



**HUMBOLDT COMMUNITY SERVICES DISTRICT  
BOARD OF DIRECTORS  
REGULAR SCHEDULED MEETING**

**AGENDA**

**DATE:** Tuesday, June 22, 2021

**TIME:** 5:00 p.m.

**LOCATION:** *In accordance with the Governor's Executive Order N-08-21 #42, HCSD Board of Directors shall conduct the District's business via teleconference.*

*The open session segment(s) of the meeting, including Public Participation, may be joined through the Zoom Website (<https://zoom.us>) by clicking on "Join A Meeting" and entering the following Meeting ID then follow the prompts for Passcode and audio. Access may also be achieved by telephone only by dialing 1-669-900-9128 followed by the Meeting ID and Passcode below:*

*Meeting ID: 857 0325 8897  
Passcode: 081040*

*Participation protocol:*

- Please use the MUTE function when not speaking*
- Please use the "RAISE HAND" feature when wishing to be acknowledged for participation. Raise Hand feature is located in the lower right portion of the screen via the "REACTIONS" icon.*
- Please do not speak out of turn; wait for the Board President to call upon you to share.*

**A. CALL TO ORDER AND ROLL CALL**

**B. CONSENT CALENDAR**

1. Approval of June 22, 2021 Agenda
2. Approval of Minutes of the Regular Meeting of June 8, 2021

*Pgs 1-2  
Pgs 3-7*

**C. PUBLIC HEARING**

1. 2020 Urban Water Management Plan (UWMP)

*Pg 9*

**D. REPORTS**

1. General Manager
  - a) Status Report
2. Engineering
3. Superintendent
  - a) May 2021 Operations/Maintenance Report

*Pgs 11-73*

*Pg 74*

4. Finance Department

a) May 2021 Budgetary Statement

*Pgs 75-86*

5. Legal Counsel

6. Director Reports

7. Other

**E. PUBLIC PARTICIPATION \*\***

\*\*Members of the public will be given the opportunity to comment on items not on the agenda by way of a Zoom meeting. Please use the information set forth above to participate. The Board requests that speakers please state their name and where they are from, be clear, concise and limit their communications to 3 to 5 minutes. At the conclusion of all oral communications, the Board or staff may choose to briefly respond with information in response to comments; however, the Brown Act prohibits discussion of matters not on the published agenda. Matters requiring discussion, or action, will be placed on a future agenda.

**F. NON-AGENDA**

**G. NEW BUSINESS**

1. Consideration of Resolution 2021-08 Adopting the 2020 Urban Water Management Plan (UWMP) *Pgs 87-89*
2. Public Hearing and Consideration of Adopting Resolution 2021-09 Establishing Master Fees and Charges for Fiscal Year 2021/2022 *Pgs 90-107*
3. Consideration of Claim for Damages – 3878 Walnut Avenue *Pgs 108-109*

**H. OLD BUSINESS**

**I. ADJOURNMENT**

Next Res: 2021-10

Next Ord: 2021-01

In compliance with the Americans with Disabilities Act, if you need special assistance to participate in this meeting, please contact Brenda Franklin at (707) 443-4558, ext. 210. Notification 48 hours prior to the meeting will enable the District to make reasonable arrangements to ensure accessibility to this meeting (28 CFR 35.102 – 35.104 ADA Title II).

Pursuant to §54957.5(a) of the California Government Code, any public record writings relating to an agenda item for an open session of a regular meeting of the Board of Directors, not otherwise exempt from public disclosure, are available for public inspection upon request at the District offices located at 5055 Walnut Drive, Monday through Friday (holidays excepted) during regular business hours.

DRAFT – MINUTES OF THE REGULAR MEETING  
OF THE BOARD OF DIRECTORS OF THE  
HUMBOLDT COMMUNITY SERVICES DISTRICT

The Board of Directors of the Humboldt Community Services District met in Regular Session at 5:00 p.m. on Tuesday, June 8, 2021, via tele/video conference in accordance with the Governor’s Executive Orders N-25-20 and N-29-20.

**A. CALL TO ORDER AND ROLL CALL**

Present upon roll call were Directors Benzonelli, Bongio, Gardiner, Hansen, and Matteoli. Staff in attendance: General Manager Williams (GM), Superintendent Latham, Finance Manager Montag (FM), and Assistant Engineer Adams (AE).

**B. CONSENT CALENDAR**

1. Approval of June 8, 2021 Agenda
2. Approval of Minutes of the Meeting of May 25, 2021

DIRECTOR GARDINER MOVED, DIRECTOR HANSEN SECONDED, TO ACCEPT AND APPROVE THE JUNE 8, 2021 CONSENT CALENDAR. MOTION CARRIED UPON THE FOLLOWING ROLL CALL VOTE:

AYES: BENZONELLI, BONGIO, GARDINER, HANSEN, MATTEOLI  
NOES: NONE  
ABSENT: NONE

**C. REPORTS**

1. General Manager

- a) Status Report

GM reviewed his June 4, 2021 Memorandum summarizing:

- COVID: Although still awaiting the Governor’s revised guidelines, CalOSHA has released a draft guideline requiring masks when working with others indoors and maintaining six-foot separation whether working inside or outside. Humboldt Bay Municipal Water District and McKinleyville Community Services District are discussing in-person meetings and the GM plans to place the discussion on the June 22 HCSD Regular meeting agenda.
- Ridgewood Tank: Staff will begin draining the main tank June 9 with continual monitoring of the temporary system to ensure uninterrupted water service. The contractor is scheduled to begin refurbishing the tank the week of June 14.
- Pine Hill Bridge HDD: the final tie-ins, back filling, and paving are on track for completion by June 11.

3. Superintendent

- a) May 2021 Construction Operations Report

DRAFT – MINUTES OF THE REGULAR MEETING  
OF THE BOARD OF DIRECTORS OF THE  
HUMBOLDT COMMUNITY SERVICES DISTRICT  
Continued; June 8, 2021

Superintendent reviewed the June 3 Memorandum summarizing the May activities of the Construction Department commending all crew members for the hard work put in to complete the Pine Hill Bridge Water Main Line Replacement Project and the Ridgewood Tank Off-Line Project.

4. Finance Department

a) May 2021 Check Register

FM elaborated upon a few of the largest expenditures and affirmed all transactions were consistent with regular activities.

**E. PUBLIC PARTICIPATION**

President Bongio invited the public to address the Board on any item not listed on the agenda or issues generally affecting District operations, which are within the jurisdiction of the Board.

Kristen Orth-Gordinier introduced herself as a grad student at HSU working with Dr. Richmond and others on a feasibility survey focusing on sea level rise to share with the Humboldt Bay SLR Regional Planning Feasibility Study. Ms. Gordinier advised emails were sent directly to public officials with a link to the survey and invited all public to participate in the separate County survey by Googling Open Town Hall Humboldt Sea Level Rise or the County Facebook page to find the survey.

Jerry Martien referred to the City of Eureka's (COE) plans for an interpretive Center, etc., inquiring whether the District will participate in the State Public Hearing in August. GM advised he has been in contact with COE management and the Regional Water Control Board and is planning on participating in the August meeting.

**G. NEW BUSINESS**

1. Consideration of Adopting Resolution 2021-06 Establishing Appropriations Limits for Fiscal Year 2021/2022

FM reviewed the agenda report affirming the FY 2021/2022 Appropriations Limit at \$474,957 and recommending Board adoption.

IT WAS THEN MOVED BY DIRECTOR GARDINER, SECONDED BY DIRECTOR MATTEOLI, TO ADOPT RESOLUTION 2021-06 ESTABLISHING AN APPROPRIATIONS LIMIT FOR FISCAL YEAR 2021/2022. MOTION CARRIED UPON THE FOLLOWING ROLL CALL VOTE:

AYES: BENZONELLI, BONGIO, GARDINER, HANSEN, MATTEOLI



DRAFT – MINUTES OF THE REGULAR MEETING  
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NOES: NONE  
ABSENT: NONE

2. Consideration of Humboldt County Office of Emergency Services (OES) Request to Store a Humboldt County Community Emergency Response Team (CERT) Trailer at the District Corporation Yard

GM reviewed the Humboldt County OES request to store an emergency trailer at the District Yard as it has been deemed a central location with ease of accessibility under emergency conditions.

PUBLIC COMMENT: None

The Board engaged in discussion affirming the desire and feasibility to cooperate, approaching the OES for reciprocal assistance in emergency situations, District self-reliance, and entering into a Memorandum of Understanding.

IT WAS THEN MOVED BY DIRECTOR GARDINER, SECONDED BY DIRECTOR MATTEOLI, TO TABLE THE ITEM TO A DATE IN THE FUTURE AND DIRECT THE GM TO REPORT BACK TO THE BOARD AFTER DISCUSSION WITH OES REGARDING BENEFIT TO BOTH ENTITIES. MOTION CARRIED UPON THE FOLLOWING ROLL-CALL VOTE:

AYES: BONGIO, GARDINER, MATTEOLI  
NOES: BENZONELLI, HANSEN  
ABSENT: NONE

3. Consideration of Opting-In to the Redwood Coast Energy Authority's (RCEA) Community Choice Energy Program

GM reviewed the agenda report summarizing the positive aspects of participating in the RCEA's Community Choice Energy (CCE) Program. GM affirmed the District can opt-out at any time and there is no contract or stipulated time-period.

PUBLIC COMMENT: J.A. Savage expressed that it is a great idea to be a part of CCE, good for long-term solvency, and suggested the District join the RCEA Preference Program that consists of a micro-grid at the airport that might be able to provide back-up support with batteries and solar, or the District could invest in its own battery/solar system. Ms. Savage then asked the GM if the District can get on the super off-peak power rates where sometimes there is a negative price to the energy? GM advised without an energy generation agreement, negative pricing is not available but HCSD is charged by time of use and staff does take advantage of off-peak pricing.

IT WAS THEN MOVED BY DIRECTOR MATTEOLI, SECONDED BY DIRECTOR BENZONELLI, TO APPROVE OPTING-IN TO THE REDWOOD COAST ENERGY

AUTHORITY'S (RCEA's) COMMUNITY CHOICE ENERGY (CCE) PROGRAM.  
MOTION FAILED UPON THE FOLLOWING ROLL-CALL VOTE:

AYES: BENZONELLI, BONGIO, GARDINER, HANSEN, MATTEOLI  
NOES: NONE  
ABSENT: NONE

4. Consideration of the District's Water Hauling Policy

GM summarized the Division of Drinking Water caution of potential violations of the District's permit without significant record keeping and verification that the end-use/destination is for domestic purposes only, and within the District Sphere of Influence (SOI). Discussion ensued examining personnel impacts required to regulate all aspects of the haulers, the liability associated with the inability to verify where the water haulers take the water, the fees charged, emergency conditions.

PUBLIC COMMENT: None

Discussion continued resulting in the GM affirming he will bring the matter back to the Board with a modified Water Hauler Application Permit for consideration.

5. Consideration of Legal Counsel Options to assist with Renegotiation of Wastewater Treatment Agreement

GM reported that the current agreement is five years overdue for renegotiation and emphasized the necessity of acceptable legal counsel to assist in the negotiations. Discussion resulted in the GM proposing to provide the Board recommendations and additional information at a future meeting.

**G. OLD BUSINESS**

1. Consideration of Adopting Resolution 2021-05 establishing a Wholesale Wastewater Treatment Pass-Through Rate Adjustment for Fiscal Year 2021/2022

FM summarized the action of the preceding meeting where the Board requested additional options for review and consideration. The five volumetric surcharge rate calculation options ranged from \$2.28 to \$3.85 per winter average unit. Discussion ensued addressing the necessity to recover excessive unplanned costs to ensure proper operation of the sewer system.

IT WAS THEN MOVED BY DIRECTOR GARDINER, SECONDED BY DIRECTOR MATTEOLI, TO ADOPT RESOLUTION 2021-05 ESTABLISHING A SEWER PASS-THROUGH FEE RATE FOR FY 2021/2022 BASED UPON OPTION NO. 3 AS

DRAFT – MINUTES OF THE REGULAR MEETING  
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Continued; June 8, 2021

PRESENTED AND DIRECT STAFF TO PROCEED WITH RATEPAYER  
NOTIFICATION AND IMPLEMENTATION.

PUBLIC COMMENT: None

MOTION CARRIED UPON THE FOLLOWING ROLL CALL VOTE:

AYES: BONGIO, GARDINER, MATTEOLI  
NOES: BENZONELLI, HANSEN  
ABSENT: NONE

2. Consideration of Resolution 2021-07 Adopting a Fiscal Year 2021/2022 Budget

As a result of selecting Option 3 from Item G.1, FM guided the Board to the  
corresponding budget pages affirming the projected reserve balances for the option as:  
Water Fund at \$4,185,226, Sewer Fund at \$2,290,391. FM added the projections align  
with the 2017 Rate Study goals.

PUBLIC COMMENT: None

IT WAS THEN MOVED BY DIRECTOR HANSEN, SECONDED BY DIRECTOR  
MATTEOLI, TO ADOPTED RESOLUTION 2021-07 APPROVING AND ADOPTING A  
BUDGET FOR FISCAL YEAR 2021/2022. MOTION CARRIED UPON THE  
FOLLOWING ROLL CALL VOTE:

AYES: BENZONELLI, BONGIO, GARDINER, HANSEN, MATTEOLI  
NOES: NONE  
ABSENT: NONE

**H. ADJOURNMENT**

There being no further business, IT WAS MOVED BY DIRECTOR BENZONELLI,  
SECONDED BY DIRECTOR MATTEOLI, TO ADJOURN. MOTION CARRIED UPON THE  
FOLLOWING ROLL CALL VOTE:

AYES: BENZONELLI, BONGIO, GARDINER, HANSEN, MATTEOLI  
NOES: NONE  
ABSENT: NONE

THE BOARD ADJOURNED ITS REGULAR MEETING OF JUNE 8, 2021 AT 6:43 P.M.

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Submitted, Board Secretary

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# Humboldt Community Services District

*Dedicated to providing high quality, cost effective water and sewer service for our customers*

## AGENDA REPORT

For HCSD Board of Directors Regular Meeting of: June 22, 2021

**AGENDA ITEM:** C.1 (New Business)

**TITLE:** Public Hearing for the 2020 Urban Water Management Plan and Water Shortage Contingency Plan

**PRESENTED BY:** Terrence Williams, General Manager

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### **Recommendation:**

This Public Hearing for the 2020 Urban Water Management Plan (UWMP) and Water Shortage Contingency Plan (WSCP) does not include an action item. A separate agenda item is included in this meeting for the adoption of the UWMP and WSCP.

- Receive Report
- Open Public Hearing providing public the opportunity to address the Board with its comments and/or questions and allow staff to provide direct responses to the public input
- Close the Public Hearing advising discussions and action will following under Agenda Item G.1

### **Summary:**

The California Department of Water Resources (DWR) requires every urban water supplier that serves more than 3,000 urban connections to submit an UWMP every five years. California Water Code sections §10610-10656 and §10608 govern UWMP activities. Among the requirements for UWMPs, urban water suppliers are required to perform the following:

- Prepare and submit an updated UWMP every five years
- Asses the reliability of water sources over a 20-year planning time frame
- Describe demand management measures and water shortage contingency plans
- Report progress toward meeting a targeted 20 percent reduction in per-capita (per person) urban water consumption by the 2020 target
- Discuss the use and planned use of recycled water

The District is required to submit our updated UWMP for 2020 by July 1, 2021.

This public hearing was noticed in the Times Standard on June 12 and June 19, 2021. The Draft 2020 UWMP and WSCP were posted to the District's website on June 11, 2021.

### **Fiscal Impact:**

None

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# Humboldt Community Services District

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*Dedicated to providing high quality, cost effective water and sewer service for our customers*

## MEMORANDUM

TO: Board of Directors

FROM: Terrence Williams, General Manager

DATE: June 18, 2021

SUBJECT: General Manager Report for June 22, 2021 Board Meeting

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### **COVID:**

Lots has happened recently regarding our beloved pandemic. CA Governor Newsom effectively retired the state's Blueprint for a Safer Economy through executive order N-08-21 on June 11, 2021. The Executive Order did repeal many of the restrictions that have been in place for the past 15 months but some will remain.

As of June 18, 2021, CalOSHA has revised COVID-19 workplace safety regulations to align more closely with current CDPH guidance. Some workplace restrictions are still in effect. These restrictions mostly apply to unvaccinated employees. Additional documentation requirements are in place for employers that wish to follow the relaxed restrictions. The District will continue to follow the previous restrictions until such time that the required documentation is in place. The District office will remain closed to the general public until we determine how best to protect the health of our team.

Executive Order N-08-21 does allow the District to continue to meet via teleconference. Some of CalOSHA's restrictions complicate the prospect of returning to in person meetings. Once staff has had a chance to analyze the ramifications of doing so, a proposal to return to in person meetings will be agendized at a future meeting.

### **Ridgewood Tank:**

The Ridgewood Tank has been drained and contractors are working on the rehabilitation project. Figure 1 shows a photograph of the Ridgewood Tank with scaffolding and contractors hard at work.



Figure 1: Ridgewood Tank with scaffolding and contractors hard at work.

### **Pine Hill Bridge HDD:**

Complete.

### **Elk River Estuary Enhancement Project**

On June 16, 2021 the Regional Water Quality Control Board released a Second Revised Notice of Public Hearing. The Notice indicates that the Public Hearing has been rescheduled for August 19 or 20, 2021 and that the public comment period has been re-opened and will close on June 28, 2021. The Notice indicates that the title of the project has been changed from, "The Elk River Restoration Project as an Exemption to the Enclosed Bays and Estuaries Policy Prohibiting Waste Discharges to Humboldt Bay," to, "The Elk River Restoration Project as an Exception to the Enclosed Bays and Estuaries Policy Prohibiting Waste Discharges to Humboldt Bay for the Elk River Wastewater Treatment Plant." The two major differences seem to be the change of the word Exemption to Exception and the inclusion of the name of the wastewater plant as the originator of the discharges. The Notice identifies Justin McSmith as the point of contact. I did ask Mr. McSmith for clarification of the difference between Exemption and Exception; he will be getting back to me.

Upon reaching out to Mr. McSmith, I was also able to obtain a technical memo that was prepared by GHD for the City of Eureka in July 2020. The memo includes analysis of alternatives enhancement projects to the proposed Elk River Estuary Enhancement Project but does not address the costs associated with the required upgrades to the Elk River Wastewater Treatment Plant nor does it analyze alternatives to discharging of effluent into Humboldt Bay. Mr. McSmith indicated that he would need to get back to me when I asked



General Manager's Report to the Board of Directors for  
June 22, 2021 Board Meeting

about an alternatives analysis that includes alternatives to discharging into Humboldt Bay and the duration of the proposed Exemption/Exception.

A copy of the Second Revised Notice of Public Hearing and the Alternatives Analysis Memo are included in this Board Packet for your convenience.

## **RCEA**

The Redwood Coast Energy Authority (RCEA) is launching a new incentive program that is available only to large commercial, industrial and agricultural customers. The program is designed to ease the pressure on the energy grid during extremely high use events. Under very specific conditions, RCEA will pay \$0.25 per kW-h conserved. Between July 1 and September 30, 2021, RCEA will notify participants the day before an anticipated extreme use event. If participants can conserve energy between 5pm and 8pm during the extreme use event, they will receive a \$0.25 credit for every kW-h conserved. HCSD already minimizes electricity use between 4pm and 9pm because of the cost associated with Time of Use energy metering. There is no cost associated with participating in the new program and no penalty if we cannot conserve during an extreme use event. HCSD will enroll in this program for the chance that there is a benefit to the ratepayers.

## **Juneteenth**

On June 17, 2021, President Biden signed legislation establishing June 19<sup>th</sup> as a US federal holiday commemorating Juneteenth National Independence Day; on June 19, 1865 Union Major General Gordon Granger announced the end of slavery in Texas in accordance with Lincoln's 1863 Emancipation Proclamation. Most public entities observed this holiday on Friday, June 18<sup>th</sup>, 2021.

California North Coast Regional Water Quality Control Board  
5550 Skylane Boulevard, Suite A  
Santa Rosa, CA 95403  
(707) 576-2220

**Second Revised Notice of Public Hearing**

**of**

**Resolution No. R1-2021-0017**

**for**

**The Elk River Restoration Project as an Exception to the Enclosed Bays and Estuaries Policy Prohibiting Waste Discharges to Humboldt Bay for the Elk River Wastewater Treatment Plant**

On the basis of preliminary staff review and application of lawful standards and regulations, the California North Coast Regional Water Quality Control Board (Regional Water Board) proposes to adopt Resolution No. R1-2021-0017 (Resolution) approving the Elk River Restoration Project as an Exemption to the Enclosed Bays and Estuaries Policy Prohibiting Waste Discharges to Humboldt Bay for the Elk River Wastewater Treatment Plant.

This item, previously noticed under the title “The Elk River Restoration Project as an Exception to the Enclosed Bays and Estuaries Policy Prohibiting Waste Discharges to Humboldt Bay”, was originally open for public comment between **March 23, 2021 and April 22, 2021**. The public comment period was previously extended to **May 3, 2021** at the request of multiple interested parties. Regional Water Board staff has agreed to provide an additional 10 days of public comment to allow for further consideration of the Resolution and has retitled the Resolution to provide added clarity. The 10-day public comment extension will end **June 28, 2021**.

***Public Hearing Procedures***

A public hearing to consider comments and objections to the proposed Resolution is scheduled for the Regional Water Board’s **August 19 or 20, 2021** Board Meeting, or as announced in the Regional Water Board’s agenda. Due to the COVID-19 emergency and the Governor’s Executive Orders (Order Nos. N-29-20 and N-33-20 and N-08-21) to protect public health by limiting public gatherings and requiring social distancing, this meeting is scheduled to occur solely via remote participation. Please follow the North Coast Regional Water Quality Control Board website for information on how to participate in the meeting and any updates regarding this agenda item.

Live video and audio broadcasts of the public hearing will be available via the internet and can be accessed at the [CalEPA Public Meeting Live Webcasts page](#). The public hearing will be recorded.

Please be aware that dates and venues may change. You can access the current agenda for changes in dates and locations at the [North Coast Regional Water Quality Control Board website](#). At the public hearing, the Regional Water Board will consider whether to affirm, reject, or modify the proposed permit.

In order for the Regional Water Board to consider any evidentiary material concerning this hearing, any documents, including written comments, technical reports and other evidentiary material, must be submitted to the [Regional Water Board email](#) no later than 5:00 p.m., on **June 28, 2021**. All documents that are received timely will be distributed to the Regional Water Board members and interested persons. These records will also become a permanent part of the administrative record for this public hearing.

Except at the discretion of the Regional Water Board Chair, written material received after the above date will not be accepted. If the Chair chooses to accept late written material, that material will not be incorporated into the administrative record if doing so would prejudice the Permittee or the Regional Water Board staff. The Chair may choose to modify this rule upon a showing of severe hardship (California Code of Regulations, Title 23, sections 648.1 and 648.4).

The Regional Water Board will accept written and oral comments and evidence regarding this item. Written comments and evidence must be submitted to the Regional Water Board no later than **June 28, 2021**. Oral comments or testimony at the above-scheduled hearing may summarize or explain timely submitted or late-accepted written evidence but shall not add new evidence. The time constraints for oral testimony or comments will be set by the Regional Water Board Chair and usually will allow no more than 10 minutes for the Regional Water Board staff and District staff and five minutes for other interested persons. A timer may be used, and speakers are expected to honor the time limits. Where speakers can be grouped by affiliation or interest, such groups will be expected to select a spokesperson and not be repetitive.

### ***Document Review***

The Proposed Resolution and related documents are available at the [Regional Water Board's website for tentative orders for Board decisions](#). Additionally, the Proposed Resolution be inspected or copied at the Regional Water Board office, 5550 Skylane Boulevard, Suite A, Santa Rosa, California. During the COVID-19 emergency and pursuant to the Governor's Executive Order N-22-30, appointments are required for document review and can be made by calling (707) 576-2220. If you have any questions about this notice or the scheduled hearing, you may contact Justin McSmith at (707) 576-2082 or [Justin.McSmith@waterboards.ca.gov](mailto:Justin.McSmith@waterboards.ca.gov).

Matthias St. John  
Executive Officer  
June 16, 2021



**July 2, 2020**

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To: Brian Gerving, Jesse Willor, City of Eureka Ref. No.: 11151283

From: Andrea Hilton Tel: 707-267-2244  
Rebecca Crow, PE

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**Subject: DRAFT V2 Eureka WWTP Enhancement Options**

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### 1. Introduction

The North Coast Regional Water Quality Control Board (Regional Board) has indicated that the City of Eureka may pursue effluent discharge from the Elk River Wastewater Treatment Plant (ERWWTP) to Entrance Bay/ Humboldt Bay as a compliance pathway by incorporating one or more options to meet the enhancement requirement of the Enclosed Bays and Estuaries Policy (EBEP). The definition of enhancement and minimum performance criteria have been further defined by the Regional Board in a letter dated August 12, 2019, included in Attachment A. The City initiated an evaluation of the enhancement options, and presented a draft to the Regional Board in December 2019. Comments received from the Regional Board on December 31, 2019 were considered in this updated draft. This memo starts with a description of the options, followed by ranking under several categories, and lastly a suite of recommended enhancements.

### 2. Enhancement Criteria

Enhancement options have been evaluated based on relevant criteria identified in coordination with the Regional Board, including:

- Potential enhancements to the Bay that would not occur in the absence of the discharge;
- Protection and enhancement of the beneficial uses of Humboldt Bay;
- Water quality benefits and nexus with ERWWTP effluent; and
- Costs and benefits of the options.

### 3. Enhancement Options

This section presents a description of eight options, followed by a ranking of each option for the criteria listed above in Section 2. The eight options considered include:

- Option 1: Tidal Marsh Enhancement
- Option 2: Horizontal Levee Irrigated with Treated Effluent

- Option 3: Clark Slough Drainage Improvements
- Option 4: Stormwater Improvements
- Option 5: Reduction of Impervious Surfaces
- Option 6: Piling Removal
- Option 7: Parcel 4 Brownfield Clean-up and Tidal Restoration
- Option 8: Dune Enhancement and Spartina Removal

The Regional Board has previously requested consideration of an additional option to evaluate the feasibility of re-routing the City's effluent to the existing Ocean Outfall. The requested feasibility assessment will be completed, but is not evaluated herein alongside the Bay discharge enhancement options.

### **3.1 Option 1 - Tidal Marsh Enhancement**

This option would create new and enhanced tidal marsh at the mouth of the Elk River, in conjunction with the Elk River Tidal Marsh Enhancement Project. The Elk River Tidal Marsh Enhancement Project includes restoration of 114 acres spanning Area 1 (north of the Elk River) and Area 2 (south of the Elk River). Restoration would focus on estuarine and intertidal habitats as well as increased public access to the Elk River Spit, Elk River, and Humboldt Bay. Routing effluent discharge from the WWTP through the wetland and intertidal habitat is not planned.

This option focuses on the 25.6 acre Area 1 adjacent to the WWTP. Attachment B provides additional supporting information on this project. In addition to planned Area 1 design, enhancements could be broadened to include an interpretative center and an expanded footprint for wetland enhancement.

An interpretative center could support increased public access, information on protection and restoration of the Bay, information about native and restored habitats, and information about local aquatic and wildlife species. An interpretative center could potentially be located on City owned property, or the City could purchase privately-owned property near the Hikshari trail (e.g., APN 302-171-023, see Figure 1).

Opportunities to expand wetland enhancement may exist north of Area 1. The privately-owned property surrounding the interpretive center (APN 302-171-023) could also be restored as wetland habitat (see Figure 1). The planned Area 1 channel could also be extended north of the Hikshari Trail trailhead at Pound Road toward the existing outfall marshes via replaced fish friendly tide gates. Replacement of the tide gates would also address an existing fish passage barrier and increase habitat availability for anadromous species and Longfin Smelt. Additional phases of planning would be necessary to confirm feasibility, develop a conceptual design approach for expanded areas north of Area 1, and determine estimates for the amount and type of wetland enhancements possible (e.g. freshwater vs. brackish).

### **3.2 Option 2 - Horizontal Levee Irrigated with Treated Effluent**

A horizontal levee (sometimes referred to as a living shoreline) is a new concept for achieving resilience in the face of sea level rise by using the natural flood protection benefits of coastal tidal marshes to reduce the destructive forces of storms (Image 1). Levees can incorporate brackish marshes at the landward edge of typical tidal marsh restoration designs, and function as a self-maintaining levee that allows for adaptation of the intertidal zone and salt marsh retreat. Horizontal levee projects in California have focused on expanding Eelgrass habitat, native oyster restoration, and shoreline protection (e.g.

Upper Newport Bay and Alamos Bay Living Shoreline Project and projects throughout San Francisco Bay such as San Rafael Bay and the Hayward Shoreline).

Projects that also incorporate treated effluent have been less common to date, limiting the amount of available literature. The use of treated effluent has been incorporated into several existing pilot projects at Oro Loma in Castro Valley and another in Palo Alto for additional effluent treatment prior to infiltration into the horizontal levee soils and to support vegetation establishment. At Oro Loma, a 0.7 hectare experimental horizontal levee was constructed to treat a small portion (<1%) of secondary effluent from a conventional activated sludge wastewater treatment plant. Cecchetti et al. (2020) evaluated the efficacy of the horizontal levee at removing nitrates and other trace contaminants from the secondary effluent. They found the subsurface irrigation was highly effective at removing nitrate and trace organic contaminants as well as phosphates for water flowing through the subsurface; however surface flows did not result in measurable contaminant removal. Cecchetti et al. (2020) concluded efficacy of the horizontal levee and similar future designs is dependent on the ability of the system to maintain subsurface flow and not chemical or biological conditions in the subsurface.

A multi-benefit irrigated horizontal levee constructed to the west and/or south of the WWTP could provide water quality enhancements, expand wetland habitat, and increase sea level rise resiliency. Treated effluent could be used for irrigation of upland areas to establish habitat. Design options could be explored to emphasize marsh capture of suspended and fine sediments discharged into Humboldt Bay from the Elk River, which could provide additional benefit. Design options could also consider locations where existing near shore infrastructure should be protected, for example the cross-town interceptor pressure main north of the ERWWTP. It may also be possible for the horizontal levee to protect the existing WWTP infrastructure from anticipated future inundation related to sea level rise.

There are several associated opportunities for this option to incorporate the reuse of Bay spoils sourced from ongoing and planned dredging lead by the Humboldt Bay Harbor, Recreation, and Conservation District (Harbor District) to construct the horizontal levee feature. Dredge spoils would need to comply with federal criteria for determining the acceptability of dredged spoils to marine waters and must be certified by the State Water Board or Regional Water Board in compliance with State Plans and Policies.

The City could also consider options to beneficially reuse biosolids for fill to construct the horizontal levee feature. More research would be needed to determine if Class A biosolids could be used in compliance with the Enclosed Bays and Estuaries Policy.

A horizontal levee project would have the added benefit of giving the City an alternative discharge point that is not discharge-window dependent and could be utilized continuously. An alternative discharge location might decrease the need for additional storage ponds and potentially other infrastructure improvements.

The Regional Water Board has indicated that successful horizontal levee projects require that the discharge routed to them must have lower ammonia and TSS concentrations than currently present in the discharge prior to reaching the horizontal levee (December 31, 2019 Letter to the City of Eureka). In order to achieve this, associated treatment infrastructure improvements would likely be necessary. Any related reductions in ammonia that would result from a capital improvement project in association with a horizontal levee project would also support the City's ability to comply with anticipated stricter ammonia effluent limitations in future NPDES permit terms.



Additional analysis is needed to support full feasibility and probable costs for a full-scale system on Humboldt Bay. Initial coordination with the California Coastal Commission (CCC) indicates a horizontal levee may be permissible under the Coastal Act despite the potential for fill of wetlands and/or waters or other potential conflicts with the Coastal Act. Ongoing coordination with the CCC would be needed to ensure a potential design would be permissible under the Coastal Act. Proposed implementation of any design that resulted in a conflict within the Coastal Act may trigger CCC Conflict Resolution procedures prior to approval.

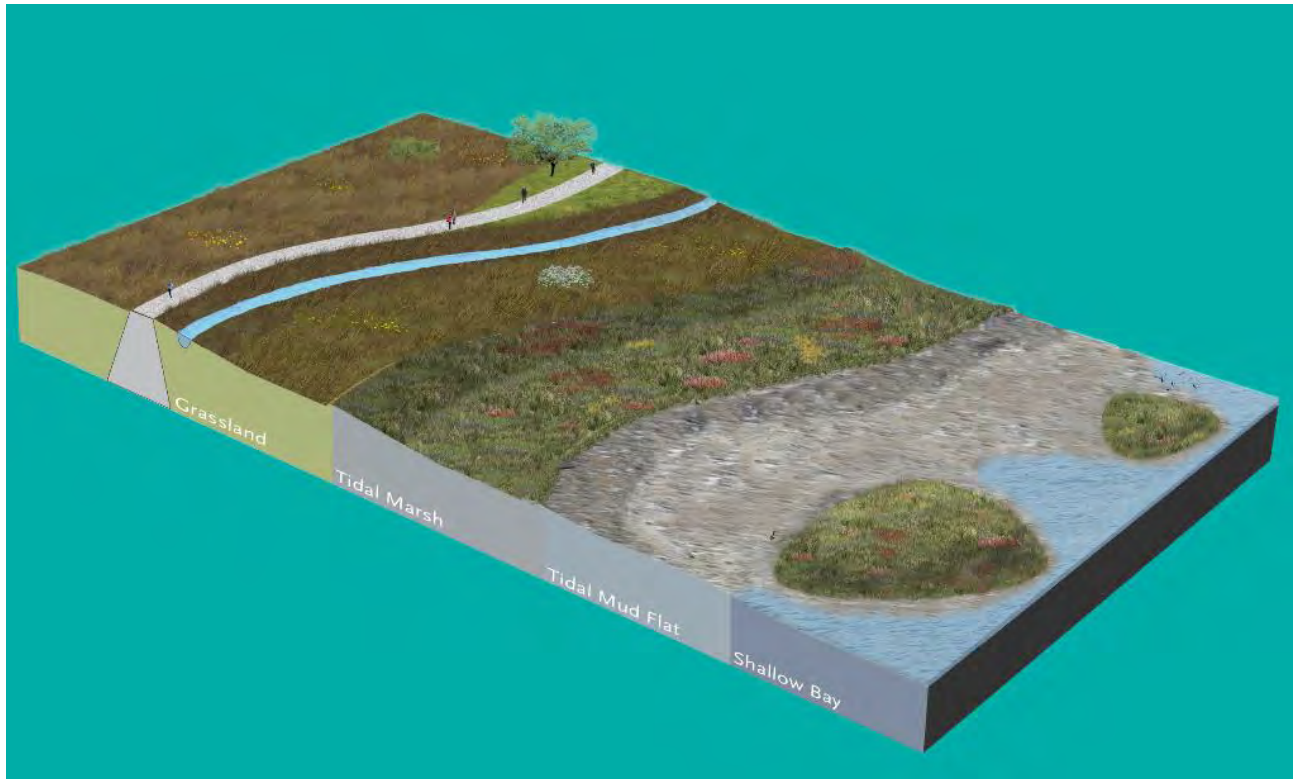


Image 1. Conceptual Rendering of a Horizontal Levee (The Bay Institute)

### 3.3 Option 3 - Clark Slough Drainage Improvements

The City of Eureka maintains the Clark Slough, which drains a portion of the City's West Side Stormwater basin and runs through former industrial areas. The Slough is overgrown and work is needed to clear out vegetation and remove accumulated sediment to reduce flooding. Due to the presence of former industrial activity, dredged spoils from the Slough were sampled. The City conducted sediment sampling from the Slough and upstream manholes that drain to the Slough in Fall 2018, including metals; polychlorinated biphenols [PCB]; dioxins and furans; pesticides and herbicides; polynuclear aromatic hydrocarbons (PNA); and total petroleum hydrocarbons (TPH). Results are included in Attachment C, which indicate that the levels of dioxin and furans exceed the environmental screening level published by the California Department of Toxic Substances Control in their Human Health Risk Assessment. Removal of contaminated sediment in Clark Slough will benefit Humboldt Bay by reducing dioxin and furan loads to the Bay from the Clark Slough Drainage. Currently the contamination level and large volume of sediment preclude the City from initiating a routine maintenance program. Once the initial project is completed, on-

going maintenance to keep the Clark Slough Channel open can be more easily accomplished. In addition, as the upstream contaminated sediments continue to migrate into the channel, ongoing clearing of the channel will provide load reduction benefits over time as polluted sediment as well as trash and other urban debris will continue to be removed. The Slough drains directly to the Bay and clearing of the channel will create additional capacity to address flooding as sea level rises and precipitation changes with climate change. The project addresses flooding, water quality, and climate change. The December 31, 2019 letter from the Regional Board indicates Option 3 is not seen as a viable enhancement option.

### **3.4 Option 4 - Stormwater Improvements**

Much of the City of Eureka is urbanized. There are opportunities to enhance the Bay through reduction of polluted runoff to the Bay by implementing stormwater quality and hydromodification improvements within contributing waters of the Bay. The City completed the Eureka Area Watersheds Stormwater Resources Plan (GHD 2018) (SWRP), which was approved by the State in 2019. The SWRP identified projects and ranked them by a set of benefit criteria agreed to by the State, including water quality improvements, water supply, flood management, environmental enhancements, and community support. The highest-ranking projects within the City of Eureka, in order of scored priority, are listed below. Additional projects are also included in the plan.

- West Side Eureka Sub-basin Flood Reduction and Climate Adaptation Program
- Eureka Waterfront Drive Revitalization Project
- City of Eureka Red Curb Program
- C Street Storm Water Enhancement Project
- Commercial Street Storm Water Enhancement Project
- E Street Drainage Enhancement Project
- G Street Drainage Enhancement Project

The top ranked project is a program of improvements to address flooding and sea level rise throughout the West Side Basin of the City's stormwater drainage system. A programmatic approach was taken for this project as improvements can be implemented in phases over time to address the greatest areas of flooding first and add components over time to increase the basin resiliency to severe storm events and sea level rise. The project addresses flooding, trash capture, water quality, and climate change. The project includes pollutant removal devices that will be retrofitted with trash capture devices. The project also includes a series of infrastructure improvements to alleviate flooding and inundation. The proposed upsized storm drain system will increase capacity and ability to attenuate storm water within the system during tidal surges and projected long-term sea level rise. The improvements will alleviate overflow from the undersized system and directly reduce flood risks while reducing vulnerability to sea level rise. The project will improve water quality in combination with addressing required trash capture regulations with the addition of new treatment units. The December 31, 2019 letter from the Regional Board indicates Option 4 is not seen as a viable enhancement option.

### **3.5 Option 5 - Reduction of Impervious Surfaces**

This option is to reduce impervious surfaces within contributing waters of the Bay, in order to reduce runoff and associated pollutants from entering the Bay. The City is highly urbanized, and the ability to remove impervious surfaces on City owned-property is limited by the need to retain existing infrastructure.



Additional impervious surfaces located on private property would require additional feasibility analysis, including negotiation with landowners. Low Impact Development (LID) strategies for reduction of impervious areas are detailed in the Eureka Area Watersheds SWRP and include capturing pollutants before running off into the Bay via stormwater swales, impervious pavers, rain gardens, and tree planters (GHD 2018).

The City of Eureka's Red Curb Program is another opportunity to reduce impervious surfaces throughout the City. Red curb segments located at intersections throughout the City present opportunities for improvement of stormwater quality and pedestrian safety. Lengths of curb painted red to disallow parking may be reconfigured to accommodate LID rain garden features by extending the curb into the adjacent roadway and narrowing the sidewalk while still meeting ADA requirements. This adjustment of the sidewalk blended transition or curb ramp increases pedestrian visibility and shortens the length of pedestrian travel across traffic lanes. The intersections being targeted for these improvements often include a curb cut subdrain and/or a drainage inlet. The impervious surface reduction, including the Red Curb program, were presented in the SWRP as opportunities for the City to implement when other roadwork is being proposed nearby, and not necessarily as a comprehensive on-time project.

The December 31, 2019 letter from the Regional Board indicates Option 5 is not seen as a viable enhancement option.

### 3.6 Option 6 - Piling Removal

This option consists of removing existing remnants of old creosote-treated pilings in the Bay that are likely leaching creosote, and creating a navigational hazard. For example, numerous pilings span the mouth of the Elk River (Image 2), with additional pilings located in the general vicinity of the Humboldt Bay shoreline. There are potential enhancement benefits of this option, however further study is needed to determine if there would be any negative impacts from piling removal. If pursued, additional analysis should consider potential biological implications to birds that use the pilings as upland perches and aquatic habitat (e.g. substrate for invertebrates and cover for fish). A cultural resource investigation may also be required to evaluate the potential historical significance of the pilings prior to removal. The December 31, 2019 letter from the Regional Board indicates Option 6 is not seen as a viable enhancement option.



Image 2. Row of Pilings Spanning the Mouth of the Elk River

### 3.7 Option 7 - Parcel 4 Clean-up and Tidal Restoration

This option would result in the clean-up and restoration of 18-acre Parcel 4, located west of the Bayshore Mall north of the bulk terminal adjacent to the Hikshari Trail (Image 3); this option has multiple water quality benefits. A Phase I/II site assessment is needed to provide a clear picture of the extent, type, and amount of contamination on the site and would enable the City to develop a cleanup plan that would remediate the identified areas of contamination. Enhancement actions on Parcel 4 could restore and enhance wetlands and aquatic habitat. A current major constraint to any public access or natural resource enhancement at this site is the uncertainty of brownfields contamination. By identifying major sources of contamination and their location, the cleanup becomes part of the development of the natural resource enhancement and public access on the site. For example, there are areas of the site that are proposed for salt marsh restoration, which will require excavation of fill to restore tidal flow to areas of the site.






Image 3. Conceptual Site Plan for Restoration of Parcel 4 Prepared by LACO Associates. (Past preliminary planning effort, 2011)

### 3.8 Option 8 - Dune Enhancement and Spartina Removal

This option is to enhance the dunes on the Elk River spit which would also protect the WWTP and Elk River estuary. Enhancement would be achieved through potential dune replenishment possibly using dredged Bay spoils, planting of native vegetation on the Elk River spit, and concurrent removal of invasive Spartina vegetation. In addition, invasive Spartina, located in wetlands proximal to the WWTP and Elk River spit, may also be included with this option to improve wetlands in the vicinity. The December 31, 2019 letter from the Regional Board indicates Option 8 is not seen as a viable enhancement option.

## 4. Bay Enhancements Metrics

This section outlines the analysis conducted to better understand which enhancement options would be most likely to meet the Enclosed Bays and Estuaries Policy requirements. A list of metrics to evaluate potential enhancements to the Bay that would not occur in the absence of the discharge was compiled including factors from the August 12, 2019 letter from the Regional Board and additional factors. The enhancement does not need to be tied to the discharge, but there must be a nexus between the WWTP impacts and proposed improvements. Separate evaluations specific to protection and enhancement of beneficial uses and water quality improvements were compiled in later sections. Each of the eight options were evaluated to determine which Bay enhancement metrics may be achieved by the proposed options. Each possible enhancement metric was placed into one of three categories:

-  Bay enhancement metric is likely achieved
-  Bay enhancement metric is potentially achieved
-  Bay enhancement metric is unlikely achieved

The results of this qualitative analysis are summarized in Table 1. Minimum performance criteria included in the August 12, 2019 letter from the Regional Board include: upgrade of treatment system to full secondary treatment for all effluent flows, elimination of blending, and compliance with water quality objectives for ammonia. Treatment specific evaluations are not included in this memorandum, and are addressed in a separate document. Each option provides an enhancement that would not occur in the absence of the discharge, and each option is considered to create additional marshlands or wetlands, or other enhancing features. The definition of the six applied enhancement metrics in Table 1 are presented below.

- **Longevity of Enhancement:** This metric indicates if the option's enhancements would be enduring and provide the intended benefit for a minimum time frame equivalent to the infrastructure life of approximately 30 years.
- **Adaptive Capacity/ Natural Resilience:** This metric indicates the option's ability to adapt to changing conditions in the natural environment over time, as well as the opportunity to restore and enhance habitat by planting native plants and improving biological diversity.
- **Climate Change Resilience:** This metric indicates the option's ability to continue to provide benefits to address climate change over time for at least the life of the infrastructure.
- **Consistent with Regional Planning Efforts:** This metric indicates if the option supports existing regional planning efforts to support Humboldt Bay.

- City Amenability to Long-Term Maintenance: This metric indicates that the City can ensure the benefits of the option can be maintained for their useful life and the City will be able to address long term maintenance costs and responsibilities.
- Multi-benefit: This metric indicates the option would address multiple metrics.

#### **4.1 Summary of Bay Enhancement Metrics**

Of the eight options evaluated, three options tied for the highest rank: Option 1 - Tidal Marsh Enhancement, Option 2 - Horizontal Levee, and Option 7 - Parcel 4. For each of these three options, five of the six enhancement benefits would be likely to be achieved; the same five metrics were indicated as likely to be achieved for all three options (Table 1).



Table 1: Bay Enhancements Metrics Evaluation for Each Enhancement Option

Type of Bay Enhancement	Option 1 Tidal Marsh	Option 2 Horizontal Levee	Option 3 Drainage	Option 4 Stormwater	Option 5 Impervious Surfaces	Option 6 Piling Removal	Option 7 Parcel 4	Option 8 Dune/Spartina
Longevity of Enhancement	●	●	●	●	●	●	●	●
Adaptive Capacity/ Natural Resilience	●	●	●	●	●	○	●	●
Climate Change Resilience	●	●	●	●	●	○	●	●
Consistent with Regional Planning Efforts	●	●	●	●	●	●	●	●
Amenability to Long-Term Maintenance by the City	●	●	●	●	●	●	●	○
Multi-Benefit	●	●	●	●	●	●	●	●
<b>TOTAL ENHANCEMENTS</b>	● = 5 ● = 1 ○ = 0	● = 5 ● = 1 ○ = 0	● = 4 ● = 2 ○ = 0	● = 4 ● = 2 ○ = 0	● = 4 ● = 2 ○ = 0	● = 3 ● = 1 ○ = 2	● = 5 ● = 1 ○ = 0	● = 5 ● = 0 ○ = 1





## 5. Beneficial Uses Protected or Enhanced

Each of the eight different enhancement options were evaluated to determine which Humboldt Bay beneficial uses each individual option may enhance. All options are considered at a minimum to protect existing uses at their current level. For each enhancement option, beneficial uses were placed into one of three categories:

- Beneficial use likely enhanced beyond what would occur in the absence of the discharge.
- Beneficial use potentially enhanced beyond what would occur in the absence of the discharge.
- Beneficial use unlikely enhanced beyond what would occur in the absence of the discharge.

This analysis is summarized in Table 2. All 18 beneficial uses attributed to Humboldt Bay in the North Coast Region Basin Plan are included in the analysis. Note a blue or orange dot does not guarantee the beneficial use is enhanced, but indicates that the option has the ability to provide this service depending on final design.

### 5.1 Evaluation by Beneficial Uses

This section qualitatively describes how each beneficial use was determined for each option.

#### 5.1.1 Domestic Water Supply (MUN)

The majority of domestic water supply is delivered via a municipality or Community Services District with water sourced from the Mad River via the Humboldt Bay Municipal Water District. Some parcels may source domestic water supply from private wells (groundwater). For those users who may source domestic water supply from Humboldt Bay, Option 1 through Option 7 were ranked equivalently. Each option would enhance water quality generally and thus could potentially enhance water quality for domestic water supply. It is not anticipated that Option 1 through Option 7 would result in a detectable quantitative improvement in water quality as it relates to domestic water supply. Option 8 is not likely to result in any improvement in water quality that would relate to domestic water supply.

#### 5.1.2 Agricultural Supply (AGR)

Agricultural supply pertains to uses of water for agricultural purposes. None of the proposed options would result in an enhancement to agricultural supply. The quantity or timing of water available for agricultural supply would not be altered as a result of any of the eight options.

#### 5.1.3 Industrial Service Supply (IND)

None of the eight options would enhance or alter water quality as it relates to industrial service supply.

#### 5.1.4 Freshwater Replenishment (FRSH)

Of the eight options, only two (Option 4 -Stormwater Improvements and Option 5 -Impervious Surfaces) would result in a likely enhancement to freshwater (non-saline) inputs entering Humboldt Bay via stormwater and subsurface infiltration. Option 1 - Tidal Marsh Enhancement has the potential to improve freshwater inputs to Area 1. Area 1 and other existing wetlands to the north of Area 1 drain the area adjacent to Highway 101/Broadway through South Eureka (e.g. the area south of the Lithia dealership),

which includes freshwater wetland habitat. Areas east of Highway 101 also drain to Area 1 via culverts under the highway. Freshwater inputs from these areas would flow through Area 1 restored brackish wetlands, resulting in potential water quality improvements. The remaining five options would not result in an enhancement related to freshwater replenishment.

#### **5.1.5 Navigation (NAV)**

Of the eight alternatives, Option 1 - Tidal Marsh Enhancement and Option 6 - Piling Removal would result in improvements to navigation. Option 1 includes a new non-motorized boat launch and a navigable channel through Area 1. Removal of pilings under Option 6 would remove obstacles to watercraft along the Humboldt Bay shoreline and throughout the Elk River estuary. Option 7 - Parcel 4 may have the potential to result in improvements to navigation, if channels for non-motorized watercraft or a new non-motorized boat launch were to be included in a future design. The remaining five options would not result in an enhancement to navigation.

#### **5.1.6 Water Contact Recreation (REC-1)**

Option 1 through Option 7 would result in an enhancement to water quality and thus an improvement in water quality related to water contact recreation. Option 8 is not anticipated to result in a direct water quality enhancement; thus no benefit to water contact recreation would be expected.

#### **5.1.7 Non-Contact Water Recreation (REC-2)**

Option 1 through Option 7 would result in an enhancement to water quality and thus an improvement in water quality related to non-contact water recreation. Option 8 is not anticipated to result in a direct water quality enhancement; thus no benefit to non-contact water recreation would be expected.

#### **5.1.8 Commercial and Sport Fishing (COMM)**

Option 1 through Option 7 assume anticipated improvements in water quality would result in improvements in the recreational and sport fishery by helping to enhance various sport fisheries. Option 8 is not anticipated to result in a direct water quality enhancement; thus, no benefit to commercial and sport fishing would be expected.

#### **5.1.9 Cold Freshwater Habitat (COLD)**

Option 2 through Option 7 will not result in any enhancement to freshwater habitat. Any potential habitat enhancement would be estuarine (brackish). Under Option 1 - Tidal Marsh Enhancement, all planned wetland and aquatic habitat would be brackish. However, existing wetland habitat north of Area 1 is presently freshwater and has the potential to remain freshwater, pending the outcome of any future design development process.

#### **5.1.10 Estuarine Habitat (EST)**

Option 1 - Tidal Marsh Enhancement, Option 2 - Horizontal Levee, and Option 7 - Parcel 4 would all create new estuarine habitat or improve existing estuarine habitat (e.g. Option 7 - Parcel 4). An expansion in estuarine habitat would benefit anadromous salmonids, Longfin Smelt, and other marine species. Restored tidal channels in Area 1 are anticipated to result in new habitat for Eelgrass. The remaining five options would not result in an improvement to or increase in estuarine habitat.

#### **5.1.11 Marine Habitat (MAR)**

Option 1 -Tidal Marsh Enhancement, Option 2 - Horizontal Levee, and Option 7 - Parcel 4 would all create new marine habitat or improve existing estuarine habitat (e.g. Option 7 - Parcel 4). Seabirds, marine mammals, migratory waterfowl and other marine species utilize habitats in and near the Elk River estuary. Enhanced and created wetlands could also be important nursery habitat for marine fishes. The remaining five options would not result in an improvement to or increase in marine habitat.

#### **5.1.12 Wildlife Habitat (WILD)**

Option 1 - Tidal Marsh Enhancement, Option 2 - Horizontal Levee, Option 7 - Parcel 4, and Option 8 - Dune Enhancement and Spartina Removal would all enhance or create new wildlife habitat or uses of water that would support wildlife habitat beyond existing conditions. Under Option 1, higher marsh habitat has been incorporated into the final design for Area 1 specifically to support bird habitat. The remaining four options would not result in improvements to wildlife habitat.

#### **5.1.13 Preservation of Rare, Threatened, or Endangered Species (RARE)**

As noted in Section 5.1.10 - Estuarine Habitat, Option 1, Option 2, and Option 7 would result in direct habitat and water quality improvements for special status anadromous species and Longfin Smelt. Under Option 1, habitat benefits for Tidewater Goby area are also expected in Area 1. Special status migratory waterfowl would also benefit from enhancements resulting from these habitats. Water quality benefits achieved via Option 3 - Clark Slough Drainage Enhancements, Options 4 - Stormwater Improvements, and Option 5 - Reduction of Impervious Surfaces have the potential to improve water quality in Humboldt Bay, to the benefit of special status species. It is not anticipated that the remaining options would significant water quality benefits for special status species.

#### **5.1.14 Migration of Aquatic Organisms (MIGR)**

Under Option 1, removal of the large tide gate along the Elk River would result in removal of a fish passage barrier and allow passage of fish into restored aquatic habitats throughout Area 1. Additional migration of fish could be achieved into areas north of Area 1 if it were determined feasible to replace the three existing culverts under the Hikshari Trail near Pound Road. Option 7 - Parcel 4 would also improve aquatic habitat resulting in an increase in migration of aquatic organisms. Option 2 -Horizontal Levee has the potential to use water to support migratory habitat, depending on the design approach. Benefits to water quality related to migration are not anticipated from the other five options.

#### **5.1.15 Spawning, Reproduction, and/or Early Development (SPWN)**

Adult Longfin Smelt migrate into low salinity or freshwater reaches of coastal rivers and tributary streams to spawn. These types of habitats would be included in Option 1 - Tidal Marsh Enhancement. Improvements within Area 1 and areas north of Area 1 would benefit Longfin Smelt spawning and other marine fish species with similar spawning requirements such as Tidewater Goby. Spawning benefits to salmonids would not occur under any of the eight options. Depending on the design approach for Option 2 -Horizontal Levee, there is a potential to create low salinity habitats that would also provide spawning habitat for Longfin Smelt, Tidewater Goby, or other marine species. It is not anticipated that the remaining options would result in water quality benefits that would enhance spawning and reproduction.



### **5.1.16 Shellfish Harvesting (SHELL)**

Option 1 through Option 7 assume anticipated improvements in water quality would result in improvements in shellfish harvesting by helping to enhance water quality throughout Humboldt Bay as a whole. Option 8 is not anticipated to result in a direct water quality enhancement; thus no benefit to shellfish harvesting would be expected.

### **5.1.17 Aquaculture (AQUA)**

As with shellfish harvesting, Option 1 through Option 7 assume anticipated improvements in water quality would result in improvements in aquaculture by helping to enhance water quality throughout Humboldt Bay as a whole. Option 8 is not anticipated to result in a direct water quality enhancement; thus no benefit to aquaculture would be expected.

### **5.1.18 Native American Culture (CUL)**

None of the options are expected to enhance uses of water that support cultural and/or traditional rights of indigenous people.

## **5.2 Summary of Beneficial Use Analysis**

As a result of the analysis summarized in Table 2, the option with the most benefit to the greatest number of beneficial uses is Option 1 - Tidal Marsh Enhancement. Option 1 is likely to result in an enhancement to ten of the 18 beneficial uses attributed to Humboldt Bay in the Basin Plan and would potentially enhance an additional five beneficial uses. Option 7 - Parcel 4 would result in an enhancement to eight of the 18 evaluated beneficial uses and would potentially enhance an additional four beneficial uses. For both options, benefits result from ecosystem improvements to fish and wildlife habitat by expanding the quantity and quality of habitat availability and not necessarily as a result of water quality improvements directly linked to the treated effluent.



Table 2: Beneficial Uses Enhanced by each Enhancement Option

Type of Beneficial Use	Option 1 Tidal Marsh	Option 2 Horizontal Levee	Option 3 Drainage	Option 4 Stormwater	Option 5 Impervious Surfaces	Option 6 Piling Removal	Option 7 Parcel 4	Option 8 Dune/Spartina
Domestic Water Supplies (MUN)	●	●	●	●	●	●	●	○
Agricultural Water Supplies (AGR)	○	○	○	○	○	○	○	○
Industrial Service Supply (IND)	○	○	○	○	○	○	○	○
Freshwater Replenishment (FRSH)	●	○	○	●	●	○	○	○
Navigation (NAV)	●	○	○	○	○	●	●	○
Water Contact Recreation (REC-1)	●	●	●	●	●	●	●	○
Non-Contact Water Recreation (REC-2)	●	●	●	●	●	●	●	○
Commercial and Sport Fishing (COMM)	●	●	●	●	●	●	●	○
Cold Freshwater Habitat (COLD)	●	○	○	○	○	○	○	○
Estuarine Habitat (EST)	●	●	○	○	○	○	●	○
Marine Habitat (MAR)	●	○	○	○	○	○	●	○
Wildlife Habitat (WILD)	●	●	○	○	○	○	●	●
Preservation of Rare, Threatened, or Endangered Species (RARE)	●	●	●	●	●	○	●	●
Migration of Aquatic Organisms (MIGR)	●	●	○	○	○	○	●	○
Spawning, Reproduction, and/or Early Development (SPWN)	●	●	○	○	○	○	○	○

Type of Beneficial Use	Option 1 Tidal Marsh	Option 2 Horizontal Levee	Option 3 Drainage	Option 4 Stormwater	Option 5 Impervious Surfaces	Option 6 Piling Removal	Option 7 Parcel 4	Option 8 Dune/Spartina
Shellfish Harvesting (SHELL)	●	●	●	●	●	●	●	○
Aquaculture (AQUA)	●	●	●	●	●	●	●	○
Native American Culture (CUL)	○	○	○	○	○	○	○	○
<b>TOTAL BENEFICIAL USE ENHANCEMENTS</b>	● = 10 ● = 5 ○ = 3	● = 6 ● = 5 ○ = 7	● = 3 ● = 5 ○ = 9	● = 4 ● = 5 ○ = 10	● = 4 ● = 6 ○ = 8	● = 4 ● = 3 ○ = 11	● = 8 ● = 4 ○ = 6	● = 2 ● = 0 ○ = 16



## 6. Water Quality Improvements

Each of the eight different enhancement options were evaluated to determine potential water quality improvements that may result from the project by removing pollutants from the water column. For each enhancement option, a set of contaminants were considered and were placed into one of three categories:

- Pollutants likely reduced by enhancement option: Reduction of pollutant is possible based on (1) it has been documented in the literature and/or (2) it is a pollutant that is present in the vicinity of the proposed project.
- Pollutants potentially reduced by enhancement option: Reduction of pollutant is possible, as similar project concepts often result in reduction of these types of pollutants, but without further project specifics it is only a possibility.
- Pollutants unlikely to be reduced by enhancement option: Reduction not likely or no literature found to support the removal of the pollutant by similar projects.

The analysis is summarized in Table 3. Note a blue or orange dot does not guarantee pollutant reduction, but indicates that the option has the ability to address this pollutant depending on final design. Table 3 also includes an estimated annual average load from the ERWWTP to the Bay, based on available effluent concentration data from 2014 -2018 and the annual average flow. Constituents listed on a 303(d) list have been weighted, specifically included PCBs and Dioxin from the Humboldt Bay 303(d) listing and Total Suspended Sediments (TSS) from the Elk River 303(d) listing.

The final data row in Table 3 summarizes the evaluation of whether the option has a nexus between the WWTP impacts (loads entering the Bay from the WWTP or existing Bay impairments) and the enhancement Option. Literature research was conducted to confirm removal rates by constituent for each option. A summary table of potential removal rates is included in Attachment D. Also refer to Attachment D for a full list of cited sources, noting that not all pollutants have the same number of sources. Note percent (%) removal rates have not been provided for each option due to limitations in available scientific literature and the direct application to potential options for enhancement.

Most of the relevant research is specific to Option 1 - Tidal Marsh Enhancement and Option 2 - Horizontal Levee (refer to Attachment D). However, many of the tidal enhancements occurring in Option 1 would also be realized by Option 7 - Parcel 4. When interpreting removal rates for restored and/or constructed wetlands, it should be noted that reductions in pollutants are widely variable with reduction rates being highly dependent on:

- The environmental (e.g., temperatures, seasons) and biogeochemical conditions of the wetlands. For instance, results will be dependent on the native plants associated with each region. Often research is not conducted in the context of native vegetation, which will impact regional outcomes.
- What goal the original project was trying to achieve (i.e., most projects focus on reducing a subset of specific pollutants). Most of the research referenced below focuses on constructed wetlands, which are designed specifically to improve water quality and in many cases treat wastewater. Constructed wetlands are designed differently than projects looking to restore an area, as their main goal is water quality improvement, so it is important to recognize that if a

project has other goals (e.g., bay enhancement, beneficial uses) the design will need to carefully balance the full suite of benefits looking to be achieved.

Given these caveats, quantifiable data should be used to assess what is possible, but not be considered guarantees of removal rates. Once an option is chosen the following steps should be completed to ensure project success:

- Choose specific project goals outlining pollutants to be targeted. A project cannot be effectively designed to reduce all pollutants, but should focus in on the pollutants with the greatest benefits to the Bay and that can be effectively monitored.
- During site design, additional research on how to maximize outcomes with different designs should be completed. Once an option is chosen, specific design criteria (e.g. plants planted) can be assessed to determine a more specific expected removal rate. It may be useful to integrate experimental plots that pilot innovative ways of removing pollutants (e.g., plant uptake) to establish locally relevant baselines and datasets to inform future projects.

#### **6.1 Summary of Water Quality Improvement Analysis**

Of the eight options, Option 1 - Tidal Marsh Enhancement and Option 2 - Horizontal Levee, resulted in the greatest number of likely water quality enhancements (n=18) and potential water quality enhancements (n=2, see Table 3). The expansion of wetlands provided by both potential projects would result in the likely ability to improve water quality.

Table 3: Water Quality Improvement Potential for each Enhancement Option

Pollutant	ERWWTP Average 5-year load (lb/ year)	Option 1 Tidal Marsh*	Option 2 Horizontal Levee*	Option 3 Drainage	Option 4 Stormwater	Option 5 Impervious Surfaces	Option 6 Piling Removal	Option 7 Parcel 4	Option 8 Dune & Spartina
TCDD Equivalents (i.e, dioxins) <sup>1</sup>	Non-Detect	●●	●●	●●	●●	○○	○○	●●	○○
PCBs <sup>1</sup>	-	●●	●●	●●	●●	○○	○○	●●	○○
TSS <sup>1</sup>	151,780	●●	●●	○○	●●	●●	○○	●●	○○
Arsenic	33	●	●	○	●	●	○	●	○
Chromium	23	●	●	○	●	●	○	●	○
Copper	399	●	●	○	●	●	○	●	○
Lead	Non-Detect	●	●	○	●	●	○	●	○
Nickel	72	●	●	○	●	●	○	●	○
Zinc	689	●	●	○	●	●	○	●	○
BOD	158,160	●	●	○	●	●	○	●	○
Ammonia (total as N)	55,860	●	●	○	●	●	○	●	○
Nitrogen	-	●	●	○	●	●	●	●	○
Phosphorus	-	●	●	○	●	●	○	●	○
Bacteria	-	●	●	○	●	●	○	●	○
Trace Organics (TrOCs)	-	●	●	○	●	●	○	●	○

<b>Pollutant</b>	<b>ERWWTP</b> Average 5-year load (lb/ year)	<b>Option 1</b> Tidal Marsh*	<b>Option 2</b> Horizontal Levee*	<b>Option 3</b> Drainage	<b>Option 4</b> Stormwater	<b>Option 5</b> Impervious Surfaces	<b>Option 6</b> Piling Removal	<b>Option 7</b> Parcel 4	<b>Option 8</b> Dune & Spartina
Hydrocarbons (e.g. Creosote)	Non-Detect	●	●	○	●	●	●	●	○
Nexus between the WWTP impacts & Enhancement Option		●	●	●	●	●	●	●	●
<b>TOTAL WATER QUALITY EHNACEMENTS</b>		● = 18 ● = 2 ○ = 0	● = 18 ● = 2 ○ = 0	● = 5 ● = 0 ○ = 15	● = 13 ● = 7 ○ = 0	● = 2 ● = 14 ○ = 4	● = 1 ● = 2 ○ = 17	● = 12 ● = 8 ○ = 0	● = 0 ● = 1 ○ = 19

<sup>1</sup> 303 (d) listed constituent weighted to count as double; the Elk River is listed for TSS and Humboldt Bay is listed for Dioxin and PCBs.

## 7. Other Criteria to Consider

The Eureka shoreline is vulnerable to sea level rise. Moving forward, enhancement options should be consistent with relevant sea level rise policy guidance. Consideration of sea level rise, coastal flooding and related stormwater infrastructure will be vital to protecting water quality in Humboldt Bay. Similarly, as sea levels rise, the salt marsh in the vicinity of the WWTP is predicted to drown and will require higher elevations for long-term retreat (e.g. horizontal levee).

Enhancement options involving improvements to wetlands and aquatic habitats (Options 1, 2, and 7) would be consistent with salmonid recovery plans for Coho Salmon, Chinook Salmon, and Northern California Steelhead (NMFS 2014 and NMFS2016), which recommend improvements in estuary habitats in Humboldt Bay. Estuary habitat improvements may also benefit native eelgrass, Longfin Smelt, and Tidewater Goby.

The USACE is currently planning to repair both jetties at the entrance to Humboldt Bay, which could adjust sediment dynamics within Elk River delta. Design development of enhancement options adjacent to the Humboldt Bay shoreline in the vicinity of the Elk River confluence and WWTP should consider the potential for related adjusted hydraulic dynamics.

Public support, the ability to leverage public funds, and the timeliness of each enhancement alternative should also be considered moving forward. Efficacy may be difficult to directly monitor for any of the enhancement options.

## 8. Cost Benefit Evaluation

Findings from the three evaluations in Tables 1-3 are summarized below in Table 4, including the total number of different (1) Bay Enhancements; (2) Beneficial Uses; and (3) Water Quality Improvements associated with all eight options. Option 1 - Tidal Marsh Enhancement provides the highest number of Bay enhancements as well as improvements to beneficial uses and water quality. This is followed closely by Option 2 - Horizontal Levee. Option 7 – Parcel 4 could also result in a high number of improvements to beneficial uses and water quality. However, the contamination remains to be characterized and the resultant cost of improvements could be high. Similarly, drainage and stormwater enhancement options (Option 3 and Option 4) could also result in considerable improvements to beneficial uses and water quality. Option 8 (Dune Enhancement and Spartina Reduction) is the least costly alternative, but yields fewer benefits to beneficial uses and water quality.

Enhancements to tidal marshes, stormwater, flood risk reduction, and dune enhancement/Spartina removal (Option 1, Option 3, Option 4, and Option 8) are ongoing in Eureka and other Humboldt Bay communities. Comparatively, horizontal levees (Option 2) are less common around Humboldt Bay and none are irrigated with treated effluent. Thus there may be a regional benefit provided from a pilot project related to water quality enhancements associated with horizontal levees irrigated with treated effluent. Remediation and restoration of Parcel 4 (Option 7), reduction of impervious surfaces (Option 5), and piling removals (Option 6) are discrete, spatially explicit projects that may be less suited for a future pilot experimental design.



Given the qualitative approach to this enhancement evaluation, alternative methods to consider benefit ratio (e.g., mass of pollutants captured/removed by the project or another nexus to water quality) were not feasible or supported by specificity in available literature.

Given many enhancement options remain preliminary and lack specific design parameters or objectives, cost estimates remain broad and will vary depending on the final areal extent and design details, which remain to be determined. Costs presented in Table 4 are approximate ranges, and include design and implementation only. Cost ranges do not include expenses related to property acquisition, which is not required for any enhancement option, but could be beneficial to some (e.g. Option 1 and Option 5).

Cost ranges also do not include consideration of expenses related to post-implementation effectiveness monitoring or potentially required mitigation monitoring. While the Option 2- Horizontal Levee ratio based off Oro Lomo it may not be representative; however comparable horizontal levee projects (irrigated with effluent) are not common throughout California, limiting broader opportunities for cost comparison.

Ranges of cost have been approximated on a per acre basis based upon existing budget estimates developed to date as well as professional knowledge of similar projects recently implemented in the greater Humboldt Bay area. Approximated ranges of per acre costs are intended to help inform the decision-making process. However, given the current relationship between project implementation and quantitative improvements directly related to the water quality of Humboldt Bay, developing a cost benefit ratio remains difficult to approximate with any degree of precision.

A preliminary evaluation of benefits versus costs was estimated by dividing the sum of the total number of likely enhancements plus 50% of the number of potential enhancements by the cost in tens of thousands of dollars per acre. The ratio was rounded to the nearest 100<sup>th</sup> decimal place.

Option 8, Dune enhancement had the highest benefit cost ratio, however, this option had the least benefits compared to the other options. Following Option 8, Option 1 (Elk River Tidal March Enhancement), Option 3 (Clark Slough Drainage Improvements), and Option 4 (Stormwater Improvements) had the highest potential benefit to cost ratio.

Table 4: Summary of Findings

Options	Bay Enhancements <i>Total # of different possible bay enhancements</i>	Beneficial Uses <i>Total # of different beneficial uses enhanced</i>	Water Quality Improvements <i>Total # of different possible pollutants removed</i>	Total Benefits	Cost	Approximate Range of Cost Per Acre	Preliminary Benefit to Cost Ratio <i>benefits/acre/\$10,000</i>
Option 1 Tidal Marsh Enhancement	● = 5 ● = 1	● = 10 ● = 5	● = 18 ● = 2	● = 33 ● = 8	\$4.6 million or greater (implementation only) based on Elk River Estuary total cost for 25.6 Area 1	\$187,000	1.90
Option 2 Horizontal Levee Irrigated with Treated Effluents	● = 4 ● = 2	● = 6 ● = 5	● = 18 ● = 2	● = 28 ● = 9	Oro Loma cost \$8.2 million for 3.4 acres, but was more expensive than a straight forward horizontal levee as 12 test cells were constructed and it was constructed as a closed loop system. (San Francisco Estuary Partnership, 2019). A range of 50 to 100% of the cost was considered to offset the closed loop system portion of the cost.	\$1,205,885- \$2,411,770	0.14 – 0.28
Option 3 Drainage Improvements	● = 4 ● = 2	● = 3 ● = 5	● = 5 ● = 0	● = 12 ● = 7	\$25,000 to \$100,000 for 0.3 acres based on Clark Slough channel improvement project estimate (City of Eureka, 2017)	\$83,300 to \$333,300	0.44 to 1.74
Option 4 Stormwater Improvements	● = 4 ● = 2	● = 4 ● = 5	● = 13 ● = 7	● = 21 ● = 14	\$4 million* for 22.4 acres, based on Westside Drainage project estimate (GHD, 2018)	\$178,600	1.51
Option 5 Reduction of Impervious Surfaces	● = 4 ● = 2	● = 4 ● = 6	● = 2 ● = 14	● = 12 ● = 22	Varies depending on location. Red Curb Project from the Eureka SWRP was estimated at \$54,800 per location by GHD (2019) for approximately 5,000 square feet	\$477,400	0.46

Options	Bay Enhancements <i>Total # of different possible bay enhancements</i>	Beneficial Uses <i>Total # of different beneficial uses enhanced</i>	Water Quality Improvements <i>Total # of different possible pollutants removed</i>	Total Benefits	Cost	Approximate Range of Cost Per Acre	Preliminary Benefit to Cost Ratio benefits/acre/ \$10,000
Option 6 Piling Removal	● = 3 ● = 1	● = 4 ● = 3	● = 1 ● = 2	● = 8 ● = 6	Based on similar projects in San Francisco Bay, costs are in the range of \$300 per piling or \$17.50 per square foot. This cost was escalated for time and location to \$25 per square foot.	\$1,089,000	0.12
Option 7 Parcel 4 Brownfield Clean-up and Tidal Restoration	● = 5 ● = 1	● = 8 ● = 4	● = 12 ● = 8	● = 25 ● = 13	\$5 million to greater than \$10 million, likely more expensive than Option 1, with added contamination clean-up costs. Project area is approximately 20 acres.	\$333,300 to \$666,700	0.49 to 0.98
Option 8 Dune Enhancement and Spartina Removal	● = 5 ● = 0	● = 2 ● = 0	● = 0 ● = 1	● = 7 ● = 1	\$100,000 to \$300,000 Estimated using planting and invasive species removal from Cardiff Living Shoreline Project- Encinitas, CA- GHD 2019, for a 10 acre project.	\$10,000 to \$30,000	3.0 to 9.0
<p>● = Likely outcome   ● = Potential outcome</p> <p>Unless stated otherwise, cost estimates include design and implementation only and exclude (1) costs associated with CEQA and permitting, and (2) any necessary property acquisition.</p> <p>*Cost estimate includes CEQA and permitting, design, and implementation.</p>							

## 9. Conclusions

This memo presented an evaluation of eight enhancement project options that are being considered by the City of Eureka to meet the definition of enhancement under the EBEP. All options addressed Bay enhancements, improvement of beneficial uses, and water quality improvements. Based on the evaluation, the City is proposing to pursue Option 1 - Tidal Marsh Enhancement. Option 1 consistently ranked the highest across all three assessments (Section 4 - Bay Enhancement Metrics, Section 5 - Beneficial Uses, and Section 6 - Water Quality improvements). Option 1 would result in the restoration of 25.6 Acres of tidal marsh next to the WWTP. This option has the highest number of total projected enhancements, improvements to beneficial uses, and water quality improvements. The project has a strong nexus to the WWTP with the potential to improve water quality for most constituents that are of concern to the WWTP. The City is willing to explore inclusion of a new interpretive center and expanding planned wetland improvements north of Area 1 to increase potential enhancement results.

Option 2 - Horizontal Levee and Option 7 - Parcel 4 ranked second and third, respectively, across all three assessments. These options would also provide multi-benefit improvements to water quality and the environment of Humboldt Bay. The City understands the Regional Board is also interested in these options, per the December 19, 2019 comment letter.

Given Option 1 results in the greatest number of enhancements and has a strong nexus with the WWTP, the City recommends focusing future effort into developing and ultimately implementing Option 1.

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# Attachments

Attachment A  
North Coast RWQCB August 12, 2019 Letter  
“Interpretation of Enhancement per the Enclosed  
Bays and Estuaries  
Policy and Documentation of Significant  
Determinations to Date”



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## North Coast Regional Water Quality Control Board

August 12, 2019

Mr. Brian Gerving  
Director of Public Works  
City of Eureka  
531 K Street  
Eureka, CA 95501  
[BGerving@ci.eureka.ca.gov](mailto:BGerving@ci.eureka.ca.gov)

Dear Mr. Gerving:

Subject: Interpretation of Enhancement per the Enclosed Bays and Estuaries Policy and Documentation of Significant Determinations to Date

Regional Water Board staff met with you and other City staff and consultants on May 14, 2019 and June 18, 2019 to discuss the City's development of its Enclosed Bays and Estuaries Compliance Feasibility Study. During the May 14, 2019 meeting, City and Regional Water Board staff determined that a legal interpretation of the "Enclosed Bays and Estuaries Policy" (EBEP) enhancement provisions was needed. On May 24, 2019 Regional Water Board staff met with Regional Water Board legal counsel to discuss this matter, then called you. This letter is to document Regional Water Board staff's May 24, 2019 telephone discussion with you regarding the interpretation of enhancement. This letter also documents significant discussions with you and your team regarding metrics and other considerations by which enhancement will be evaluated by Regional Water Board staff as we review the City's project proposals.

Interpretation of Enhancement:

The EBEP prohibits discharges of municipal wastewater and industrial process waters to enclosed bays and estuaries unless such wastewater is "consistently treated and discharged in a manner that would enhance the quality of receiving waters above that which would occur in the absence of the discharge".

The specific issue that Regional Water Board staff discussed with legal counsel on May 24, 2019 was whether the enhancement selected by the City can be physically distinct

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VALERIE L. QUINTO, CHAIR | MATTHIAS ST. JOHN, EXECUTIVE OFFICER

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from the effluent and instead be tied to creation of new habitat with water quality benefit, source control measures (i.e. removal of creosote treated pilings), or expenditure of resources that would not be provided in the absence of the discharge.

Legal counsel's interpretation of this language is that the enhancement project does not necessarily need to be linked to the City's discharge and that the term "discharge" as used in the EBEP may refer to the permitting action as a whole. Accordingly, because the enhancement project is connected to the permitting action, any enhancement project that is ultimately proposed by the City and accepted by the Regional Water Board will need to be included as a requirement in the City's next NPDES permit.

### Background

State Water Board Order WQ 79-20 (Order) serves as the basis for this interpretation. This Order was adopted by the State Water Board on May 17, 1979 to document the record of a fact-finding hearing and public input "to receive evidence concerning the proposed regional wastewater treatment facility of the Humboldt Bay Wastewater Authority (HBWA), the application of the State Board's *Water Quality Control Policy for the Enclosed Bays and Estuaries of California* (Bays and Estuaries Policy) to Humboldt Bay, and the status of compliance with waste discharge requirements and orders issued by the California Regional Water Quality Control Board, North Coast Region, regulating those entities discharging into Humboldt Bay."

Although the wastewater treatment facility described in the Order was not constructed, Regional Water Board staff and legal counsel find that the discussion, findings, and conclusions of Order WQ 79-20 still apply for supporting Regional Water Board decisions regarding Eureka's discharge to Humboldt Bay. Key language from pages 8 and 9 of the Order includes the following:

*"In view of the biological productivity of Humboldt Bay and the lack of an adequate data base on which to determine the long-term effects of the bay discharge of wastewater, the Board feels that the Bay should be afforded the special protection of the Bays and Estuaries Policy. Nevertheless, the Board is of the opinion that sufficient evidence was presented at the hearing for the Board to find that there is reasonable probability that the discharge of secondary, disinfected and dechlorinated effluent into Humboldt Bay, together with a treatment process which either creates new beneficial uses or results in a fuller realization of existing beneficial uses, such as the marsh treatment process proposed by Arcata, could enhance the receiving water quality.*

*"Enhancement", as it is presently defined in a memo dated October 21, 1974 from Bill Dendy, a former Executive Officer of the State Board, to Dr. David Joseph, Executive Officer of the Regional Board requires: "... (1) full uninterrupted protection of all beneficial uses which could be made of the receiving water body in the absence of all point source waste discharge along with (2) a demonstration by the applicant that the discharge, through the creation of new beneficial area or a fuller realization, enhances water quality for those*

*beneficial uses which could be made of the receiving water in the absence of all point source discharges.”*

*In short, “enhancement” is interpreted in the memo to require “that the discharge not only provide full protection of beneficial uses which the receiving water body is capable of supporting but also yield a positive water quality benefit.”*

*As specifically applied to Humboldt Bay, the Board interprets the enhancement provision of the Bays and Estuaries Policy to require: (1) full secondary treatment, with disinfection and dechlorination, of sewage discharges; (2) compliance with any additional NPDES permit requirements issued by the Regional Board to protect beneficial uses; and (3) the fuller realization of existing uses or the creation of new beneficial uses either by or in conjunction with a wastewater treatment project. The latter requirement could conceivably be met by the creation of additional marshlands or wetland, such as is proposed by Arcata. [Note: there are 4 additional paragraphs in Order 79-20 discussing the Arcata project]*

*Although the other bay dischargers have not attempted to demonstrate enhancement, the Board is of the opinion, based upon the above findings, that there is a reasonable probability that they could do so through a wastewater treatment project or projects which provide consistent and reliable secondary treatment, comply with the Regional Board’s NPDES requirements, and involve the creation of additional marshlands or wetlands or other enhancing factors. Eureka, for example, might want to consider the restoration of some existing wetlands or the creation of some marsh adjacent to or near the Bay.”*

#### Minimum Performance Criteria

In order to meet the definition of enhancement, the City’s proposal must:

1. Provide full secondary treatment, including disinfection and dechlorination to all discharge flows to Humboldt Bay.
2. Eliminate blending within the treatment facility.
3. Comply with applicable water quality objectives for ammonia, without the benefit of a mixing zone or dilution credit, because neither are authorized by the Basin Plan.
4. Provide enhancement that would not occur in the absence of the discharge.
5. Create additional marshlands or wetlands or other enhancing features.
6. Provide full protection of beneficial uses which the receiving water is capable of in the absence of the discharge.
7. Demonstrate that the project will yield a positive water quality benefit.
8. Comply with any additional NPDES requirements issued by the Regional Water Board to protect beneficial uses, such as compliance with effluent limits for ammonia, metals, TCDD-equivalents, and other pollutants identified in the NPDES permit; climate change resilience; and no blending.

Project Evaluation Metrics and Other Considerations:

The following metrics will be used by Regional Water Board staff to evaluate the City's proposed project:

1. Longevity of Enhancement. Projects should be enduring and provide the intended benefit for a minimum time frame equivalent to infrastructure life (20 to 30 years).
2. Adaptive Management Considerations. Projects should be designed to adapt to change.
3. Climate Resilience Projects should continue to provide benefits to address climate change over time.
4. Water Quality Improvement. Projects must provide demonstrable water quality improvement in Humboldt Bay. Potential constituents to be used as metrics for water quality include pollutants with significant loads in the City's discharge, such as sediment, nutrients, metals, bacteria, and cyanide; pollutants of concern to Humboldt Bay based on the Clean Water Act section 303(d) list/305(b) report for Humboldt Bay such as dioxin and PCBs; and potential pollutants of concern, such as mercury and constituents of emerging concern. Favorable consideration will be given to enhancement projects that address a variety of the pollutants identified in this paragraph.
5. Be consistent with regional planning efforts in Humboldt Bay.
6. Multi-benefits. Projects must accomplish more than one objective in order to provide multiple benefits to Humboldt Bay.
7. Amenable to long-term maintenance by the City. To claim enhancement, the City will need to be able to ensure that the project will be maintained for its useful life. The City's evaluation of enhancement options should consider long-term maintenance costs and responsibilities. The City does not need to own and operate the enhancement project(s), but the City must ensure and retain liability for maintenance.

Additionally:

1. Enhancement does not need to be tied to the discharge, but there must be a nexus between the wastewater treatment plant's (WWTP) impacts and proposed improvements;
2. No credit will be given for projects that are already in process or completed, that would occur in the absence of the WWTP discharge, or that are required for mitigation.
3. Project(s) with low maintenance costs that continue to provide benefits over time will likely receive the highest endorsement by the Regional Water Board.
4. To determine which constituents in the City's discharge can be used as metrics for water quality improvement, the City must evaluate the full suite of pollutants discharged by the wastewater treatment plant (WWTP) (and determine the mass load calculations for each) to identify the pollutants with the highest impact. This evaluation should include pollutants of concern in Humboldt Bay (i.e., PCBs, TCDD-equivalents, pesticides, etc.) and future pollutants of concern (i.e., mercury, pharmaceuticals, personal care products, etc.).

5. A one-to-one reduction metric for every pollutant discharged from the treatment plant is not required.

Summary of Significant Determinations:

Regional Water Board staff wish to document that the following significant determinations have been made since we began meeting in December 2018:

1. Ocean Outfall. During the May 14, 2019 meeting, Regional Water Board staff agreed that the ocean outfall may be eliminated as a viable option, if the City's feasibility analysis provides robust documentation to demonstrate the infeasibility of the ocean outfall. The analysis must provide realistic cost estimates and identify the other disadvantages of this project with supporting documentation to justify elimination of this discharge option.
2. Elk River Project. During our May 24, 2019 phone call, Regional Water Board staff informed you that the proposed Elk River Estuary Project does not qualify for consideration as an enhancement project. Although this may be a beneficial project for the watershed, it is an existing project that would occur in the absence of the discharge. Regional Water Board staff are aware that the project has been under development for several years and that the first phase of the project is slated to begin this year. During the June 18, 2019 meeting, the City stated that there are unfunded portions of the Elk River Estuary Project that would not occur unless they could be funded by the City as one of its enhancement projects. Regional Water Board staff agreed to review documentation regarding this to be submitted by the City.
3. Ammonia Mixing Zone. Regional Water Board staff do not consider a mixing zone for ammonia to be viable for the following reasons:
  - a. Granting of a mixing zone by a Regional Water Board is a discretionary action even if the Basin Plan is amended to include a mixing zone policy. Note that even if a mixing zone policy were available, extensive modelling and study would be required. This is usually a time-consuming, expensive process and does not always demonstrate that a mixing zone is appropriate.
  - b. Mixing zones are not allowed when acutely toxic conditions to aquatic life passing through the mixing zone might occur. This is highly likely for a toxic pollutant like ammonia.
  - c. Dilution studies of the outfall demonstrate that the effluent does not completely flush out of the bay; and
  - d. Source control or improved treatment for ammonia are practicable and common options that must be thoroughly evaluated.

Regional Water Board staff recognize the level of staff and financial commitment that the City is investing to comply with the requirements in its NPDES permit. We wish to confirm our commitment to working with the City to navigate the complexities of achieving compliance. We believe that the result will be beneficial to the environment and to the City's long-term compliance with its NPDES requirements.

If you have any questions about this matter, you may contact Cathleen Goodwin of my staff at [Cathleen.Goodwin@waterboards.ca.gov](mailto:Cathleen.Goodwin@waterboards.ca.gov) or (707) 576-2687.

Sincerely,

Charles E. Reed, PE  
Supervising Water Resource Control Engineer

190812\_CAG\_dp\_Eureka\_EBEPclarification\_Ltr

cc: Jesse Willor, Deputy Director of Public Works, [JWillor@ci.eureka.ca.gov](mailto:JWillor@ci.eureka.ca.gov)  
Michael Hansen, Deputy Public Works Director – Utility Operations,  
[MPHansen@ci.eureka.ca.gov](mailto:MPHansen@ci.eureka.ca.gov)  
Rebecca Crow, GHD, [Rebecca.Crow@ghd.com](mailto:Rebecca.Crow@ghd.com)

Attachment B  
City of Eureka September 26, 2019 Letter  
“Elk River Waste Water Treatment Plant: Tidal  
Marsh Enhancement” **Excerpts**





**CITY OF EUREKA**

**PUBLIC WORKS DEPARTMENT**

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September 26, 2019

Cathleen Goodwin  
 North Coast Regional Water Quality Control Board  
 5550 Skylane Boulevard, Suite A  
 Santa Rosa, California 95403

Subject: Elk River Waste Water Treatment Plant: Tidal Marsh Enhancement

Dear Ms. Goodwin:

During the most recent meeting (August 20<sup>th</sup>, 2019) between the City of Eureka and the North Coast Regional Water Quality Control Board staff regarding the Enclosed Bays and Estuaries Compliance Feasibility Study currently underway, it was agreed that the City would provide the Board staff information on proposed enhancements to the Elk River Estuary. This letter and attachments represent the City’s proposal, accompanying background information and analysis. While the current proposal specifically involves the Elk River Tidal Marsh Enhancement, the tidal marsh enhancement analysis contains general information that would be applicable to other tidal marsh enhancements, as well.

**Elk River Tidal Marsh Enhancement Area 1 Project Description**

The City of Eureka proposes to restore and enhance 114 acres of estuarine and intertidal habitats on City-owned property on both sides of the Elk River (and adjacent to the Elk River Waste Water Treatment Plant) and to increase public access to the Elk River spit, Elk River, and Humboldt Bay. The project’s coastal tidal wetland enhancement activities will sequester carbon and provide habitat for several endangered, threatened, and concern status species that are vulnerable to climate change. Project activities will occur in two distinct areas: Area 1, north of Elk River, and Area 2, South of Elk River (see Project Maps).

Area 1 (25.6 acres) is located on the north bank of the Elk River and is comprised primarily of a diked tidal marsh dominated by invasive Spartina. While Area 1 currently supports limited marsh vegetation, it is highly invaded by non-native species, including Spartina densiflora, which limits ecological function of the site. Area 1 is separated from the Elk River by leaky tide gates that restrict tidal flow, block fish passage and prevent sediment transport and accretion, reducing the marsh’s ability to keep up with sea level rise and aggravating turbidity problems caused by the Elk River’s high sediment loads. The project will remove the existing tide gates, excavate tidal channels to increase the tidal prism and eelgrass habitat, remove invasive Spartina, and enhance native salt and freshwater marsh and riparian habitat through active and passive revegetation. Resulting habitats include approximately:

**Engineering**  
 Construction  
 Development  
 Transportation

**Field Operations**  
 Water Distribution  
 Wastewater Collection  
 Equipment Operations

**Building**  
 Construction Regulation  
 Code Enforcement

**Utility Operations**  
 Water and Wastewater Treatment  
 Stormwater  
 Pretreatment



- 1 acre of eelgrass habitat
- 2 acres of open water
- 18.5 acres of salt marsh (including 0.7 acres of freshwater wetlands)
- 4.1 acres of riparian habitat
- 0.6 acres of trail

The newly enhanced site will provide for public access via land and water through the development of a 0.2-mile Coastal Access Trail on the western edge and a kayak launch on the northern side of Area 1.


To date the City has been awarded construction funding for the project from the following sources:

- |                               |                    |
|-------------------------------|--------------------|
| • State Coastal Conservancy   | \$975,600          |
| • Ocean Protection Council    | \$807,030          |
| • Wildlife Conservation Board | \$620,000          |
| • <b>Total</b>                | <b>\$2,400,000</b> |

The engineer's estimate has the project construction cost at \$4,600,000. Currently, the City has a shortfall of \$2,200,000. However, without another source of funds to close that gap before October 1, 2019, the Wildlife Conservation Board will pull its funding as well, leaving the project \$3,300,000 short.

Attached is a memorandum analyzing the anticipated enhancements generated by the Elk River Tidal Marsh Enhancement Project Area 1, along with project maps. As you may understand from some of the above information, time is of the essence for this project. We greatly appreciate your assistance in working with Regional Board staff to analyze this opportunity for enhancing Humboldt Bay. If you have any questions, please feel free to contact me.

Sincerely,



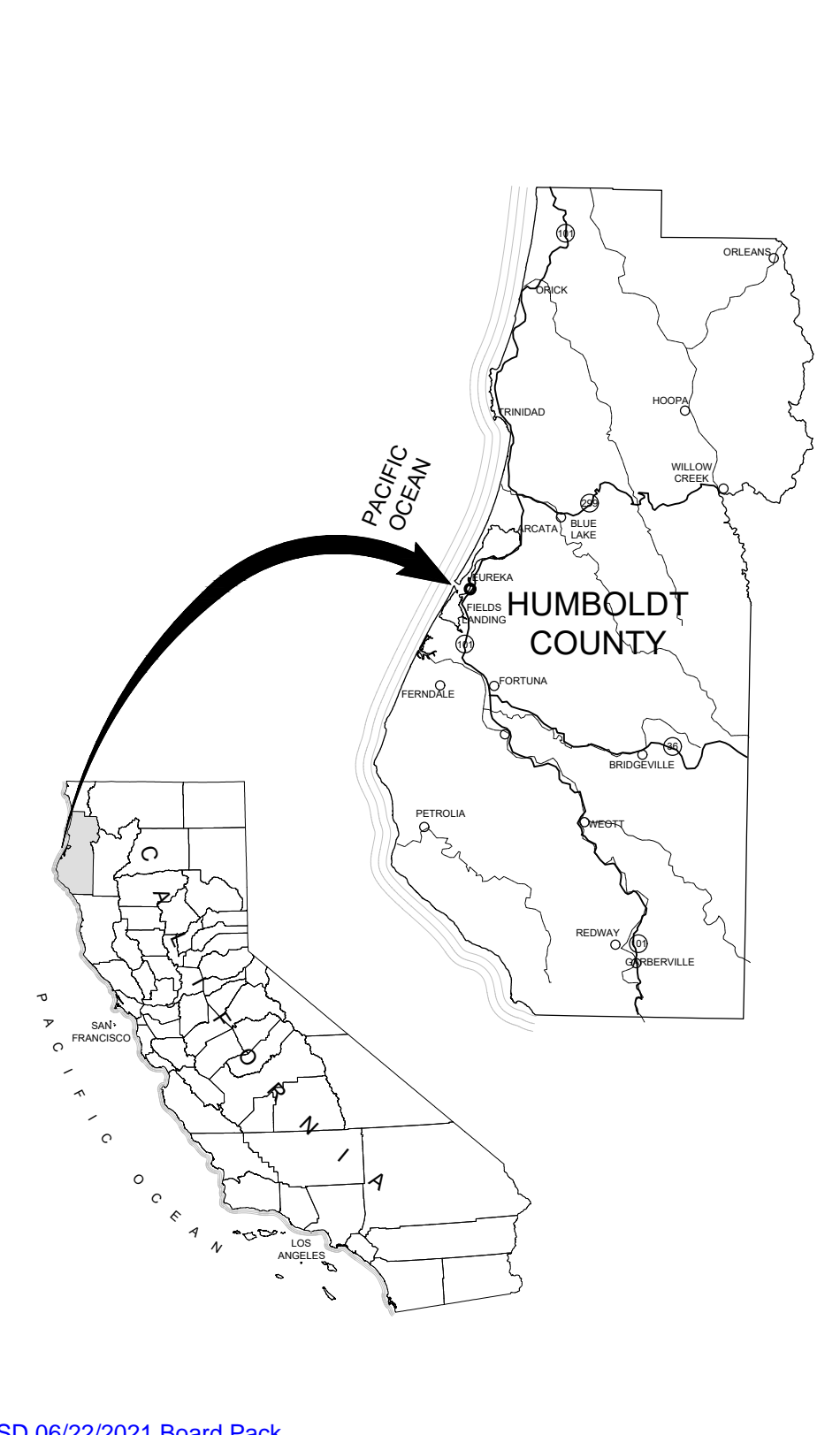
Brian J. Gerving  
Director of Public Works

# ELK RIVER ESTUARY AND TIDAL ENHANCEMENT PROJECT

## FEBRUARY 2017

AREA MAP

VICINITY MAP



### SHEET INDEX

SHEET NO.	TITLE
C-1	COVER SHEET AND SHEET INDEX
C-2	GENERAL NOTES
C-3	EXISTING FEATURES
C-4	EXISTING TOPOGRAPHY
C-5	EXISTING HYDROLOGY
C-6	EXISTING VEGETATION TYPES AND AREAS
C-7	ESTUARY AND WETLAND DEVELOPMENT PLAN
C-8	DESIGN TOPOGRAPHY
C-9	POST-DEVELOPMENT VEGETATION TYPES AND AREAS
C-10	AREA 1 GRADING PLAN
C-11	AREA 1 CHANNEL CROSS SECTIONS AND PROFILE
C-12A, 12B	AREA 2 GRADING PLAN
C-13	AREA 2 CHANNEL CROSS SECTIONS AND PROFILE
C-14	AREA 2 TIDAL RIDGE
C-15	SPARTINA ERADICATION PLAN
C-16	AREA 1 BOAT RAMP
C-17	DETAILS

30% DESIGN PLAN SET

REVISION NOTE	DATE

LICENSE STAMP



**COVER SHEET AND SHEET INDEX**

**ELK RIVER ESTUARY AND TIDAL ENHANCEMENT PROJECT**  
**EUREKA, CA 95501**  
**CITY OF EUREKA**

DATE 2/10/17	
Drawn By: KB	Checked By: SS
Last Revised: 5/23/17	Scale:

DRAWING NUMBER

# C-1



HUMBOLDT BAY

ELK RIVER

FRESHWATER MARSHES

(E) 18" TIDEGATES

(E) TIDAL CHANNELS

(E) DIKES

(E) DOUBLE 36" TIDEGATES

(E) 24" PLASTIC CULVERT

(E) DITCH

(E) AGRICULTURAL DRAINAGE DITCHES

(E) 12" CONC CULVERT

REMNANT TIDAL CHANNELS

(E) DROP INLET

SWAIN SLOUGH

(E) 24" TIDEGATES

ELK RIVER

TOPOGRAPHIC DIVIDE

REV#	REVISION NOTE	DATE
1		

LICENSE STAMP



GREENWAY PARTNERS  
1385 8TH STREET, SUITE 201 ARCATA, CA 95521  
(707) 822-0597



Trinity Associates

**EXISTING HYDROLOGY**


ELK RIVER ESTUARY AND TIDAL ENHANCEMENT PROJECT  
EUREKA, CA 95501  
CITY OF EUREKA

DATE: 12/30/16	Checked By: SS
Drawn By: KB	Scale: As Shown
Last Revised: 5/23/17	

DRAWING NUMBER  
**C-5**

**EXISTING HYDROLOGY**

11x17 SCALE: 1"=400'  
22x34 SCALE: 1"=200'





**VEGETATION MAPPING LEGEND**

- WETLAND
- RANCH ROAD
- OPEN WATER
- RIPARIAN
- UPLAND

**RARE PLANT LEGEND**

- HUMBOLDT BAY OWL'S CLOVER
- LYNGEBYE'S SEDGE
- DARK-EYED GILIA
- BEACH LAYIA

NOTE: BROAD COVER CATEGORIES BASED ON VEGETATION SURVEY (MCBAIN ASSOC., JULY 2016)  
OTHER GIS ATTRIBUTE DATA AVAILABLE

AREA OF VEGETATION TYPES		
VEGETATION TYPES	AREA 1 (ACRES)	AREA 2 (ACRES)
WETLAND	18.4	73.3
RANCH ROAD	0.0	1.2
OPEN WATER	0.8	0.4
RIPARIAN	0.0	0.2
UPLAND	5.8	13.8

**HUMBOLDT BAY**

PROJECT BOUNDARY LINES

ELK RIVER

ELK RIVER

SWAIN SLOUGH

**EXISTING VEGETATION TYPES AND AREAS**

11x17 SCALE: 1"=400'  
22x34 SCALE: 1"=200'



REV#	REVISION NOTE	DATE
1		

LICENSE STAMP

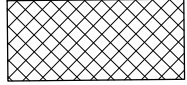


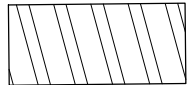
**EXISTING VEGETATION TYPES AND AREAS**  
ELK RIVER ESTUARY AND TIDAL ENHANCEMENT PROJECT  
EUREKA, CA 95501  
CITY OF EUREKA

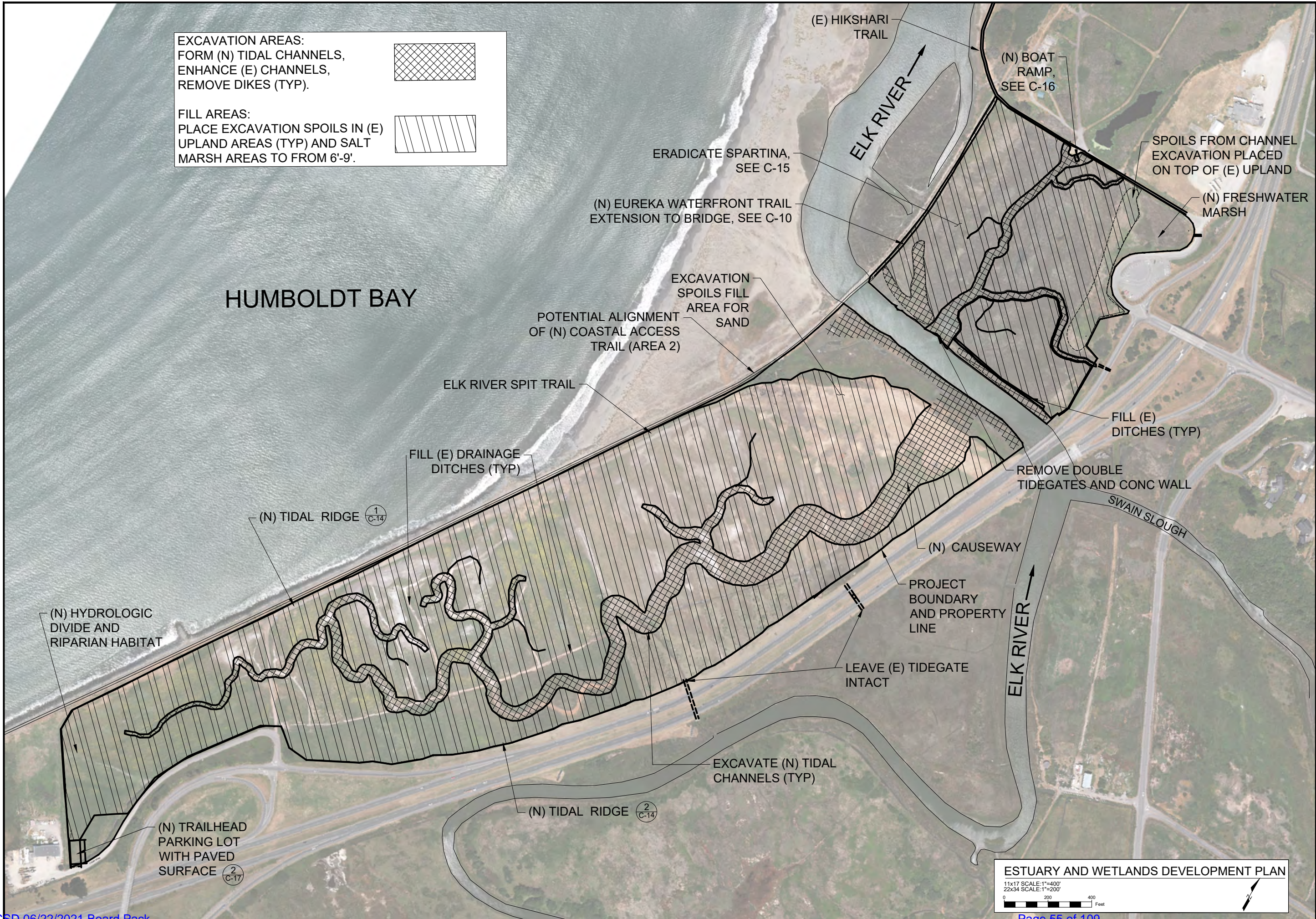
DATE: 12/30/16	Checked By:
Drawn By: KB	Scale:
Last Revised: 5/23/17	

DRAWING NUMBER  
**C-6**



**EXCAVATION AREAS:**  
 FORM (N) TIDAL CHANNELS,  
 ENHANCE (E) CHANNELS,  
 REMOVE DIKES (TYP). 

**FILL AREAS:**  
 PLACE EXCAVATION SPOILS IN (E)  
 UPLAND AREAS (TYP) AND SALT  
 MARSH AREAS TO FROM 6'-9'. 



DATE	REVISION NOTE

LICENSE STAMP



GREENWAY PARTNERS  
 1385 8TH STREET, SUITE 201 ARCATA, CA 95521  
 (707) 822-0597



Trinity Associates

**ESTUARY AND WETLANDS DEVELOPMENT PLAN**  
 ELK RIVER ESTUARY AND TIDAL ENHANCEMENT PROJECT  
 EUREKA, CA 95501  
 CITY OF EUREKA

DATE: 12/30/16	Checked By: SS
Drawn By: KB	Scale: 
Last Revised: 5/23/17	
DRAWING NUMBER <b>C-7</b>	

**ESTUARY AND WETLANDS DEVELOPMENT PLAN**  
 11x17 SCALE: 1"=400'  
 22x34 SCALE: 1"=200'



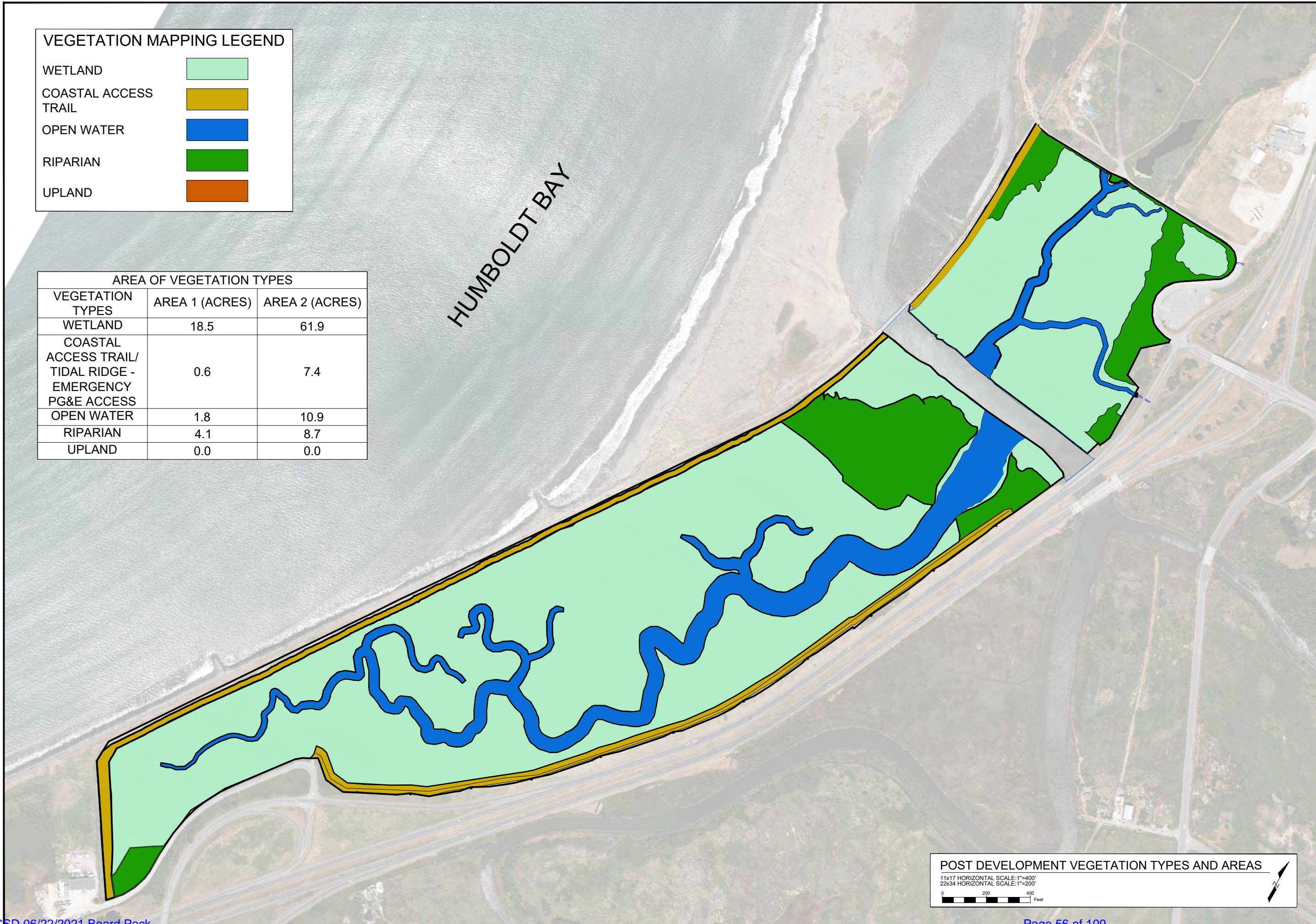



**VEGETATION MAPPING LEGEND**

- WETLAND
- COASTAL ACCESS TRAIL
- OPEN WATER
- RIPARIAN
- UPLAND

AREA OF VEGETATION TYPES		
VEGETATION TYPES	AREA 1 (ACRES)	AREA 2 (ACRES)
WETLAND	18.5	61.9
COASTAL ACCESS TRAIL/ TIDAL RIDGE - EMERGENCY PG&E ACCESS	0.6	7.4
OPEN WATER	1.8	10.9
RIPARIAN	4.1	8.7
UPLAND	0.0	0.0

HUMBOLDT BAY



**POST DEVELOPMENT VEGETATION TYPES AND AREAS**

11x17 HORIZONTAL SCALE: 1"=400'  
22x34 HORIZONTAL SCALE: 1"=200'

0 200 400 Feet

<p>DATE</p>	
<p>REVISION NOTE</p>	
<p>1</p>	
<p>LICENSE STAMP</p>	
<p>GREENWAY PARTNERS 1385 8TH STREET, SUITE 201 ARCATA, CA 95521 (707) 822-0597</p>	
<p>Trinity Associates</p>	
<p><b>POST DEVELOPMENT VEGETATION TYPES AND AREAS</b></p> <p>ELK RIVER ESTUARY AND TIDAL ENHANCEMENT PROJECT EUREKA, CA 95501 CITY OF EUREKA</p>	
<p>DATE</p> <p>12/30/16</p>	<p>Checked By:</p> <p>SS</p>
<p>Drawn By:</p> <p>KB</p>	<p>Scale:</p>
<p>Last Revised:</p> <p>6/9/17</p>	
<p>DRAWING NUMBER</p> <p><b>C-9</b></p>	



Attachment C  
Clark Street Slough Sediment Sampling, LACO,  
2018

# LACO

December 17, 2018

8247.07

City of Eureka  
531 K Street  
Eureka, California 95501

Attention: Scott Ellsmore

Subject: Project Status; Clark Street Slough Sampling

Dear Mr. Ellsmore:

As you requested, I have prepared this summary of the Clark Street Slough Sampling project.

The City of Eureka (City) approached LACO Associates (LACO) in August 2018 to retain our professional services as related to collecting sediment samples from the Clark Street Slough. The City's planned dredging of the slough required permitting under the EPA Section 404 of the Clean Water Act to cover disposal of spoils, which in turn required characterization of the spoils prior to disposal. LACO collected samples for analysis in general accordance with the City's Sampling Plan, which was supplied to LACO. The plan included analyses for: metals; polychlorinated biphenols (PCB); dioxins and furans; pesticides and herbicides; polynuclear aromatic hydrocarbons (PNA); and total petroleum hydrocarbons (TPH) by McCampbell Analytical, Inc.

LACO personnel originally collected these samples on September 11 and 12, 2018; however, they arrived at the laboratory at a temperature outside of laboratory specifications necessitating resampling on September 17 and 18, 2018. The City received the results on October 4, 2018 and emailed them to LACO for review. Due to the presence of dioxins, furans, and PAHs, the City decided to suspend completion of the Section 404 application.

However, since the Clark Street Slough sampling locations with the highest concentrations of constituents was farthest downgradient from Humboldt Bay (a potential source of dioxin and dioxin-related compounds) and was also near the confluence of several runs of storm drains, the City requested that LACO collect additional samples that included: sediment from the tidal inlet of the Eureka Boat Basin (on the bayside of the tide gate); sediment from the north and south ends of the slough adjacent to Waterfront Drive (between the tide gate and the Clark Street slough); sediment from six storm drain manholes to the east, west, and south end of Clark Street Slough; sediment a drainage inlet; and water from a storm drain manhole. The sample labeled "Manhole 1" was located at the confluence of the storm drain lines and was adjacent to the samples collected in Clark Street



The dioxin and furan results were compared to Environmental Screening Levels (ESLs) published by the Department of Toxic Substances Control (DTSC) in their Human Health Risk Assessment (HHRA) Note 2: Soil Remedial Goals for Dioxins and Dioxin-like Compounds for Consideration at California Hazardous Waste Sites in April 2017. LACO used the Commercial / Industrial exposure scenario to compare the dioxin toxicity equivalent quotients (TEQs) provided by the laboratory in order to evaluate the results. While the DTSC recommends a TEQ of 220 to 700 parts per trillion (ppt) for this exposure scenario, their bullet point (e) that this may not be adequately protective for an outdoor worker who may be directly exposed. The guidance recommends using 22 ppt in this situation.

The following samples exceeded an ESL of 22 ppt:

- Clark Street slough north, shallow 28.5
- Clark Street slough north, deep 79.5
- Clark Street slough south, shallow 144
- Clark Street slough south, shallow 122
- (Waterfront) Slough south, shallow 57.3
- (Waterfront) Slough south, deep 92.6
- Manhole 1 (10 feet deep) 120
- Manhole 3 (8 feet deep) 27.5

The water sample collected from Manhole 1 had dioxin and furan results of 0.483 ppt. North Coast Regional Water Quality Control Board previously approved a water quality objective TEQ of 0.27 ppt for a site near the Clark Street Slough. We are using that here for comparison purposes.

Sincerely,  
LACO Associates



Christine S. Manhart,  
No. 7576, Exp. 3/31/19



CSM:







# Attachment D Literature Review

Table D-1: Water Quality Improvement Potential for each Enhancement Option

<b>Pollutant</b>	<b>ERWWTP Average 5-year load (lb/ year)</b>	<b>Option 1 Tidal Marsh*</b>	<b>Option 2 Horizontal Levee*</b>	<b>Option 3 Drainage</b>	<b>Option 4 Stormwater</b>	<b>Option 5 Impervious Surfaces</b>	<b>Option 6 Piling Removal</b>	<b>Option 7 Parcel 4</b>	<b>Option 8 Dune/Spartina</b>
Arsenic**	33	<0%	<0%	-	-	-	-	-	-
Chromium	23	0% to 53%	0% to 53%	-	-	-	-	-	-
Copper	399	0% to 97%	0% to 97%	-	-	-	-	-	-
Lead	Non-Detect	<0% to 98%	<0% to 98%	-	-	-	-	-	-
Nickel	72	<0% to 90%	<0% to 90%	-	-	-	-	-	-
Zinc	689	0% to 90%	0% to 90%	-	-	-	-	-	-
TCDD Equivalents (i.e, dioxins)	Non-Detect	-	-	-	-	-	-	-	-
PCBs	-	-	-	-	-	-	-	-	-
TSS**	151,780	<0% to 94%	<0% to 94%	-	-	-	-	-	-
BOD	158,160	22% to 95%	22% to 95%	-	-	-	-	-	-
Ammonia (total as N)**	55,860	<0% to 94%	<0% to 94%	-	-	-	-	-	-
Nitrogen	-	<0% to 93%	<0% to 93%	-	-	-	73%***	73%***	-
Phosphorus**	-	<0% to 84%	<0% to 84%	-	-	-	-	-	-

<b>Pollutant</b>	<b>ERWWTP</b> Average 5-year load (lb/ year)	<b>Option 1</b> Tidal Marsh*	<b>Option 2</b> Horizontal Levee*	<b>Option 3</b> Drainage	<b>Option 4</b> Stormwater	<b>Option 5</b> Impervious Surfaces	<b>Option 6</b> Piling Removal	<b>Option 7</b> Parcel 4	<b>Option 8</b> Dune/Spartina
Bacteria	-	-	-	-	-	-	-	-	-
Trace Organics (TrOCs)	-	>80%	>80%	-	-	-	-	-	-
Hydrocarbons (e.g, Creosote)	Non-Detect	-	-	-	-	-	-	-	-

\* Refer to Attachment A which outlines range of % removal identified by each individual reference.

\*\* >0% indicates an increase in pollutant concentrations. Refer to Attachment A for specific values.

\*\*\* Relevant to options where eelgrass beds are reestablished, including Options 1, 2, 6, & 7 (Moore 2004).

# Literature Review: Enhancement Options

September 2019

- Longevity
- Quantifiable Effects

Enhancement Option Relevancy	Topic Tags	Key Findings	Full Citation	Short Citation
<ul style="list-style-type: none"> <li>• Tidal Marsh Enhancement</li> <li>• Horizontal Levee</li> </ul>	<ul style="list-style-type: none"> <li>• Ammonia</li> <li>• Constructed Wetlands</li> </ul>	<ul style="list-style-type: none"> <li>• Ammonia and ammonium removal in constructed wetlands is most efficient in free water surface and subsurface flow wetlands when nitrification is occurring</li> <li>• The average ammonia removal efficiency for constructed SFW and SF wetlands in North America is 34% and 22%, respectively, with daily loads of 8.84 mg/L and 7.89 mg/L</li> <li>• Existing FWS wetlands using bulrush species of plant have shown the greatest nitrification rates of all plant species, with calculations showing translocation of 120 mg/L O2 in the wetland and removal rates up to 98% of TN.</li> <li>• The addition of a gravel trickling filter to the outlet of an existing wetland was an effective modification that increased aeration and improved ammonia removal.</li> <li>• Results reported in this review have been primarily for small scale facilities that manage 1 MGD or less of wastewater.</li> <li>• The greatest success has been achieved using a combination of linear cell FWS wetlands well planted with bulrush species aquatic plants.</li> </ul>	Ammonia Removal in Wetlands: a Literature Review (2009). Prepared for Sacramento Regional County Sanitation District by Office of Water Programs- CA State University, Sacramento.	(Ammonia Removal 2009)
<ul style="list-style-type: none"> <li>• Wetland Restoration</li> <li>• Horizontal Levee</li> </ul>	<ul style="list-style-type: none"> <li>• Plant Uptake</li> </ul>	<ul style="list-style-type: none"> <li>• Lists various research studies on different plants and the measured uptake of COD, BOD, Nh3-N, TN, &amp; TP.</li> <li>• Note: Plants may not be regionally relevant.</li> </ul>	Chandekar, Neharika; Godbole, Buddharatna J. (2015). International Journal of Science and Research. Volume 6: Issue 2, 1850-1855.	(Chandekar 2015)
<ul style="list-style-type: none"> <li>• Wetland Restoration</li> <li>• Horizontal Levee</li> </ul>	<ul style="list-style-type: none"> <li>• Case Studies</li> <li>• Constructed Wetlands</li> <li>• BOD</li> </ul>	<ul style="list-style-type: none"> <li>• Las Gallinas Valley Sanitary District Case Study: In 1992, the plant removed 95% of the organic material (BOD) that would enter the creek and bay.</li> </ul>	EPA (1993). Constructed Wetlands for Wastewater Treatment and Wildlife Habitat: 17 Case Studies.	(EPA Case Studies 1993)

Enhancement Option Relevancy	Topic Tags	Key Findings	Full Citation	Short Citation
<ul style="list-style-type: none"> <li>Wetland Restoration</li> <li>Horizontal Levee</li> </ul>	<ul style="list-style-type: none"> <li>Case Studies</li> <li>Constructed Wetlands</li> </ul>	<ul style="list-style-type: none"> <li>Outlines removal mechanisms in constructed wetlands, design considerations, and costs.</li> <li>Gustine, CA (Central Valley) case study: This system did not consistently meet the NPDES limits at start-up and for several years thereafter.</li> </ul>	EPA (1999). Constructed Wetlands Treatment of Municipal Wastewaters.	(EPA Constructed Wetland 1999)
<ul style="list-style-type: none"> <li>Wetland Restoration</li> <li>Horizontal Levee</li> </ul>	<ul style="list-style-type: none"> <li>Heavy Metals</li> </ul>	<ul style="list-style-type: none"> <li>“Available data for 25 metals and related elements measured in surface waters, sediments, and biological tissues from treatment wetlands are summarized in the NADB v. 2.0 [North American Treatment Wetland Database]. These data confirm numerous published reports that treatment wetlands reduce surface water concentrations of metals (p. 18).”</li> </ul>	Environmental Protection Agency (EPA) & Environmental Technology Initiative (ETI). (1999) <i>Executive Summary: Treatment Wetland Habitat and Wildlife Use Assessment.</i>	(EPA Treatment Wetland 1999)
<ul style="list-style-type: none"> <li>Impervious Surfaces</li> <li>Stormwater improvement</li> </ul>	<ul style="list-style-type: none"> <li>Runoff</li> </ul>	<ul style="list-style-type: none"> <li>Decreasing impervious surfaces will decrease runoff associated contaminants: (1) <b>Natural ground cover results in ~10% runoff;</b> (2) <b>10-20% impervious surface results in ~20% runoff;</b> (3) <b>30-50% impervious surface results in ~30% runoff;</b> (4) <b>75-100% imperious surface results in ~55% runoff.</b> (p. 23/214)</li> <li>Data from urban runoff program showing median event mean concentration for urban land uses (residential, mixed, and commercial). (p.27-214)</li> <li>Pollutant removal in urban storm water BMPs can occur through: sedimentation, flotation, filtration, infiltration, adsorption, biological uptake, biological conversion, and degradation.</li> </ul>	EPA (1999). Preliminary Data Summary of Urban Water Best Management Practices.	(EPA Urban Storm Water 1999)
<ul style="list-style-type: none"> <li>Wetland Restoration</li> <li>Horizontal Levee</li> </ul>	<ul style="list-style-type: none"> <li>Nitrogen</li> <li>Phosphorus</li> <li>Plant Uptake</li> <li>Trace Organics</li> </ul>	<ul style="list-style-type: none"> <li>Trace Organics (pharmaceuticals, pesticides, and personal care products) - Very high removal of TrOCs observed. Concentrations of all TrOCs decreased by more than <b>80% when the water passed through the subsurface.</b></li> <li>Nitrogen/ Nitrate- Removal correlated significantly with hydrological parameters, with the greatest removal of these species in cells with the least amount of overland flow. Seasonal trends in evapotranspiration appear to correlate with nitrogen removal rates, further suggesting that the hydrological balance is intimately tied to nitrogen removal. Based on the above, we can infer that nitrate removal is largely mediated by anaerobic</li> </ul>	ESA (2018). Oro Loma Horizontal Levee Demonstration Project: DRAFT Project Evaluation Report. Prepared for San Francisco Estuary Partnership.	(ESA 2018)

Enhancement Option Relevancy	Topic Tags	Key Findings	Full Citation	Short Citation
		<p>processes because it appears to occur primarily in a saturated subsurface.</p> <ul style="list-style-type: none"> <li>Phosphorus- Removal not significant in the experimental system over the first few months of operation and has been highly variable, especially over time and among treatment cells.</li> <li>Plant Uptake of Nutrients- Based on these estimates, plant uptake could theoretically remove 14-69% of the total wastewater-derived nitrogen and (17-83%) of wastewater-derived phosphorus. These estimates are conservative.</li> </ul>		
<ul style="list-style-type: none"> <li>Wetland Restoration</li> <li>Horizontal Levee</li> </ul>	<ul style="list-style-type: none"> <li>Heavy Metals</li> <li>Phytoremediation</li> </ul>	<ul style="list-style-type: none"> <li>Table 2.4: Successful Cases of Metals Removal and pH Elevation by Phytoremediation Wetlands- percent removal of Copper, Iron, Lead, Manganese, Nickel, Zinc (p. 39/380).</li> <li>Table 2.5: Unsuccessful Cases of Metals Removal by Phytoremediation Wetlands (p. 41/380)</li> </ul>	Home, Alex (2000). Chapter 2: Phytoremediation by Constructed Wetlands. Phytoremediation of Contaminated Soil and Water (2000). Edited by Norman Terry & Gary Banuelos. CRC Press LLC.	(Home 2000)
<ul style="list-style-type: none"> <li>Wetland Restoration</li> <li>Horizontal Levee</li> </ul>	<ul style="list-style-type: none"> <li>Arsenic</li> <li>Constructed wetlands</li> </ul>	<ul style="list-style-type: none"> <li>The main removal pathways of As in constructed wetlands are precipitation, coprecipitation and sorption.</li> <li>To date, the main application of constructed wetlands in the removal of metals and metalloids has been the treatment of acid mine drainage, where arsenic was not the priority pollutant.</li> <li>The literature on As removal in treatment wetlands is very limited, and studies have showed that constructed wetlands have considerable potential to remove arsenic from contaminated waters.</li> <li>It is necessary to understand the roles of supporting media, microorganisms, and macrophytes.</li> </ul>	Lizama, Katherine; Fletcher, Tim; and Guangzhi Sun (2011). Removal processes for arsenic in constructed wetlands. Chemosphere 84: 1032-1043.	(Lizama 2011)
<ul style="list-style-type: none"> <li>Wetland Restoration</li> <li>Horizontal Levee</li> </ul>	<ul style="list-style-type: none"> <li>Arsenic</li> <li>Lead</li> <li>Mecury</li> <li>Phytoremediation</li> </ul>	<ul style="list-style-type: none"> <li>Phytoremediation study on soil medium (8-25/32)</li> <li>"Heavy metals uptake, by plants using phytoremediation technology, seems to be a prosperous way to remediate heavy metals-contaminated environment...The most important factor is a suitable plant species which can be used to uptake the contaminant."</li> </ul>	Tangahu et al (2011). A Review on Heavy Metals (As, Pb, and Hg) Uptake by Plants through Phytoremediation. International Journal of Chemical Engineering. Volume 2011, Article ID 939161, 31 pages. Doi: 10.1155/2011/939161.	(Tangahu 2011)



Enhancement Option Relevancy	Topic Tags	Key Findings	Full Citation	Short Citation
<ul style="list-style-type: none"> <li>Wetland Restoration</li> <li>Horizontal Levee</li> </ul>	<ul style="list-style-type: none"> <li>Constructed wetlands</li> <li>TSS</li> <li>Nitrogen</li> <li>Phosphorus</li> <li>Lead</li> <li>Zinc</li> </ul>	<ul style="list-style-type: none"> <li>Average retention of chemicals in stormwater wetlands: TSS- 75%; Total nitrogen- 25%; Total phosphorus- 45%; Organic carbon- 15%; Lead- 75%; Zinc- 50%; and Bacterial count 10<sup>-2</sup> decrease</li> </ul>	Mitsch, Willian and James G. Gosselink (2007). Wetlands. Fourth Edition. John Wiley & Sone, Inc.; Hoboken, New Jersey.	(Mitsch 2007)
<ul style="list-style-type: none"> <li>Piling Removal</li> </ul>	<ul style="list-style-type: none"> <li>Seagrass</li> </ul>	<ul style="list-style-type: none"> <li>During spring (April to June), the rapidly growing seagrass bed was a sink for nutrients, suspended inorganic particles, and phytoplankton, whereas during the summer, as bed dieback progressed, resuspension and release of nutrients were observed.</li> <li>During April, when nitrate levels in adjacent channel waters were observed to be highest, rapid uptake, equivalent to 48% of nitrogen requirements for seagrass growth, reduced inorganic nitrogen standing stocks by 73% within the bed compared to outside of it.</li> </ul>	Moore, Kenneth (2004). Influence of Seagrasses on Water Quality in Shallow Regions of the Lower Chesapeake Bay/ Journal of Coastal Research: SI: 45: 162-178.	(Moore 2004)
<ul style="list-style-type: none"> <li>Piling Removal</li> </ul>	<ul style="list-style-type: none"> <li>Creosote</li> <li>Fish</li> </ul>	<ul style="list-style-type: none"> <li>Creosote-treated wood leaches detectable amounts of PAHs for years to decades in marine environments. The resulting sediment contamination is usually localized near the structure and diminishes over time.</li> <li>Elevated PAH levels in sediments have been implicated in causing tumor growth and reducing fecundity in bottom dwelling fish.</li> <li>Lists removal BMPs</li> </ul>	NOAA (2009). The Use of Treated Wood Products in Aquatic Environments: Guidelines to West Coast NOAA Fisheries Staff.	(NOAA 2009)
<ul style="list-style-type: none"> <li>Wetland Restoration</li> <li>Horizontal Levee</li> </ul>	<ul style="list-style-type: none"> <li>Constructed wetlands</li> <li>TSS</li> <li>Nitrogen</li> <li>Phosphorus</li> <li>Heavy metals</li> </ul>	<p>Summary of removal efficiencies for various contaminants across different studies:</p> <p>Wastewater treatment- Natural wetlands</p> <ul style="list-style-type: none"> <li>TSS- 70%</li> <li>TN- 70%, 26-55%</li> <li>TP- 70%, 12-28%</li> <li>Cd- 43-47%, 43% (only 15% 5 months after treatment)</li> <li>Cr- 28-53%, 53% (only 12% 5 months after treatment)</li> <li>Cu- &gt;99%, 0-52%, 52%</li> <li>Zn- 0-51%, 51%</li> </ul>	Phillips et al (1993). Summary of Literature Describing the Functional Ability of Wetlands to Enhance Wastewater Quality. US Army Corps of Engineers. Wetlands Research Program Technical Report WRP-CP-2.	(Phillips et al 1993)

Enhancement Option Relevancy	Topic Tags	Key Findings	Full Citation	Short Citation
		<ul style="list-style-type: none"> <li>• Pb- 0-31%, 31%</li> <li>• Ni- 0%</li> <li>• Ammonia- 70%</li> <li>Wastewater treatment- Constructed wetlands</li> <li>• TSS- 72-94%, 90%, 69%, 94%</li> <li>• TN- 67%, 25-93%, 91%, &gt;50%</li> <li>• TP- 57%, 21-57%, 38%, &gt;50%</li> <li>• Cd- &gt;95%</li> <li>• Cr-</li> <li>• Cu- &gt;95%</li> <li>• Zn- &gt;90%</li> <li>• Pb-</li> <li>• Ni-</li> <li>• BOD- 90%, 80%, 95%</li> <li>• Ammonia- 11-94% depending on vegetation type</li> <li>Stormwater treatment- Natural wetlands</li> <li>• TSS- 41-73%, 55%</li> <li>• TN- 36%,</li> <li>• TP- 43%</li> <li>• Zn- 41-73%, 70%</li> <li>• Pb- 41-73%, 83%</li> <li>Stormwater treatment- Constructed wetlands</li> <li>• TSS- 80-95%, 60-65%, 42-45%</li> <li>• TN- 40-70%, 41%</li> <li>• TP- 60-85%, 53%</li> <li>• Cd- 50%</li> <li>• Cr- 50-90%, 40-53%</li> <li>• Cu- 50-90%, 40%, 5-32%</li> <li>• Zn- 50-90%, 40%, 6-51%</li> <li>• Pb- 80-95%, 72%, 30-83%</li> <li>• Ni- 12-34%</li> <li>• BOD- 50-80%, 40%</li> <li>• Ammonia-</li> <li>• Hg- 50-90%</li> <li>•</li> </ul>		
<ul style="list-style-type: none"> <li>• Wetland Restoration</li> <li>• Horizontal Levee</li> </ul>	<ul style="list-style-type: none"> <li>• Heavy Metals</li> <li>• Phytoremediation</li> </ul>	<ul style="list-style-type: none"> <li>• Table 1: Physiochemical factors known to affect heavy metal uptake, including temp, light, pH, salinity.... (p. 145)</li> <li>• Table 2: List of wetland plants used for heavy-metal phytoremediation (p.147)</li> </ul>	Prabhat Kumar Rai (2008) Heavy Metal Pollution in Aquatic Ecosystems and its Phytoremediation using Wetland Plants: An	(Prabhat 2008)

Enhancement Option Relevancy	Topic Tags	Key Findings	Full Citation	Short Citation
			ecosustainable approach, International Journal of Phytoremediation, 10:2, 133-160, DOI: 10.1080/15226510801913918	
<ul style="list-style-type: none"> <li>Wetland Restoration</li> <li>Horizontal Levee</li> </ul>	<ul style="list-style-type: none"> <li>Case Studies</li> <li>Constructed Wetlands</li> <li>BOD</li> <li>TSS</li> <li>Ammonia</li> <li>Phosphorus</li> </ul>	<p>Compares water quality performance of the Sacramento Constructed Demo project to 4 other treatment wetlands:</p> <ul style="list-style-type: none"> <li>BOD concentration: Sacramento: 73.3%; Arcata: 22.4%; Gustine, CA: 78.8%; Martinez, CA: 30.8%; and Incline Village, NV: 53.8%</li> <li>TSS concentration: Sacramento: -29.6%; Arcata: -12%; Gustine, CA: 69.4%; Martinez, CA: -118.7%; and Incline Village, NV: 0.6%</li> <li>Ammonia-N concentration: Sacramento: 39.1; Arcata: ---; Gustine, CA: -7.3%; Martinez, CA: 35.1%; and Incline Village, NV: 92.4%</li> <li>Total Phosphorus concentration: Sacramento: 13%; Arcata: ---; Gustine, CA:--; Martinez, CA: -15.2%; and Incline Village, NV: 84.4%</li> </ul> <p>Note negative number indicate an increase in concentrations (Table 3-16)</p>	Sacramento Constructed Wetlands Demonstration Project (1998). Section 3.0: Water Quality.	(SAC Demo 1998)
<ul style="list-style-type: none"> <li>Wetland Restoration</li> <li>Horizontal Levee</li> </ul>	<ul style="list-style-type: none"> <li>Constructed Wetlands</li> <li>Plant Uptake</li> </ul>	<ul style="list-style-type: none"> <li>Presence of macrophytes is essential for wetlands in terms of improving nitrogen removal performances.</li> <li>Nitrogen uptake by plants differs according to the system configurations, loading ranges, wastewater types and environmental conditions.</li> <li>The contribution of plants, in terms of nitrogen removal has been reported within the range 0.5-40.0% of the total nitrogen removal.</li> <li>The most common plant in subsurface wetland systems is <i>P. australis</i>; it has the ability to pass oxygen, from its leaves through stems and rhizomes and out from its fine hair roots into the root zone or rhizosphere</li> </ul>	Saeed, Tanveer; Sun, Guangzhi (2012). A review of nitrogen and organics removal mechanisms in subsurface flow constructed wetlands: Dependency on environmental parameters, operating conditions and supporting media. Journal of Environmental Management 112: 429-448.	(Saeed 2012)
<ul style="list-style-type: none"> <li>Wetland Restoration</li> <li>Horizontal Levee</li> </ul>	<ul style="list-style-type: none"> <li>Arsenic</li> <li>Heavy Metals</li> <li>Zinc</li> </ul>	<ul style="list-style-type: none"> <li>Metal uptake and accumulation by plants plays only a minor role in wetlands for water treatment.</li> <li>Analyzed 4 different types of constructed wetlands: Subsurface Water Wetland (SWW); Free Surface Water Wetland (FSW); Algae Pond (AP); and Hydroponic System (HP).</li> </ul>	Stottmeister, Ulrich (2006). Constructed wetlands and their performance for treatment of water contaminated with arsenic and heavy metals. Soil and Water Pollution Monitoring,	(Stottmeister et al 2006)

Enhancement Option Relevancy	Topic Tags	Key Findings	Full Citation	Short Citation
		<ul style="list-style-type: none"> <li>In SSW and FSW, in all cases the concentration of Arsenic decreased after 24 days to below 0.1 mg/L. However, no significant decrease of arsenic occurred in AP and HP.</li> <li>Zinc concentration only decreased in SWW, FSW and HP. In AP, the Zn concentration did not change significantly during the period of 90 days.</li> </ul>	Protection and Remediation, 3-23.	
<ul style="list-style-type: none"> <li>Wetland Restoration</li> <li>Horizontal Levee</li> </ul>	<ul style="list-style-type: none"> <li>Chromium</li> <li>Plant Uptake</li> </ul>	<ul style="list-style-type: none"> <li>Cr is removed in CWs by various mechanisms including biological reduction, uptake by the plant biomass and absorption in the porous media.</li> <li>FWS (Free Water Surface) and HSF (horizontal subsurface) CWs appear to be more effective than (vertical flow) VF CWs.</li> <li>Although vegetation enhances Cr removal in CWs, the type of vegetation used does not greatly affect CW performance.</li> <li>Besides the fact that a significant number of experiments/applications of CWs treating Cr have been performed, several issues have not yet been successfully answered (i.e., minimum hydraulic residence time (HRT); influent concentrations; Cr toxicity effects on CW vegetation; porous media type; microbial activity).</li> <li>List of plants and % removal of chromium on p. 184-185)</li> </ul>	Sultanta et al (2014). Chromium removal in constructed wetlands: A review. International Biodeterioration & Biodegradation 96: 181-190.	(Sultana 2014)
<ul style="list-style-type: none"> <li>Wetland Restoration</li> <li>Horizontal Levee</li> </ul>	<ul style="list-style-type: none"> <li>Ammonia</li> <li>Constructed Wetlands</li> </ul>	<ul style="list-style-type: none"> <li>The increased need for ammonia removal initiated a fast development and spread of vertical flow systems which are intermittently fed. This allows higher oxygenation of the bed and consequently higher nitrification.</li> </ul>	Vymazal, Jan (2008). Constructed Wetlands for Wastewater Treatment: A Review. Proceedings of Taal2007: The 12 <sup>th</sup> World Lake Conference: 965-980.	(Vymazal, 2008)
<ul style="list-style-type: none"> <li>Wetland Restoration</li> <li>Horizontal Levee</li> </ul>	<ul style="list-style-type: none"> <li>Ammonia</li> <li>Constructed Wetlands</li> <li>Phosphorus</li> </ul>	<ul style="list-style-type: none"> <li>Removal of total nitrogen in studied types of constructed wetlands varied between 40 and 55% with removed load ranging between 250 and 630 g N m<sup>-2</sup> yr<sup>-1</sup> depending on CWs type and inflow loading.</li> <li>Single-stage constructed wetlands cannot achieve high removal of total nitrogen due to their inability to provide both aerobic and anaerobic conditions at the same time.</li> </ul>	Vymazal, Jan (2007). Removal of nutrients in various types of constructed wetlands. Science of the Total Environment. 380: 48-65.	(Vymazal 2007)

Enhancement Option Relevancy	Topic Tags	Key Findings	Full Citation	Short Citation
		<ul style="list-style-type: none"> <li>Vertical flow constructed wetlands remove successfully ammonia-N but very limited denitrification takes place in these systems.</li> <li>Horizontal-flow constructed wetlands provide good conditions for denitrification but the ability of these systems to nitrify ammonia is very limited.</li> <li>Various types of constructed wetlands (single-stage, vertical flow, horizontal-flow) may be combined with each other in order to exploit the specific advantages of the individual systems.</li> <li>Removal of phosphorus in all types of constructed wetlands is low unless special substrates with high sorption capacity are used.</li> </ul>		
<ul style="list-style-type: none"> <li>Piling Removal</li> </ul>	<ul style="list-style-type: none"> <li>Creosote</li> <li>Fish</li> </ul>	<ul style="list-style-type: none"> <li>Toxins can accumulate in tissues of mollusks and other benthic invertebrates that do not metabolize efficiently. An increase in concentration can result within organisms with higher fat. Reproduction may be inhibited or death may occur.</li> <li>Embryonic development of the Pacific herring has been shown to be negatively affected by diffusible components of weathered creosote pilings</li> <li>Exposure of fertilized salmon eggs to low levels (1-10 ppb in water; ~1000 ppb in oiled gravel) of total PAHs from weathered oil is linked to reduced adult returns 2 years after exposure--possibly due to impaired cardiac function</li> </ul>	<p>Washington State Department of Natural Resources (2013). Brief Science Of Creosote.</p>	<p>(WA DNR 2013)</p>
<ul style="list-style-type: none"> <li>Wetland Restoration</li> <li>Horizontal Levee</li> </ul>	<ul style="list-style-type: none"> <li>Constructed Wetlands</li> <li>Plant Uptake</li> </ul>	<ul style="list-style-type: none"> <li>"It is often stated that wetlands serve as sinks for pollutants, reducing contamination of surrounding ecosystems. While sediments, which tend to be anoxic and reduced, act as sinks, the marsh can become a source of metal contaminants through the activities of the plant species. Plants can oxidize the sediments making the metals more bioavailable. Metals can be taken up by roots, transported upward to above-ground tissues, from which they can be excreted. Decaying litter can accumulate more metals, which may leach or may become available to detritus feeders. Using wetlands for water purification may serve only to delay the process of releasing toxicants to the water. As levels of pollutants increase, the ability of a wetland system to</li> </ul>	<p>Weis, Judith; Weis, Peddrick (2004). Metal uptake, transport and release by wetland plants: implications for phytoremediation and restoration. Environment International 20: 685-700.</p>	<p>(Weis 2004)</p>

Enhancement Option Relevancy	Topic Tags	Key Findings	Full Citation	Short Citation
<ul style="list-style-type: none"> <li>Piling Removal</li> </ul>	<ul style="list-style-type: none"> <li>Bivalves</li> <li>Creosote</li> <li>Fish</li> </ul>	<p>incorporate wastes can be impaired and the wetland can become a source of toxicity. (p.13/16).”</p> <ul style="list-style-type: none"> <li>In general, migration of constituents of creosote from an individual pile to the water column increases with increasing temperature and decreases with increasing age.</li> <li>Studies conducted in Sooke Basin, British Columbia, suggested that the maximum migration of PAHs occurred during the first two to three years after installation.</li> <li>Variability in leaching rates makes it difficult to assess the contribution of creosote treated pilings to the marine environment.</li> <li>An eight-year study of three Douglas fir pilings in Oregon found that creosote content remained constant in two of the pilings, while it decreased by as much as 20% in the outer 1.25 cm in the third.</li> <li>Loss rates for relatively new piles have been calculated as approximately 300–400mg PAH/piling/day.</li> <li>Filter-feeding mussels can accumulate creosote-derived PAHs from treated wood.</li> <li>Oysters exposed to creosote-contaminated sediments accumulated PAHs in the same proportions that were found in the sediments. Wild oysters collected from creosote-treated piles also had elevated levels of PAHs, but at lower concentrations than those exposed to the contaminated sediment.</li> <li>Laboratory and field investigation have found a major detrimental impact on hatching and development of fish (herring) eggs attached to aquatic pilings, even pilings that were 40 years old, suggesting that some sensitive species may be adversely affected by creosote-treated pilings.</li> </ul>	<p>Werme, C., J. Hunt, E. Beller, K. Cayce, M. Klatt, A. Melwani, E. Polson, and R. Grossinger. (2010). Removal of Creosote-Treated Pilings and Structures from San Francisco Bay. Prepared for California State Coastal Conservancy. Contribution No. 605. San Francisco Estuary Institute, Oakland, California.</p>	<p>(Werme et al 2010)</p>
<ul style="list-style-type: none"> <li>Wetland Restoration</li> <li>Horizontal Levee</li> </ul>	<ul style="list-style-type: none"> <li>Constructed Wetlands</li> <li>Copper</li> <li>Heavy Metals</li> <li>Lead</li> <li>Zinc</li> </ul>	<ul style="list-style-type: none"> <li>Studies demonstrate metal removal efficiency by wetlands receiving storm water is varied in different types of wetland systems and water metal loadings.</li> <li>One study found: Zinc, Lead, and Copper concentrations decreased 57, 71, and 48%;</li> </ul>	<p>Yeh, T (2008). Removal of Metals in Constructed Wetlands: Review. Practice Periodical of Hazardous Toxic and Radioactive Waste</p>	<p>(Yeh 2008)</p>

Enhancement Option Relevancy	Topic Tags	Key Findings	Full Citation	Short Citation
		<p>Chromium concentrations remained relatively constant; and Arsenic increased by 150%.</p> <ul style="list-style-type: none"> <li>• Another study found: Reduction rates of Copper ranged from 91.8 – 97.4%; Nickel reduction rates of 81.5 - 89.4% with variations associated with a planted or unplanted filter.</li> <li>• Another study found: Removal rates of metals monitored- 81.7% - 91.8% (36.6-372.7 mg/m<sup>2</sup>/ day) for Copper, 75.8-95.3% and (30.8%-387 mg/m<sup>2</sup>/ day) for Lead, and 82.8-90.4% (33.6-362.1 mg/m<sup>2</sup>/ day) for Zinc. Showed the wetland system retained over 99% of the metals.</li> </ul>	Management. Volume 12, Number 2: 96-100.	

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# Humboldt Community Services District

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Post Office Box 158 Cutten, CA 95503 (707) 443-4558 Fax (707) 443-1490

To: H.C.S.D. Board of Directors

Date: June 17, 2021

From: Tim Latham, District Superintendent *TL*

Subject: May 2021 Operations/Maintenance Report

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The Operations/Maintenance Department was busy in May with a variety of projects. In addition to the standard operation and maintenance of District facilities, crews continued to do station maintenance, vehicle and equipment maintenance and assisted with customer service. All of the stationary and portable generators were tested in order to insure proper operation in the time of need.

Sewer related maintenance included installing a cleanout on a sewer lateral line on Tremont Street, cleaning 600 feet of sewer main line as well as filming 300 feet of sewer main line and 62 feet of sewer lateral line all in various areas throughout the District and cleaning sewer wet wells at the Buhne Drive, Perch Street, King Salmon, Artino, Edgewood and Fields Landing sewer lift stations.

Other business included continued work on the Ridgewood Tank Off-line Project, systematic flushing of fire hydrants in the Humboldt Hill area and responding to power outages at the Kluck Lane water booster station and the Christine Drive and Maple Lane sewer lift stations.

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**HUMBOLDT COMMUNITY SERVICES DISTRICT**  
**BUDGETARY STATEMENT OF REVENUES AND EXPENSES**  
**FOR ENTIRE DISTRICT**

**May 2021**

	Budgeted 2020-21	Current Month-to-Date	Actual Year-to-Date	Budgeted Year-to-Date	Y.T.D. Variance Actual to Budget	% Variance	Note
<b>OPERATING REVENUE</b>							
Metered Water Sales	5,078,311	427,207	4,867,725	4,655,118	212,606	4.6	
Water Charges - Pass Through	236,395	19,370	203,655	216,695	(13,040)	(6.0)	1
Sewer Service Charges	4,952,219	410,278	4,417,803	4,539,534	(121,731)	(2.7)	
Sewer Service Charges - Pass Through	1,018,622	71,439	710,615	933,737	(223,122)	(23.9)	1
Water & Sewer Construction Fees	32,000	9,611	56,884	29,333	27,550	93.9	
Account Fees	150,000	11,455	127,040	137,500	(10,460)	(7.6)	
Inspection Fees	5,000	-	-	4,583	(4,583)	(100.0)	
Reimbursable Maintenance Fees	1,000	-	25	917	(892)	(97.3)	
Miscellaneous	10,000	68	1,496	9,167	(7,671)	(83.7)	
<b>TOTAL OPERATING REVENUE</b>	<b>11,483,547</b>	<b>949,428</b>	<b>10,385,242</b>	<b>10,526,585</b>	<b>(141,343)</b>	<b>(1.3)</b>	
<b>NON-OPERATING REVENUE</b>							
Capital Connection Fees	158,000	-	239,578	144,833	94,745	65.4	2
Interest/General	30,000	-	-	27,500	(27,500)	(100.0)	2
Discounts Earned	2,000	108	1,594	1,833	(239)	(13.1)	
Sales:Fixed Assets/Scrap Metal	75,400	57,345	66,490	69,117	(2,627)	(3.8)	2
Bad Debt Recovery	2,200	-	5,869	2,017	3,853	191.0	
Property Taxes & Assessments	490,000	-	14,580	449,167	(434,587)	(96.8)	2
Insurance Rebate	-	-	34,184	-	34,184	-	
<b>TOTAL NON-OPERATING REVENUE</b>	<b>757,600</b>	<b>57,453</b>	<b>362,295</b>	<b>694,467</b>	<b>(332,172)</b>	<b>(47.8)</b>	<b>2</b>
<b>TOTAL DISTRICT REVENUE</b>	<b>12,241,147</b>	<b>1,006,880</b>	<b>10,747,537</b>	<b>11,221,051</b>	<b>(473,515)</b>	<b>(4.2)</b>	
<b>OPERATING EXPENSES</b>							
Wages Direct	1,500,000	122,030	1,277,072	1,375,000	97,928	7.1	
Benefits: PERS	450,000	35,279	379,807	412,500	32,693	7.9	
Group Ins	1,130,000	94,452	924,429	1,035,833	111,404	10.8	
Workers Comp Ins	36,000	-	19,899	33,000	13,101	39.7	
FICA/Medicare	120,000	9,393	98,134	110,000	11,866	10.8	
Misc Benefits	1,200	40	170	1,100	930	84.5	
<b>Total Wages and Benefits</b>	<b>3,237,200</b>	<b>261,194</b>	<b>2,699,510</b>	<b>2,967,433</b>	<b>267,923</b>		
Less: wages & ben charged to Capital Proj.	(161,800)	(27,548)	(195,179)	(148,317)	46,862	(31.6)	
<b>Total Operating Wages and benefits</b>	<b>3,075,400</b>	<b>233,647</b>	<b>2,504,331</b>	<b>2,819,117</b>	<b>314,785</b>		
Water Purchase HBMWD	1,086,800	90,379	986,618	996,233	9,615	1.0	3
Water Purchase Eureka	673,920	65,899	674,541	617,760	(56,781)	(9.2)	3
Sewage Treatment Operations & Maint.	1,529,995	119,525	1,314,775	1,402,495	87,720	6.3	
Water/Sewer Analysis	10,000	595	6,474	9,167	2,693	29.4	
Supplies/ Construction	170,000	9,715	99,804	155,833	56,029	36.0	
Supplies/ Office-Administration	16,000	1,062	14,802	14,667	(135)	(0.9)	
Supplies/ Engineering	2,500	3	746	2,292	1,545	67.4	
Supplies/ Maintenance	100,000	9,662	77,897	91,667	13,770	15.0	
Invoicing	52,476	4,355	49,202	48,103	(1,099)	(2.3)	
Web Payment Portal	6,000	-	-	5,500	5,500	100.0	
Temporary Labor	27,200	-	-	24,933	24,933	100.0	
Repairs & Maintenance/Trucks	60,000	2,099	36,049	55,000	18,951	34.5	
Equipment Rental	8,000	-	17,084	7,333	(9,750)	(133.0)	4
Building & Grounds Maintenance	24,000	1,475	21,373	22,000	627	2.9	
Electrical Power	290,000	20,442	254,522	265,833	11,311	4.3	
Street Lights	70,000	5,258	57,799	64,167	6,367	9.9	
Telephone	14,250	960	12,327	13,063	735	5.6	
Postage	3,000	-	2,511	2,750	239	8.7	
Freight	1,600	67	215	1,467	1,251	85.3	
Chemicals	12,000	1,092	8,647	11,000	2,353	21.4	
Liability Insurance	65,000	-	54,488	59,583	5,095	8.6	

**HUMBOLDT COMMUNITY SERVICES DISTRICT**  
**BUDGETARY STATEMENT OF REVENUES AND EXPENSES**  
**FOR ENTIRE DISTRICT**

**May 2021**

	Budgeted 2020-21	Current Month-to-Date	Actual Year-to-Date	Budgeted Year-to-Date	Y.T.D. Variance Actual to Budget	% Variance	Note
Legal	30,000	1,120	5,739	27,500	21,762	79.1	
Accounting	16,000	-	10,479	14,667	4,188	28.6	
Engineering	15,000	-	523	13,750	13,228	96.2	8
Other Professional Services	18,000	3,800	16,143	16,500	357	2.2	
Bank Service Charges	42,000	3,714	43,270	38,500	(4,770)	(12.4)	5
Transportation	66,000	5,197	45,835	60,500	14,665	24.2	
Office Equip. Maintenance	22,500	213	9,269	20,625	11,356	55.1	
Computer Software Maintenance	36,000	1,537	32,110	33,000	890	2.7	
Memberships & Subscriptions	21,200	267	17,368	19,433	2,065	10.6	
Bad Debts & Minimum Balance Writeoff	12,000	-	9,622	11,000	1,378	12.5	
Conference & Continuing Ed	17,000	214	1,157	15,583	14,426	92.6	
Certifications	5,400	140	1,167	4,950	3,783	76.4	
State/County & LAFCO Fees and Charges	40,000	-	27,305	36,667	9,362	25.5	
Hydraulic Water Model Maintenance	5,000	-	5,869	4,583	(1,285)	(28.0)	6
Elections Expense	3,500	-	-	3,208	3,208	100.0	
Human Resources	24,300	3,004	11,141	22,275	11,134	50.0	
Miscellaneous	12,000	666	3,843	11,000	7,157	65.1	
Director's Fees	16,000	1,200	10,850	14,667	3,817	26.0	
<b>TOTAL OPERATING EXPENSES</b>	<b>7,700,041</b>	<b>587,306</b>	<b>6,445,896</b>	<b>7,058,371</b>	<b>612,475</b>	<b>8.7</b>	
<b>LONG TERM DEBT PAYMENTS</b>							
Safe Drinking Water Bond	177,429	-	177,558	162,643	(14,915)	(9.2)	9
2012 CIP & Refi.	359,220	-	359,220	329,285	(29,935)	(9.1)	9
Davis-Grunsky Loan	6,051	-	5,707	5,547	(160)	(2.9)	9
VacCon Truck Loan	80,341	-	80,341	73,646	(6,695)	(9.1)	9
2014 Wastewater Revenue Bonds	485,575	-	485,572	445,110	(40,462)	(9.1)	9
<b>TOTAL LONG TERM DEBT PAYMENTS</b>	<b>1,108,616</b>	<b>-</b>	<b>1,108,398</b>	<b>1,016,231</b>	<b>(92,167)</b>	<b>(9.1)</b>	<b>9</b>
<b>CAPITALIZED EXPENDITURES</b>							
Vehicles, Rolling Stock & Equipment	456,000	-	533,772	418,000	(115,772)	(27.7)	7
Building, Yard & Paving Improvements	72,500	6,722	26,193	66,458	40,265	60.6	
Capital Improvements Water	1,525,000	76,211	1,279,326	1,397,917	118,591	8.5	
Capital Improvements Sewer	220,000	31,782	83,573	201,667	118,094	58.6	
Engineering & Studies	133,750	-	5,433	122,604	117,171	95.6	8
<b>TOTAL CAPITAL EXPENDITURES</b>	<b>2,407,250</b>	<b>114,715</b>	<b>1,928,297</b>	<b>2,206,646</b>	<b>278,349</b>	<b>12.6</b>	
<b>OTHER</b>							
City of Eureka Projects:							
Treatment Plant	1,030,095	-	5,502	944,254	938,752	99.4	10
Martin Slough	-	-	1,653	-	(1,653)	-	
<b>TOTAL City of Eureka Projects</b>	<b>1,030,095</b>	<b>-</b>	<b>7,155</b>	<b>944,254</b>	<b>937,099</b>	<b>99.2</b>	
Interfund Transfers In	-	-	-	-	-	-	
Interfund Transfers Out	-	-	-	-	-	-	
<b>BUDGET SURPLUS (DEFICIT)</b>	<b>(4,855)</b>	<b>304,860</b>	<b>1,257,791</b>	<b>(4,450)</b>	<b>1,262,241</b>	<b>28,362.3</b>	<b>11</b>

**HUMBOLDT COMMUNITY SERVICES DISTRICT**  
SUMMARY BUDGETARY STATEMENT OF REVENUE AND EXPENSES  
FOR ENTIRE DISTRICT

**May 2021**

	Budgeted 2020-21	Current Month-to-Date	Actual Year-to-Date	Budgeted Year-to Date	Y.T.D. Variance Actual to Budget	% Variance
<b>OPERATING REVENUE &amp; EXPENSES</b>						
TOTAL OPERATING REVENUE	11,483,547	949,428	10,385,242	10,526,585	(141,343)	(1.3)
TOTAL OPERATING EXPENSES	<u>(7,700,041)</u>	<u>(587,306)</u>	<u>(6,445,896)</u>	<u>(7,058,371)</u>	612,475	8.7
NET SURPLUS/(DEFICIT) FROM OPERATIONS	3,783,506	362,122	3,939,346	3,468,214	471,132	13.6
<b>NON-OPERATING REVENUE &amp; EXPENSES</b>						
TOTAL NON-OPERATING REVENUE	757,600	57,453	362,295	694,467	(332,172)	(47.8)
TOTAL LONG TERM DEBT SERVICE	<u>(1,108,616)</u>	-	<u>(1,108,398)</u>	<u>(1,016,231)</u>	<u>(92,167)</u>	<u>(9.1)</u>
SURPLUS/(DEFICIT) BEFORE CAPITAL EXPENDITURES	3,432,490	419,575	3,193,243	3,146,449	231,127	7.3
HCSD CAPITAL IMPROVEMENT EXPENDITURES	(2,407,250)	(114,715)	(1,928,297)	(2,206,646)	278,349	12.6
CITY of EUREKA PROJECT REIMBURSEMENT	(1,030,095)	-	(7,155)	(944,254)	937,099	99.2
NEW DEBT ISSUE						
NET INTERFUND TRANSFERS IN/OUT		-	-			
BUDGET SURPLUS (DEFICIT)	<u>(4,855)</u>	<u>304,860</u>	<u>1,257,791</u>	<u>(4,450)</u>	<u>1,262,241</u>	<u>28,362.3</u>

**HUMBOLDT COMMUNITY SERVICES DISTRICT**  
**BUDGETARY STATEMENT OF REVENUES AND EXPENSES**  
**Water Fund**

**May 2021**

	Budgeted 2020-21	Current Month-to-Date	Actual Year-to-Date	Budgeted Year-to-Date	Y.T.D. Actual to Budget	Variance	% Variance
<b>OPERATING REVENUE</b>							
Metered Water Sales	5,078,311	427,207	4,867,725	4,655,118	212,606		4.6
Water Pass Through	236,395	19,370	203,655	216,695	(13,040)		(6.0)
Water Construction Fees	20,000	2,877	35,684	18,333	17,351		94.6
Account Fees	85,500	6,529	72,413	78,375	(5,962)		(7.6)
Inspection Fees	2,150	-	-	1,971	(1,971)		(100.0)
Reimbursable Maintenance Fees	800	-	25	733	(708)		(96.6)
Miscellaneous	5,000	39	709	4,583	(3,874)		(84.5)
<b>TOTAL OPERATING REVENUE</b>	<b>5,428,156</b>	<b>456,021</b>	<b>5,180,211</b>	<b>4,975,810</b>	<b>204,401</b>		<b>4.1</b>
<b>NON-OPERATING REVENUE</b>							
Water Capital Connection Fees	80,000	-	132,977	73,333	59,643		81.3
Interest/General	23,547	-	-	21,585	(21,585)		(100.0)
Discounts Earned	1,280	61	909	1,173	(265)		(22.6)
Sales:Fixed Assets/Scrap Metal	42,918	32,687	37,899	39,342	(1,442)		(3.7)
Bad Debt Recovery	1,254	-	3,346	1,150	2,196		191.0
FW/MR Assessment	140,000	-	-	128,333	(128,333)		(100.0)
<b>TOTAL NON-OPERATING REVENUE</b>	<b>288,999</b>	<b>32,748</b>	<b>175,130</b>	<b>264,916</b>	<b>(89,786)</b>		<b>(33.9)</b>
<b>TOTAL DISTRICT REVENUE</b>	<b>5,717,155</b>	<b>488,769</b>	<b>5,355,341</b>	<b>5,240,725</b>	<b>114,615</b>		<b>2.2</b>
<b>OPERATING EXPENSES</b>							
Wages Direct	705,000	60,406	619,461	646,250	26,789		4.1
Wages & Benefits: Allocated	571,490	43,864	438,255	523,866	85,611		16.3
Benefits: PERS	162,000	9,151	95,685	148,500	52,815		35.6
Group Ins	350,300	33,763	295,370	321,108	25,738		8.0
Workers Comp Ins	19,440	-	9,248	17,820	8,572		48.1
FICA/Medicare	56,400	4,605	47,218	51,700	4,482		8.7
Misc Benefits	-	-	-	-	-		-
Total Wages and Benefits	1,864,630	151,790	1,505,236	1,709,244	204,008		11.9
Less: wages & ben charged to Capital Proj.	(119,732)	(18,757)	(126,575)	(109,754)	16,820		(15.3)
Total Operating Wages and benefits	1,744,898	133,032	1,378,662	1,599,490	220,828		13.8
Water Purchase HBMWD	1,086,800	90,379	986,618	996,233	9,615		1.0
Water Purchase Eureka	673,920	65,899	674,541	617,760	(56,781)		(9.2)
Water Analysis	5,000	595	6,474	4,583	(1,891)		(41.3)
Supplies/ Construction	125,800	7,614	67,385	115,317	47,932		41.6
Supplies/Office-Administration	4,800	354	4,534	4,400	(134)		(3.0)
Supplies/ Engineering	1,425	-	143	1,306	1,163		89.0
Supplies/ Maintenance	50,000	8,294	53,098	45,833	(7,265)		(15.9)
Temporary Labor	11,288	-	-	10,347	10,347		100.0
Repairs & Maintenance/Trucks	33,600	881	20,218	30,800	10,582		34.4
Equipment Rental	5,920	-	171	5,427	5,256		96.9
Building & Grounds Maintenance	1,440	-	159	1,320	1,162		88.0
Electrical Power	159,500	12,161	149,245	146,208	(3,036)		(2.1)
Telephone	4,560	-	2,573	4,180	1,607		38.4
Postage	1,290	-	224	1,183	958		81.0
Freight	912	56	60	836	776		92.8
Chemicals	12,000	1,092	8,647	11,000	2,353		21.4
Liability Insurance	-	-	-	-	-		-
Engineering	5,850	-	268	5,363	5,095		95.0
Other Professional Services	3,600	3,800	8,008	3,300	(4,708)		(142.7)
Transportation	37,620	2,962	26,126	34,485	8,359		24.2
Office Equip. Maintenance	3,375	-	1,919	3,094	1,175		38.0
Computer Software Maintenance	17,280	1,423	15,484	15,840	356		2.2
Memberships & Subscriptions	1,272	-	977	1,166	189		16.2
Bad Debts & Minimum Balance Writeoff	-	-	9,494	-	(9,494)		-
Conference & Continuing Ed	5,950	-	654	5,454	4,800		88.0
Certifications	1,620	140	1,032	1,485	453		30.5
State/County & LAFCO Fees and Charges	13,600	-	21,204	12,467	(8,737)		(70.1)
Hydraulic Water Model Maintenance	5,000	-	5,869	4,583	(1,285)		(28.0)

**HUMBOLDT COMMUNITY SERVICES DISTRICT**  
**BUDGETARY STATEMENT OF REVENUES AND EXPENSES**  
**Water Fund**

**May 2021**

	Budgeted 2020-21	Current Month-to-Date	Actual Year-to-Date	Budgeted Year-to-Date	Y.T.D. Variance Actual to Budget	% Variance
Human Resources	9,477	-	419	8,687	8,268	95.2
Miscellaneous	2,640	-	-	2,420	2,420	100.0
General & Admin Expense Allocation	225,130	10,860	156,780	206,369	49,589	24.0
<b>TOTAL OPERATING EXPENSES</b>	<b>4,255,567</b>	<b>339,542</b>	<b>3,600,985</b>	<b>3,900,936</b>	<b>299,951</b>	<b>7.7</b>
<b>LONG TERM DEBT PAYMENTS</b>						
Safe Drinking Water Bond	177,429	-	177,558	162,643	(14,915)	(9.2)
2012 CIP & Refi.	115,560	-	115,560	105,930	(9,630)	(9.1)
Davis-Grunsky Loan	6,051	-	5,707	5,547	(160)	(2.9)
VacCon Truck Loan	60,256	-	60,256	55,235	(5,021)	(9.1)
Debt Service: Allocated	-	-	-	-	-	-
<b>TOTAL LONG TERM DEBT PAYMENTS</b>	<b>359,296</b>	<b>-</b>	<b>359,081</b>	<b>329,355</b>	<b>(29,726)</b>	<b>(9.0)</b>
<b>CAPITALIZED EXPENDITURES</b>						
Vehicles/Rolling Stock/Capital Equipment	111,720	-	1,471	102,410	100,939	98.6
Building & Yard Improvements	41,325	-	-	37,881	37,881	100.0
Capital Improvements Water	1,525,000	76,211	1,279,326	1,397,917	118,591	8.5
Engineering & Studies	54,150	-	(2,083)	49,638	51,721	104.2
<b>TOTAL CAPITAL EXPENDITURES</b>	<b>1,732,195</b>	<b>76,211</b>	<b>1,278,714</b>	<b>1,587,845</b>	<b>309,132</b>	<b>19.5</b>
<b>INTERFUND TRANSFERS IN</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	
<b>BUDGET SURPLUS (DEFICIT)</b>	<b>(629,903)</b>	<b>73,016</b>	<b>116,561</b>	<b>(577,411)</b>	<b>693,972</b>	<b>120.2</b>



**HUMBOLDT COMMUNITY SERVICES DISTRICT**  
**BUDGETARY STATEMENT OF REVENUES AND EXPENSES**  
**Sewer Fund**

**May 2021**

	Budgeted 2020-21	Current Month-to-Date	Actual Year-to-Date	Budgeted Year-to-Date	Y.T.D. Variance Actual to Budget	% Variance
<b>OPERATING REVENUE</b>						
Sewer Service Charges	4,952,219	410,278	4,417,803	4,539,534	(121,731)	(2.7)
Sewer Service Charges - Pass Through	1,018,622	71,439	710,615	933,737	(223,122)	(23.9)
Sewer Construction Fees	12,000	6,734	21,199	11,000	10,199	92.7
Account Fees	64,500	4,926	54,627	59,125	(4,498)	(7.6)
Inspection Fees	2,850	-	-	2,613	(2,613)	(100.0)
Reimbursable Maintenance Fees	200	-	-	183	(183)	(100.0)
Miscellaneous	5,000	29	787	4,583	(3,797)	(82.8)
<b>TOTAL OPERATING REVENUE</b>	<b>6,055,391</b>	<b>493,406</b>	<b>5,205,031</b>	<b>5,550,775</b>	<b>(345,744)</b>	<b>(6.2)</b>
<b>NON-OPERATING REVENUE</b>						
Sewer Capital Connection Fees	78,000	-	106,602	71,500	35,102	49.1
Interest/General	6,453	-	-	5,915	(5,915)	(100.0)
Discounts Earned	720	46	685	660	25	3.9
Sales:Fixed Assets/Scrap Metal	32,482	24,658	28,591	29,775	(1,185)	(4.0)
Bad Debt Recovery	946	-	2,524	867	1,657	191.0
<b>TOTAL NON-OPERATING REVENUE</b>	<b>118,601</b>	<b>24,705</b>	<b>138,401</b>	<b>108,718</b>	<b>29,684</b>	<b>27.3</b>
<b>TOTAL DISTRICT REVENUE</b>	<b>6,173,992</b>	<b>518,111</b>	<b>5,343,432</b>	<b>5,659,493</b>	<b>(316,060)</b>	<b>(5.6)</b>
<b>OPERATING EXPENSES</b>						
Wages Direct	435,000	34,344	416,392	398,750	(17,642)	(4.4)
Wages & Benefits: Allocated	571,490	43,864	438,255	523,866	85,611	16.3
Benefits: PERS	103,500	5,108	61,535	94,875	33,340	35.1
Group Ins	214,700	16,751	211,451	196,808	(14,642)	(7.4)
Workers Comp Ins	11,880	-	8,476	10,890	2,414	22.2
FICA/Medicare	36,000	2,616	31,720	33,000	1,281	3.9
Misc Benefits	-	-	-	-	-	-
<b>Total Wages and Benefits</b>	<b>1,372,570</b>	<b>102,683</b>	<b>1,167,829</b>	<b>1,258,189</b>	<b>90,360</b>	<b>7.2</b>
Less: wages & ben charged to Capital Proj.	(42,068)	(2,069)	(42,159)	(38,562)	3,597	(9.3)
<b>Total Operating Wages and benefits</b>	<b>1,330,502</b>	<b>100,614</b>	<b>1,125,670</b>	<b>1,219,627</b>	<b>93,957</b>	<b>7.7</b>
Sewage Treatment: Operating & Maint.	1,529,995	119,525	1,314,775	1,402,495	87,720	6.3
Sewer Analysis	5,000	-	-	4,583	4,583	100.0
Supplies/ Construction	44,200	2,101	32,419	40,517	8,097	20.0
Supplies/ Office-Administration	4,800	267	3,420	4,400	980	22.3
Supplies/ Engineering	1,075	-	303	985	682	69.2
Supplies/ Maintenance	50,000	1,368	24,756	45,833	21,077	46.0
Temporary Labor	5,912	-	-	5,419	5,419	100.0
Repairs & Maintenance/Trucks	26,400	1,219	15,831	24,200	8,369	34.6
Equipment Rental	2,080	-	16,913	1,907	(15,006)	(787.0)
Building & Grounds Maintenance	1,200	-	120	1,100	980	89.1
Electrical Power	69,600	4,039	51,896	63,800	11,904	18.7
Telephone	2,280	-	1,941	2,090	149	7.1
Postage	960	-	159	880	721	81.9
Freight	688	11	155	631	476	75.4
Legal	-	-	-	-	-	-
Engineering	1,500	-	-	1,375	1,375	100.0
Other Professional Services	3,600	-	2,885	3,300	415	12.6
Transportation	28,380	2,235	19,709	26,015	6,306	24.2
Office Equip. Maintenance	2,475	-	1,448	2,269	821	36.2
Computer Software Maintenance	12,960	-	10,607	11,880	1,273	10.7



**HUMBOLDT COMMUNITY SERVICES DISTRICT**  
**BUDGETARY STATEMENT OF REVENUES AND EXPENSES**  
**Sewer Fund**

**May 2021**

	Budgeted 2020-21	Current Month-to-Date	Actual Year-to-Date	Budgeted Year-to-Date	Y.T.D. Variance Actual to Budget	% Variance
Memberships & Subscriptions	848	267	1,004	777	(227)	(29.2)
Bad Debts & Minimum Balance Writeoff	-	-	129	-	(129)	-
Conference & Continuing Ed	7,480	-	190	6,857	6,667	97.2
Certifications	1,242	-	135	1,139	1,003	88.1
State/County & LAFCO Fees and Charges	7,200	-	5,550	6,600	1,050	15.9
Human Resources	7,047	-	316	6,460	6,144	95.1
Miscellaneous	1,920	-	(1)	1,760	1,761	100.1
General & Admin Expense Allocation	225,130	10,860	156,780	206,369	49,589	24.0
<b>TOTAL OPERATING EXPENSES</b>	<b>3,374,474</b>	<b>242,506</b>	<b>2,787,111</b>	<b>3,093,268</b>	<b>306,157</b>	<b>9.9</b>
<b>LONG TERM DEBT PAYMENTS</b>						
2014 Wastewater Revenue Bonds	485,575	-	485,572	445,110	(40,462)	(9.1)
2012 CIP & Refi.	243,660	-	243,660	223,355	(20,305)	(9.1)
VacCon Truck Loan	20,085	-	20,085	18,411	(1,674)	(9.1)
Debt Service: Allocated	-	-	-	-	-	-
<b>TOTAL LONG TERM DEBT PAYMENTS</b>	<b>749,320</b>	<b>-</b>	<b>749,317</b>	<b>686,877</b>	<b>(62,441)</b>	<b>(9.1)</b>
<b>CAPITALIZED EXPENDITURES</b>						
Vehicles/Rolling Stock/Capital Equipment	344,280	-	532,301	315,590	(216,711)	(68.7)
Building, Yard & Paving Improvements	31,175	-	-	28,577	28,577	100.0
Capital Improvements Sewer	220,000	31,782	83,573	201,667	118,094	58.6
Engineering & Studies	79,600	-	6,989	72,967	65,977	90.4
<b>TOTAL CAPITAL EXPENDITURES</b>	<b>675,055</b>	<b>31,782</b>	<b>622,863</b>	<b>618,800</b>	<b>(4,063)</b>	<b>(0.7)</b>
<b>OTHER</b>						
City of Eureka Projects:						
Treatment Plant	1,030,095	-	5,502	944,254	938,752	99.4
Martin Slough	-	-	1,653	-	(1,653)	-
<b>TOTAL OTHER</b>	<b>1,030,095</b>	<b>-</b>	<b>7,155</b>	<b>944,254</b>	<b>937,099</b>	<b>99.2</b>
<b>BUDGET SURPLUS (DEFICIT)</b>	<b>345,048</b>	<b>243,823</b>	<b>1,176,986</b>	<b>316,294</b>	<b>860,692</b>	<b>(272.1)</b>

**HUMBOLDT COMMUNITY SERVICES DISTRICT**  
**BUDGETARY STATEMENT OF REVENUES AND EXPENSES**  
**General Fund**

**May 2021**

	Budgeted 2020-21	Current Month-to-Date	Actual Year-to-Date	Budgeted Year-to-Date	Y.T.D. Variance Actual to Budget	% Variance
<b>OPERATING REVENUE</b>						
Interest (will be allocated to w/s @ y/e)	-	-	-	-	-	-
Miscellaneous	-	-	-	-	-	-
<b>TOTAL OPERATING REVENUE</b>	-	-	-	-	-	-
<b>NON-OPERATING REVENUE</b>						
Property Taxes	350,000	-	14,580	320,833	(306,253)	(95.5)
Insurance Rebate	-	-	34,184	-	34,184	-
Other Non-Operating Revenue	-	-	-	-	-	-
<b>TOTAL NON-OPERATING REVENUE</b>	350,000	-	48,764	320,833	(272,070)	(84.8)
<b>TOTAL DISTRICT REVENUE</b>	350,000	-	48,764	320,833	(272,070)	(84.8)
<b>OPERATING EXPENSES</b>						
Wages Direct	360,000	27,280	241,218	330,000	88,782	26.9
Benefits: PERS	184,500	21,020	222,587	169,125	(53,462)	(31.6)
Group Ins	565,000	43,938	417,608	517,917	100,309	19.4
Workers Comp Ins	4,680	-	2,175	4,290	2,115	49.3
FICA/Medicare	27,600	2,172	19,197	25,300	6,103	24.1
Misc Benefits	1,200	40	170	1,100	930	84.5
Total Wages and Benefits	1,142,980	94,450	902,955	1,047,732	144,777	13.8
Less: wages & ben charged to Capital Proj.	-	(6,722)	(26,445)	-	26,445	-
Less: Allocated to Water and Sewer Funds	(1,142,980)	(87,728)	(876,510)	(1,047,732)	(171,222)	16.3
Total Unallocated Wages and Benefits	-	-	-	-	-	-
Supplies/ Construction	-	-	-	-	-	-
Supplies/ Administration	6,400	441	6,848	5,867	(981)	(16.7)
Supplies/ Engineering	-	3	300	-	(300)	-
Supplies/ Maintenance	-	-	42	-	(42)	-
Invoicing	52,476	4,355	49,202	48,103	(1,099)	(2.3)
Web Payment Portal	6,000	-	-	5,500	5,500	-
Temporary Labor	10,000	-	-	9,167	9,167	100.0
Repairs & Maintenance/Trucks	-	-	-	-	-	-
Equipment Rental	-	-	-	-	-	-
Building & Grounds Maintenance	21,360	1,475	21,095	19,580	(1,515)	(7.7)
Electrical Power	60,900	4,242	53,381	55,825	2,444	4.4
Street Lights	70,000	5,258	57,799	64,167	6,367	9.9
Telephone	7,410	960	7,813	6,793	(1,020)	(15.0)
Postage	750	-	2,128	688	(1,440)	(209.5)
Freight	-	-	-	-	-	-
Liability Insurance	65,000	-	54,488	59,583	5,095	8.6
Legal Services	30,000	1,120	5,739	27,500	21,762	79.1
Accounting	16,000	-	10,479	14,667	4,188	28.6
Engineering	7,650	-	255	7,013	6,758	96.4
Other Professional Services	10,800	-	5,250	9,900	4,650	47.0
Bank Service Charges	42,000	3,714	43,270	38,500	(4,770)	(12.4)
Transportation	-	-	-	-	-	-
Office Equip. Maintenance	16,650	213	5,902	15,263	9,360	61.3
Computer Software Maintenance	5,760	114	6,019	5,280	(739)	(14.0)
Memberships & Subscriptions	19,080	-	15,387	17,490	2,103	12.0
Bad Debts & Minimum Balance Writeoff	12,000	-	-	11,000	11,000	100.0
Conference & Continuing Ed	3,570	214	314	3,273	2,959	90.4
Certifications	2,538	-	-	2,327	2,327	100.0

**HUMBOLDT COMMUNITY SERVICES DISTRICT**  
**BUDGETARY STATEMENT OF REVENUES AND EXPENSES**  
**General Fund**

**May 2021**

	Budgeted 2020-21	Current Month-to-Date	Actual Year-to-Date	Budgeted Year-to-Date	Y.T.D. Variance Actual to Budget	% Variance
State/County & LAFCO Fees and Charges	19,200	-	551	17,600	17,049	96.9
Elections Expense	3,500	-	-	3,208	3,208	100.0
Human Resources	7,776	3,004	10,406	7,128	(3,278)	(46.0)
Miscellaneous	7,440	666	3,843	6,820	2,977	43.7
Director's Fees	16,000	1,200	10,850	14,667	3,817	26.0
General & Admin Expense Allocation	(450,260)	(21,720)	(313,560)	(412,738)	(99,178)	24.0
<b>TOTAL OPERATING EXPENSES</b>	<b>70,000</b>	<b>5,258</b>	<b>57,799</b>	<b>64,167</b>	<b>6,367</b>	<b>9.9</b>
<b>LONG TERM DEBT PAYMENTS</b>						
2014 PGE Energy Efficiency Loan	-	-	-	-	-	-
2012 CIP & Refi	-	-	-	-	-	-
Less: Allocated to Water & Sewer Funds	-	-	-	-	-	-
<b>TOTAL LONG TERM DEBT PAYMENTS</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>
<b>CAPITALIZED EXPENDITURES</b>						
Vehicles/Rolling Stock/Capital Equipment	-	-	-	-	-	-
Building, Yard & Paving Improvements	-	6,722	26,193	-	(26,193)	-
Engineering & Studies	-	-	527	-	(527)	-
Less: Allocated to Water & Sewer Funds	-	-	-	-	-	-
<b>TOTAL CAPITAL EXPENDITURES</b>	<b>-</b>	<b>6,722</b>	<b>26,720</b>	<b>-</b>	<b>(26,720)</b>	
<b>INTERFUND TRANSFER OUT</b>		<b>-</b>	<b>-</b>	<b>-</b>		
<b>BUDGET SURPLUS (DEFICIT)</b>	<b>280,000</b>	<b>(11,979)</b>	<b>(35,756)</b>	<b>256,667</b>	<b>(292,422)</b>	<b>(113.9)</b>

**Humboldt Community Services District**  
**Notes**  
**May 2021**

Note 1 - Pass-Through Water & Sewer Charges

Pass-Through charges were not in effect in July. Prior year pass-through rates expired in June and the new rates went into effect in August. Additionally, sewer pass-through rates were set lower than what would be needed to achieve the desired pass-through income as budgeted. Usage, as set according to customer Winter Average, has also been lower than originally estimated, resulting in further reduction in income compared to budget.

See FM memo in Nov 24 Board Packet for further info.

Note 2 - Total Non Operating Revenue

Non Operating Revenue typically does not come in evenly throughout the year. Property tax and General Interest revenues, for example, are usually paid out in one or two deposits, and usually not until the middle and end of the fiscal year. Fixed Asset and scrap sales occur sporadically.

Capital Connection fee income is higher than budget primarily due to a large amount of connection fees collected for two large development projects.

Note 3 - Water Purchases - City of Eureka and HBMWD

While the 1MG tank at Walnut Drive was off line, water for areas normally served by this tank and sourced from HBMWD was instead sourced from City of Eureka Water. The City charges based on actual usage, while HBMWD charges based on annual amortized usage. As a result of this difference in billing methodology, charges from City of Eureka increased, while charges from HBMWD remained unchanged. It is expected that the District will see reduced billing from HBMWD reflecting the reduced usage when HBMWD next calculates amortized usage.

Note 4 - Equipment Rental

The primary Equipment rental expense for FY 2021 was the rental of the temporary VacCon Truck unit used while awaiting delivery of the District's new VacCon truck.

Note 5 - Bank Service Charges

As a greater number of District ratepayers utilize credit and debit cards to pay their utility bills, bank service charges increase proportionately. This will be alleviated with the implementation of a credit card payment system that allows for pass-through of processing fees.

Note 6 - Hydraulic Water Model Maintenance

All expected Water Model Maintenance charges for the year have occurred, so no further expenses are expected in the current FY. Final expenses for the year will be within 10% of budget amount.

Note 7 - Vehicles, Rolling Stock & Equipment

The primary expenditure for Vehicles, Rolling Stock & Equipment was the purchase of a new VacCon Truck unit to replace the previous failed unit.

Note 8 - Engineering

Engineering Expense - a/c 6810 - Operating Expense

5/31/2021 YTD

General Fund			
	SHN Consulting Engineers	268	523
		<hr/>	
Water Fund			
	Water Model Calibration		
	SHN Consulting Engineers		1,349
	MacKay-Sposito		4,520
		<hr/>	
Sewer Fund			
	none	-	-
		<hr/>	
	<b>Total posted to 6810</b>	<b>268</b>	<b>6,391</b>
		<hr/> <hr/>	

Engineering & Studies - a/c 9040 - Capital Improvement Projects

Water Fund			
	McKay Ranch Water Study		
	SHN Consulting Engineers	-	10,484
		<hr/>	
Sewer Fund			
	So Broadway FM Test/Dsgn		
	SHN Consulting Engineers	-	1,431
		<hr/>	
	<b>Total Engineering posted to 9040</b>	<b>-</b>	<b>11,915</b>
		<hr/>	
Non Engineering Costs Posted to 9040			
	McKay Annexation	-	396
	McKay Ranch Water Study	-	2,261
	McKay Ranch Water Study-Billed to Kramer	-	(19,879)
	Eitzen Annexation (to be reimbursed)	-	5,000
	So Broadway FM Test/Dsgn	268	3,043
		<hr/>	
		268	(9,179)
		<hr/>	
	<b>Grand Total posted to 9040</b>	<b>268</b>	<b>2,736</b>
		<hr/> <hr/>	

Engineering Costs charged to other CIPs:

	Pine Hill Bridge Water Line		
	SHN Consulting Engineers	7,130	19,585
		<hr/>	
	Ridgewood WBS		
	SHN Consulting Engineers	-	1,710
		<hr/>	
	Ridgewood Tank Reahab		
	SHN Consulting Engineers	-	965
		<hr/>	
	Sea Ave FM Reversal		
	SHN Consulting Engineers	-	2,574
		<hr/>	
	Walnut 1MG Tank		
	North Coast Labs	-	355
	Haper and Associates	-	59,564
		<hr/>	
	Tower Lane SMR		
	SHN Consulting Engineers	-	85
		<hr/>	
	Christian Ln Water Main		
	SHN Consulting Engineers	-	363
		<hr/>	
	Golf Course Sewer Slough Xing		
	SHN Consulting Engineers	-	3,978
		<hr/>	
	<b>Total Engineering costs charged to other CIPs</b>	<b>7,130</b>	<b>89,179</b>
		<hr/> <hr/>	

Note 9 - Loan Payments

All loan payments occur either annually or semi-annually. The total loan payment for the full year will match the budgeted amount.

Note 10 - City of Eureka Wastewater CIP

The District receives an invoice from the City of Eureka for wastewater treatment CIP costs late in the fiscal year. This small August payment is for the prior year billing which we received complete documentation.

Note 11 - Budget Surplus

For the month of April the district shows a deficit (negative net). The primary expenditures during the month of April were the purchase of the new VacCon Unit, Payment on the Wastewater Revenue Bonds, and expenditures for the Pine Hill Bridge drilling project. The VacCon unit was purchased via a financing agreement, so will not have an immediate effect on District Cash flow. Bond Payment and PHB project expenditures were expected and included in the budget. The district currently shows a YTD surplus (positive net income), this surplus is expected to be utilized for Capital Improvement projects in the current fiscal year, as included in the Budget amounts.



# Humboldt Community Services District

*Dedicated to providing high quality, cost effective water and sewer service for our customers*

## AGENDA REPORT

For HCSD Board of Directors Regular Meeting of: June 22, 2021

**AGENDA ITEM:** G.1 (New Business)

**TITLE:** Adoption of the 2020 Urban Water Management Plan and Water Shortage Contingency Plan by Resolution 2021-08

**PRESENTED BY:** Terrence Williams, General Manager

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### **Recommendation:**

Consider comments from the Public Hearing and adopt Resolution 2021-08 approving and adopting the 2020 Urban Water Management Plan (UWMP) and Water Shortage Contingency Plan (WSCP). Roll-call vote.

### **Summary:**

The California Water Code requires a Public Hearing for consideration of Draft UWMPs and, separately, adoption of the UWMP after the Public Hearing. These two items can occur in the same meeting as long as they are agendized separately and the Public Hearing occurs first.

### **Fiscal Impact:**

None

**RESOLUTION 2021-08**

**A RESOLUTION OF THE BOARD OF DIRECTORS OF THE  
HUMBOLDT COMMUNITY SERVICES DISTRICT**

**ADOPTING THE HCSD 2020 URBAN WATER MANAGEMENT PLAN and WATER  
SHORTAGE CONTINGENCY PLAN**

**WHEREAS**, the District prepared a 2020 Urban Water Management Plan (UWMP) and Water Shortage Contingency Plan (WSCP) in compliance with the requirements of the California Department of Water Resources (DWR) pursuant to Urban Water Management Act (UWMP Act) and the Water Conservation Bill of 2009; and

**WHEREAS**, the UWMP Act requires development and implementation of a written UWMP that reports, describes, and evaluates the following four areas:

- Water deliveries and uses;
- Water supply sources;
- Efficient water uses; and
- Demand Management Measures (DMMs), including implementation strategy and schedule, and public notification requirements; and

**WHEREAS**, the Board's UWMP and WSCP will be updated every five years as required by the UWMP Act; and

**WHEREAS**, the purpose of the UWMP and WSCP is for water agencies in carrying out their long-term resource planning responsibilities to ensure adequate water supplies are available to meet existing and future water demands; and

**WHEREAS**, the evaluation of four areas effecting the District's water supply will allow District staff to better manage the water distribution system and help to ensure efficient and cost effective operation of the District's water system into the future; and

**WHEREAS**, the procedural requirements of the UWMP and WSCP include public notice, Board review and approval, that the District has completed, considered and adopted the Plan; and

**WHEREAS**, the Public Hearing was noticed in a local newspaper of general circulation for two consecutive weeks prior to the Public Hearing; and

**WHEREAS**, a proposed draft copy of the District's 2020 UWMP and WSCP was posted to the District's website for more than ten (10) days; and

**WHEREAS**, the District did not receive any comments as a result of the website posting stated the District Board of Directors would consider this for approval and would receive public comments during a Board meeting.

**NOW THEREFORE, BE IT RESOLVED** that the Board of Directors of the Humboldt Community Services District hereby approves the HCSD 2020 Urban Water Management Plan and Water Shortage Contingency Plan and its implementation.

**PASSED, APPROVED, AND ADOPTED** at a regular meeting of the Board of Directors of the Humboldt Community Services District held this 22nd day of June 2021, by the following roll call vote:

AYES:

NOES:

ABSENT:

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Alan Bongio, Board President

ATTEST:

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Brenda K. Franklin, Board Secretary

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# Humboldt Community Services District

*Dedicated to providing high quality, cost effective water and sewer service for our customers*

## AGENDA REPORT

**For HCSD Board of Directors Regular Meeting of: June 22, 2021**

**Agenda Item: G.2 – New Business**

**TITLE:** Public Hearing and Consideration of Approving Resolution 2021-09 Establishing **FY 2021/22 Master Fee Schedule**

**Presented by:** Michael Montag, Finance Manager/District Treasurer

**Attachments:** "Resolution 2021-09", "Master Fee schedule Changes", "FY 2021-2022 Master Fee schedule", "2021-22 Notice of Rates"

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**Recommendation:** Staff recommends the Board of Directors:

1. Open Public Hearing
2. Review changes to the Master Fee Schedule for FY 2021-2022.
3. Motion followed by Roll-Call Vote to approve the District's updated Master Fee Schedule for FY 2021-2022 by adopting Resolution 2021-09.

### Summary:

In FY 2016-2017, a Water and Wastewater Rate study was completed and accepted by the District Board of Directors. This study established annual adjustments to Water and Wastewater fees charged to District ratepayers. Additionally, at the HCSD Board meeting of June 8<sup>th</sup> 2021, the Board approved updated Sewer Pass-Through fees to be charged to ratepayers for the 2021-2022 Fiscal Year. The Master Fee schedule for FY 2021-2022 reflects the annual changes to rates according to the rate study, as well as the updated pass-through fees. These changes will take effect as of the first billing that occurs after August 1<sup>st</sup> 2021. The accompanying "Master Fee Schedule Changes" document lists all District charges, with changes to amounts in red text.

### Additional information

**Water Rates:** Fixed Service Charges and Volumetric Consumption Rates for Water for FY 2021-2022 will be increased by 1.5% compared to FY 2020-2021 rates, in accordance with the 2017 Rate Study. Pass-through fees for Water are eliminated, in accordance with resolution 2021-05, passed at the June 8<sup>th</sup> 2021 Board meeting.

**Waste Water Rates:** Fixed Service Charges and Volumetric Consumption Rates for Wastewater for FY 2021-2022 will be increased by 2.0% compared to FY 2020-2021 rates, in accordance with the 2017 rate study. Volumetric Consumption Pass-through fees will be set at 51.8% of the base Sewer Volumetric Fee rate, in accordance with resolution 2021-05, passed at the June 8<sup>th</sup> 2021 Board meeting.

**Other Fees (non-rate fees and charges):** The district will be implementing a \$3.50 Convenience fee for all Credit Card Payments. The implementation of this fee is in accordance with requirements that fees for processing Credit Card payments must be paid by people utilizing such payment methods. All other non-rate fees and charges will remain unchanged. Changes to non-rate fees may be made in the future with board approval and ratepayer notice, if desired.

**RESOLUTION NO. 2021-09**

**A RESOLUTION OF THE BOARD OF DIRECTORS  
OF THE  
HUMBOLDT COMMUNITY SERVICES DISTRICT**

**ADOPTING A MASTER FEE SCHEDULE FOR FISCAL YEAR 2021/22**

**WHEREAS**, at the May 26, 2015 Board Meeting, the Board of Directors adopted Ordinance No. 2015-02, an *Ordinance of the Humboldt Community Services District Amending the Humboldt Community Services District Code Relating to District Fees, Charges, Deposits*; and

**WHEREAS**, Ordinance No. 2015-02 removed all specific references to actual dollar amounts from the District's Code and replaced those references with general statements that notes that the fees, charges and deposits are to be periodically set by the Board by Resolution; and

**WHEREAS**, at the June 8, 2021 Board Meeting, the Board of Directors adopted Resolution 2021-07 Establishing a Budget for fiscal year 2021/22; and

**WHEREAS**, it is the intention of the Board of Directors to review and adopt a new Master Fee Schedule annually to support District budget adoption.

**NOW THEREFORE BE IT RESOLVED THAT THE BOARD OF DIRECTORS OF THE HUMBOLDT COMMUNITY SERVICES DISTRICT DO HEREBY** Adopt Resolution 2021-09 adopting a Master Fee Schedule for fiscal year 2021/22 (attached hereto), and that said Master Fee Schedule shall be effective as of July 1, 2021 unless otherwise indicated within the Schedule.

**PASSED, APPROVED AND ADOPTED** at a regular meeting of the Board of Directors of the Humboldt Community Services District held this 22nd day of June, 2021, by the following roll call vote:

AYES:

NOES:

ABSENT:

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Alan Bongio, Board President

ATTEST:

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Brenda K. Franklin, Board Secretary



HUMBOLDT COMMUNITY SERVICES DISTRICT

FY 2021/2022 MASTER FEE SCHEDULE

**Customer Service Account Fees**

	<i>Fee</i>
<b>Activation, Deposits and Miscellaneous Charges</b>	
Credit Card Convenience Fee	\$3.50
Establish Water & Sewer Accounts (Admin)	\$35.00
Initial Residential Deposits:	
Water & Sewer	\$200.00
Water Only	\$100.00
Sewer Only	\$100.00
Increase in Deposit due to non-payment per occurrence:	\$50.00
Maximum Deposit:	\$300.00
Multi-Family Units:	
Water & Sewer (1 <sup>st</sup> unit)	\$50.00
Each Additional Unit	\$40.00
Water Only (1 <sup>st</sup> Unit)	\$35.00
Each Additional Unit	\$20.00
Commercial Deposits	2.5 x Mo Base Rate
When considering collection of a security deposit, deposit requirements may be waived if customer meets any of the following District guidelines for creditworthiness:	
(a) Prior service within the District showing timely payments within the previous two (2) years, or	
(b) Produce a letter of credit from PG&E, or other recognized utility showing timely payments for a period of one (1) year	
(c) Produce a positive rating report from a recognized credit reporting agency. (Ref. Code §7.06.030)	
(d) Participation in Automatic Payment Program	
Returned Checks	\$25.00
Reinstatement of Service after discontinuance for nonpayment	1 <sup>st</sup> time = \$40.00 \$65.00 + penalties thereafter
Tow Truck Call Fee	\$25.00 + actual tow costs
Broken Lock Fee	\$25.00
Tampering Fee (any unauthorized operation of meters, valves, etc.)	\$260.00
Meter Test Deposit – refunded if test fails	\$147.00
After-hours Service Call	\$84.00

HUMBOLDT COMMUNITY SERVICES DISTRICT

FY 2021/2022 MASTER FEE SCHEDULE

**WATER – MONTHLY SERVICE RATES**

Rates below are effective August 1, 2021 through July 31, 2022. The monthly fixed charge shall depend on the meter size. Volumetric rates are for units of 100 cubic-feet (HCF).

<b><u>Fixed Monthly Service Charges</u></b>		<b><u>Volumetric Consumption Charge</u></b>
5/8 inch meter	\$26.46	\$4.06 per HCF
3/4 inch meter	\$38.42	\$4.06 per HCF
1 inch meter	\$62.34	\$4.06 per HCF
1-1/2 inch meter	\$122.13	\$4.06 per HCF
2 inch meter	\$193.89	\$4.06 per HCF
3 inch meter	\$385.23	\$4.06 per HCF
4 inch meter	\$600.49	\$4.06 per HCF
6 inch meter	\$1,198.44	\$4.06 per HCF

**Other Miscellaneous Water Fees:**

	<b><u>Fee</u></b>
Temporary Construction Meter – Installation	\$40.00
Monthly Rate	\$92.95 + \$4.06 per HCF
Private Fire Protection Services	\$3.00 times diameter (inches) of service line

**Water Hauler Program:**

	<b><u>Fee</u></b>
<600 gallons	\$20
>600 gallons	\$0.03/gallon

HUMBOLDT COMMUNITY SERVICES DISTRICT

FY 2021/2022 MASTER FEE SCHEDULE

**SEWER - MONTHLY SERVICE RATES:**

Rates below are effective August 1, 2020 through July 31, 2021. The rates and minimum sewer service charges billed monthly to customers within the service area of the District shall be as follows:

<i>Monthly Fixed Service Charge per Account</i>	<i>Plus Monthly Fixed Service Charge Per Living Unit (LU)/Equivalent Dwelling Unit (EDU)*</i>	<i>Plus Winter Average - Volumetric Charge per 100 cft.</i>	
\$4.28	Single Family Residential (1-3 LU)	\$19.09	\$5.94
\$4.28	Multi-Family (4 or more LU)	\$15.27	\$5.94
\$4.28	Mobile Homes	\$16.61	\$5.94
\$4.28	Trailer Parks	\$16.61	\$5.94
\$4.28	Commercial – Light Strength (<370 mg/liter)	\$19.09	\$7.10
\$4.28	Commercial – Med. Strength (370-500 mg/liter)	\$19.09	\$9.41
\$4.28	Commercial – Heavy Strength (>500 mg/liter)	\$19.09	\$11.89

\* Fixed monthly service charges for Residential accounts shall be based on the number of Living Units (LU) at the Service Address. Fixed Monthly Service Charges for Commercial accounts shall be based on Equivalent Dwelling units (EDU).

**Sewer Pass Through Rate:**

Approved “pass-through” rate to recover City of Eureka charges for wastewater treatment and Capital Improvement Projects (within HCSD responsibility) in excess of calculated sewer charges for current rates.	
Charged as a multiplier to the Volumetric Surcharge:	
Single Family/Multi Family/Mobile Homes/Trailer Parks	\$3.08
Commercial Light Strength	\$3.69
Commercial Medium Strength	\$4.87
Commercial Heavy Strength	\$6.16

**Sewer – Other Miscellaneous Charges**

	<i>Fee</i>
Special Sewer Discharge Permit:	\$250 plus an additional charge for actual gallons discharged to the public sewer system based on strength of discharged wastewater

**Waste Water Hauler Program:**

Wastewater shall meet the District's Specific Pollutant Limits prior to discharge. No wastewater from a septic tank, portable bathroom, or recreational vehicle is allowed to be discharged to the District's sewage collection system. Discharge shall not exceed 1000 gallons a day.	
<500 gallons	\$20.00
501-1000 gallons	\$30.00

**WATER SYSTEM CONNECTION AND CONSTRUCTION FEES**

**Water Connection Fee (Capacity Charge Buy-in).**

The water capital connection fee is \$3,045 per 5/8” meter equivalency. See table below for additional meter sizes.

Water connection (capacity charge) for all classes of customers shall be based upon the number of meters per lot as well as the size of meter connected to the system as detailed in the following table; Connection fees are in addition to the actual cost of installing a service including main line tap, service line, meter, and box.

**Figure 1: Water Capital Connection Fees**

Meter Size	Equivalency Factor		Max. Water Connection Fee Per Meter
	Max. Continuous Flow (gpm) <sup>(1)</sup>	Equivalency to 5/8-inch Base Meter Size	
5/8 inch	25	1.00	\$3,045.00
3/4 inch	35	1.40	\$4,263.00
1 inch	55	2.20	\$6,699.00
1-1/2 inch	100	4.00	\$12,180.00
2 inch	160	6.40	\$19,488.00
3 inch	320	12.80	\$38,976.00
4 inch	500	20.00	\$60,900.00
6 inch	1,000	40.00	\$121,800.00

<sup>(1)</sup> Source: AWWA M1, Table B-2. Assumes displacement meters for 5/8” through 2”, Compound Class I for 3” through 6”

**WATER METER PURCHASE AND INSTALLATION:** In addition to the capital connection fee, where the District installs a new water meter and service line, the meter charge and installation fee shall be dependent on the size of the meter required. All costs are based upon actual time and materials. Where the Developer has installed the new water service line, the District shall install the meter upon payment of the corresponding meter charge, installation fee and appropriate connection fee. Charges within and without the limits of the District boundaries are payable in advance for the installation of new services and meters when work is performed by District forces. Fees shall be as indicated in the table below. Costs do not include permanent pavement or sidewalk replacement.

	<i>Fees</i>
5/8” Meter Charge	\$273.12
Installation	\$2,500.00
3/4” Meter Charge	\$308.12
Installation	\$2,575.00
1” Meter Charge	\$396.37
Installation	\$2,831.00

HUMBOLDT COMMUNITY SERVICES DISTRICT

FY 2021/2022 MASTER FEE SCHEDULE

1 ½” and larger Meter Charge Installation	Special Quote Special Quote
Split Water Service (New) (Does not include permanent pavement or sidewalk replacement)	2 ea 5/8” \$3,065.00 3+ Special Quote 2 ea ¾” \$3,155.00 3+ Special Quote
Splitting an Existing Water Service	Actual cost. Not to exceed charges for a new service
Temporary Construction Meter	\$40.00
<b>Additional Fees for freshwater/Mitchell Road assessment area:</b> Charges for connections in the Freshwater/Mitchell Rd. assessment area shall be based on the Assessment District formula of said area as follows:	
<i>Assessment Criteria</i>	<i>Fee</i>
Acreage – per acre all zones	\$300.00
Parcel – per parcel (zone A) per parcel (zone B&C)	\$1,545.00 \$2,575.00
Capacity – Existing SFRE (zone A) Existing SFRE (zone B) Existing SFRE (zone C) Existing 2 <sup>nd</sup> Unit (zone A) Existing 2 <sup>nd</sup> Unit (zone B) Existing 2 <sup>nd</sup> Unit (zone C)	\$9,365.00 \$8,526.00 \$4,659.00 \$4,683.00 \$4,265.00 \$2,330.00

**SEWER CONNECTION AND CONSTRUCTION FEES**

This fee is in addition to the actual cost of installing a service including main line tap, lateral line and cleanout. Does not include permanent pavement or sidewalk replacement.

**Sewer Capital Connection Fee (Capacity Charge Buy-In)**

**The sewer capital connection fee is \$2,958.00/Equivalent Dwelling Unit (EDU)**

- A. Residential:** The fee is charged based on the number of EDUs.
- Single residential units equal one EDU without consideration of the number of fixture units.
  - Multiple residential units: The fee is calculated on the total fixture unit count converted to EDU and pro-rated for the second and subsequent EDU’s based on a percentage calculation as compared to one EDU. One EDU shall equal 24 fixture units.

HUMBOLDT COMMUNITY SERVICES DISTRICT

FY 2021/2022 MASTER FEE SCHEDULE

<b>B. Commercial</b> The fee is calculated on the total fixture unit count converted to EDU and pro-rated for the second and subsequent EDU's based on a percentage calculation as compared to one EDU. One EDU shall equal 24 fixture units.	
	<u>Fee</u>
Sewer Installation *if installed with water service, fee \$3,000	< 10 ft deep \$3,700.00* > 10 ft deep special quote
Sewer Capital Connection Fee - Residential	\$2,958.00 per EDU
Sewer Capital Connection Fee – Commercial/ Industrial	\$2,958.00 per EDU
Sewer Lateral Inspection Fee	\$150.00 refundable

**Water Conservation Fines & Penalties**

	<u>Fee</u>
1 <sup>st</sup> Violation (infraction)	\$25.00
2 <sup>nd</sup> Violation (Infraction)	\$50.00
3 <sup>rd</sup> Violation & subsequent violations within a 6-month period (misdemeanor)	\$100.00

**Labor & Equipment Rates**

	<u>Hourly Fee</u>
General Labor	\$54.00
Foreman	\$69.00
Inspector	\$74.00
Plan Checker	\$74.00
Engineering Technician	\$58.00
Clerk	\$52.00
Backhoe	\$58.40
Bobcat	\$58.40
Compressor	\$31.00
Concrete Saw	\$13.75
Dump Truck <7 yards	\$42.75
Dump Truck 10 yards	\$76.60
Excavator	\$91.70
Generator	\$11.70
Mole	\$25.00
Tapping Machine <2"	\$25.00
Tapping Machine >2"	\$40.00
Trailer	\$20.60
TV Van (sewer)	\$80.00
Utility Truck (small)	\$30.00
Utility Truck (large)	\$35.00
VacCon/Hydro Excavator	\$130.00

HUMBOLDT COMMUNITY SERVICES DISTRICT

FY 2021/2022 MASTER FEE SCHEDULE

**Administrative Fees**

Charges for Photocopies and/or Mailing of Printed Material Maps, Documents and Reports

	<i>Fee</i>
Photocopies Black & White per side: 8.5x11 page 11x17 page 24x36 page	\$0.10 \$0.20 \$3.00
Photocopies Color per side: 8.5 x 11 page 11 x 17 page 24 x 36 page	\$0.50 \$1.00 \$15.00
Conversion of document to electronic image	\$2.00 plus \$0.10 per page
Public records request deposit	Same as copies. Admin fees waived for <20 pages
Videos tapes, CDs, DVDs	\$3.00/each + actual cost of duplication
Mailing	\$3.00 each + actual cost for duplication
Agenda Annual Subscription (24 regular meetings)	\$28
Agenda Single – Mailed	\$1.25



HUMBOLDT COMMUNITY SERVICES DISTRICT  
FY 2021/2022 MASTER FEE SCHEDULE

**Customer Service Account Fees**

	<u>Current Fee</u>	<u>Proposed Fee</u>
<b>Activation, Deposits and Miscellaneous Charges</b>		
Credit Card Convenience	\$0.00	<u>\$3.50</u>
Establish Water & Sewer Accounts (Admin)	\$35.00	<u>\$35.00</u>
Initial Residential Deposits:		
Water & Sewer	\$200.00	<u>\$200.00</u>
Water Only	\$100.00	<u>\$100.00</u>
Sewer Only	\$100.00	<u>\$100.00</u>
Increase in Deposit due to non-payment per occurrence:	\$50.00	<u>\$50.00</u>
Maximum Deposit:	\$300.00	<u>\$300.00</u>
Multi-Family Units:		
Water & Sewer (1 <sup>st</sup> unit)	\$50.00	<u>\$50.00</u>
Each Additional Unit	\$40.00	<u>\$40.00</u>
Water Only (1 <sup>st</sup> Unit)	\$35.00	<u>\$35.00</u>
Each Additional Unit	\$20.00	<u>\$20.00</u>
Commercial Deposits	2.5 x Mo Base Rate	<u>2.5 x Mo Base Rate</u>
<p>When considering collection of a security deposit, deposit requirements may be waived if customer meets any of the following District guidelines for creditworthiness:</p> <ul style="list-style-type: none"> <li>(a) Prior service within the District showing timely payments within the previous two (2) years, or</li> <li>(b) Produce a letter of credit from PG&amp;E, or other recognized utility showing timely payments for a period of one (1) year, or</li> <li>(c) Produce a positive rating report from a recognized credit reporting agency. (Ref. Code §7.06.030)</li> <li>(d) Participation in Automatic Payment Program</li> </ul>		
Returned Checks	\$25.00	<u>\$25.00</u>
Reinstatement of Service after discontinuance for nonpayment	1 <sup>st</sup> time = \$40.00 \$65.00 + penalties thereafter	<u>1<sup>st</sup> time = \$40</u> <u>\$65.00</u> <u>+ penalties thereafter</u>
Tow Truck Call Fee	\$25.00 + actual tow costs	<u>\$25.00+</u> <u>actual tow costs</u>
Broken Lock Fee	\$25.00	<u>\$25.00</u>
Tampering Fee (any unauthorized operation of meters, valves, etc.)	\$260.00	<u>\$260.00</u>

HUMBOLDT COMMUNITY SERVICES DISTRICT  
FY 2021/2022 MASTER FEE SCHEDULE

	<u>Current Fee</u>	<u>Proposed Fee</u>
Meter Test Deposit – refunded if test fails	\$147.00	<u>\$147.00</u>
After-hours Service Call	\$84.00	<u>\$84.00</u>

**WATER – MONTHLY SERVICE RATES**

Rates below are effective ~~August July~~ 1, 2020~~1~~ through ~~June July~~ 30~~1~~, 2021~~1~~. The monthly fixed charge is based upon meter size. Volumetric consumption charges are for each 100 cubic-feet (HCF) metered.

<u>Fixed Monthly Service Charges</u>		<u>Volumetric Consumption Charge/HCF</u>
5/8 inch meter	<del>\$26.07</del> 26.46	<del>\$4.00</del> 4.06
3/4 inch meter	<del>\$37.85</del> 38.42	<del>\$4.00</del> 4.06
1 inch meter	<del>\$61.42</del> 62.34	<del>\$4.00</del> 4.06
1-1/2 inch meter	<del>\$120.33</del> 122.13	<del>\$4.00</del> 4.06
2 inch meter	<del>\$191.02</del> 193.89	<del>\$4.00</del> 4.06
3 inch meter	<del>\$379.54</del> 385.23	<del>\$4.00</del> 4.06
4 inch meter	<del>\$591.62</del> 600.49	<del>\$4.00</del> 4.06
6 inch meter	<del>\$1,180.73</del> 1,198.44	<del>\$4.00</del> 4.06

**Water Pass-through Rate (In addition to Monthly Service Rates Above):**

Effective August 1, 2020 through July 31, 2021 (Water Pass through Only):

Approved “pass-through” rate to recover Purchased Water costs from the City of Eureka and Humboldt Bay Municipal Water District in excess of calculated water charges for current rates.	
<b>Charged as a multiplier to the Volumetric Consumption Charge:</b>	
All Customer Classes	0.38/HCF

**Other Miscellaneous Water Fees:**

	<u>Fee</u>
Temporary Construction Meter – Installation Monthly Rate	\$40.00 \$92.95 + <del>\$4.00</del> 4.06 /HCF
Private Fire Protection Services	\$3 times diameter (inches) of service line

**Water Hauler Program – No Changes**

	<u>Fee</u>
<600 gallons	\$20.00
>600 gallons	\$0.03/gallon

HUMBOLDT COMMUNITY SERVICES DISTRICT  
FY 2021/2022 MASTER FEE SCHEDULE

**SEWER - MONTHLY SERVICE RATES:**

Rates below are effective ~~July-August 1, 2020~~ through ~~June-July 30, 2021~~. The rates and minimum sewer service charges billed monthly to customers within the service area of the District shall be as follows:

<i>Monthly Fixed Service Charge per Account</i>	<i>Plus Monthly Fixed Service Charge Per Living Unit (LU)/Equivalent Dwelling Unit (EDU)*</i>	<i>Plus Winter Average - Volumetric Charge per 100 cft.</i>
<del>\$4.19</del> <u>4.28</u>	Single Family Residential (1-3 LU)	<del>\$18.72</del> <u>19.09</u> <del>\$5.82</del> <u>5.94</u>
<del>\$4.19</del> <u>4.28</u>	Multi-Family (4 or more LU)	<del>\$14.97</del> <u>15.27</u> <del>\$5.82</del> <u>5.94</u>
<del>\$4.19</del> <u>4.28</u>	Mobile Homes	<del>\$16.28</del> <u>16.61</u> <del>\$5.82</del> <u>5.94</u>
<del>\$4.19</del> <u>4.28</u>	Trailer Parks	<del>\$16.28</del> <u>16.61</u> <del>\$5.82</del> <u>5.94</u>
<del>\$4.19</del> <u>4.28</u>	Commercial – Light Strength (<370 mg/liter)	<del>\$18.72</del> <u>19.09</u> <del>\$6.96</del> <u>7.10</u>
<del>\$4.19</del> <u>4.28</u>	Commercial – Med. Strength (370-500 mg/liter)	<del>\$18.72</del> <u>19.09</u> <del>\$9.22</del> <u>9.41</u>
<del>\$4.19</del> <u>4.28</u>	Commercial – Heavy Strength (>500 mg/liter)	<del>\$18.72</del> <u>19.09</u> <del>\$11.66</del> <u>11.89</u>

\*Fixed monthly service charges for Residential accounts shall be based on the number of Living Units (LU) at the service address. Fixed monthly service charges for Commercial accounts shall be based on Equivalent Dwelling Units (EDU)

**Sewer Pass Through Rate (In addition to Monthly Service Rates Above):**

Approved “pass-through” rate to recover City of Eureka charges for wastewater treatment and Capital Improvement Projects (within HCSD responsibility) in excess of calculated sewer charges for current rates.	
Charged as a multiplier to the Winter Average Volumetric Charge:	Per HCF
Single Family/Multi Family/Mobile Homes/Trailer Parks	<del>\$1.79</del> <u>3.08</u>
Commercial – Light Strength (<370 mg/liter)	<del>\$2.14</del> <u>3.69</u>
Commercial – Med. Strength (370-500 mg/liter)	<del>\$2.83</del> <u>4.87</u>
Commercial – Heavy Strength (>500 mg/liter)	<del>\$3.58</del> <u>6.16</u>

**Sewer – Other Miscellaneous Charges – No Changes**

	<i>Fee</i>
Special Sewer Discharge Permit:	\$250.00 plus an additional charge for actual gallons discharged to the public sewer system based on strength of discharged wastewater

HUMBOLDT COMMUNITY SERVICES DISTRICT  
FY 2021/2022 MASTER FEE SCHEDULE

**Waste Water Hauler Program: - No Changes**

Wastewater shall meet the District's Specific Pollutant Limits prior to discharge. No wastewater from a septic tank, portable bathroom, or recreational vehicle is allowed to be discharged to the District's sewage collection system. Discharge shall not exceed 1000 gallons a day.	
<500 gallons	\$20.00
501-1000 gallons	\$30.00

**WATER SYSTEM CONNECTION AND CONSTRUCTION FEES – No Changes**

**Water Connection Fee (Capacity Charge Buy-in).**

The water capital connection fee is \$3,045 per 5/8” meter equivalency. See table below for additional meter sizes.

Water connection (capacity charge) for all classes of customers shall be based upon the number of meters per lot as well as the size of meter connected to the system as detailed in the following table; Connection fees are in addition to the actual cost of installing a service including main line tap, service line, meter, and box.

**Water Capital Connection Fees**

Meter Size	Equivalency Factor		Max. Water Connection Fee Per Meter
	Max. Continuous Flow (gpm) <sup>(1)</sup>	Equivalency to 5/8-inch Base Meter Size	
5/8 inch	25	1.00	\$3,045.00
3/4 inch	35	1.40	\$4,263.00
1 inch	55	2.20	\$6,699.00
1-1/2 inch	100	4.00	\$12,180.00
2 inch	160	6.40	\$19,488.00
3 inch	320	12.80	\$38,976.00
4 inch	500	20.00	\$60,900.00
6 inch	1,000	40.00	\$121,800.00

**WATER METER PURCHASE AND INSTALLATION:** In addition to the capital connection fee, where the District installs a new water meter and service line, the meter charge and installation fee shall be dependent on the size of the meter required. All costs are based upon actual time and materials. Where the Developer has installed the new water service line, the District shall install the meter upon payment of the corresponding meter charge, installation fee and appropriate connection fee. Charges within and without the limits of the District boundaries are payable in advance for the installation of new services and meters when work is performed by District forces. Fees shall be as indicated in the table below. Costs do not include permanent pavement or sidewalk replacement.

HUMBOLDT COMMUNITY SERVICES DISTRICT  
FY 2021/2022 MASTER FEE SCHEDULE

	<u>Fees – No Change</u>
5/8" Meter Charge Installation	\$273.12 \$2,500.00
3/4" Meter Charge Installation	\$308.12 \$2,575.00
1" Meter Charge Installation	\$396.37 \$2,831.00
1 ½" and larger Meter Charge Installation	Special Quote Special Quote
Split Water Service (New) (Does not include permanent pavement or sidewalk replacement)	2 ea 5/8" \$3,065.00 3+ Special Quote 2 ea ¾" \$3,155 .00 3+ Special Quote
Splitting an Existing Water Service	Actual cost. Not to exceed charges for a new service
Temporary Construction Meter	\$40.00
<b>Additional Fees for freshwater/Mitchell Road assessment area:</b> Charges for connections in the Freshwater/Mitchell Rd. assessment area shall be based on the Assessment District formula of said area as follows:	
<u>Assessment Criteria</u>	<u>Fee – No Change</u>
Acreage – per acre all zones	\$300.00
Parcel –	
per parcel (zone A)	\$1,545.00
per parcel (zone B&C)	\$2,575.00
Capacity –	
Existing SFRE (zone A)	\$9,365.00
Existing SFRE (zone B)	\$8,526.00
Existing SFRE (zone C)	\$4,659.00
Existing 2 <sup>nd</sup> Unit (zone A)	\$4,683.00
Existing 2 <sup>nd</sup> Unit (zone B)	\$4,265.00
Existing 2 <sup>nd</sup> Unit (zone C)	\$2,330.00

**SEWER CONNECTION AND CONSTRUCTION FEES – No Changes**

This fee is in addition to the actual cost of installing a service including main line tap, lateral line and cleanout. Does not include permanent pavement or sidewalk replacement.

**Sewer Capital Connection Fee (Capacity Charge Buy-In)**

**The sewer capital connection fee is \$2,958.00/Equivalent Dwelling Unit (EDU)**

HUMBOLDT COMMUNITY SERVICES DISTRICT  
FY 2021/2022 MASTER FEE SCHEDULE

- A. Residential:** The fee is charged based on the number of EDUs.
- Single residential units equal one EDU without consideration of the number of fixture units.
  - Multiple residential units: The fee is calculated on the total fixture unit count converted to EDU and pro-rated for the second and subsequent EDU's based on a percentage calculation as compared to one EDU. One EDU shall equal 24 fixture units.
- B. Commercial:** The fee is calculated on the total fixture unit count converted to EDU and pro-rated for the second and subsequent EDU's based on a percentage calculation as compared to one EDU. One EDU shall equal 24 fixture units.

	<u>Fee</u>
Sewer Installation *if installed with water service, fee \$3,000.00	< 10 ft deep \$3,700.00* > 10 ft deep special quote
Sewer Lateral Inspection Fee	\$150.00 refundable

**Water Conservation Fines & Penalties – No Changes**

	<u>Fee</u>
1 <sup>st</sup> Violation (infraction)	\$25.00
2 <sup>nd</sup> Violation (Infraction)	\$50.00
3 <sup>rd</sup> & subsequent violations within 6-months (misdemeanor)	\$100.00

**Labor & Equipment Rates – No Changes**

	<u>Hourly Fee</u>
General Labor	\$54.00
Foreman	\$69.00
Inspector	\$74.00
Plan Checker	\$74.00
Engineering Technician	\$58.00
Clerk	\$52.00
Backhoe	\$58.40
Bobcat	\$58.40
Compressor	\$31.00
Concrete Saw	\$13.75
Dump Truck <7 yards	\$42.75
Dump Truck 10 yards	\$76.60
Excavator	\$91.70
Generator	\$11.70
Mole	\$25.00
Tapping Machine <2"	\$25.00

HUMBOLDT COMMUNITY SERVICES DISTRICT  
FY 2021/2022 MASTER FEE SCHEDULE

	<i>Hourly Fee</i>
Tapping Machine >2"	\$40.00
Trailer	\$20.60
TV Van (sewer)	\$80.00
Utility Truck (small)	\$30.00
Utility Truck (large)	\$35.00
VacCon/Hydro Excavator	\$130.00

**Administrative Fees – No Change**

Charges for Photocopies and/or Mailing of Printed Material Maps, Documents and Reports

	<i>Fee</i>
Photocopies Black & White per side:	
8.5x11 page	\$0.10
11x17 page	\$0.20
24x36 page	\$3.00
Photocopies Color per side:	
8.5 x 11 page	\$0.50
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Conversion of document to electronic image	\$2.00 plus \$0.10 per page
Public records request deposit	Same as copies. Admin fees waived for <20 pages
Videos recordings, CDs, DVDs	\$3.00/each + actual cost of duplication
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Agenda Annual Subscription (24 regular meetings)	\$28
Agenda Single – Mailed	\$1.25



# Humboldt Community Services District

*Dedicated to providing high quality, cost effective water and sewer service for our customers*

## FISCAL YEAR 2021/2022 NOTICE OF WATER AND WASTEWATER RATES

On May 9th 2017, Humboldt Community Services District (HCSD) Board of Directors approved a rate study plan, including annual rate adjustments. On June 8, 2021, HCSD Board of Directors approved passing through increased sewer costs from COE to District sewer customers, and eliminating pass-through Water fees due to reduced water costs.

The “pass-through” temporary volumetric rate increases will recover charges to HCSD from Humboldt Bay Municipal Water District and the City of Eureka above those expected when HCSD calculated its current water and sewer rates in 2017. These pass-throughs address:

- Unplanned excess costs from COE for wastewater treatment, including operation and maintenance charges and Capital Improvements for the Greater Eureka Wastewater Treatment system in the amount of \$1,806,616.
- Removal of Water pass-through previously in place due to reduction in Water costs.

Pass-through of unplanned wholesale cost increases is permitted under Government Code section 53756, in order to ensure that both the water and wastewater rate revenue is adequate to meet HCSD’s cost of service.

Effective August 1, 2021, a separate line item will appear on all Utility Bills reflecting the following volumetric consumption pass-through charges per 100 cubic-feet (HCF):

SEWER TOTAL MONTHLY SERVICE RATES FOR FISCAL YEAR 2021/22					
Flat Service Charge	Customer Classification	Plus, Fixed Service Charge Per Living Unit/ Equivalent Dwelling Unit (LU/EDU)	Plus, Winter Average Volumetric Charge per HCF	Plus, COE Volumetric Pass-through per Winter Average HCF	Total Sewer Winter Average Volumetric Charge per HCF
\$4.28	Single Family Residential (1-3 LU)	\$19.09	\$ 5.94	<b>\$ 3.08</b>	\$ 9.02
4.28	Multi-Family Residential (4+ LU)	15.27	5.94	<b>3.08</b>	9.02
4.28	Mobile Homes/Trailer Parks	16.61	5.94	<b>3.08</b>	9.02
4.28	Commercial - Light Strength	19.09	7.10	<b>7.10</b>	10.79
4.28	Commercial - Medium Strength	19.09	9.41	<b>9.41</b>	14.28
4.28	Commercial - Heavy Strength	19.09	11.89	<b>11.89</b>	18.05

WATER TOTAL MONTHLY SERVICE RATES FOR FISCAL YEAR 2021/22				
Meter Size	Fixed Monthly Service Charge	Plus, Volumetric Consumption Charge per HCF	Plus, Pass-through Volumetric Consumption Charge per HCF	Total Water Volumetric Consumption Charge per HCF
5/8 inch	\$ 26.46	\$4.06	<b>\$0.00</b>	\$4.06
3/4 inch	38.42	4.06	<b>0.00</b>	4.06
1 inch	62.34	4.06	<b>0.00</b>	4.06
1-1/2 inch	122.13	4.06	<b>0.00</b>	4.06
2 inch	193.89	4.06	<b>0.00</b>	4.06
3 inch	385.23	4.06	<b>0.00</b>	4.06
4 inch	600.49	4.06	<b>0.00</b>	4.06
6 inch	1,198.44	4.06	<b>0.00</b>	4.06

Mailing: Post Office Box 158 • Cutton, CA 95534 • tel (707) 443-4558 • fax (707) 443-1490  
Physical Address: 5055 Walnut Drive, Eureka, CA 95503

## Pass Through Frequently Asked Questions

**What is a pass-through?** A “pass-through” recovers increased charges to HCSD by wholesalers above those expected when HCSD calculated its current water and sewer rates. For sewer services, these include: wholesale charges for wastewater treatment as well as a percentage of the the wastewater treatment plant, Martin Slough interceptor, and the COE’s other operating and maintenance charges. Water pass through services include: wholesale charges for the purchase of potable water from HBMWD and COE. HCSD is authorized to pass these costs on to its customers by Government Code section 53756, to ensure its water and wastewater rate revenue is enough to meet its cost to serve its customers.

**What is the difference between a “rate increase” and a “pass-through”?** The last water and sewer rate increases HCSD approved were based upon an extensive analysis of the costs to operate, maintain and improve HCSD’s 114 miles of water mains, 75 miles of sewer mains, 28 sewer lift stations (pumps), 10 water storage tanks, 13 water pumping stations and three water wells to provide water and sewer service to ~20,000 residents in HCSD’s 15 square-mile service area. This analysis also projected the wholesale charges to HCSD for both purchase of water and sewer treatment. A 5-year plan for rate increases according to this analysis was approved in May 2017. When costs exceed the amount projected in a rate study, the State has developed a process by which HCSD can recover those “additional” costs. This process is commonly known as a “pass-through” as HCSD can only “pass-through” the actual excess costs to the ratepayers, and nothing more.

**When does this pass-through start?** This pass-through will begin appearing on monthly bills in August 2021 through July 2022.

**How long will I have to pay for this pass-through?** This pass-through will be charged for 12 months starting in August 1, 2021 and ending July 31, 2022.

**Will there be future pass-throughs?** We don’t know. HCSD can only pass-through costs in excess of those used to set rates in the rate study. While that study was thorough and complete, we cannot predict the future perfectly. We do not know of any new charges at this time, nor can we predict what other outside agencies may charge in the future.

**Why am I getting a notice for the pass-through increase?** Government Code section 53756 requires the District to notify its customers at least 30 days before a rate increase.

**Have additional questions about the pass-through fees?** For more information, please call (707) 443-4550.

# Humboldt Community Services District

*Dedicated to providing high quality, cost effective water and sewer service for our customers*

## AGENDA REPORT

For HCSD Board of Directors Regular Meeting of: June 22, 2021

**AGENDA ITEM:** G.3 (New Business)

**TITLE:** Consideration of Claim for Damages – 3878 Walnut Avenue

**PRESENTED BY:** Terrence Williams, General Manager

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### Recommendation:

Motion to reject the claim for damages from Shawn Delaney. Roll-call vote.

### Summary:

On April 22, 2021, Customer Service staff received a call from Shawn Delaney, owner/landlord of 3878 Walnut Avenue reporting sewer sprayed into the bathroom in his rental while HCSD crews were testing in the area. Maintenance staff's investigation confirmed that while cleaning the sewer main on the afternoon of April 22nd, air displaced approximately 1 gallon of water contained in the customer's toilet because the customer's house is improperly vented. Staff immediately provided the customer a claim form, and contacted ACWA/JPIA who authorized their adjuster to oversee professional services to disinfect and restore the bathroom to the customer's satisfaction. Per the attached, Mr. Delaney submitted an official claim to HCSD for an unspecified amount on May 11, 2021.

As of this writing, ACWA/JPIA has paid all expenses to the standard professionals to ensure a thorough clean-up/disinfection of the customer's bathroom. At the end of May, Mr. Delaney presented ACWA/JPIA with an additional demand for slightly over \$13,000 representing his personal time, time expended for coordinating with contractors, travel, loss of use plus a per diem for meals, etc. ACWA/JPIA analyzed the request determining an unusually high-cost basis and counter-offered at \$7,500. Mr. Delaney has not accepted the offer.

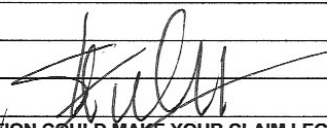
As stipulated by California Government Code §945.6 in order to limit the window of exposure to the claimant filing a law-suit to a period of six months, the District may reject the claim within 45 days of receipt. In this scenario, the latest date for rejection is June 24, 2021. If the Board does not reject the claim at the June 22, 2021 Regular Meeting, the claimant then has up to two years to file with the courts.

### Fiscal Impact:

Potentially \$15,000+

# Claim Form

(A claim shall be presented by the claimant or by a person acting on his behalf.)

<b>NAME OF DISTRICT:</b> Humboldt Community Services District / 5055 Walnut Drive, Eureka, CA	
<b>1</b>	<p>Claimant name, address (mailing address if different), phone number, social security number, e-mail address, and date of birth. <i>Effective January 1, 2010, the Medicare Secondary Payer Act (Federal Law) requires the District/Agency to report all claims involving payments for bodily injury and/or medical treatments to Medicare. As such, if you are seeking medical damages, we <b>MUST</b> have both your Social Security Number and your date of birth.</i></p> <p>Name: <u>SILVAIN DELANEY</u> Phone Number: <u>925 324-3658</u>                  Address(es): <u>P.O. BOX 1205</u> Social Security No.: _____  <u>720 TILTED AVE</u> Date of Birth: _____  <u>BLUE LAKE CA 95525</u> E-mail: <u>STD3XUS@paloalto.com</u></p>
<b>2</b>	<p>List name, address, and phone number of any witnesses.</p> <p>Name: <u>JOSEPH DELANEY</u>                  Address: <u>3070 WALNUT AVE EUREKA CA</u>                  Phone Number: ( ) _____</p>
<b>3</b>	<p>List the date, time, place, and other circumstances of the occurrence or transaction, which gave rise to the claim asserted.</p> <p>Date: <u>4/22/21</u> Time: <u>12:15 PM</u> Place: <u>WALNUT AVE</u>                  Tell What Happened (give complete information):  <u>FLOOD WORK CREW HIGH PRESSURE CLEANING ON</u>  <u>SEWER MAIN LINE FAILED TO REMOVE PLUG IN VENT</u>  <u>INSTALLED ON LATERAL LINE TO HOUSE CAUSING</u>  <u>SEWERAGE TO BACKFLOW THROUGH TOILET &amp; FLOOD</u>  <u>BATHROOM FLOOR &amp; FLOOD FURNACE DUCT.</u>  <u>CHRIS NAUGHTON ADMITTED TO TAKING A SHORTCUT!!</u>                  NOTE: Attach any photographs you may have regarding this claim.</p>
<b>4</b>	<p>Give a general description of the indebtedness, obligation, injury, damage, or loss incurred so far as it may be known at the time of presentation of the claim.</p> <p><u>UNKNOWN AT THIS TIME</u></p>
<b>5</b>	<p>Give the name or names of the public employee or employees causing the injury, damage, or loss, if known.</p> <p><u>CHRIS NAUGHTON, TIM LATHAM</u>  <u>NOTE: BOTH ADMITTED FAULT AT TIME OF INCIDENT</u></p>
<b>6</b>	<p>The amount claimed if it totals less than ten thousand dollars (\$10,000) as of the date of presentation of the claim, including the estimated amount of any prospective injury, damage or loss, insofar as it may be known at the time of the presentation of the claim, together with the basis of computation of the amount claimed. If the amount claimed exceeds ten thousand dollars (\$10,000), no dollar amount shall be included in the claim. However, it shall indicate whether the claim would be a limited civil case.</p>
<p>Date: <u>5/11/21</u> Time: <u>10:41 AM</u> Signature: </p> <p style="text-align: center;"><b>ANSWER ALL QUESTIONS. OMITTING INFORMATION COULD MAKE YOUR CLAIM LEGALLY INSUFFICIENT!</b></p>	

White - JPIA Office Copy / Yellow - District Office Copy / Pink - Claimant Copy

Revised - October 2015