked="" type="checkbox"/> Hazards/Hazardous Materials | <input checked="" type="checkbox"/> Hydrology/Water Quality |
| <input type="checkbox"/> Land Use/Planning                             | <input type="checkbox"/> Mineral Resources                      | <input checked="" type="checkbox"/> Noise                   |
| <input type="checkbox"/> Population/Housing                            | <input type="checkbox"/> Public Services                        | <input checked="" type="checkbox"/> Recreation              |
| <input type="checkbox"/> Transportation/Traffic                        | <input type="checkbox"/> Tribal Cultural Resources              | <input type="checkbox"/> Utilities/Service Systems          |
| <input checked="" type="checkbox"/> Mandatory Findings of Significance |   |   |

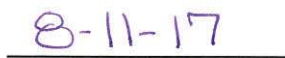
## Determination

On the basis of this initial evaluation:

- ☐ I find that the proposed project **could not** have a significant effect on the environment, and a **NEGATIVE DECLARATION** will be prepared.
- ☒ I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A **MITIGATED NEGATIVE DECLARATION** will be prepared.
- ☐ I find that the proposed project **may** have a significant effect on the environment, and an **ENVIRONMENTAL IMPACT REPORT** is required.
- ☐ I find that the proposed project **may** have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An **ENVIRONMENTAL IMPACT REPORT** is required, but it must analyze only those effects that remain to be addressed.
- ☐ I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier **EIR** or **NEGATIVE DECLARATION** pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier **EIR** or **NEGATIVE DECLARATION**, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.



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Date

## Checklist and Evaluation of Environmental Impacts

An explanation for all checklist responses is included, and all answers take into account the whole action involved, including off-site as well as on-site, cumulative as well as project-level, indirect as well as direct, and construction as well as operational impacts. The explanation of each question identifies (a) the significance criteria or threshold, if any, used to evaluate each question; and (b) the mitigation measure identified, if any, to reduce the impact to less than significant. For each question, there are four possible answers:

**“Potentially Significant Impact”** means there is substantial evidence that an effect may be significant.

**“Less than Significant with Mitigation Incorporated”** means the incorporation of one or more mitigation measures can reduce the effect from potentially significant to a less than significant level.

**“Less Than Significant Impact”** means that the effect is less than significant and no mitigation is necessary to reduce the impact to a lesser level.

**“No Impact”** means that the effect does not apply to the proposed project, or clearly will not impact nor be impacted by the project.



## **Summary of Recommended Mitigation Measures**

Below is a list of mitigation measures that are identified in the following checklist and would be recommended as conditions of project approval.

### **1. Aesthetics**

- 1.1 After construction, the City will install signage in the Pound Road and Tooby Road parking areas. Signage will indicate that the hours of public use are to be limited to daylight hours only (sunrise to sunset).

### **2. Agricultural and Forestry Resources**

- 2.1 Once grading is complete, the project will plant 12.8 acres of native riparian forest species.

### **3. Air Quality**

The project will have less than a significant impact on air quality resources, and mitigation measures are therefore not required.

### **4. Biological Resources**

- 4.1 Construction shall only occur between July 1st and October 31st when freshwater discharge of the Elk River is at its lowest and when the ground surface is dry and to reduce the chance of stormwater runoff occurring during construction.
- 4.2 Prior to dewatering and beginning construction, the Fish Avoidance Plan shall be implemented to passively encourage fish to leave the project area without harming them.
- 4.3 If water remains present during low tides and/or after sealing the Area 1 tide gates, aquatic habitat will be impacted by pumping for the shortest time necessary to complete construction or excavation. Pumps used to de-water work areas shall utilize a fish screen on the inlet of sufficiently sized mesh to prevent entrainment.
- 4.4 Surveys of freshwater habitat by a qualified biologist for juvenile red-legged frogs shall occur two weeks prior to disturbance activities in the areas to be de-watered (July through August). Any red-legged frogs found shall be relocated to suitable areas outside of the area of disturbance. Construction activities shall occur only when the area is dry and when adult red-legged frogs are not expected to be present.
- 4.5 Northwestern pond turtle surveys shall be carried out by a qualified biologist along tidal margins two weeks prior to commencement of ground disturbing activities (July and August). Surveys shall be utilized to locate and flag northwestern pond turtle nests with eggs, or to remove hatchlings and adults that may be present in the stream reaches above the existing tidal zone below first diversion. Any active nests located shall be left undisturbed until hatchlings have emerged or have been relocated to suitable areas outside of the area of disturbance; similarly relocation of any adults found will occur. No existing freshwater ponds shall be impacted by the project.
- 4.6 Surveys by a qualified biologist for nesting birds 1,000 ft beyond the limits of disturbance shall occur two weeks prior to commencement of ground-disturbing activities. If breeding is confirmed

of any special status birds, construction activities that will degrade or remove breeding habitat shall not occur in the immediate vicinity until the end of the breeding period for that species or until the breeding effort has either been determined to have failed or the young have been determined to have fledged.

- 4.7 If possible, vegetation clearing activities shall take place between August 16 and March 13, outside of the active nesting season for migratory bird species (i.e., March 14 to August 15).
- 4.8 If work must be completed during the nesting season, a qualified biologist shall conduct preconstruction surveys of all ground disturbance areas to verify absence of nesting migratory birds in the project area within two weeks prior to vegetation removal and the start of construction. If nesting migratory birds are found in the project construction area during the preconstruction surveys, they shall be avoided with an appropriate buffer area until the young birds have fledged. Buffers shall be 250 ft for raptors, 100 ft for threatened and endangered species, 50 ft for other special-status bird species; however, buffers may be modified after consultation with, and agreement by CDFW. If state listed California Endangered Species Act (CESA), federally listed Endangered Species Act (ESA), or raptors are found outside of the construction area but near the construction area, appropriate buffers shall be implemented. If non-listed state CESA, non-listed federal ESA, including state species of special concern are found near, but outside of the construction area, no buffers will be implemented.
- 4.9 Vegetative disturbance shall be contained within the limits of grading and kept to a minimum area.

## **5. Cultural Resources**

- 5.1 If potential archaeological or paleontological resources are encountered during project subsurface construction activities or geotechnical testing, all work within 50 ft of the find shall be stopped, and a qualified archaeologist funded by the City of Eureka shall be contacted to evaluate the find, determine its significance, and identify any required mitigation. The applicant shall be responsible for implementing the mitigation prior to construction activities being re-started at the discovery site.
- 5.2 If project related geotechnical excavations become necessary, as a result of final design, and those excavations are to be more than one ft deep, then the THPOs of each local native American tribe, as noted above, will be contacted and given the date and time of excavations so that a cultural monitor may be present to observe for the presence of buried archaeological materials.

## **6. Geology and Soils**

- 6.1 A California registered Geotechnical Engineer shall conduct a design-level geotechnical study for the project. The geotechnical study shall evaluate seismic hazards and provide recommendations to mitigate the effect of strong ground shaking; any unstable, liquefiable, or expansive soils; or settlement in adherence with current California Building Code (CBC) standards for earthquake resistant construction. The seismic criteria shall consider the active faults in the Eureka area and beyond, and ground motions and shaking related to the faults shall be accounted. The geotechnical study shall include evaluation of unstable land in the project area, including areas susceptible to liquefaction, lateral spreading, or settlement, and areas containing expansive soils. The study shall provide measures to repair, stabilize, or avoid such

soils, and include grading, drainage, paving, and foundation design recommendations. The project shall be designed and constructed in conformance with the specific recommendations contained in the design-level geotechnical study, including recommendations for grading, ground improvement, and foundation support. The recommendations made in the geotechnical study shall be incorporated into the final plans and specifications and implemented during construction. Professional inspection 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.

- 6.2 Construction shall only occur between July 1st and October 31st when the ground surface is dry and to reduce the chance of stormwater runoff occurring during construction and when Elk River freshwater inputs are at summer baseflow thresholds.
- 6.3 Placement of fill in the project area shall occur when the area is not inundated by tide water.
- 6.4 Dewatering measures shall be in place to bypass any discharge from entering the work site.

## **7. Greenhouse Gas Emissions**

The project will have less than a significant impact on greenhouse gas emissions, and mitigation measures are therefore not required.

## **8. Hazards and Hazardous Materials**

- 8.1 Heavy equipment used in the project shall be in good condition and shall be inspected for leakage of coolant and petroleum products and repaired, if necessary, before work is started.
- 8.2 Equipment operators shall be trained in the procedures to be taken should an accidental spill occur.
- 8.3 Prior to the onset of work the contractor shall prepare a plan for the prompt and effective response to any accidental spills.
- 8.4 Absorbent materials designed for spill containment and cleanup shall be kept at the project site for use in case of an accidental spill.
- 8.5 Refueling of equipment shall occur within the staging area. Within the staging area, refueling will occur on a pad to capture any drips or spills.
- 8.6 If equipment must be washed, washing shall occur off-site.
- 8.7 Stationary equipment shall be positioned over drip pans.
- 8.8 Equipment on site during construction shall be required to have emergency spill cleanup kits immediately accessible in the case of any fuel or oil spills.
- 8.9 Staging, fueling and maintenance of equipment shall be conducted only in staging areas only and no closer than 150 ft from open water or in any location where hazardous material spills could become entrained in flowing water.



## **9. Hydrology and Water Quality**

- 9.1 Construction and Spartina eradication shall only occur between July 1st and October 31st when the ground surface is dry and to reduce the chance of stormwater runoff occurring during construction and when background Elk River freshwater inputs are at summer baseflow thresholds. Excavated materials shall not be stockpiled overwinter. Sediment control measures shall be in place while materials are being stockpiled to minimize sediment and pollutant transport from the project site.
- 9.2 Placement of fill in the project area shall occur when the area is not inundated by tide water.
- 9.3 Excavation shall include handling of saturated soils. Saturated soils shall be dewatered and/or transported saturated in a manner that prevents excess discharge or spillage of soils or water within the construction access areas. A silt fence shall be installed around the perimeter of temporary stockpiles of saturated soils to prevent runoff from leaving the site.
- 9.4 During construction, a silt fence shall be deployed to isolate work areas from existing channels, and to trap suspended sediment that might leave the construction site if stormwater runoff were to occur. If the silt fence is not adequately containing sediment, the construction activity shall cease until remedial measures are implemented that prevent sediment from entering the waters below.
- 9.5 No construction materials, debris, or waste, shall be placed or stored where it may be allowed to enter or be washed by rainfall into waters of the U.S./State.
- 9.6 Following completion of excavation, placement of fill, and grading all ground to the limits of disturbance (except newly constructed streambeds, pond beds, and tidally inundated areas) shall be treated for erosion prior to the onset of precipitation capable of generating run-off or the end of the yearly work period, whichever comes first. Treated areas that are not exposed to tidal influence shall be mulched with at least 2 to 4 inches of certified weed-free straw mulch with wheat or other straw for riparian and wetland areas and rice straw for uplands and use of a seed mix with coverage equivalent to 100 lbs/acre of barley seed and appropriate riparian vegetation for immediate erosion control. No annual (Italian) ryegrass (*Lolium multiflorum*) shall be used. In places such as stream banks, rush mattresses shall be installed for immediate erosion control.
- 9.7 All temporary fill, synthetic mats and silt fences shall be removed from wetlands and waters of the U.S./State immediately on cessation of construction. Biodegradable geotextile fabrics shall be used, where possible.
- 9.8 Soil and material stockpiles shall be properly protected to minimize sediment and pollutant transport from the construction site.
- 9.9 The following BMPs (California Storm Water Quality Association Storm Water Best Management Practice (BMP) Handbook for Construction, 2003) shall be implemented to prevent entry of storm water runoff into the excavation site, the entrainment of excavated contaminated materials leaving the site, and to prevent the entry of polluted storm water runoff into coastal waters during the transportation and storage of excavated contaminated materials:

### **EC-2 Preservation of Existing Vegetation**

- EC-6 Straw Mulch
- EC-7 Geotextile and Mats
- EC-9 Earth Dikes and Drainage Swales
- EC-10 Velocity Dissipation Devices
- SE-1 Silt Fence
- NS-2 Dewatering Operations

NS-4 Temporary Stream Crossing  
NS-5 Clear Water Diversion  
WM-9 Sanitary/Septic Waste Management

Stream diversion and dewatering shall conform to the following BMP (California Storm Water Quality Association Storm Water Best Management Practice (BMP) Handbook for Construction, 2003)

NS-2 Dewatering Operations  
NS-5 Clear Water Diversion  
EC-9 Earth Dikes and Drainage Swales  
EC-10 Velocity Dissipation Devices

- 9.10 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 drying time prior to tidal inundation. Herbicides shall be applied by a certified applicator and in accordance with application guidelines and the manufacturer label. The project's site specific water quality control plan shall include and obtain coverage for use of herbicides to treat Spartina from the North Coast Water Quality Control Board.

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 included in the site-specific water pollution prevention 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.

- 9.11 The City of Eureka shall coordinate with the contractor to develop and implement a site-specific water pollution control plan, subject to review and approval by the NCRWQCB.
- 9.12 To inform trail users of the potential of tsunami run-up inundating the trail area, each trailhead location shall have signage informing the public of what actions to take in the event of seismic activity. Said signage shall be posted to the satisfaction of the City of Eureka and prior to the trail being open to the general public.

## **10. Land Use and Planning**

The project will have no impact on land use and mitigation measures are therefore not required.

## **11. Mineral Resources**

The project will have no impact on mineral resources, and mitigation measures are therefore not required.

## **12 Noise**

- 12.1 Workers shall be required to wear hearing protection when in the vicinity of or while operating equipment producing noise levels equal to or greater than 85 db.
- 12.2 Restrict noise from earthmoving and hauling of soils to daytime hours. Hours of construction for outdoor activities exceeding 50 dBA shall be limited to Monday through Friday 7:00 a.m. to 7:00 p.m. and weekends and holidays from 8:00 a.m. to 6:00 p.m. Movement and hauling of material, and associated activities such as re-fueling or maintenance, shall be limited to normal working hours for the area, as specified above. More restrictive operation hours may be specified in the

construction documents and may be property-specific.

- 12.3 All equipment shall operate with factory-equipped mufflers, and staging areas shall be located as far from residential uses as is practical. These conditions shall be incorporated into project contract specifications.
- 12.4 A haul-truck route plan shall be developed. Hauling shall minimize passing any substantial collection of noise-sensitive land uses (i.e. occupied houses, schools, hospitals).
- 12.5 Larger capacity belly and end-dump trucks as well as double-trailers shall be used whenever feasible to minimize the number of truck trips necessary.
- 12.6 Construction personnel shall conduct all work activities in a manner that minimizes noise generation. A variety of contractor actions are available that will reduce construction noise, including: i) turning off engines on all construction equipment not in active use, ii) shielding noisy equipment with less noisy equipment, and iii) avoiding high RPM engine operation whenever possible.
- 12.7 Notify commercial property neighbors when activity involving heavy construction equipment is scheduled to occur within 250 ft of occupied structures. Construction personnel shall provide written notification to the adjacent property owners prior to using heavy construction equipment. The written notification shall be provided to each potentially affected property at least 72 hours prior to the start of the activity, and shall indicate the approximate duration of time (dates and hours) during which the noise-generating activity is expected to occur.
- 12.8 If necessary, limit public access to Pound Road and the Hikshari Trailhead during construction to avoid exposing people to noise levels higher than standards established in the local general plan, or applicable standards of other agencies.

### **13. Population and Housing**

The project will have no impact on population and housing, and mitigation measures are therefore not required.

### **14. Public Services**

The project will have no impact on public services, and mitigation measures are therefore not required.

### **15. Recreation**

The project will have a less than significant impact with successful implementation of mitigation measures. As detailed previously (Agriculture, Biological Resources, Geology and Soils, Hazards and Hazardous Materials, and Hydrology and Water Quality), impacts resulting from constructing public access related structures will be mitigated to less than significant with the successful implementation of mitigation measures.

### **16. Transportation and Traffic**

The project will have less than a significant impact on transportation and traffic, and mitigation measures are therefore not required.

### **17. Tribal Cultural Resources**

The project will have no impact on tribal cultural resources, and mitigation measures are therefore not required.



## **18. Utilities and Service Systems**

The project will have no impact on utilities and service systems, and mitigation measures are therefore not required.

## **19. Mandatory Findings of Significance**

The project will have no additional findings of significance, and mitigation measures beyond those already stated in previous sections are not required.