PROPOSED MITIGATED NEGATIVE DECLARATION AND INITIAL STUDY

Arcata Wastewater Treatment Facility Upgrades Project

Prepared by City of Arcata Environmental Services Department
736 F Street Arcata CA. 95521

October 2020

Lead Agency	City of Arcata 736 F Street Arcata, CA 95521
Project Proponent	City of Arcata
Project Name	Arcata Wastewater Treatment Facility Upgrades Project
Project Summary	The proposed project involves improvements to the City's Wastewater Treatment Facility. Proposed improvements are detailed in Project Description Section 3.5 (Proposed Project) of the Initial Study.
Location	The AWTF project (Project) is located at the southern portion of the City, within the city limits of Arcata in Township 6N North Range 1 East, Section 32, as depicted on the Arcata, California, U.S. Geological Survey Arcata South 7.5-minute quadrangle. Lat/long 40.85518°, -124.08967°. The AWTF is located on 130 acres of City-owned land that includes the AMWS. All proposed actions/improvements would take place within the existing boundaries of the AWTF (See Fig 3.2-3 Area of Potential Effect (APE) with Improvements). The site is on Assessor's Parcel Numbers: 503-211-005, 503-241-010, 011, 012, 013, 503-251-003.

INITIAL STUDY

Arcata Wastewater Treatment Facility Upgrades Project

Humboldt County, California

Lead Agency:

City of Arcata

736 F Street,

Arcata CA 95521

Prepared with the Assistance of:

SHN Consulting Engineers and Geologists

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Arcata, CA 95521

October 2020

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1. Introduction

1.1 Purpose of Study

The City of Arcata will act as the Lead Agency for this project pursuant to the California Environmental Quality Act (CEQA) and the CEQA Guidelines.

The Project is expected to be funded through a combination of City funds (sewer/wastewater fees) and Clean Water State Revolving Fund (CWSRF) funds administered through the California State Water Resources Control Board (Water Board). One requirement of CWSRF funding is that the City will be required to comply with the Water Board's environmental requirements including CEQA-Plus. CEQA-Plus involves additional environmental analysis of certain topics to include federal thresholds, rules and regulations (for topics such as air, biology, cultural, etc.). In addition to this Mitigated Negative Declaration, the City is preparing a separate Environmental Package for submittal to the Water Board, which will draw from this Initial Study, as well as the Environmental Assessment (EA) per the National Environmental Policy Act (NEPA) prepared for this project.

This Initial Study/ Mitigated Negative Declaration has been prepared to evaluate potential environmental effects of the proposed Arcata Wastewater Treatment Plan (WWTP) Upgrade Project located in the City of Arcata, California. This document has been prepared in accordance with the California Environmental Quality Act (CEQA) (Public Resources Code Section 21000 et seq.) and the State CEQA Guidelines (California Code of Regulations [CCR] Section 15000 et seq.).

The IS/MND has been prepared in accordance with the California Environmental Quality Act (CEQA) and Environmental Review Process Guidelines for State Revolving Fund Loan Applicants (SWRCB 2015, as updated in 2016) and is expanded beyond the typical content requirements of an initial study to include additional "CEQA-Plus" information and Environmental Review Process Guidelines for State Revolving Fund Loan Applicants (SWRCB 2015, as updated in 2019).

1.2 Evaluation Terminology

The environmental analysis in Section 4.0 is patterned after the Initial Study Checklist recommended in the State CEQA Guidelines. For the evaluation of potential impacts, the questions in the Initial Study Checklist are stated and an answer is provided according to the analysis undertaken as part of the Initial Study. The analysis considers the long-term, direct, indirect, and cumulative impacts of the proposed Project. Environmental impacts are separated into the following categories:

Potentially Significant Impact. This category is applicable if there is substantial evidence that an effect may be significant, and no feasible mitigation measures can be identified to reduce impacts to a less than significant level. If there are one or more "Potentially Significant Impact" entries when the determination is made, an EIR is required.

Less Than Significant After Mitigation Incorporated. This category applies where the incorporation of mitigation measures would reduce an effect from a "Potentially Significant Impact" to a "Less Than Significant Impact." The lead agency must describe the mitigation measure(s), and briefly explain how they would reduce the effect to a less than significant level (mitigation measures from earlier analyses may be cross-referenced).

Less Than Significant Impact. This category is identified when the project would result in impacts below the threshold of significance, and no mitigation measures are required.

No Impact. This category applies when a project would not create an impact in the specific environmental issue area. "No Impact" answers do not require a detailed explanation if they are adequately supported by the information sources cited by the lead agency, which show that the impact does not apply to the specific project (e.g., the project falls outside a fault rupture zone). A "No Impact" answer should be explained where it is based on project-specific factors as well as general standards (e.g., the project will not expose sensitive receptors to pollutants, based on a project-specific screening analysis.)

Regardless of the type of CEQA document that must be prepared, the basic purpose of the CEQA process as set forth in the CEQA Guidelines Section 15002(a) is to:

(1) Inform governmental decision makers and the public about the potential, significant environmental effects of proposed activities.

(2) Identify ways that environmental damage can be avoided or significantly reduced.

(3) Prevent significant, avoidable damage to the environment by requiring changes in projects through the use of alternatives or mitigation measures when the governmental agency finds the changes to be feasible.

(4) Disclose to the public the reasons why a governmental agency approved the project in the manner the agency chose if significant environmental effects are involved.

1.3 Organization of this Initial Study

This document is organized into the following sections:

Section 1.0: **Introduction:** Describes the purpose, contents, and organization of the document and provides a summary of the proposed Project.

Section 2.0: **CEQA Determination:** Identifies the determination of whether impacts associated with the development of the proposed Project are significant, and what, if any, additional environmental documentation may be required.

Section 3.0 **Project Description:** Includes a detailed description of the proposed Project.

Section 4.0: **Environmental Impact Analysis:** Contains the Environmental Analysis based on the questions included in CEQA Guidelines Appendix G, with a discussion of potential environmental effects associated with the proposed Project. Mitigation measures, if necessary, are noted following each impact discussion.

Section 5.0: **List of Preparers**

Section 6.0: **Abbreviations and Acronyms**

1.4 Project Summary

1. Project Title	Arcata Wastewater Treatment Facility Upgrades Project
2. Lead agency name and address:	City of Arcata, Environmental Services Department Protection 736 F Street Arcata, CA 95521
3. Contact person and phone number:	Mark Andre, Environmental Services Director, City of Arcata (707) 822-8184
4. Project Location:	See section 1.5 below
5. Project sponsor's name and address:	City of Arcata 736 F Street Arcata, CA 95521
6. City General plan description:	Public Facilities-Natural Resources
7. Zoning:	Public Facilities-Natural Resources

1.5 Project Location

The proposed Project is located at the northeast edge of Humboldt Bay. The Project site is located primarily on former filled tidelands at elevations of approximately 10-14 (NAVD 88) feet above sea level and is relatively flat. Surrounding land uses include Humboldt Bay to the south, adjacent salt marsh habitat between the Bay and project improvements. The AMWS and Bay Trail are within and adjacent to project improvements. The City's Corporation Yard is co-located and adjacent to the wastewater treatment facility. The South G Street area is to the north and has a mixture of industrial, commercial, residential, and agricultural uses. U.S. Highway 101 is located to the east of the project site.

The AWTF is located at the southern portion of the City. See Figure 3.2-1 – Regional Setting. The AWTF is located on 130 acres of City-owned land that includes the AMWS. However, only a portion of the AWTF will experience ground disturbance activities (See Figure 3.2-2 Area of Potential Effect (APE)). The AWTF project (Project) is within the city limits of Arcata in Township 6N North Range 1 East, Section 32, as depicted on the Arcata, California, U.S. Geological Survey Arcata South 7.5-minute quadrangle. Lat/long 40.85518°, -124.08967°. All proposed actions/improvements would take place within the existing boundaries of the AWTF (See Fig 3.2-3 Area of Potential Effect (APE) with Improvements). The site is on Assessor's Parcel Numbers: 503-211-005, 503-241-010, 011, 012, 013, 503-251-003.

1.6 Objectives

The primary objectives of the proposed project are as follows:

- The City's primary objective is to provide wastewater treatment and disposal while improving existing levels of regulatory compliance for the protection of water quality and public health.

- The City seeks to address existing effluent violations and to produce a higher quality effluent that can be beneficially reused.

- The City seeks to operate the improved treatment facility with cost-effective methods available that meet the City's overall system performance goals while improving the existing natural system and constructing a mechanical system to assure compliance with regulatory requirements.

- The City's goal to minimize or eliminate disinfection byproducts associated with the use of chlorine and health hazards associated with the use and storage of large chlorine cylinders is another major project objective.

- The City seeks to move the existing outfall from the bay at Butcher Slough Outfall 001 to the "Brackish" Marsh Outfall 003 to maximize the volume of effluent receiving enhanced treatment and maximize the beneficial use of treated wastewater for habitat purposes. *It is important to note that the "Brackish" Marsh was constructed from the City's previous McDaniel Slough Restoration project, and will not contain brackish waters until Outfall 003 is installed to decrease the salinity of the waters, which are tidally influenced.*

1.7 Interagency Collaboration and Regulatory Review

The CEQA review process is intended to provide trustee and responsible agencies, as well as the public, with an opportunity to provide input into the project. Trustee agencies are state agencies that have authority by law for the protection of natural resources held in trust for the public. Responsible agencies are those that have some responsibility or authority for carrying out or approving a project; in many instances these public agencies must make a discretionary decision to issue a local permit; funding, or resources that are critical to the project's proceeding. In this instance the City of Arcata and the North Coast Regional Water Quality Control Board (RWQCB) are considered responsible agencies, and California Department of Fish and Wildlife (CDFW) is considered a trustee agency. The City will work with the RWQCB and CDFG to ensure that the proposed project meets applicable policies and requirements.

The Project is expected to be funded through a combination of City funds (sewer/wastewater fees) and Clean Water State Revolving Fund (CWSRF) funds administered through the California State Water Resources Control Board (Water Board). One requirement of CWSRF funding is that the City will be required to comply with the Water Board's environmental requirements including CEQA-Plus. CEQA-Plus involves additional environmental analysis of certain topics to include federal thresholds, rules and regulations (for topics such as air, biology, cultural, etc.). In addition to this Mitigated Negative Declaration, the City is preparing a separate Environmental Package for submittal to the Water Board, which includes the CEQA-Plus analysis.

1.8 Public Review Process

This draft MND will be circulated to local, responsible, and trustee agencies, interested organizations, and individuals who may wish to review and provide comments on the project description, the proposed mitigation measures, or other aspects of the report. The publication will commence the 30-day public review period per CEQA Guidelines §15105(b).

The draft MND and supporting documents are available for review at:

- City of Arcata
  736 F Street
  Arcata, CA. 95521

Electronic Copies of the report are available for review at: https://www.cityofarcata.org/856/Wastewater-Treatment-Facilities-Improvem

- Via written request for a copy from the City.

Written comments or questions regarding the draft MND should be submitted to the name and address indicated below. Submittal of written comments via e-mail would greatly facilitate the response process.

Phone: 707 822-8184
email: mandre@cityofaracta.org
The proposed MND, along with any comments, will be considered by the City of Arcata Planning Commission and City Council decision on the project.

1.9 Environmental Factors Potentially Affected

The environmental factors checked below would be potentially affected by the Proposed Project, involving at least one impact requiring mitigation to bring it to a less-than-significant level. Impacts to these resources are evaluated using the checklist included in Section 4.0. The proposed Project was determined to have a less-than-significant impact or no impact without mitigation on unchecked resource areas.

☐	Aesthetics	☐	Agriculture and Forestry	☐	Air Quality
☒	Biological Resources	☒	Cultural Resources	☐	Energy
☐	Geology/Soils	☐	Greenhouse Gas Emissions	☐	Hazards and Hazardous Materials
☐	Hydrology/Water Quality	☐	Land Use/Planning	☐	Mineral Resources
☐	Noise	☐	Population/Housing	☐	Public Services
☐	Recreation	☐	Transportation/Traffic	☒	Tribal Cultural Resources
☐	Utilities and Service Systems	☐	Wildfire	☐	Mandatory Findings of Significance

2. CEQA Determination

DETERMINATION (To be completed by the Lead Agency)

On the basis of this initial evaluation:

☐ I find that the Proposed Project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION would be prepared.

☐ I find that although the Proposed Project could have a significant effect on the environment, there would not be a significant effect in this case because revisions in the Project have been made by or agreed to by the Project proponent. A MITIGATED NEGATIVE DECLARATION would be prepared.

☐ I find that the proposed MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

☐ I find that the Proposed Project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect: (1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and (2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.

☐ I find that the Proposed Project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect: (1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and (2) has been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the Proposed Project, nothing further is required.

_____ _____

Signature: Mark Andre, City of Arcata Date

3. Project Description

3.1 Purpose and Need

3.11 Treatment Objectives for Discharge

At the most basic level, the overarching project purpose for the Arcata Wastewater Treatment Facility Upgrade Project (Proposed Project) is to replace aging infrastructure, improve quality of treated effluent discharged into Humboldt Bay, and meet discharge requirements.

Mechanical equipment is old and no longer performing efficiently. The natural systems have reduced treatment and hydraulic capacities due to years of solids accumulation and vegetation growth. This has resulted in numerous water quality violations that must be addressed. The proposed project addresses public health needs, including improving the hydraulic and treatment capacity of the treatment facility and meeting National Pollutant Discharge Elimination System (NPDES) permit requirements. The installation of UV disinfectant equipment, proposed flow reconfiguration, and new effluent limits are driving factors for this project. The need to improve hydraulic and treatment capacity stems from the need to replace the chlorine disinfection system with UV and the need for continuous ammonia treatment.

The primary objectives of the proposed project are as follows:

- The City's primary objective is to provide wastewater treatment and disposal while improving existing levels of regulatory compliance for the protection of water quality and public health.
- The City seeks to address existing effluent violations and to produce a higher quality effluent that can be beneficially reused.
- The City seeks to operate the improved treatment facility with cost-effective methods available that meet the City's overall system performance goals while improving the existing natural system and constructing a mechanical system to assure compliance with regulatory requirements.
- The City's goal to minimize or eliminate disinfection byproducts associated with the use of chlorine and health hazards associated with the use and storage of large chlorine cylinders is another major project objective.
- The City seeks to move the existing outfall from the bay at Butcher Slough Outfall 001 to the "Brackish" Marsh Outfall 003 to maximize the volume of effluent receiving enhanced treatment and maximize the beneficial use of treated wastewater for habitat purposes. *It is important to note that the "Brackish" Marsh was constructed from the City's previous McDaniel Slough Restoration project, and will not contain brackish waters until Outfall 003 is installed to decrease the salinity of the waters, which are tidally influenced.*

3.12 NPDES Permit Background

The terms, used in various reports, maps, signage, etc., for features within the Arcata Wastewater Treatment Facility (AWTF) have been used interchangeably over the last forty years. For instance, the

AWTF consists of both the Arcata Wastewater Treatment Plant (AWTP) and the Arcata Marsh and Wildlife Sanctuary (AMWS). Treatment wetlands are sometimes referred to as treatment marshes; enhancement wetlands as enhancement marshes; Brackish Marsh as Brackish Pond; Outfall 003 as Discharge Point 003. The reader should be aware that these terms refer to the same features.

The Arcata Wastewater Treatment Facility (AWTF) was first constructed in 1949 and discharged treated water into the Humboldt Bay. The plant was upgraded to primary treatment in the 1950's and chlorine disinfection of the pond effluent was added later. The Bays and Estuaries Policy, adopted on May 16, 1974, prohibited the discharge of municipal wastewater and industrial process water to enclosed bays and estuaries "unless the discharge enhances the quality of the receiving water above that which would occur in the absence of the discharge." The City worked with local engineers and Humboldt State University professors to find an exemption for this policy. In 1977, the City proposed a wetland/marsh treatment process to enhance effluent and allow the AWTF to continue discharge into Humboldt Bay. In 1981, the State Water Board funded Arcata's pilot marsh program, designed to demonstrate the effectiveness of wetland treatment in meeting water quality standards. In 1983, the Regional Water Quality Control Board issued Order No. 83-9, granting the AWTF a waiver to the Bays and Estuaries Policy, permitting continued discharge into Humboldt Bay. The full-scale modifications were constructed in 1984 to 1987 and included minor modifications to the oxidation ponds. Construction of wetland treatment marshes provided secondary treatment for post oxidation pond waters. Three enhancement wetlands were constructed outside of the AWTF in the Arcata Marsh and Wildlife Sanctuary (AMWS) to provide passive enhanced treatment. The enhancement wetlands provide water quality enhancement; wetland, wildlife and cold freshwater habitat; and noncontact water recreation beneficial uses. Up to 2 mgd is pumped back to the AWTF following enhanced treatment in the AMWS before it is combined treatment wetland effluent and disinfected again prior to discharge. At flows above 5 mgd, raw sewage is pumped from the First Street lift station directly to the oxidation ponds for primary treatment, by-passing the headworks. First Street lift station predominantly operates during periods of high inflow and infiltration (I/I), which the city is actively working to reduce. The system also included preliminary treatment via the headworks for screening, grit removal, and primary treatment clarification via two circular primary clarifiers. Disinfection utilizing chlorination and sulfur dioxide occurs prior to discharge to the AMWS and Humboldt Bay at Outfall 001(a.k.a. Discharge Point 001).

In 2019, the North Coast Regional Water Quality Control Board (NCRWQCB) last issued the AWTF a NPDES permit/Waste Discharge Requirements Order (NCRWQCB, 2019). The NPDES permit and order addressed several long-term issues regarding disinfection, treatment units, and outfalls and called for improvement. Concurrently, the Executive Director of the North Coast Regional Water Quality Control Board issued a Time Schedule Order (TSO) to provide time schedules to comply with the 2019 NPDES Permit. The TSO provides for compliance with a peak flow discharge prohibition at Outfall 001 as well as providing interim effluent limits for BOD, TSS and ammonia. Below is a summary of issues needing to be addressed:

- **Flow Reconfiguration**
  The NPDES Permit requires a new single pass flow configuration and discharge point. Currently, effluent flow is split after disinfection and dechlorination in the contact basin; effluent is discharged directly from the chlorine contact basin to Humboldt Bay through Outfall 001 (Figure 3.1-1) while a portion of the effluent flows to the AMWS via Outfall 002 for enhanced treatment prior to returning to the chlorine contact basin for additional disinfection. Single-pass flow configuration, required by NPDES Permit, requires all flow up to 5.9 mgd to flow from the new disinfection treatment unit to the AMWS via Outfall-002. AMWS effluent will flow to new discharge location Outfall 003,

which will be constructed in the Brackish Marsh at the north end of the AMWS. The flow reconfiguration allows for up to 5.9 mgd to receive enhanced treatment in the AMWS enhancement wetlands

- **Disinfection**
  The AWTF self-reported more than 50 violations since 2013 relating to disinfection by-products, chlorine residual and adequate bacterial removal. The City proposed construction of an ultraviolet light disinfection system to replace the chlorine disinfection system in Report of Waste Discharge applications submitted for the NPDES permit issued in 2012. The 2012 NPDES permit required construction of UV disinfection no later than December 1, 2106. The requirement for construction of a new UV light disinfection system carried over into the 2019 permit. Additionally, a Time Schedule Order (Order R1-2019-0011), issued concurrent to the 2019 NPDES permit, provides a compliance schedule for construction and commencement of operation for the UV light disinfection system proposed in the Upgrade Project. The UV disinfection system would eliminate, or greatly reduce, the formation of disinfection by-products in the effluent and potential to violate disinfection byproduct and total residual chlorine effluent limitations attributable to chlorine.

  The chlorine disinfection system indirectly provides chemical treatment of BOD in the chlorine contact basin, estimated at 600 to 1000 pounds BOD per day. The natural treatment system seasonally treats BOD at a higher rate during months with a longer photoperiod and higher temperature. During times of the year, when BOD in the natural wetland system is lowest, chemical BOD treatment usually provides sufficient additional removal, allowing the treatment plant to meet effluent discharge limits for BOD. After replacement of chemical disinfection with UV light disinfection the natural system there could be a BOD removal shortfall. The proposed oxidation pond improvements, including additional mixing and aeration, will help offset this treatment capacity reduction. The existing natural treatment system exhibits seasonally variable UV transmittance, and this was incorporated into the final proposed design and sizing of the UV disinfection system at 9.8 mgd. Chlorine disinfection will remain available during the phased construction and for peak wet weather discharges if needed.

- **Wet Weather Flows**
  The NPDES permit allows discharge of treated wastewater at Outfall-001 when flows are greater than or equal to 5.9 mgd through Outfall 003. Current plans are to use the oxidation ponds to attenuate peak flows and improve aeration. Following the completion of the Phase 1 oxidation pond pumping improvements, an adaptive management strategy will be in place to modulate the peak flows through the oxidation ponds, treatment wetlands, and enhancement wetlands.

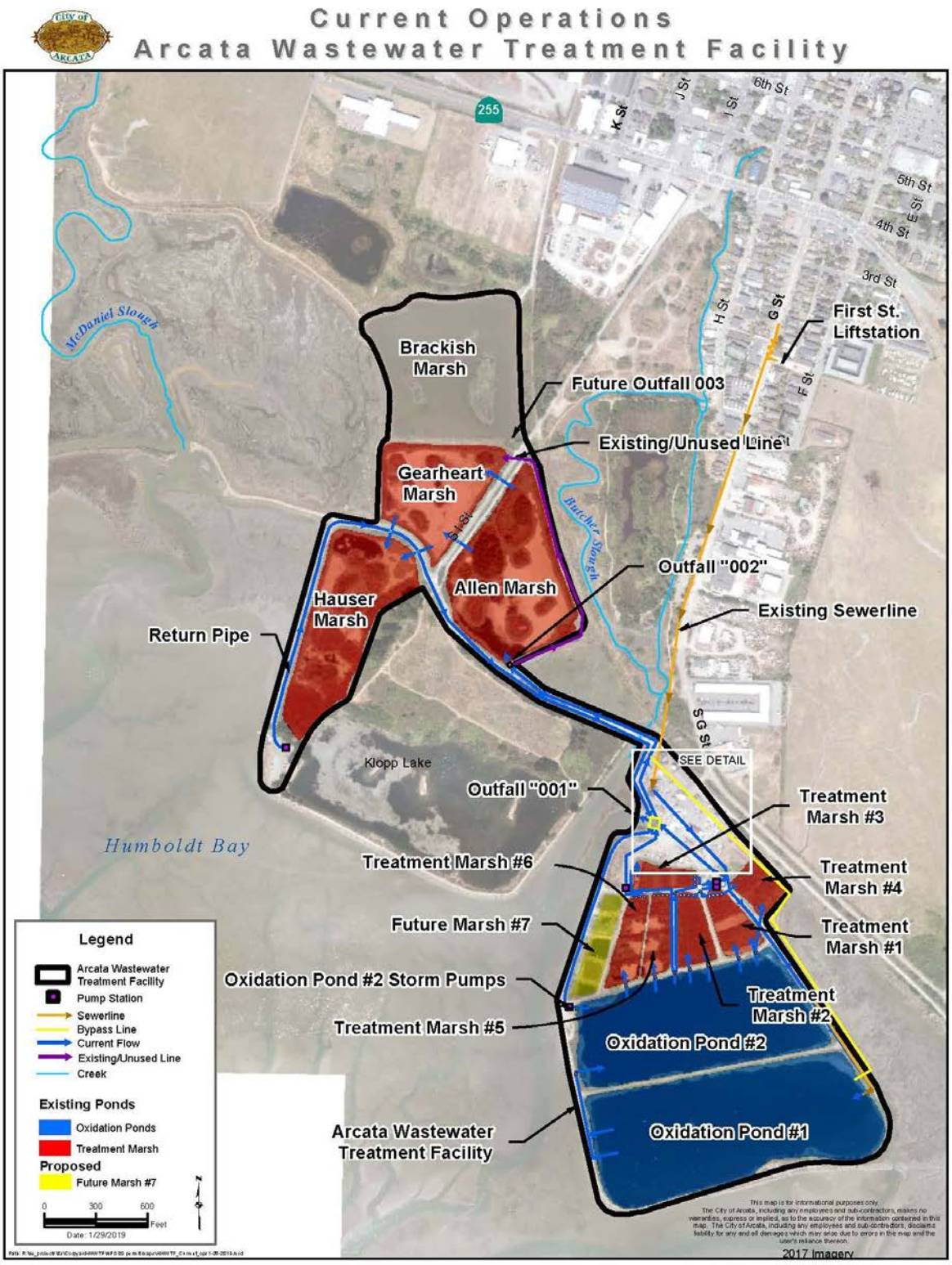
- **Secondary Treatment**
  Additional secondary treatment capacity is needed to address natural system capacity shortfall, resulting in past violations for Biochemical Oxygen Demand (BOD) and Total Suspended Solids (TSS), and new effluent limitations for ammonia. The UV disinfection system will also decrease the current treatment capacity achieved by the chlorine treatment, however, the aeration improvements in proposed Phases 1 and 2 will exceed the previous chemical treatment available with chlorine.

- **Nutrients and Emerging Contaminants**
  The NCRWQCB required the AWTF to monitor the final discharge at Outfall 001 for ammonia, nitrate and phosphorus with the NPDES permit issued in 2012. Subsequently, the 2019 NPDES

Permit established an ammonia effluent limit as an Ammonia Impact Ratio. The NCRWQCB recognized that ammonia removal would require additional treatment, and concurrently issued the Time Schedule Order (TSO) including an interim, concentration-based ammonia limit. The 2019 Permit requires continued monitoring for nitrate and phosphorus because the NCRWQCB is concerned about the biostimulatory effects of these constituents on receiving water quality. (NCRWQCB 2019)

Constituents of Emerging Concern (CECs), including pharmaceuticals, industrial chemicals, and endocrine-disrupting chemicals, have been identified as a future issue. Permitting to address CECs is expected to evolve over the next 20 years.

- **Bacterial Quality of Humboldt Bay**
  Arcata Bay is the northern lobe of Humboldt Bay and is home to numerous commercial oyster farms. The new Outfall 003 (as well as existing Outfalls 001 and 002) will have to maintain effluent limitations for fecal coliform bacteria provided in the current permit through phases. The proposed improvements will improve fecal coliform removal while reducing the chlorine by-products and improve compliance with permit requirements.


Current Operations
Arcata Wastewater Treatment Facility
255
K St
J St
I St
6th St
5th St
4th St
3rd St
H St
G St
F St
E St
First St. Liftstation
McDaniel Slough
Brackish Marsh
Future Outfall 003
Existing/Unused Line
Gearheart Marsh
Butcher Slough
Outfall "002"
Allen Marsh
Hauser Marsh
Return Pipe
Existing Sewerline
Klopp Lake
SEE DETAIL
Outfall "001"
Treatment Marsh #3
Humboldt Bay
Treatment Marsh #6
Treatment Marsh #4
Future Marsh #7
Treatment Marsh #1
Oxidation Pond #2 Storm Pumps
Treatment Marsh #2
Treatment Marsh #5
Oxidation Pond #2
Arcata Wastewater Treatment Facility
Oxidation Pond #1
Legend
Arcata Wastewater Treatment Facility
Pump Station
Sewerline
Bypass Line
Current Flow
Existing/Unused Line
Creek
Existing Ponds
Oxidation Ponds
Treatment Marsh
Proposed
Future Marsh #7
0 300 600
Feet
Date: 1/29/2019
2017 Imagery

3.13 Required Performance Characteristics

The 2019 NPDES permit provides discharge requirements, including new effluent limitations for ammonia. The Time Schedule Order provides compliance schedules for Phase 1 and Phase 2 of the proposed Upgrade Project, which addresses ongoing violation and treatment deficiencies at the AWTF. The TSO also provides interim effluent limits for BOD, TSS and ammonia. The NPDES permit and TSO create three compliance scenarios, depending on which phase of the required Upgrade Project is completed. Table 2.1-1 provides a summary of facility design flow. Tables 2.1-2, 2.1-3, 2.1-4 provide the compliance requirements for each discharge point or outfall during each phase of the Proposed Project (Adapted from 2019 Permit (R1-2019-0006) and TSO (R1-2019-0011))

Table 3.1-1 Facility design flows. (NCRWQCB 2019)

Design Flows	**Anticipated Permit Values**
Design Dry Weather Flow (mgd)	2.3
Average Wet Weather Flow (mgd)	5.0
Peak Wet Weather Flow (mgd)	5.9
Instantaneous Peak Flow (mgd)	16.5

Table 3.1-2 Outfall 001 Effluent Limitations. (NCRWQCB 2019)

	Outfall 001 prior to completion of Phase 1 & Phase 2			**Outfall 001 after completion of Phase 1**		
Effluent Limitations	**Average Monthly**	**Average Weekly**	**Maximum Daily**	**Average Monthly**	**Average Weekly**	**Maximum Daily**
BOD (mg/L)	30	45	--	38	57	-
BOD, Percent Removal	85	--	--	65	-	-
TSS (mg/L)	30	45	--	32	48	-
TSS, Percent Removal	85	--	--	65	-	-
Ammonia (mg/L)[1]	35	--	--	35	-	-
Ammonia Impact Ratio	--			1.0	-	1.0
pH	6.0 – 8.5 at all times			6.0 – 8.5 at all times		
Fecal Coliforms (MPN/100 ml)	14[2]	--	43[3]	14[2]	--	43[3]
Cyanide, Total (as CN) (µg/L)	0.43	--	1.0	0.43	--	1.0
TCDD-Equivalents (µg/L)	$1.4x10^{-8}$	--	$3.3x10^{-8}$	$1.4x10^{-8}$	--	$3.3x10^{-8}$

Chlorine, Total Residual (mg/L)	0.01	--	0.02	--	--	--
Settleable Solids (ml/L)	0.1	--	0.2	0.1	--	0.2

1 R1-2019-0011 provides interim ammonia limit through completion of Phase 2 of the upgrade project.
2 The median concentration shall not exceed a Most Probable Number (MPN) of 14 per 100 milliliters (ml) using the bacteriological results of the last calendar month for with analyses have been completed.
3 The number of fecal coliform bacteria shall not exceed an MPN of 43 per 100 ml in more than 10% of samples in any calendar month.

Table 3.1-3 Outfall 002 Discharge Standards and Effluent Limitations (NCRWQCB 2019)

	Outfall 002 prior to completion of Phase 2			**Outfall 002 after completion of Phase 2**		
Effluent Limitations	**Average Monthly**	**Average Weekly**	**Maximum Daily**	**Average Monthly**	**Average Weekly**	**Maximum Daily**
BOD (mg/L)	38	57	--	30	45	-
BOD, Percent Removal	--	--	--	85	-	-
TSS (mg/L)	32	48	--	30	45	-
TSS, Percent Removal	--	--	--	85	-	-
pH	6.0 – 8.5 at all times			6.0 – 8.5 at all times		
Fecal Coliforms (MPN/100 ml)	--	--	--	14[1]	--	43[2]
Chlorine, Total Residual (mg/L)	0.01	--	0.02		--	
Settleable Solids (ml/L)	0.1	--	0.2	--	--	--

1 The median concentration shall not exceed a Most Probable Number (MPN) of 14 per 100 milliliters (ml) using the bacteriological results of the last calendar month for with analyses have been completed.
2 The number of fecal coliform bacteria shall not exceed an MPN of 43 per 100 ml in more than 10% of samples in any calendar month.

Table 3.1-4. Outfall 003 Effluent Limitations. (NCRWQCB 2019)

	Outfall 003 after completion of Phase 1			**Outfall 001 after completion of Phase 2**		
Effluent Limitations	**Average Monthly**	**Average Weekly**	**Maximum Daily**	**Average Monthly**	**Average Weekly**	**Maximum Daily**
BOD (mg/L)	30	45	--	--	--	-
BOD, Percent Removal	85	--	--	--	--	--

TSS (mg/L)	30	45	--	--	--	-
TSS, Percent Removal	85	--	--	--	-	-
Ammonia (mg/L)[1]	35	--	--	--	-	-
Ammonia Impact Ratio	--	--	--	1.0	-	1.0
pH	6.0 – 8.5 at all times			--		
Fecal Coliforms (MPN/100 ml)[2]	14[3]	--	43[4]	--	--	--
Copper, Total Recoverable (µg/L)	3.3	--	5.3	3.3	--	5.3
Cyanide, Total (as CN) (µg/L)	0.43	--	1.0	0.43	--	1.0
TCDD-Equivalents (µg/L)	$1.4x10^{-8}$	--	$3.3x10^{-8}$	$1.4x10^{-8}$	--	$3.3x10^{-8}$
Settleable Solids (ml/L)	0.1	--	0.2	0.1	--	0.2

1 R1-2019-0011 provides interim ammonia limit through completion of Phase 2 of the upgrade project.
2 Monitored at INT 001, immediately downstream of UV disinfection system.
3 The median concentration shall not exceed a Most Probable Number (MPN) of 14 per 100 milliliters (ml) using the bacteriological results of the last calendar month for with analyses have been completed.
4 The number of fecal coliform bacteria shall not exceed an MPN of 43 per 100 ml in more than 10% of samples in any calendar month.

3.14 Changes to the Influent Flow

Influent data provided by the City and the Arcata Marsh Research Institute (AMRI) was used to determine the current and future influent flows and loads through 2050 (Table 3.1-5). Future values are based on a 20% growth factor outline in the City's General Plan: 2020. Future values were used to determine the facilities that will be improved or newly constructed.

Table 3.1-5 Current and future influent flows and loads. Future values are based on a 20% growth factor. (Carolla Engineers, 2019)

	Current Values	**Future Values**
Minimum Flow (mgd)	0.3	0.3
Average Dry Weather Flow (mgd)	1.1	1.3
Peak Dry Weather Flow (mgd)	1.8	2.2
Maximum Month Flow (mgd)	3.0	3.6
Peak Wet Weather Flow (mgd)	5.9	5.9

Peal Instantaneous Flow (mgd)	16.5	16.5
BOD (ppd)	4,000	4,800
TSS (ppd)	5,760	6,910
NH_3 (ppd)	880	1,060
TKN (ppd)	1,330	1,610

3.2 Project Location/Setting

The proposed Project is located at the northeast edge of Humboldt Bay. The Project site is located primarily on former filled tidelands at elevations of approximately 10-14 (NAVD 88) feet above sea level and is relatively flat. Surrounding land uses include Humboldt Bay to the south, adjacent salt marsh habitat between the Bay and project improvements. The AMWS and Bay Trail are within and adjacent to project improvements. The City's Corporation Yard is co-located and adjacent to the wastewater treatment facility. The South G Street area is to the north and has a mixture of industrial, commercial, residential, and agricultural uses. U.S. Highway 101 is located to the east of the project site.

The AWTF is located at the southern portion of the City (See Figure 3.2-1 – Regional Setting). The AWTF is located on 130 acres of City-owned land that includes the AMWS. However, only a portion of the AWTF will experience ground disturbance activities (See Figure 3.2-2 Area of Potential Effect (APE)). The AWTF project (Project) is within the city limits of Arcata in Township 6N North Range 1 East, Section 32, as depicted on the Arcata, California, U.S. Geological Survey Arcata South 7.5-minute quadrangle. Lat/long 40.85518°, -124.08967°. All proposed actions/improvements would take place within the existing boundaries of the AWTF (See Fig 3.2-3 Area of Potential Effect (APE) with Improvements). The site is on Assessor's Parcel Numbers: 503-211-005, 503-241-010, 011, 012, 013, 503-251-003.

Arcata experiences a mild climate throughout the year, including moderate temperatures, frequent fog and moderate to heavy precipitation. According to the National Weather Service, ninety-five percent of the mean annual precipitation occurs between October and May.

The City of Arcata is a predominantly residential city along the Northern California Coast in Humboldt County. Arcata is located on the northeastern shores of Arcata Bay, which is part of the larger Humboldt Bay. It is home to Humboldt State University (HSU), who is the largest employer in the City. Two thirds of all households are renter occupied due to high housing costs, high poverty rates and the student population. The HSU student population is seasonal and results in a population decrease during holidays and summer break between May and August.

The City of Arcata is comprised of various land use types that account for the diversity in the City. Table 3.2-1 shows the different land use zones and their associated acreage amount according to the City of Arcata's General Plan. Not all of the zoned areas are within the Urban Boundary District.

Table 3.2-1 Various land use designation and their associated acreage according to Arcata's General Plan: 2020.

Land Use Code Zoning	Area (acres)
Agriculture - Exclusive	1,055
Agriculture - Residential	36
Commercial - Central	25
Commercial - General	62
Commercial - Visitor Serving	43
Industrial - General	214
Industrial - Limited	247
Natural Resources	1,038
Public Facility	451
Residential - High Density	151

Residential - Medium Density	158
Residential - Low Density	583
Residential - Very Low Density	572

Area of Potential Effects
Arcata Wastewater Treatment Upgrade
Location Map

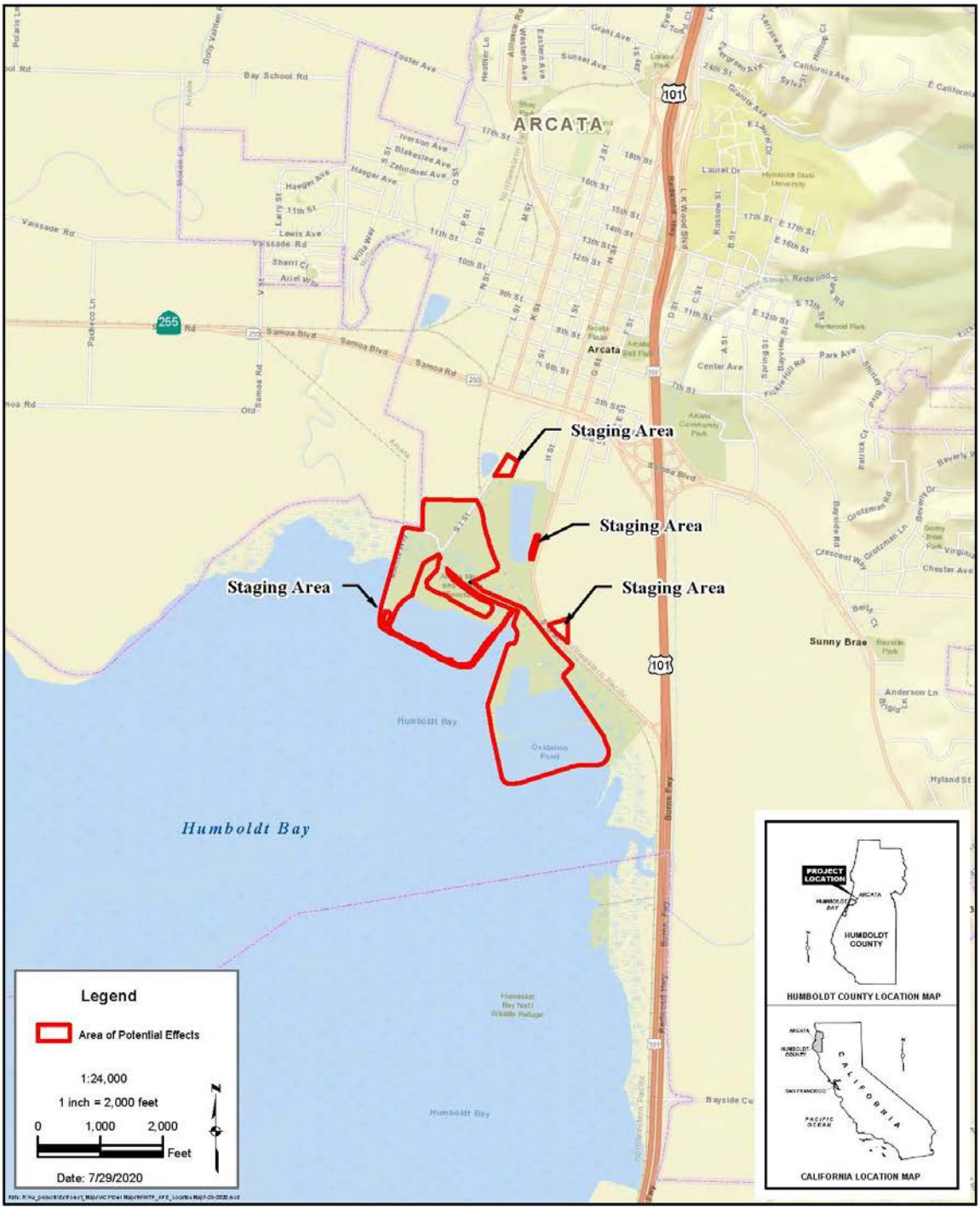


FIGURE 3.2-2

Arcata Wastewater Treatment Facility Upgrade

Area of Potential Effects

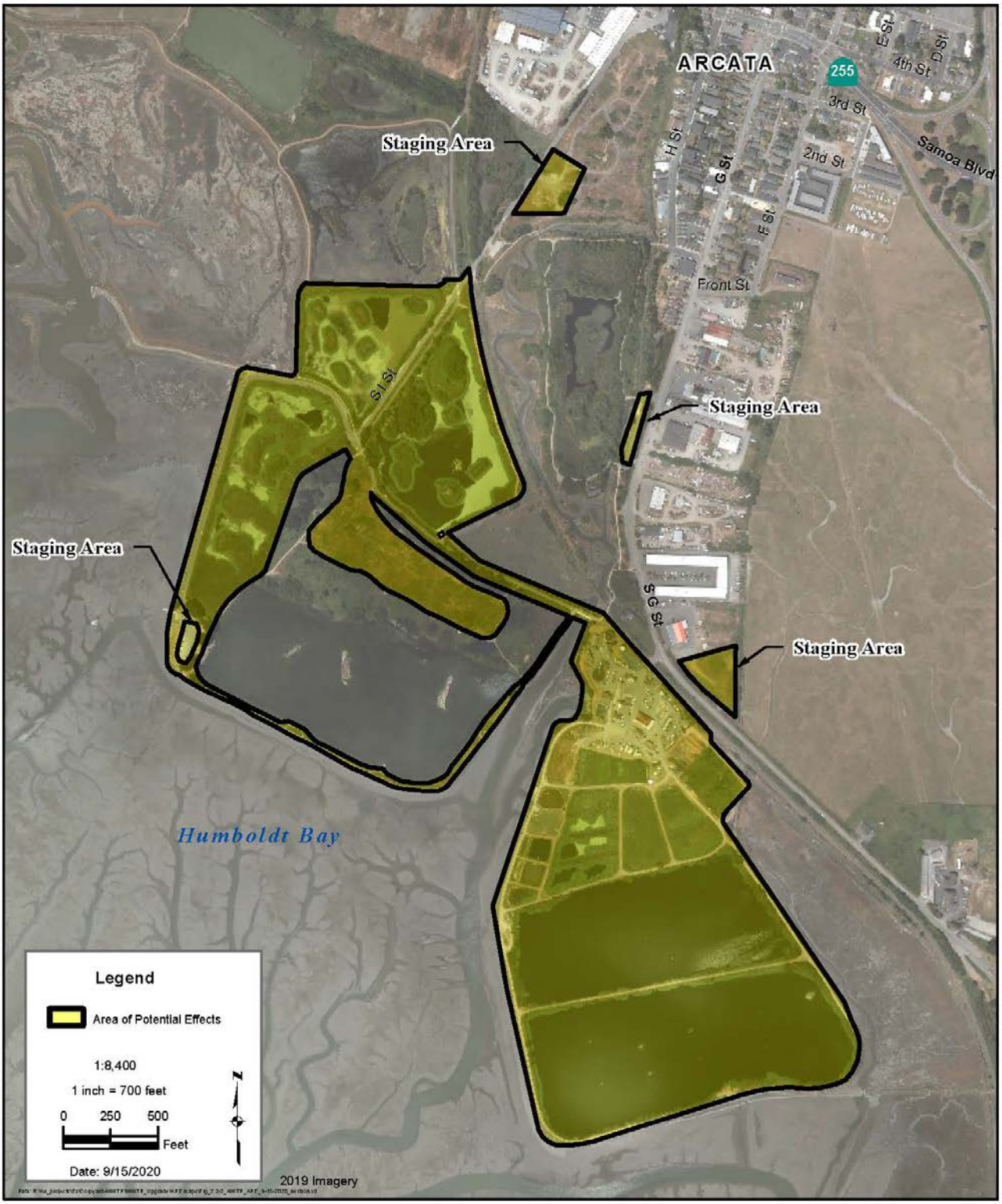
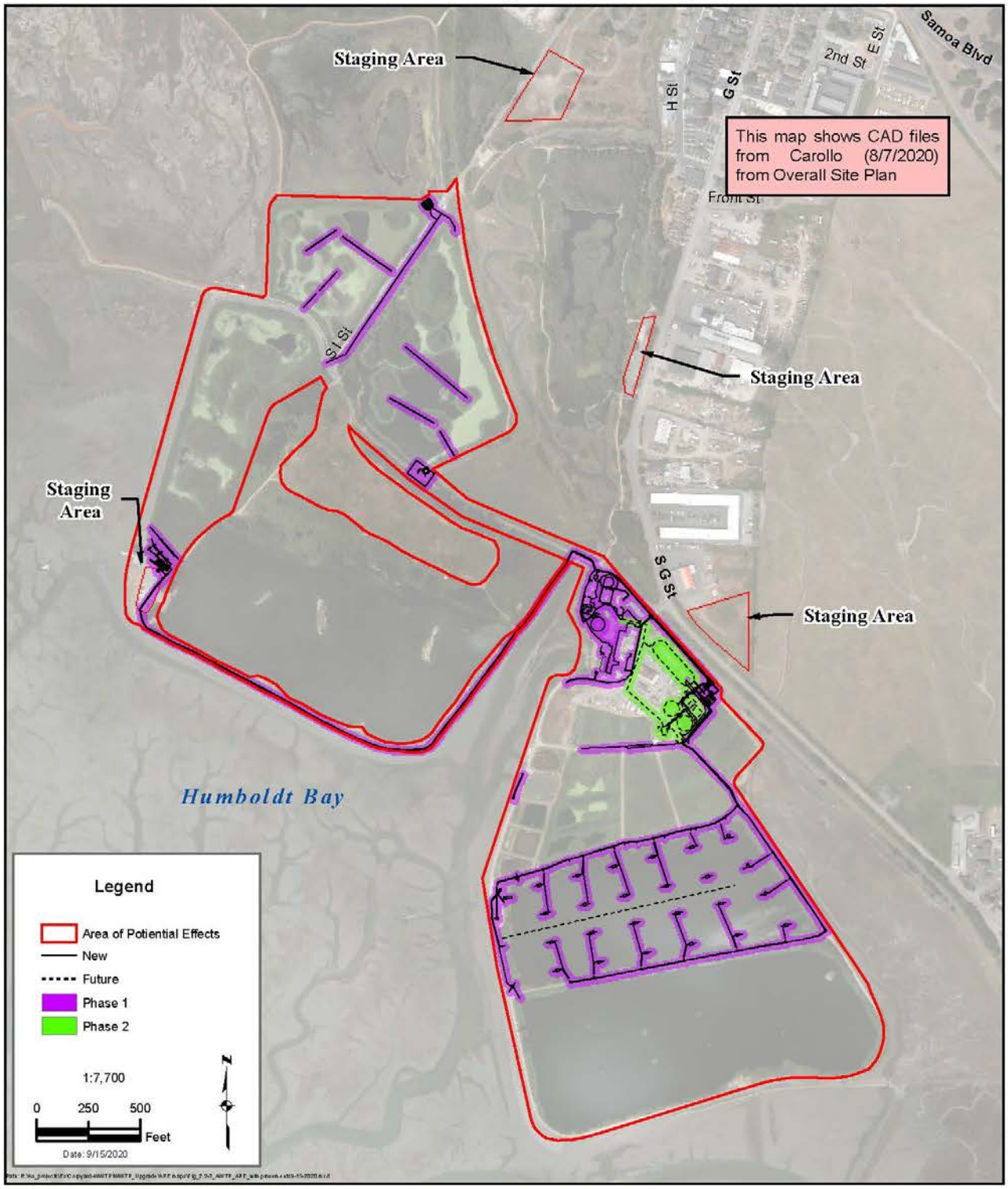


FIGURE 3.2-3

Arcata Wastewater Treatment Facility Upgrade

Area of Potential Effects

2019 Aerial Map & AWTP Improvements



The City is limited to outward expansion due to Arcata Bay to the south, agricultural lands to the west and north and the greenbelt to the east. Development in the City is focused on infill of vacant and underdeveloped parcels within the Urban Services Boundary (See Figure 3.2-4).

Current system users include all connections within the Urban Service Boundary and the unincorporated community of Glendale. Table 3.2-1 shows the variety of land-use types within the Urban Service Boundary. The AWTF intakes and provides treatment for various wastewater types associated with different land-use zones. Some industrial and commercial users are subject to scheduled releases or require pre-treatment before entering the wastewater system.

The City of Arcata currently has a population of 18,675. The City of Arcata's General Plan: 2020 was created in 2008 and outlined a 10% community growth factor. However, the City's Community Director stated that community growth is anticipated to be 20 percent from now until planned buildout (2050). The 20% growth factor was utilized in planning for this project.

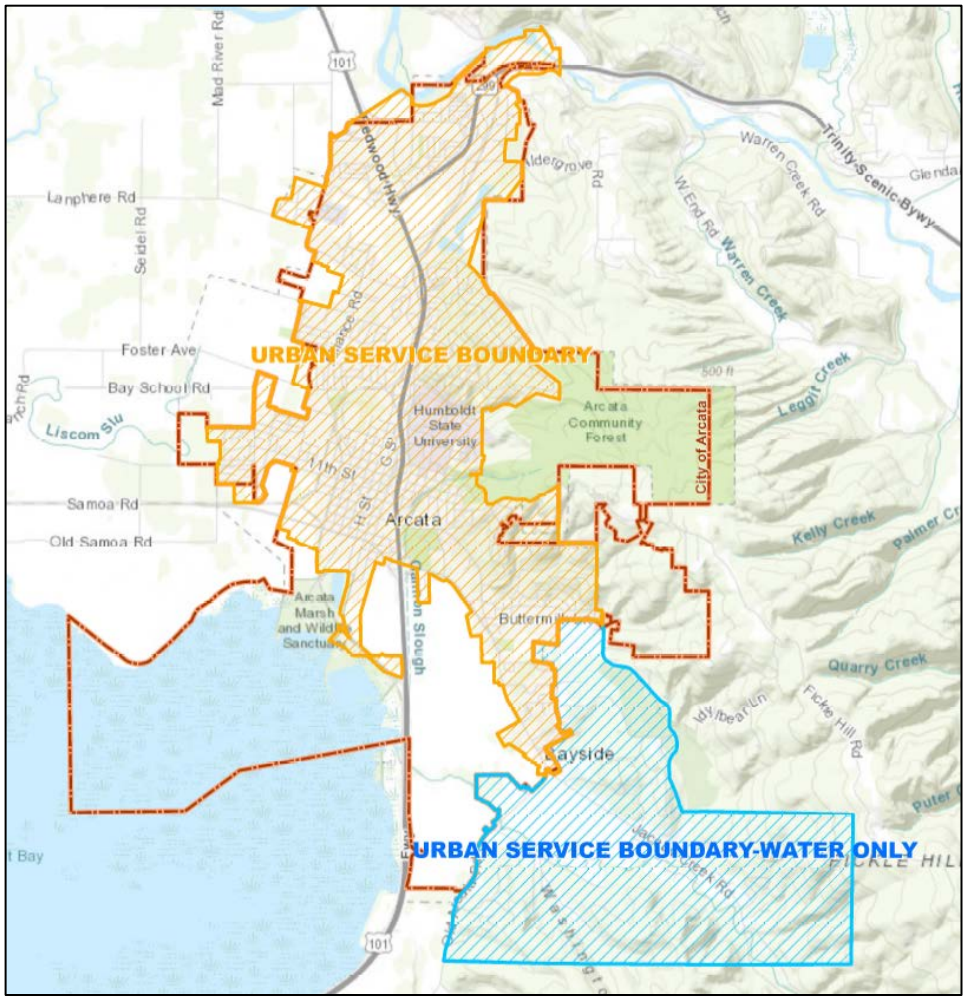


Figure 3.2-4 Map showing the urban service boundary and Arcata city limits. The AWTF also accepts wastewater from the unincorporated community of Glendale (not shown).

3.3 Existing Arcata Wastewater Treatment Facility Features

3.31 Arcata Wastewater Treatment Facility

The City of Arcata's wastewater collection system collects wastewater from within Arcata's service boundary and from the unincorporated community of Glendale (Figure 3.2-4). The collection system is maintained by City staff.

The AWTF provides secondary treatment using natural processes including two oxidation ponds and six wetland treatment wetlands. Enhancement to the secondary treated water is provided by three enhancement wetlands located in the Arcata Marsh Wildlife Sanctuary (AMWS). The AWTF currently includes headworks, primary clarifiers, oxidation ponds, treatment wetlands, enhancement wetlands, and chlorine disinfection. Treated effluent is discharged into the Humboldt Bay (Outfall 001) or is circulated into Enhancement Wetlands (Outfall 002) in the AMWS for enhancement treatment. Solids removed in the primary clarifier are treated in anaerobic digesters and solids drying beds. Dried solids are co-disposed with green waste in a compost operation. Figure 3.3-1 provides the current flow schematic at the AWTF.

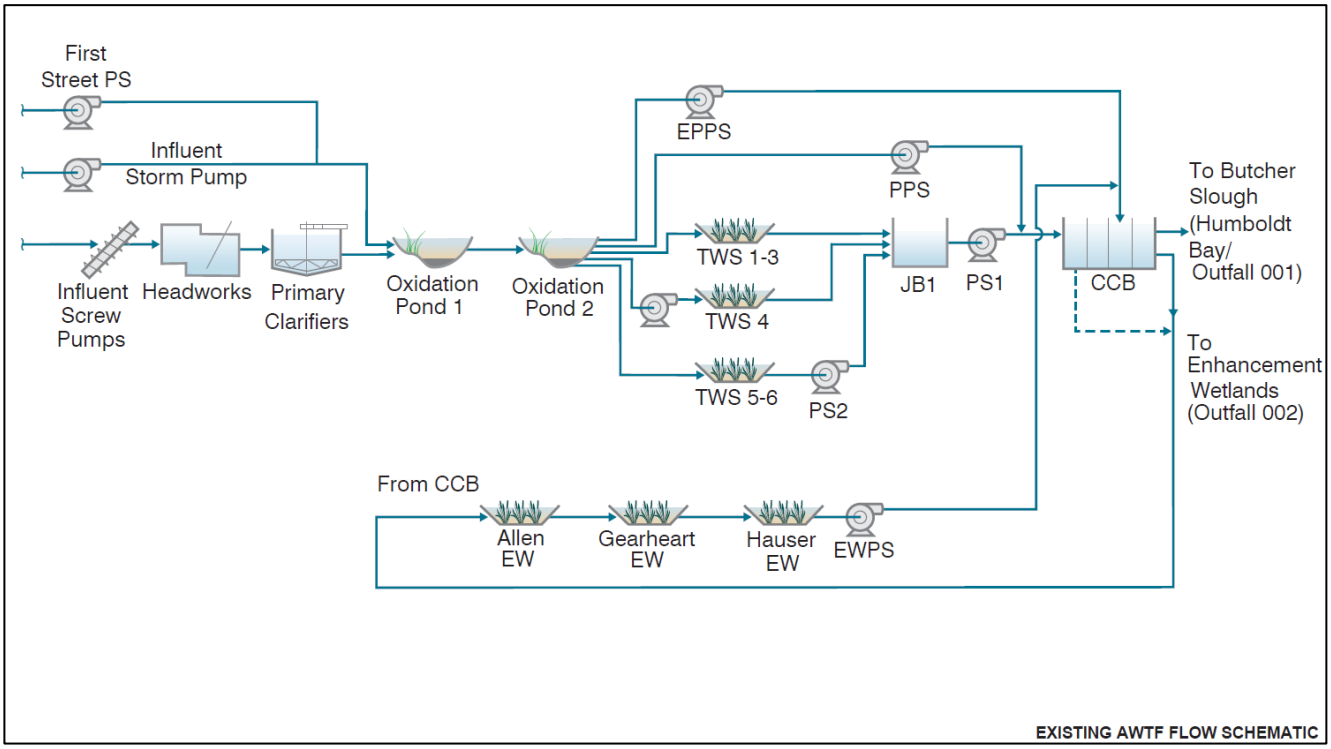


Figure 3.3-1 Current flow schematic of the AWTF. Treated water is discharged to Humboldt Bay (Outfall 001) or to the Arcata Marsh Wildlife Sanctuary (Outfall 002). Figure adopted from the City of Arcata Predesign Report (Carollo Engineers, 2019).

Primary features of the AWTF include the following.

- **Headworks**

The headworks facility provides initial screening and grit removal of raw sewage entering the facility. The headworks facility is comprised of the following:

• Two 2.5 mgd Archimedes screw pumps.

• Two 5.0 mgd mechanically-cleaned bar screens.
• A parshall flume for flow metering.
• A grit removal system including a horizontal-flow grit chamber with grit pumping and grit classification.

- **Primary Clarifiers**

The primary treatment facilities consist of two primary clarifiers, with a total treatment capacity of 5.0 mgd. Flow from the headworks is split between the primary clarifiers after grit removal:

• Clarifier No. 1 is 26-foot in diameter with a design treatment capacity of 1.0 mgd.
• Clarifier No. 2 is 60-foot in diameter with a design treatment capacity of 4.0 mgd.

Suspended solids gradually settle to the bottom of the clarifiers as primary sludge. Mechanical scrapers collect settled sludge and skimmer arms collect floatable scum in the primary clarifiers. Three primary sludge pumps transfer solids from the bottom of the primary clarifiers to the primary anaerobic digester. Scum collected on the surface of the primary clarifiers passes through a liquid/solid separator and the scum solids are transferred to a roll-off bin for disposal.

- **Influent Bypass Pumping**

Influent flows greater than the 5.0 mgd headworks capacity bypass both the headworks facility and primary clarifiers. These flows are pumped to the oxidation ponds via the First Street Pump Station (located offsite) and the Influent Storm Pump (at the Headworks). These pumps provide peak wet weather flow capacity and redundancy for the headworks screw pumps.

- **Oxidation Ponds and Pond Pumping**

Primary treated influent and wet weather influent flows are conveyed by gravity to two facultative oxidation ponds for secondary treatment. Secondary treatment is provided through a series of both biological and chemical reactions in both aerobic and anaerobic environments within the ponds. The two oxidation ponds have a total surface area of 46 acres (ac) and a total storage and treatment volume of 89 million gallons (MG). The normal mode of operation is in series, where primary effluent is routed to Oxidation Pond 1and then flows by gravity through transfer structures to Oxidation Pond 2.

Dry weather effluent from Oxidation Pond 2 typically flows by gravity to the treatment wetlands for further secondary treatment. Flow in excess of the treatment wetlands capacity is piped to the wet well of the Pond Pump Station (PPS) for discharge to the chlorine contact basin (CCB). In high wet-weather flow scenarios, the Emergency Pond Pump Station (EPPS) can also be used.

- **Treatment Wetlands and Effluent Pumping**

Effluent from the oxidation ponds flows by gravity to Treatment Wetlands 1 through 3 and 5 through 6 for further secondary treatment. A small portion of the oxidation pond effluent is pumped to Treatment Wetland 4, a shallow pilot wetland cell. The 9.7 acres of treatment wetlands have the capacity to treat 2.3 mgd, which is based on a minimum hydraulic retention time (HRT) of 4 days. Each treatment wetland has one or two influent distribution boxes with adjustable weir gates that are set to control the flow split from the oxidation ponds. The treatment wetlands are currently operated in parallel and can be run in series seasonally.

Treatment wetlands and Oxidation Pond #2 effluent collects at Pump Station 1 (PS1) and is pumped to the CCB for disinfection.

- **Disinfection**

Pumped effluent from the Oxidation Pond #2 and treatment wetlands is pumped to the CCB. Effluent is disinfected with chlorine gas and de-chlorinated with sulfur dioxide. Disinfected effluent flows by gravity to either the enhancement wetlands or is discharge to Humboldt Bay at Outfall 001. The nominal design capacity of the CCB is 5.9 mgd based on a 30 minutes of contact time. Higher flows can be accommodated with less contact time

- **Enhancement Wetlands (located at the AMWS)**

The Enhancement Wetlands are hydraulically limited to 2.0 mgd, which is the capacity of the Enhancement Wetlands Pump Station (EWPS). The AWTF operates three enhancement wetlands in series that have a total surface area of 33 acres and approximately 22 MG of storage. Enhancement wetlands effluent is currently pumped back to the CCB via the EWPS, mixed with plant effluent for re-disinfection and discharge at Outfall 001.

3.32 Wastewater Sources

The AWTF receives wastewater from within its Urban Service Boundary (Figure 3.2-4) and from the unincorporated community of Glendale. Glendale wastewater is pumped approximately 4 miles from their collection facility to the northern end of the City of Arcata's collection system. Glendale's wastewater comingles with the City of Arcata's and flows to the AWTF.

The AWTF has various users and types of wastewater contributing to the system. Table 3.2-1 shows the various sources wastewater to land use designation. Users within the Urban Service Boundary are connected to the AWTF's sewer system. Some of the industrial and commercial users are required to schedule releases and/or perform onsite pre-treatment.

Carollo Engineers compiled daily influent flow data between January 2003 and September 2015 provided by the City and influent data between January 1988 and December 2015 from the AMRI. The peak wet weather flow corresponded to the 98^{th} and 99^{th} percentile in the two data sets. The average dry weather flow corresponded to 68^{th} percentile for the AMRI data set and 77^{th} percentile for the City data set.

Carollo Engineers also performed an analysis of the influent load. Data for BOD, TSS, and Ammonia were provided by both the City and AMRI. The 90^{th} percentile for each constituent was determined (Table 3.3-1).

Table 3.3-1. The current 90th percentile influent loads at the AWTF based on data between 2003 and 2015. Table adapted from the *City of Arcata Predesign Report (Carolla Engineers, 2019).*

Constituent	90th Percentile Influent Load (ppd)
BOD	4,000
TSS	5,760
NH_3	880

The AWTF experiences large flows during the wet season due to inflow and infiltration (I/I) occurring in its collection system. Several studies have been performed to identify locations in the collection system susceptible to I/I. Innovyze's H2OMap Sewer software was used to model a majority of the collection

system surrounding the downtown area and surrounding residential neighborhoods. The software estimated that for an area producing 2.75 mgd, 1.47 mgd was I/I.

The City of Arcata's 2018-2019 Sanitary Sewer Infiltration Reduction Project focused on various locations throughout the City where pipe re-lining or replacement was needed including lateral rehabilitation. .
Over the course of the project 8.0 miles of City sewer mains and laterals were lined with Cured-in-place pipe (CIPP) and 1.65 miles were replaced with PVC piping. This has already resulted in a measurable reduction of inflow at the Arcata Wastewater Treatment Plant (AWTP) in 2019 compared to data over the last 20 years. Inflow data from years with similar total precipitation as 2019 (approximately 42 inches) was compared to the average and in 2019 total inflow at AWTP was 80 mg less. Daily inflow data was paired with daily precipitation data to show that average inflow on days with precipitation was 0.13 mgd less than the 20-year average and average inflow on days with no precipitation was 0.24 mgd less. These preliminary results show a large reduction in groundwater infiltration into the City's sewer system, lessening the burden on the AWTP and these margins are expected to increase further in 2020 as all construction is now complete

3.33 Wastewater Effluent Characteristics

AWTF's current effluent outfalls are into Humboldt Bay (Outfall-001) or the Enhancement Wetlands in AMWS (Outfall-002). The Brackish Marsh (future Outfall-003) is permitted for use upon completion of Phase 1 of the Proposed Project. Tables 3.1-2, 3.1-3, 3.1-4 provide the effluent limits and discharge standards for each discharge point or outfall during each phase of the Proposed Project

3.34 Discharge Violations

The NCRWQCB began to implement mandatory minimum penalties in 1999 and enforce them in 2006. The AWTF has experienced numerous violations due to aging infrastructure and accumulation of settled material and vegetation growth in the natural system Permit violations from City input, Annual Wastewater Treatment Reports, and State Board Office of Enforcement inspections are summarized in Table 3.3-2.

Table 3.3-2. AWTF permit violations between 2004 and 2019. Table adapted from the City of Arcata Predesign Report (Carolla,Engineers, 2019) and Annual Wastewater Treatment Reports.

Date	Description
2008	Violations related to BOD, TSS, percent removal, coliform bacteria, copper, cyanide and sewer system overflows between June 22, 2004 and March 31, 2007 resulted in $104,000 worth of fines.
2010	Violations for sanitary sewer overflows and copper effluent resulted in $83,300 worth of fines.
2011	Mandatory Minimum Penalties (MMPs) of $9,000 were assessed for percent removal, coliform bacteria, and copper violations.
2013	22 violations relating to BOD removal, TSS, fecal coliform counts, effluent toxicity, copper effluent and Dichlorobromomethane at Outfall-001
2014	27 violations relating to BOD removal, TSS, fecal coliform counts, effluent toxicity, copper effluent and Dichlorobromomethane at Outfall 001

2014	5 violations relating to BOD at Outfall 002
2015	14 violations relating to TSS, Dichlorobromomethane and effluent toxicity at Outfall 001
2015	15 violations relating to BOD and chlorine at Outfall 002
2016	19 violations relating to BOD, TSS, Cyanide and Dichlorobromomethane at Outfall 001
2016	3 violations relating to BOD at Outfall 002.
2017	20 violations relating to BOD, TSS, Cyanide and Dichlorobromomethane and effluent toxicity at Outfall 001
2017	6 violations relating to BOD at Outfall 002
2018	9 violations relating to TSS, Dichlorobromomethane, pH and effluent toxicity at Outfall 001
2019	10 violations relating to BOD, TSS and Dichlorobromomethane at Outfall-001

3.35 Operational Maintenance

The main AWTF was constructed in 1949. The last major upgrade occurred in 1986. The 1986 project included a new headworks facility, a chlorine contact basin and chemical storage building, effluent pump stations and a new generator building. These projects include upgrades to the natural system, upgrades to the digesters, use of pond aerators and purchasing a standby generator. A majority of the facilities in the AWTF have had ongoing preventative maintenance that has kept much of the original treatment plant in operation. While there has been a lot of maintenance, there has been little replacement of equipment or structures since original construction. In addition, there has been minimal maintenance in the natural treatment system.

Full and part-time City staff monitor the various facilities and perform sampling. City staff acknowledges that a majority of the equipment is past its useful life and requires updating and replacement as well as improvements.

Carollo Engineers and LACO Associates (Carollo Engineers and LACO Associates, 2017) performed a condition assessment on the current facilities to determine what needed to be addressed in the improvements project. The useful life, installation year, and a visual assessment were used to rank each facility. Facilities ranked 1 were considered in very good condition, while facilities ranked 5 were considered very poor or failed. Table 3.3-3 provides a summary of the condition assessment.

Table 3.3-3: Condition assessment results, adapted from Carollo Engineers and LACO Associates, 2017.

Process	Average Condition Mechanical/ Electrical/ Instrumentation and Controls	Average Condition Structural	Average Remaining Mechanical/Structural Useful Life
Headworks	4 – Poor	3 – Fair	<5 / 20
Primary Clarifier	5 – Very Poor	5 – Very Poor	<5 / <5
Oxidation Ponds	5 – Very Poor	4 – Poor	10 / 30
Pond Pump Station	4 – Poor	3 - Fair	<5 / 10
Treatment Wetlands 1 to 4	N/A	4 – Poor	Varies
Treatment Wetlands 4 to 6	N/A	1 – Very Good	Varies
Pump Station 1	4 – Poor	3 – Fair to 4 - Poor	<5 / 20

Enhancement Wetlands	N/A	4 – Poor	Varies
Enhancement Wetlands PS	4 – Poor	4 – Poor	<5 / 10
Chlorine Contact Basin	2 – Good	3 – Fair to 4 - Poor	10 / 20
Chemical System	3 – Fair	3 – Fair	<10 / 20
Digesters	3 – Fair	4 – Poor	10 / <5
Support Systems	3 – Fair	N/A	<5 / 10
Electrical and Control Systems	3 – Fair to 4 - Poor	N/A	<5 / NA

3.4 Project Selection Background

The Project has been undergoing a technical and community review process to assist in determining the preferred project. The basis of selection of the preferred project has incorporated the information described earlier in this chapter. As stated previously, numerous facilities are in need of improvement at the AWTF based on useful life and current conditions. Additionally, new facilities need to be constructed to meet NPDES permit requirements. Four alternatives were developed to address improvements for the AWTF. Each alternative was analyzed to determine how it met NPDES permit requirements after being developed.

Alternative 4: Enhanced Natural System with Parallel Treatment was selected as the preferred alternative. Alternative 4 was preferred because it would have the best chance to meet treatment objectives in the 2019 NPDES permit year-round. This alternative is the most expensive and has the largest physical footprint. This alternative enables the City to meet new permit discharge requirements while continuing to promote the beneficial uses of the system for the future.

The new treatment processes will be constructed within the existing plant site while maintaining operation of existing wastewater treatment processes. The City will also maintain the City Corporation Yard in conjunction with the AWTF, at the treatment plant site. As noted, the corporation yard will need to be consolidated and improvements relocated to several areas to accommodate the new Phase 2 plant facilities.

3.5 Proposed Project

3.51 Enhanced Natural System with Parallel Treatment

The Proposed Project (Alternative 4) was the only alternative that met the 2019 NPDES permit objectives year-round while maintaining the constructed wetlands system. This project uses the natural system for flows up to 2.3 mgd. The Proposed Project will increase treatment and hydraulic capacity and allow the natural system to meet the treatment objectives. An oxidation ditch will be a parallel secondary treatment system and treat flow between 2.3 mgd and 3.6 mgd. The new oxidation ditch will allow treatment objectives to be met even during high flows. The new UV disinfection system will be able to treat flows up to 9.8 mgd. The Proposed Project increases the hydraulic pumping capacity of the Enhancement Wetlands so that all flows below the peak wet weather flow (5.9 mgd) can receive enhanced treatment. This design also allows for adaptive management of secondary treated flow around the Enhancement Wetlands directly to the Brackish Marsh, which may be necessary to protect beneficial uses, included enhanced treatment, of the Enhancement Wetlands. Figure 3.5-1 provides the flow schematic of the Proposed Project.

Many of the proposed improvements will occur within the existing AWTP footprint, consisting of typical repair and replacement and maintenance or small additions to existing structures or new small structures, all of which would normally be considered categorically exempt from CEQA. This includes rehabilitation of the headworks and primary clarifier, new grit removal, upgraded digester, new UV disinfection system, digester/solids improvements, pump replacement, new valves, new generator, corporation yard improvements and relocations, and electrical controls, SCADA and utility additions. These improvements are located in already built/paved environments and neither construction nor operation of these improvements will result in adverse physical changes to the environment. Never-the-less they are part of the Proposed Project analyzed here

Changes to the Oxidation Ponds configuration and increasing the elevation to the height of the protective levee, rerouting of underground pipelines and electrical ductbank, construction of Outfall 003, construction of oxidation ditch and other secondary treatment improvements, improvements to the treatment wetlands and enhancement wetlands, proposed wetland mitigation areas for any areas disturbed by construction activities, staging and stockpiling areas and removal of an existing pedestrian bridge deck over Butcher Slough all could result in adverse physical changes to the environment. These will be the primary focus of the Proposed Project analyzed herein.

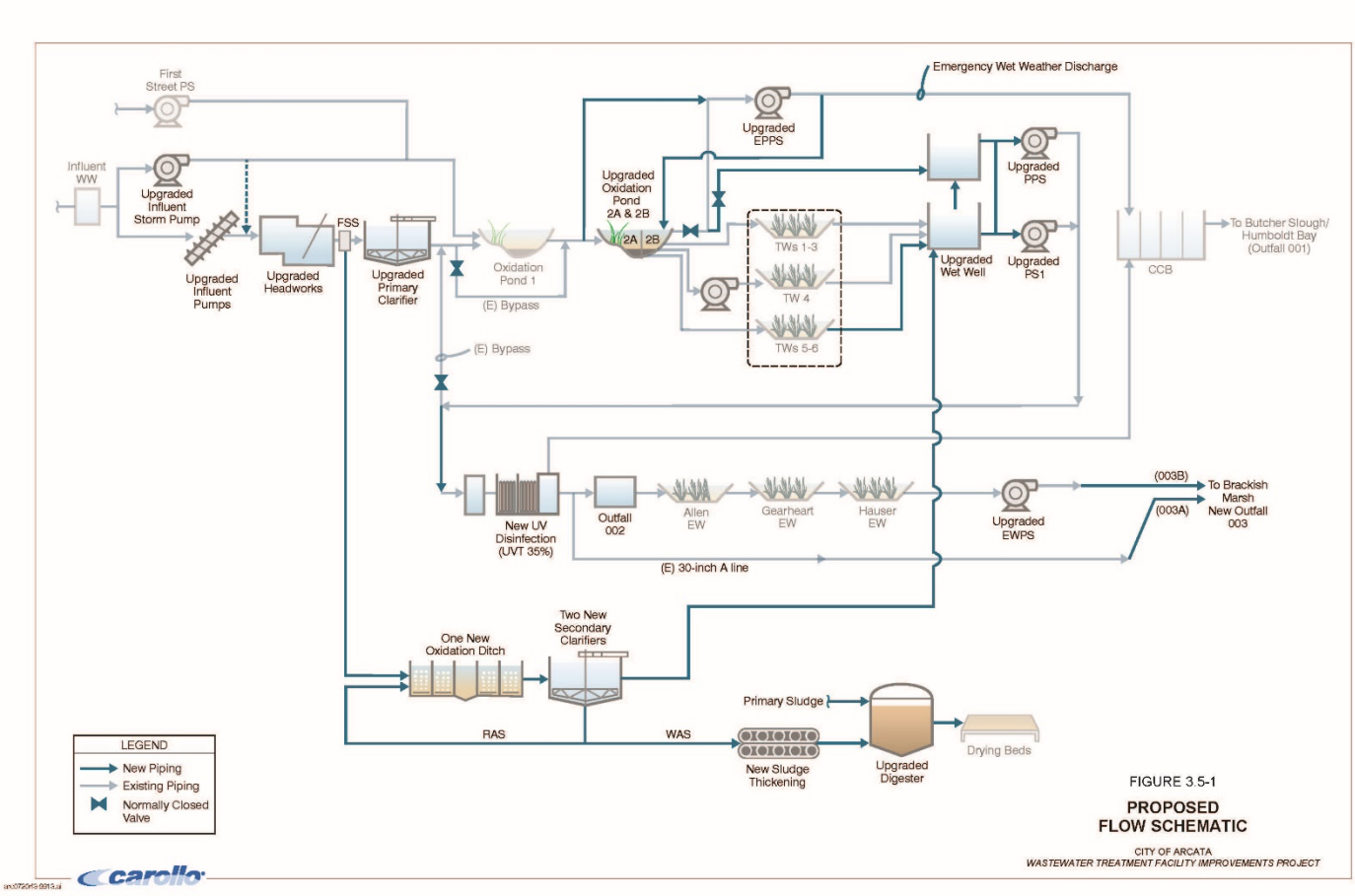


Figure 3.5-1: Flow schematic for the preferred alternative. (Carollo Engineers, 2020).

The Proposed Project will be completed in two separate phases. The location of these elements are depicted on Figures 3.5-2 through 3.5-6 (11x17 inch format), located at the end of Chapter 3. Figure 3.5-2 shows the Overall Site Plan. Figure 3.5-3 is an overview of the AWTF. Figure 3.5-4 shows a detail of the Phase 1 and 2 improvements to the central portion of the Corporation Yard, Figure 3.5-5 includes the portion of the project within the AMWS. Figure 3.5-6 is a detail of improvements for Outfall 003.

Phase 1 is proposed to begin in 2021 and to be completed in 2024. Phase 1 will focus on rehabilitation of the current system and reconfiguring the flow to a single path. Rehabilitation will be done to the natural system facilities (i.e. oxidation ponds and the treatment/enhancement wetlands) and to the aging infrastructure. It will include replacing and installing new equipment (i.e. pumps, aerators and monitoring equipment), increasing resilience for various facilities for treatment and hydraulic capacities and includes the construction of the following elements.

- Rehabilitation of the headworks and primary clarifier, new grit removal, upgraded digester, digester/solids improvements, pump replacement, new valves, minor corporation yard improvements and relocations, and electrical controls, SCADA and utility additions.
- Placement of up to 24 new 12.5 Hp mixer aerators (and relocation of 8 from Oxidation Pond #1) to improve treatment within Oxidation Pond #2.
- Addition of an electrical service drop from PG&E
- Construction of a small electrical building with diesel-powered emergency generator rated at 0.75Mw and removal of an existing natural gas powered 150 KW generator
- Installation of a 9.8 mgd ultra-violet (UV) disinfection system into one half of the existing chlorine contact basin (CCB), eliminating the use of chlorine gas and sulfur dioxide for disinfection except in an emergency wet weather flow disinfection scenario (flows > 9.8 mgd) or if emergency power is interrupted.
- Replacement of two existing pumps to the WWTP stormwater treatment and pumping system, sized for an anticipated 1% probability storm year storm event. . The existing storm drain pump station, located adjacent to the chlorine contact basins, will have the two existing pumps replaced to provide the required storm water pumping capacity to Oxidation Pond #1
- Demolition and removal of an old wooden pedestrian bridge deck structure over Butcher Slough. Pipes will be sandblasted, recoated and the existing conduit replaced.
- Placement of approximately 3,000 feet of electrical conduit will extend across Butcher Slough on the existing bridge and continue in a 2.2’x2.2’ trench straddling the top of the Klopp Lake exterior levees to the South I Street parking lot/Hauser Enhancement Wetland.
- Excavation and contouring of an approximate 500 square feet basin at the outlet of the Hauser Enhancement Wetland for improved water quality and maintenance.
- Replacement/upgrading of vertical pumping stations within the plant and at Hauser Enhancement Wetland pump station with submersible variable speed pumping systems.
- Placement of interlocking PVC sheet pile baffles driven into the bottom sediment between islands in Allen and Gearheart Enhancement Wetlands, placed by cranes, with some areas accessed by barge.

- Placement of structural fill up to 1.5’ deep to elevate existing 16’ wide roadway between the Hauser Enhancement Wetland and Gearheart Enhancement Wetland to minimum elevation of 8.0’ NAVD.
- Construction of discharge pipe to Outfall 003, connecting near the northeast corner of Hauser Enhancement Wetland, and running along I Street to Outfall 003.
- Construction of Outfall 003 and related rock slope protection in the southeast corner of Brackish Marsh

Additionally, the AWTF is adjacent to the Arcata Bay and the entire facility is located at low elevations. The current Base Flood Elevation (BFE) for a 100-year flood is 10.05 ft (NAVD 88). Current plans call for any new structures and above ground electrical equipment or connections to be located a minimum of 2.0 feet above the Zone “AE” base flood elevations within the existing protective bayfront levee within the AWTP core and Corporation Yard. The protective levees surrounding the AWTP and oxidation pond/wetlands (See Figure 3.5-7 Proposed AWTP Levee Augmentation) will be raised/augmented to a minimum of 14 feet (NAVD 88). within the FEMA (VE zones), areas identified for storm driven (erosive) waves or to a minimum of 12 feet’ at the additional FEMA (AE zones) surrounding all critical AWTP infrastructure. These actions will allow for the AWTP to be protected from the most credible storm events and have the protective infrastructure in place to increase levee elevations according to the best available trends and technologies.

- Placement of engineered fill (light.rock facing) on top and interior sides of the levees to a minimum elevation of 14’ NAVD to be protective of improvements and be incompliance with FEMA standards in the “VE” zone surrounding the AWTF, for approximately 1.25 miles, maintaining a minimum driving surface width of 8’ wide. Interior side slopes will be a maximum 1:1.5 or per engineered recommendations.
- Placement of fill, excavations and new structures to the top and interior of existing earthen levees will be engineered. Elevations of all new essential facilities (Flood design class 4) will be protected to the base flood elevation (BFE) of 10.0’ (NAVD 88) plus 2.0’ within the protective earthen levee. Engineered Fill will vary from between 0’-3’ predominantly from the south eastern and eastern side of the Oxidation Pond earthen levee, and along the trail access to the existing trail parking lot.

Phase 2 is anticipated to begin in 2024 and completed 2025. In general Phase 2 builds on the performance of Phase 1 improvements and includes new concrete mechanical structures to improve the resiliency, redundancy and treatment level at the existing AWTF. Phase 2 will focus on constructing the additional secondary treatment system, as well additional site improvements within the AWTF and the City of Arcata Corp Yard. Phase 2 will construct all the additional facilities needed for the parallel secondary treatment facility, including the oxidation ditch, two new secondary clarifiers and pumping for the return activated sludge (RAS) and the waste activated sludge (WAS). The footprint of the preferred Phase 2 design will be entirely within the AWTF/Corporation Yard and require relocation of some of the AWTF facilities and the City of Arcata Corp Yard facilities.

Phase 2 will include construction of the following.

- Two 75’ diameter secondary clarifiers.
- One 3.6 mgd oxidation ditch (265’ x 65’) with activated sludge pumps for waste

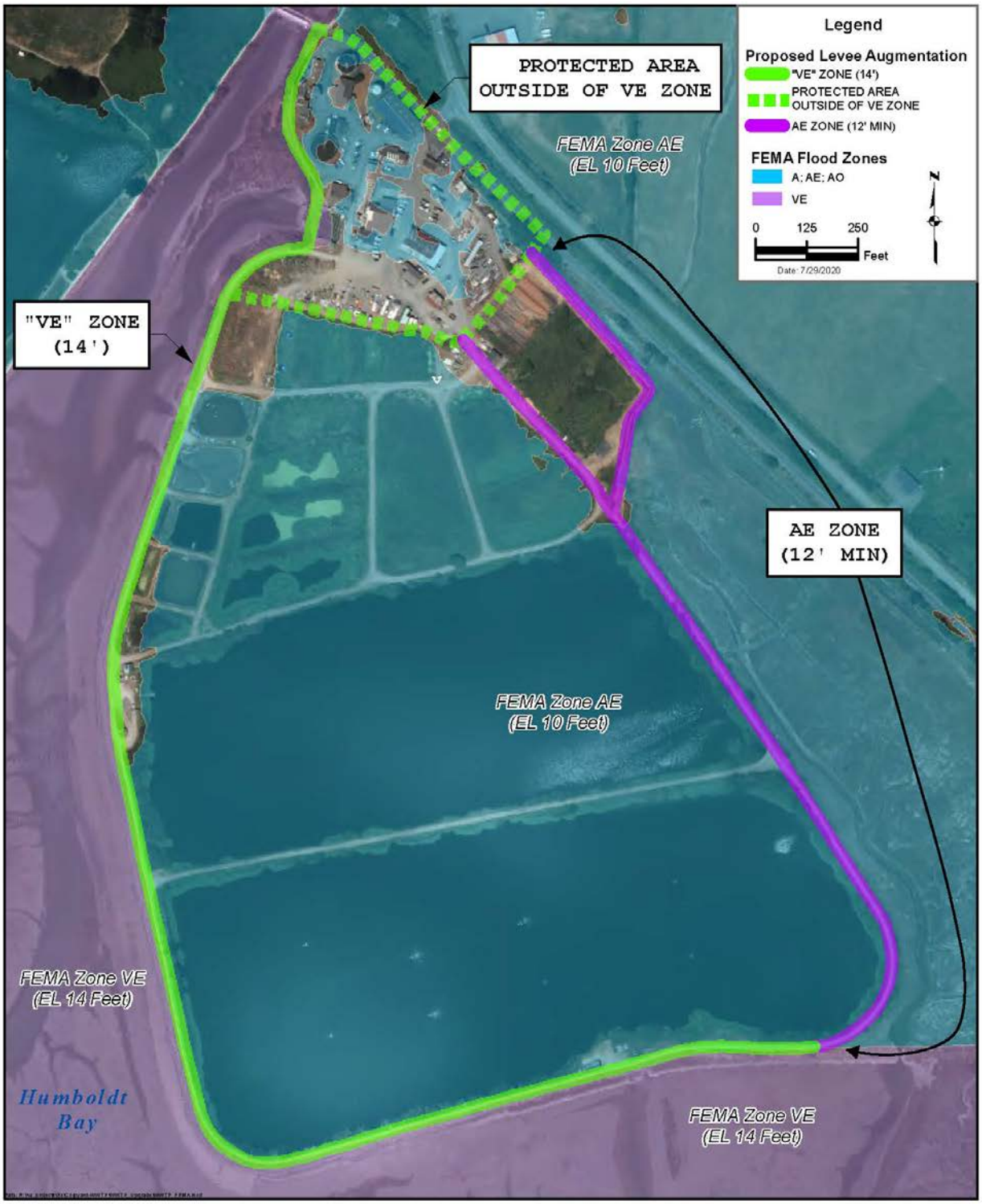
and recirculation in the oxidation ditch at approximately 17’ NAVD elevation to match the primary clarifier elevation and utilizing existing water surface elevations from the headworks to allow for gravity flow through the system.

- If determined necessary, following ongoing Phase 1 performance, an alkalinity feed system may be constructed within the existing developed AWTF.

See *City of Arcata Predesign Report: City of Arcata Wastewater Treatment Facilities Improvements*. (Carolla, 2019) for additional information on project improvements.

Arcata Wastewater Treatment Upgrade

Figure 3.5-7 Proposed AWTP Levee Augmentation



3.6 Intended Use of the Document

This Initial Study will be circulated to local, responsible, and trustee agencies, interested organizations, and individuals who may wish to review and provide comments on the project description, the proposed mitigation measures, or other aspects of the report. The publication will include the 30-day public review period.

The Initial Study and draft Mitigated Negative Declaration (MND), including supporting documents are available for review at:

- City of Arcata Environmental Services
  736 F Street
  Arcata, CA. 95521

Copies of the Initial Study, MND, and background information is also available for review at: https://www.cityofarcata.org/856/Wastewater-Treatment-Facilities-Improvem

Written comments or questions regarding the Initial Study and MND should be submitted to the name and address indicated below. Submittal of written comments via e-mail would greatly facilitate the response process.

Mark Andre, Environmental Services Director
Phone: 707 822-8184
email: mandre@cityofarcata.org

The proposed MND, along with any comments, will be considered by the City of Arcata Planning Commission followed by City Council decision on the project.

Interagency Collaboration and Regulatory Review

The CEQA review process is intended to provide trustee and responsible agencies, as well as the public, with an opportunity to provide input into the project. Trustee agencies are state agencies that have authority by law for the protection of natural resources held in trust for the public. Responsible agencies are those that have some responsibility or authority for carrying out or approving a project; in many instances these public agencies must make a discretionary decision to issue a local permit; funding, or resources that are critical to the project's proceeding. In this instance the North Coast Regional Water Quality Control Board (NCRWQCB), the California Coastal Commission, are considered responsible agencies, and California Department of Fish and Wildlife (CDFW) is considered a trustee agency. The City will work with the NCRWQCB and CDFW to ensure that the proposed project meets applicable policies and requirements.

The Project is expected to be funded through a combination of City funds (sewer/wastewater fees), Community Development Block Grant (CDBG) funds, and Clean Water State Revolving Fund (SRF) funds administered through the California State Water Resources Control Board (State Water Board). One requirement of SRF funding is that the City will be required to comply with the State Water Board's implementation of federal cross cutting authorities. Federal cross cutters involve additional NEPA-type environmental analysis of certain topics to include federal thresholds, rules and regulations (for topics such as air, biology, cultural, etc.). In addition to this Mitigated Negative Declaration, the City is preparing separate Environmental Packages for submittal to the State Water Board and the Housing and Urban Development Department, which include "federal cross cutters" analysis.

The City of Arcata is the lead agency and must approve the project and certify the CEQA documents including the Mitigation & Monitoring Plan. This MND is intended to assist trustee

and responsible agencies to carry out their responsibilities for permit review or approval authority over various aspects of the project. The Arcata Wastewater Treatment Facility Upgrade Project (Proposed Project) would likely require project-specific permitting and/or review as summarized in Table 3.6-1 below.

Table 3.6-1
Summary of Agency Approvals

Agency	Permit/Review Required
California Department of Fish and Wildlife	Trustee Agency - Review of MND for compliance with the California Endangered Species Act
North Coast Regional Water Quality Control Board	CWA §402(p) (33 U.S.C. 1342) General Permit for Construction Activities. Review of CWA §402(p) Municipal Regional Stormwater National Pollutant Discharge Elimination System Permit
California Coastal Commission	Coastal Development Permit
North Coast Regional Water Quality Control Board	Clean Water Act Section 401 Certification and Wetland Program compliance determination.
Army Corps of Engineers/ US Fish and Wildlife Service	ESA Section 7- Wetland Mitigation and monitoring requirements
U.S. Army Corps of Engineers	Clean Water Act Section 404 Permit for discharge of fill to Waters of the U.S.
State Water Resources Control Board	CEQA+/NEPA adoption for funding from the State Revolving Fund.
CA Department of Housing and Community Development (HCD)	CEQA/NEPA adoption for CDBG funding for UV improvements
State Water Resources Control Board	General Construction Activity Storm Water Permit and preparation of a Storm Water Pollution Prevention Plan (SWPPP).
State Historic Preservation Office	Pursuant to Section 106 of the National Historic Preservation Act (NHPA) regarding (joint consultation with tribes) potential impacts to cultural resources resulting from the Proposed Project.
National Marine Fisheries Service	Section 7 of the FESA and Magnusson Stevenson's Fisheries Act regarding potential impacts to federally listed special status fish species and essential fish habitat.

3.7 References

Carollo Engineers, 2019. *City of Arcata Predesign Report: City of Arcata Wastewater Treatment Facilities Improvements*. Prepared for the City of Arcata.

Carollo Engineers, 2020. *City of Arcata Flow Schematic for the Preferred Alternative*

Carollo Engineers and LACO Associates, 2017. *Facility Plan: City of Arcata Wastewater Treatment Facility Improvements Project*. Prepared for the City of Arcata.

NCRWQCB 2019, North Coast Regional Water Quality Control Board Order No. R1-2019-0006. NPDES No, CA0022713, Waste Discharge Requirements for the City of Arcata Wastewater Treatment Facility, Humboldt County (October 17, 2019).

NCRWQCB 2019, North Coast Regional Water Quality Control Board Order No. R1-2019-0011. Time Schedule Order R1-2019-0011 to Provide Time Schedules to Comply With Order No. R1-2019-0006 (November 11, 2019).

Plot Date: 7/23/2020 8:12:36 AM

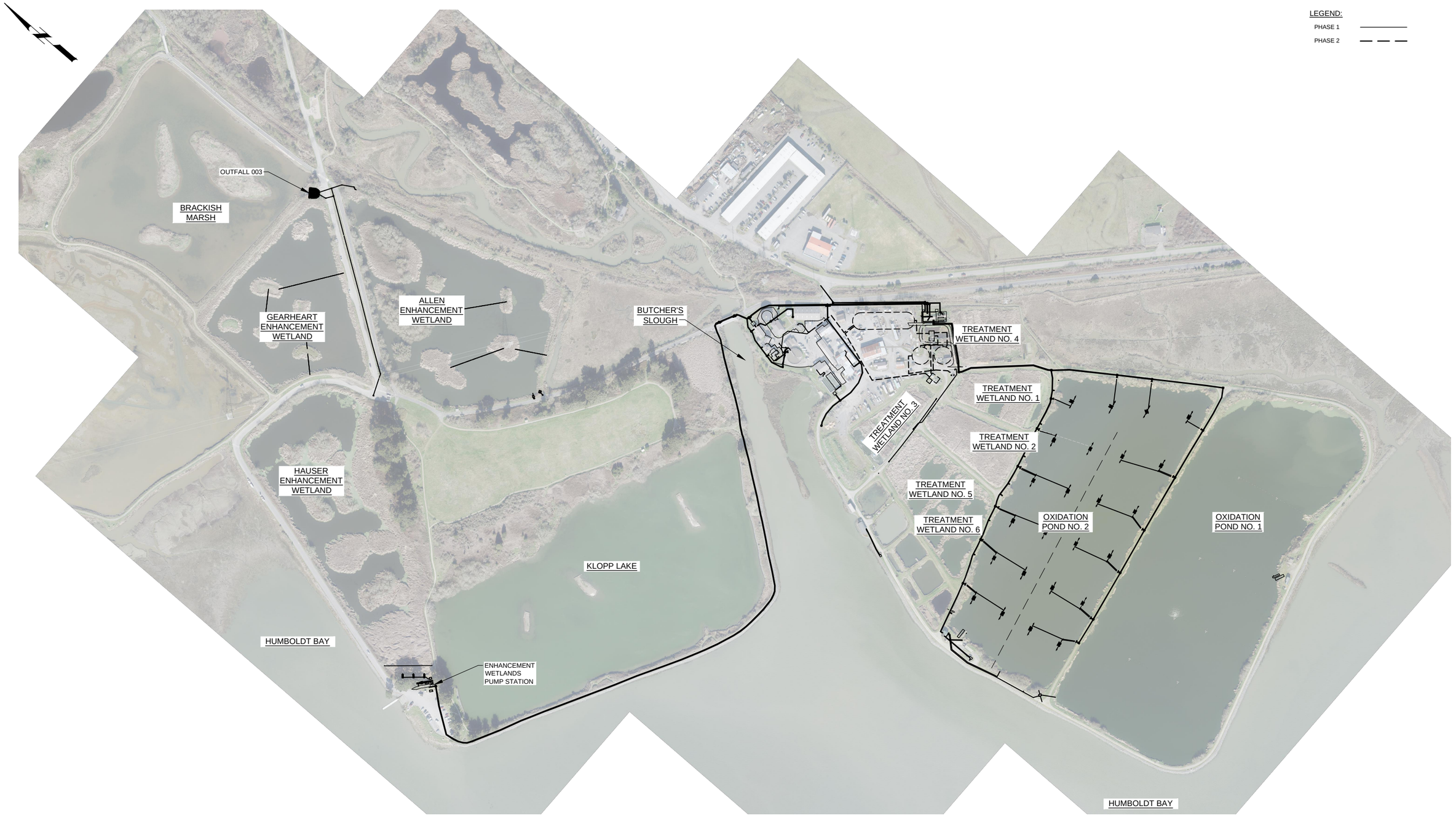
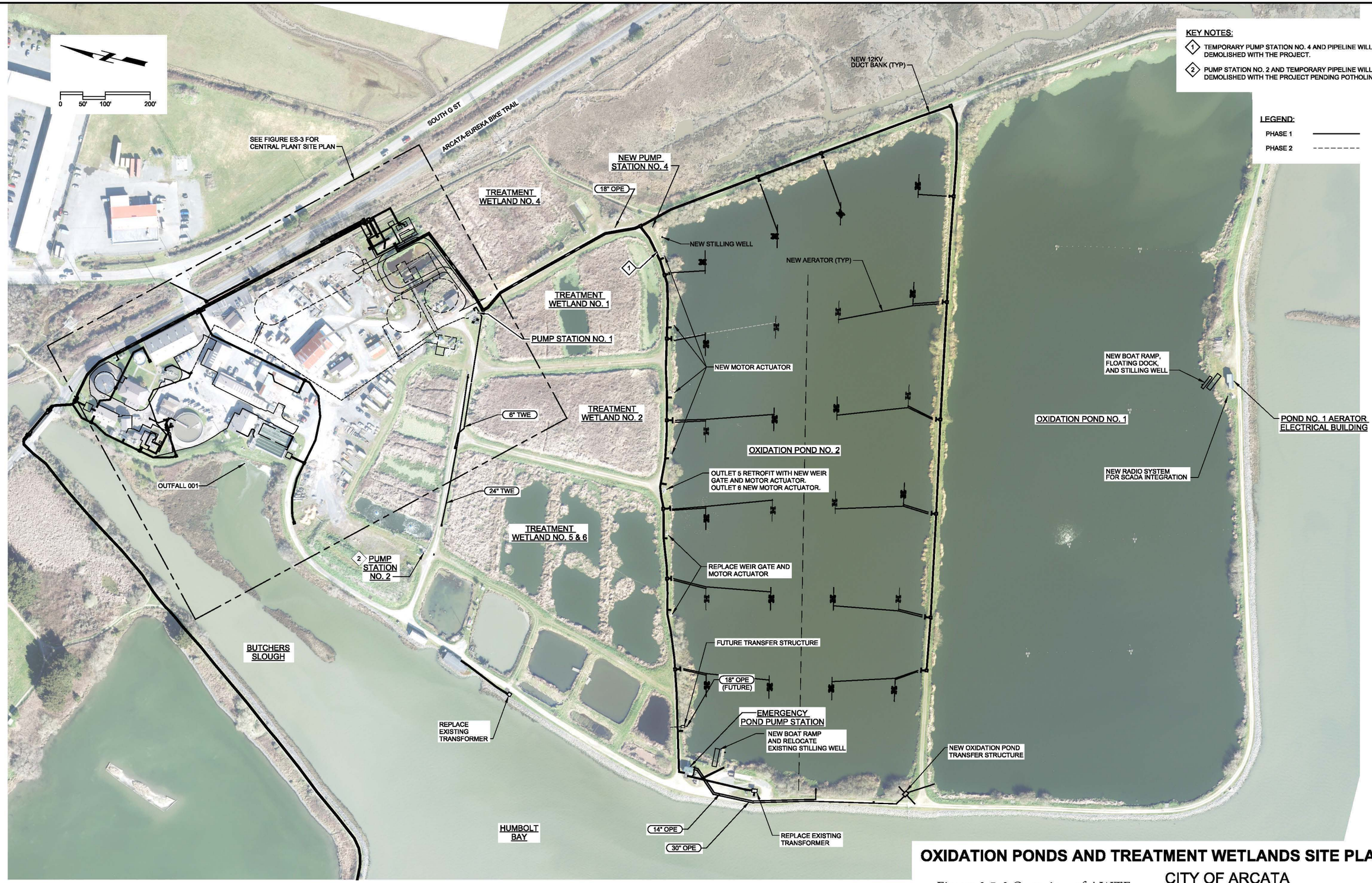


FIGURE 3.5.2

OVERALL SITE PLAN

CITY OF ARCATA

carollo



OXIDATION PONDS AND TREATMENT WETLANDS SITE PLAN

Figure 3.5-3 Overview of AWTF

CITY OF ARCATA

carollo

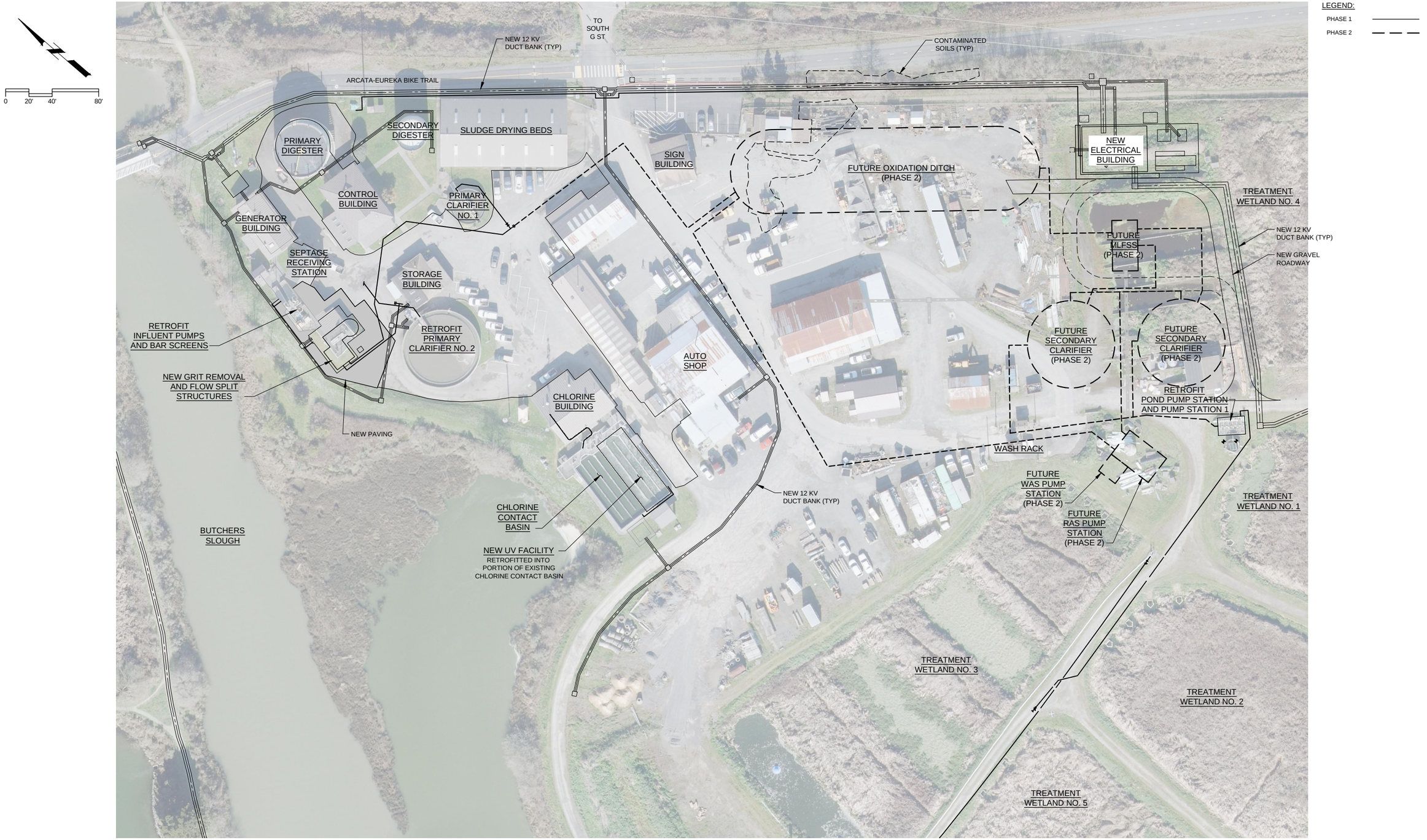


FIGURE 3.5-4

CENTRAL SITE PLAN

CITY OF ARCATA

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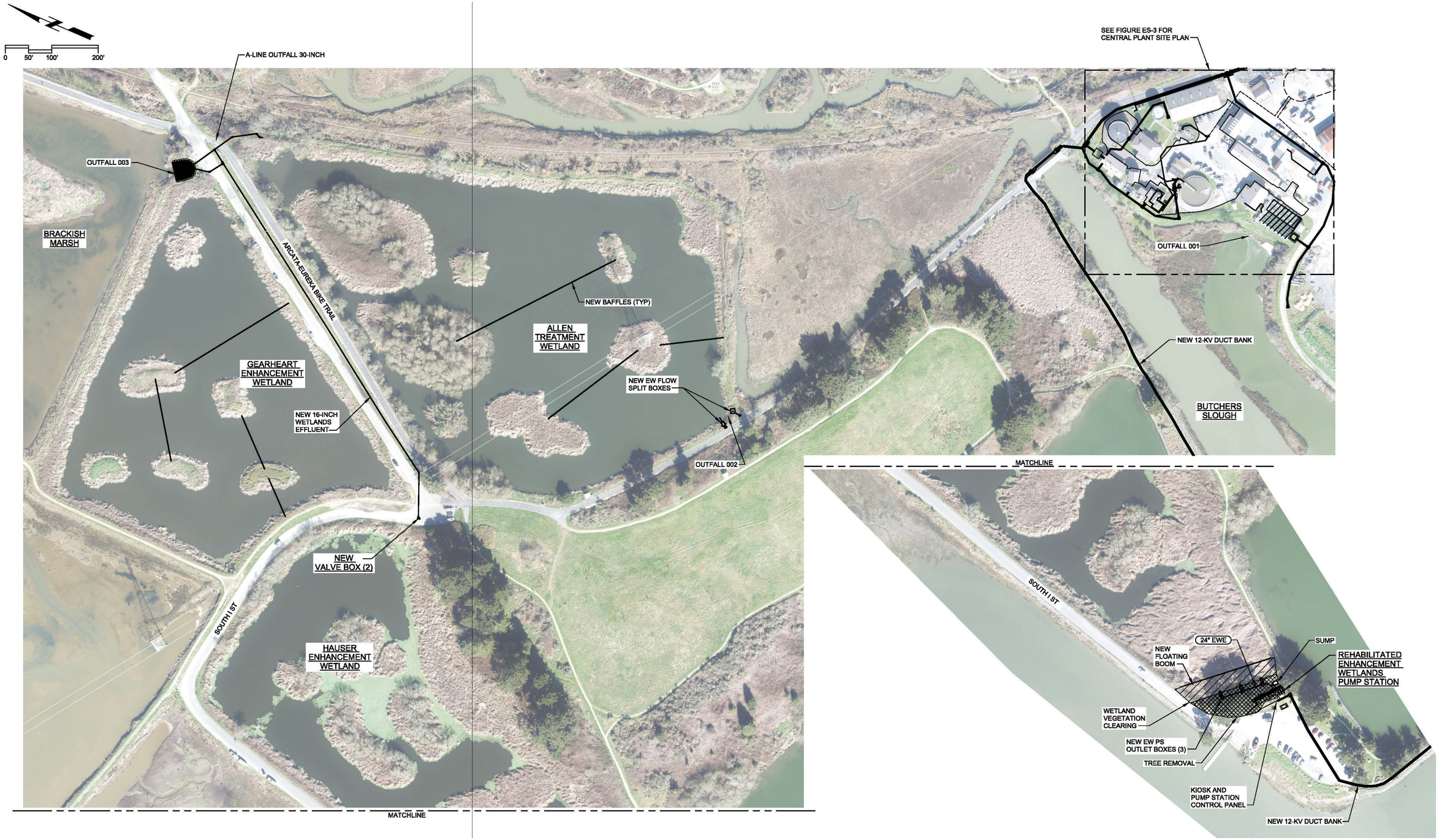

ENHANCEMENT WETLANDS SITE PLAN

CITY OF ARCATA

carollo

Figure 3.5-5 Portion within AMWS

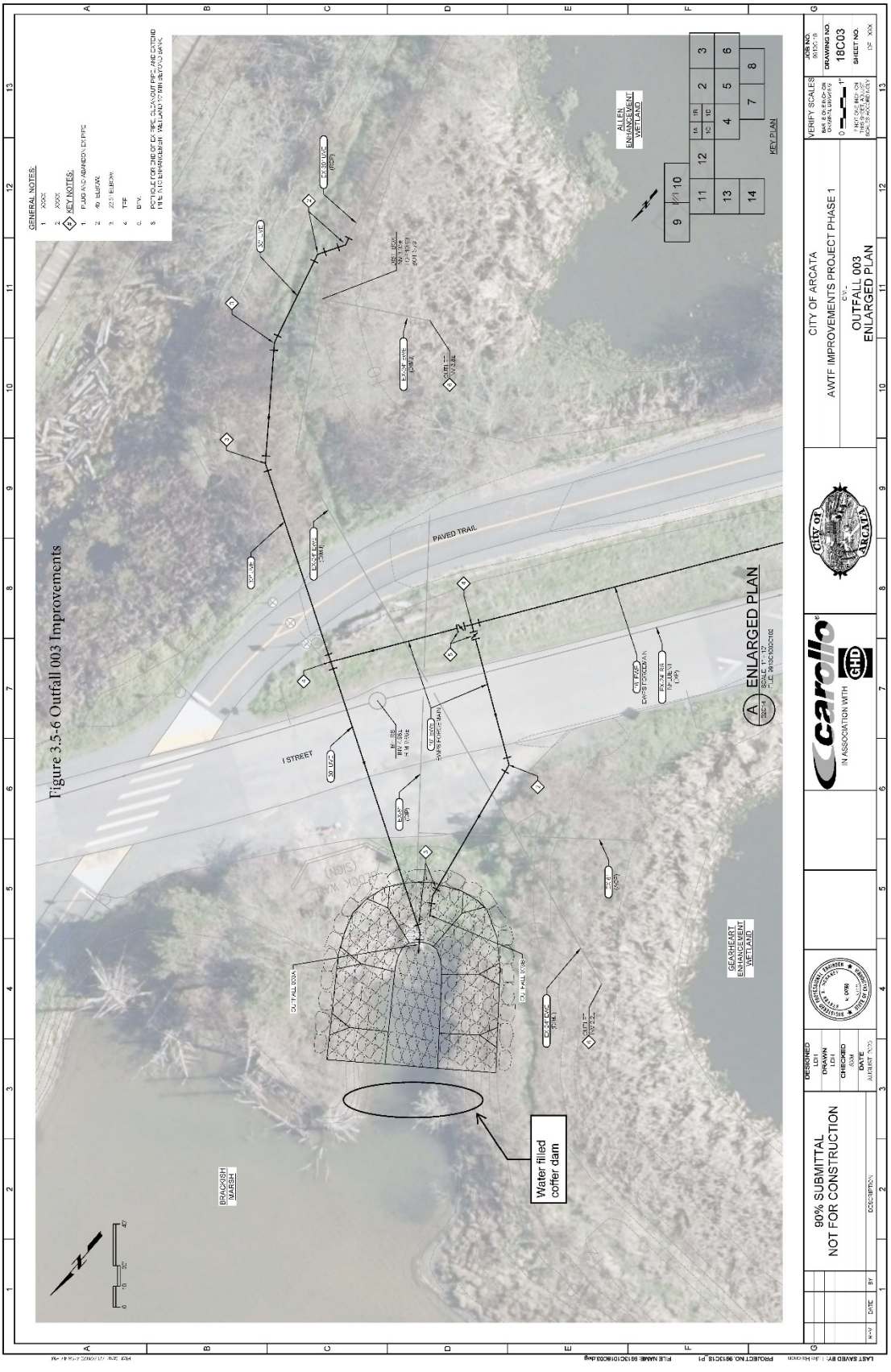
Figure 3.5-6 Outfall 003 Improvements
Water filled coffer dam
BRACKISH MARSH
GEARHEART ENHANCEMENT WETLAND
ALLEN ENHANCEMENT WETLAND
I STREET
PAVED TRAIL
A ENLARGED PLAN
KEY PLAN
CITY OF ARCATA
AWTF IMPROVEMENTS PROJECT PHASE 1
OUTFALL 003 ENLARGED PLAN
90% SUBMITTAL NOT FOR CONSTRUCTION
18C03

4. Environmental Impact Analysis

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4.1 Aesthetics

	Potentially Significant Impact	Less-than-Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Except as provided in Public Resources Code Section 21099, would the Project:				
a) Have a substantial adverse effect on a scenic vista?			✔	
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?				✔
c) In non-urbanized areas, substantially degrade the existing visual character or quality of public view of the site and its surroundings? (Public Views are those that are experienced from publicly accessible vantage point). If the Project is in an urbanized area, would the Project conflict with applicable zoning and other regulations governing scenic quality?			✔	
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?			✔	

4.1.1 Environmental Setting

The aesthetic character of the Humboldt Bay area is largely formed by its natural features and surroundings, including forested hillsides to the north, south, and east; forested coastal dunes, the Samoa Peninsula, and the Pacific Ocean coastline to the west. Situated at the north end of Humboldt Bay, the City of Arcata sits on a coastal terrace and is bordered by the Mad River corridor to the north; Arcata Bay to the south; the Pacific Ocean to the west; and Fickle Hill Ridge to the east. Arcata's surrounding natural scenery includes coastal, riparian, mountain, forest, flat bottomland, and bay-front landscapes. These features form distinctive natural edges and vistas and are some of the city's most important visual resources.

The Project is located in the City of Arcata, Humboldt County, California on the southern side of South G Street. The Project site is zoned Public Facility. The project site includes the Arcata Marsh

and Wildlife Sanctuary (AMWS), and is adjacent to Humboldt Bay to the south, general industrial to the north and agricultural lands to the east. The Proposed Project includes renovations to the existing Arcata Wastewater Treatment Facility (AWTF). The AWTF actively integrates conventional wastewater treatment with the natural process of constructed wetlands. The AWTF's innovative system is a landmark of sustainability.

Construction of facilities at the Arcata Wastewater Treatment Plant (AWTP) include both replacement of existing facility components and constructing additional components including a UV disinfection station, oxidation ditch, and additional clarifiers. The project will be visible to the public from South G Street, the Bay Trail, AMWS trails, Klopp Lake, and the oxidation ponds perimeters. Existing elevations in the vicinity of all visible improvements vary between ten and fourteen feet. All new utility feed upgrades from the treatment plant will be underground.

Construction of facilities at the AMWS , particularly those adjacent to the South I Street parking area as well as pipe and conduit trenching, and the installation of Outfall 003 will be visible along I Street, the Bay Trail, other AMWS trails, and Klopp Lake. Much of the project changes at the AMWS involves short-term visual impact during construction. New facilities will be visible primarily by non-motorized recreation trail users and vehicles adjacent to the AWTF. Some of these features may also be visible from U.S. Highway 101, but none are expected to be visible from State Route 255 (Samoa Blvd.). Visual changes include the following.

1. *New Oxidation Ditch/Clarifiers.* These structures will be placed near the northern part of the AWTF near the Bay Trail parking area and along the pedestrian trail near the existing chain link fence.
2. *New UV facility.* This facility will be constructed within the existing chlorine contact basin CCB footprint entirely. A new open sided canopy structure approximately 20' by 60' will be constructed over the existing CCB and will be visible from the Klopp Lake trail looking east from across Butcher Slough, but will have limited visibility from outside of the AMWS, and will only be visible to the public from a distance of roughly 200 feet from the public trail.
3. *New aerators in Oxidation Pond 2*. The aerators will be on the pond surface and visible from the Oxidation Pond 1 perimeter trail.
4. *New Small Storage Structure.* A new electrical building which will house a new generator.
5. *New treated discharge point*. The new treated wastewater discharge point at Outfall 003 will enter the Brackish Marsh at grade with a visible discharge into the marsh. There will be two new, at-grade concrete structures near the existing Outfall 002 to allow better flow controls and splitting of the discharge between Outfall 003 and the enhancement wetlands. Two other weir-type structures will be placed within the enhancement wetland area.
6. *New pump station cabinet.* The existing Hauser pump station, at the south end of I Street, will be upgraded with associated pump controls, transformer and telemetry equipment and sampler, housed within a flood safe cabinet(s) and located adjacent to the existing pump station. The new cabinet(s) will be ground mounted but will require

all critical components to be elevated at or above the maximum FEMA (VE zone) flood elevation of 14 feet. The cabinet and transformer will be placed on existing fill as possible to minimize new fill and preserve viewshed of the Marsh areas.

7. *Enhancement Wetland Baffles.* PVC type sheets will be driven between islands in Allen and Gearheart Enhancement Wetlands so that tops are subsurface. While these will only be visible during installation and at water level adjustments, their installation will temporarily stir up sediments in the Enhancement Wetlands.
8. *Levee Augmentation.* Levees surrounding the AWTP will be elevated by several feet to meet base flood elevations. Fill will be placed atop and within interior of Oxidation Ponds.
9. *Removal of Old Bridge Deck.* The old bridge deck across Butcher Slough will be removed but the pipes and conduit will remain or be upgraded.

While not specifically proposed, the Proposed Project requires that any outdoor lighting will be consistent with the City's design guidelines, Section 9.30.070 (Outdoor Lighting) of the Arcata Land Use Code, and the recommendations of the International Dark-Sky Association (IDA). This includes standards for fixtures, shielding, wattage, placement, height, and illumination levels.

Regulatory Setting

The Design Element of the Arcata General Plan includes a variety of policies intended to regulate the natural beauty and scenic quality of Arcata, with particular attention paid to scenic resources in the Coastal Zone. The AWTF and larger AMWS are not listed in the Design Element as designated scenic resources or part of larger scenic vistas; however, there are several policies that relate to sites in the vicinity of the project, including the South "G" and South "I" corridors. General Plan policies that relate to the project are found in Section D-3, *Scenic Routes, Resources, and Landscape Features*:

Arcata General Plan Design Element D-3 Policies:

D-3a Designation of coastal scenic highways. The following coastal scenic highways are hereby designated:

1. 7th Street and Bayside Road, from 7th Street overcrossing to Crescent Drive
2. Bayside Cutoff, from State Route 101 to Old Arcata Road
3. Old Arcata Road, from Bayside Cutoff to Crescent Drive
4. Samoa Blvd. (State Route 255), from Crescent Drive to Manila
5. Janes Road, from 11th Street to Foster Avenue
6. State Route 101, from the southerly City boundary to the Mad River
7. South "I" Street, from Samoa Blvd. south
8. South "G" Street, from "H" Street to State Route 101
9. All public roads west of the City in the Arcata Bottom

D-3c Design policy for projects affecting scenic highways. The following standards shall apply to any development which affects scenic highways:

1. Billboards or other off-premises signs are prohibited.

2. Landscape planting along State Route 101 shall not interrupt scenic views to the bay or eastward across agricultural lands.

3. New development or redevelopment in the industrial area of South "G" Street shall provide dense landscape screens along all perimeter lot lines visible from State Route 101.

4. The City shall work jointly with the County of Humboldt, Caltrans, and the Coastal Commission to enhance scenic views along scenic highways, particularly State Route 101 and 255 corridors.

D-3e Arcata Bay—Open waters, shoreline, and tidal marshes. Proposed land uses and development shall not significantly alter the natural appearance or landforms of the waters, shoreline, and tidal marshes of Arcata Bay, which are designated in the natural resource land-use category. Where these resources are visually degraded, developments shall be required to restore or enhance their appearance. Development within the area bounded by Samoa Blvd., Butcher's Slough and Gannon Slough shall include local native plant landscaping, screenings and other measures to ensure compatibility with scenic coastal resources and with the educational, recreational, wildlife and other uses of the Humboldt Bay National Wildlife Refuge and the Arcata Marsh and Wildlife Sanctuary.

D-3f Bay and ocean views. Views of Arcata Bay and the Pacific Ocean from vantage points along public streets in hillside areas of Arcata shall not be blocked by development. Any impairment or partial obstruction of these ocean views from new development shall be the minimum necessary to allow reasonable development.

D-3h Farmlands and open countryside. Views of farmlands and open countryside — in the Arcata Bottom, along the State Route 101 south of Samoa Boulevard, north of Giuntoli Lane, and along State Route 255 west of the city, should be protected. New development should be sited and designed to minimize any impairment of such views.

D-3j Streamside riparian areas. Creeks or drainage channels and any associated riparian vegetation shall be retained in a natural state and incorporated into site design as a visual asset to development which adjoin them.

4.1.2 Environmental Analysis

a) Have a substantial adverse effect on a scenic vista? (Less Than Significant Impact)

The AWTF will involve demolition of some existing structures to be replaced with new structures. However, the overall character of the AWTF will not be changed significantly and new structures will not block views from prominent locations. Views of the site are visible from Highways 101 and 255, but only from a distance of one-quarter mile or more. The project site is already screened by vegetative material, which will not be removed as a part of this Project. Therefore, the site is adequately screened from Highways 101and 255, and South G Street and does not require further vegetative screening.

The project will not cause a long-term alteration or degradation of the existing visible character and quality of the site and its surroundings and will not result in a permanent adverse change to physical, vegetative, or scenic resources. Much of the proposed improvements are subsurface, involve replacing existing equipment, are screened by vegetation or are on the surface or subsurface in the oxidation ponds or treatment/enhancement marshes. The project will not affect riparian areas in the AMWS except for the vicinity of Outfall 003, which is planned to be mitigated through replacement of permanently affected wetlands onsite (Mitigation Measure Biol-8).

The existing rural coastal character would not be altered by the Project, and although the AWTF is located in close proximity to coastal agricultural land, there will be no effect to the aesthetic quality or operations of nearby agricultural lands. In addition, surrounding businesses, and structures adjacent to the Project area would not be altered. Tall or larger structures that could impede the viewshed of the AMWS or otherwise result in a significant visual change are not included in the Proposed Project scope.

The Proposed Project would not have a substantial adverse effect on a scenic vista, nor would it result in substantial degradation of the existing visual character and quality of the site and its surroundings. Views of Humboldt Bay from Arcata's Hillside Areas would not be affected by Project activities, as the majority of site improvements will take place within the footprint of the AWTP/corporation yard or involve installation of underground utilities. All remaining activities that do not fall into these categories are small in scale and height and would not be visible from a distance. As the Proposed Project is primarily associated with ongoing maintenance of an existing facility, the Project will not significantly alter the natural appearance or landforms of the waters, shoreline, and tidal marshes of Arcata Bay. Any physical alterations in the vicinity of Outfall 003 or other location in the AMWS will be small-scale and/or will be visually screened through site re-vegetation after completion of construction activities. Construction-related visual effects, including raw earth work and the presence of heavy machinery, would be temporary and short-term. Potential visual impacts resulting from the project implementation would be less than significant.

b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway? (No Impact)

The project site is located off South G and South I Streets, which are not designated or eligible state scenic highways. Although Caltrans has not designated any scenic highways in Humboldt County, sections of Highway 101 are noted as " eligible" for listing, including the stretch along Humboldt Bay which is located approximately one-quarter mile from the Project site at its closest point. However, the project will have no physical effects on the highway (See also 3.1.2(a)). Based on California Scenic Highway Mapping System information (Caltrans, 2016) no designated state scenic highways are found adjacent to or within view of the Project. There would be no impact to a scenic resource within a state scenic highway. No impact would occur.

c) In non-urbanized areas, substantially degrade the existing visual character or quality of public view of the site and its surroundings? (Public Views are those that are experienced from a publicly accessible vantage point). If the Project is in an urbanized area, would the Project conflict with applicable zoning and other regulations governing scenic quality? (Less Than Significant Impact)

The Project is south of the urbanized area of the City of Arcata and is located directly adjacent to a City-owned recreation area and wildlife sanctuary to the west and is located in close proximity to agricultural lands to the northeast. The Project would not block or alter the existing views of the rural character of Project area. The existing viewscape would not be impeded or altered by structures or other Project elements. The views of the Project itself would be relatively limited as the project consists mostly of improvements to the existing AWTF which will be generally shielded from the public viewshed. Temporary visual impacts related to construction include the removal of roadside vegetation, presence of heavy machinery, materials stockpiling and storage, and construction-related safety signage and safety dividers. Although some vegetation would be removed to accommodate the Project, the remaining existing vegetation and post project re-vegetation will soften visual changes.

The Project would be compatible with the existing visual character and ongoing maintenance of the AWTF and its surroundings and would not introduce any elements that would degrade existing visual character or quality. The project does not conflict with a general plan policy or land use code provision that protects the scenic quality of adjacent land uses. Construction activities at the Project site and at off-site staging areas would result in short-term temporary changes in the visual character of the Project Area during and immediately following construction but would be minimized and restored. As a result, the Project impact on visual character would be a less-than-significant impact.

d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area? (Less Than Significant Impact)

The project requires that outdoor lighting will be consistent with the City's design guidelines, Section 9.30.070 (Outdoor Lighting) of the Arcata Land Use Code, and the recommendations of the International Dark-Sky Association (IDA). This includes standards for fixtures, shielding, wattage, placement, height, and illumination levels. To comply with these requirements, any required lighting for the project will be the minimum lumens necessary, directed downward, shielded, and pedestrian

level when feasible. This will ensure lighting is contained within the site and does not cause significant lighting and glare impacts for surrounding land uses and the habitat contained in the wildlife sanctuary.

Specific design elements that would be applied to Project lighting include fixture types, cut off angles, shields, lamp arm extensions, and pole heights. Specific design preferences include directing light downward and away from other properties, avoiding brightly illuminated vertical surfaces where feasible, such as walls and lamp poles, and directing lighting away from sensitive habitat areas. With the implementation of these design elements and preferences, the potential effect would be less than significant.

4.1.3 Mitigation Measures

None Required

4.1.4 References

CA Department of Transportation (Caltrans). 2016. California Scenic Highway Mapping System. www.dot.ca.gov/hq/LandArch/16_livability/scenic_highways/.

City of Arcata. 2000. Draft Final Program EIR (PEIR) for the Arcata General Plan and Local Coastal Land Use Plan. SCH# 98072069.

City of Arcata. 2008a. Arcata General Plan and Local Coastal Land Use Plan. Amended Oct. 2008.

City of Arcata. 2008b. City of Arcata Municipal Code – Title 9 – Land Use Code. Oct. 2008.

4.2 Agriculture and Forest Resources

	Potentially Significant Impact	Less-than-Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the Project:				
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?				✔
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?				✔
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?				✔
d) Result in the loss of forest land or conversion of forest land to non-forest use?				✔
e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?				✔

4.2.1 Environmental Setting

The Project area is located on the south side of the City of Arcata adjacent to The Humboldt Bay. The project site is zone Public Facility (P-F) and Natural Resources Protection (NRP) and does not contribute to agricultural production in the area. The closest agriculturally zoned (Agriculture Exclusive AE) properties in the City of Arcata are located 150 feet northeast of the AWTF. In the County, the closest agriculturally used grazing land, zoned Agriculture Exclusive AE property, is 940 feet northwest of Brackish Pond. The Project site does contain farmlands of statewide importance (Web Soil Survey, 2020).

The eastern portion of Arcata is located on forested slopes of Fickle Hill Ridge. The slopes contain

mostly second-growth conifer stands. These forested lands are both publicly and privately held. The City of Arcata owns two separate tracts of forestland that comprise the 2,350-acre Arcata Community Forest. The publicly owned Arcata Community Forest (Arcata Community Forest Tract, Jacoby Creek Tract, and Sunnybrae Tract) constitute a significant ecological, recreational, economic, and educational resource for the citizens of Arcata and the surrounding region. The project site is located approximately 1.8 miles southwest from the Arcata Community Forest, the closest public forested area to the project site.

The City's Resource Conservation and Management Element includes among its planning principles and goals the protection and enhancement of prime agricultural lands for their food production, resource, and aesthetic values (Policy RC-5a). The Humboldt County General Plan Land Use element emphasizes the preservation of agricultural lands (Goal AG-G1) and includes policies to conserve agricultural lands (Policy AG-P5) and avoid conversion of agricultural lands (Policy AG-P6; Humboldt County, 2017).

4.2.2 Environmental Analysis

a, b) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland)? Conflict with Agricultural Zoning or Williamson Act Contract? (No Impact)

The Project is not located in an area that is zoned, designated, or used for agriculture and would not directly or indirectly affect land zoned or used for agriculture. While the Farmland Mapping and Monitoring Program has not mapped Humboldt County yet, the Project is located on lands zoned Public Facility and Natural Resource Protection that are not grazed or irrigated. Some of the areas in and adjacent to Brackish Marsh, and Gearheart Enhancement Wetland are mapped as Prime Agricultural Soils (Bayside 3), as indicated in Humboldt GIS mapping (City of Arcata, 2020, Humboldt County Web GIS, 2020) but these were converted to wetland habitats and subject to earlier environmental review (such as City, CDFG, 2006). The project site does contain soils conducive of farmlands of statewide importance (Web Soil Survey, 2020). However, the Project site is currently occupied by the AWTF and will not result in further conversion of farmlands of statewide importance.

The Area of Potential Effect does not include farmlands or areas zoned for agricultural use. As shown on the City of Arcata Zoning Map, the closest agriculturally zoned properties are located roughly 0.2 miles from the project site on the north side of South G Street (Coastal Agriculture-Exclusive). Farmlands will not be impacted by this project.

The Proposed Project is not located on land enrolled in a Williamson Act contract (City of Arcata, 2020, Humboldt County 2019). As indicated in Humboldt GIS mapping (Humboldt County Web GIS, 2020) the closest area is two miles to the west of the Proposed Project. No impact would occur.

c, d) Conflict with Forest Land Zoning or Convert Forest Land? (No Impact)

The Proposed Project is not located on land zoned for forest land, timberland, or timber production (City of Arcata, 2020, Humboldt County Web GIS, 2020). In addition, there are no forest lands in the Project Area. The closest forested lands are located approximately 1.8 miles to the northeast in the Arcata Community Forest. The project would have no effect on this area. Therefore, the Project would not result in the loss or conversion of forest land. No impact would occur.

e) Convert Farmland or Forest? (No Impact)

The Proposed Project site has been used as the AWTF since 1949 and added to since that date, the most current additions of McDaniel Slough in 2008. The Project is not located on property used for farmland or forest production and would not impact any such uses. The Project is consistent with City of Arcata planning regulations and the Humboldt County General Plan. The Project would not involve changes in the existing non-agricultural and non-forest uses nor result in conversion of farmland or forest lands outside of the Project Area. No impact would occur.

4.2.3 Mitigation Measures

None required

4.2.4 References

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California Department of Conservation, Division of Land Resource Protection, Farmland Mapping and Monitoring Program. Accessed July 1, 2020 at https://www.conservation.ca.gov/dlrp/fmmp.

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Web Soil Survey. 2020. US Department of Agriculture. Accessed September 11,2020 at https://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx.

4.3 Air Quality

	Potentially Significant Impact	Less-Than-Significant With Mitigation Incorporation	Less-Than-Significant Impact	No Impact
Where available, the significance criteria established by the applicable air quality management district or air pollution control district may be relied upon to make the following determinations. Would the Project:				
a) Conflict with or obstruct implementation of the applicable air quality plan?			✔	
b) Result in a cumulatively considerable net increase in any criteria pollutant for which the Project region is non-attainment under an applicable federal or state ambient air quality standard?			✔	
c) Expose sensitive receptors to substantial pollutant concentrations?			✔	
d) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?			✔	

4.3.1 Environmental Setting

The Proposed Project is located in Humboldt County, within the North Coast Air Basin (NCAB). The NCAB extends for 250 miles from Sonoma County to the Oregon border. The climate of NCAB is influenced by two major topographic units: the Klamath Mountains and the Coast Range

provinces. The climate is moderate with the predominant weather factor being moist air masses from the ocean. The average annual rainfall in the project area is approximately 40 inches, with the majority falling between October and April. Typical gradient winds are from west to east and the average wind speed is approximately 4.7 miles per hour (NOAA, 2019).

Humboldt County is designated 'attainment' for all National Ambient Air Quality Standards (NAAQS). With regard to the California Ambient Air Quality Standards (CAAQS), Humboldt County is designated attainment for all pollutants except PM_{10}. Humboldt County is designated as "non-attainment" for the state's PM_{10} standard. PM_{10} refers to inhalable particulate matter with an aerodynamic diameter of less than 10 microns. PM_{10} includes emission of small particles that consist of dry solid fragments, droplets of water, or solid cores with liquid coatings. The particles vary in shape, size, and composition. PM_{10} emissions include smoke from wood stoves, construction dust, open burning of vegetation, and airborne salts and other particulate matter naturally generated by ocean surf. Because, in part, of the large number of wood stoves in Humboldt County and because of the generally heavy surf and high winds common to this area, Humboldt County has exceeded the state standard for PM_{10} emissions (NCUAQMD, 2020).

Sensitive Land Uses

As discussed in greater detail below, high concentrations of criteria air pollutants and toxic air contaminants can result in adverse health effects to humans. Some population groups are considered more sensitive to air pollution and odors than others; in particular, children, elderly, and acutely ill and chronically ill persons, especially those with cardio-respiratory diseases, such as asthma and bronchitis. Sensitive land uses are facilities that generally house more sensitive people (e.g., schools, hospitals, nursing homes, residences, etc.). Since the project site is located on the southern end of the City of Arcata, there are limited sensitive receptors in the project area. The nearest known sensitive receptors to the Proposed Project include residential uses, which are over a quarter mile to the north, and recreationists at the adjacent AMWS and Humboldt Bay Trail (City of Arcata, 2020).

Characteristics of Odors

Odors generally are regarded as a nuisance rather than a health hazard. However, manifestations of a person's reaction to foul odors can range from psychological (e.g., anger or anxiety) to physiological (e.g., circulatory and respiratory effects, nausea, vomiting, or headache).

The ability to detect odors varies considerably among the population and the odor interpretation is subjective. Some individuals have the ability to smell small quantities of specific substances. Others may not have the same sensitivity but may have sensitivities to odors of other substances. In addition, people may have different reactions to the same odor. An odor that is offensive to one person (e.g., from a fast-food restaurant) may be perfectly acceptable to another. Unfamiliar odors are detected more easily than familiar odors and are more likely to be offensive.

Quality and intensity are two properties present in any odor. The quality of an odor indicates the nature of the smell experience. For instance, if a person describes an odor as flowery or sweet, then the person is describing the quality of the odor. Intensity refers to the strength of the odor. Odor intensity depends
on the odorant concentration in the air. When an odorous sample is progressively diluted, the odorant concentration decreases. As this occurs, the intensity of the odor weakens and eventually

becomes so low that detection or recognition of the odor is difficult. At some point during dilution, the concentration of the odorant reaches a detection threshold. An odorant concentration below the detection threshold means that the concentration in the air is not detectable by the average person (Siskiyou County, 2017).

Odors currently present on a periodic basis in the project area are generated from the AWTF, the AMWS, Humboldt Bay, nearby agricultural operations, and U.S. Highway 101.

Regulatory Setting

Criteria Air Pollutants

The Clean Air Act (CAA) requires the U.S. Environmental Protection Agency (USEPA) to set NAAQS for six common air pollutants (also known as "criteria air pollutants"), which include: ozone, nitrogen dioxide, sulfur dioxide, carbon monoxide, particulate matter (PM_{10} and $PM_{2.5}$), and lead (USEPA, 2020). Concentrations of criteria air pollutants are used as indicators of ambient air quality conditions. The USEPA has established a maximum concentration (air quality standard) for each criteria air pollutant, above which adverse effects on human health may occur. When an area does not meet the air quality standard for one of the criteria air pollutants, it may be subject to the formal rule-making process, which designates it as nonattainment.

The CAA further classifies ozone, carbon monoxide (CO), and particulate matter (PM_{10} and $PM_{2.5}$) nonattainment areas based on the magnitude of criteria air pollutant exceedances in a given area (42 U.S. Code Section 7401 et seq.). Nonattainment classifications may be used to specify what air pollution reduction measures an area must adopt and when the area must reach attainment. The technical details underlying these classifications are described in the Code of Federal Regulations (CFR) "Protection of Environment" (40 CFR Section 81).

The USEPA has established primary and secondary NAAQS for criteria air pollutants. The primary standards are concentrations developed by the USEPA through review of extensive scientific research and are intended to be protective against human health impacts. The secondary standards were developed to protect elements of human welfare vulnerable to degraded air quality such as visibility of air, agriculture, buildings, infrastructure, and livestock.

Adverse health impacts associated with exposure to air pollution have varying degrees of severity depending on the receptor (i.e., each persons' sensitivity) exposed. For example, infants, children, the elderly, and those with preexisting cardiovascular and respiratory disease (e.g., asthma) experience more severe symptoms in response to acute and chronic exposure. However, the USEPA has concluded that the current NAAQS protect the public health, including the at-risk populations, with an adequate margin of safety.

Air pollutants come from various sources, both anthropogenic (i.e., vehicle exhaust, power generation, natural gas-fired electricity generation, and the operation of certain equipment in construction and industry) and biogenic (i.e., vegetation, animals, and even the earth itself). Exhaust emissions from vehicles vary according to driving speed, type of engine (e.g., gasoline or diesel), length of use, and horsepower. Emissions from stationary sources (e.g., fossil fuel burning power plants, food processing plants) are estimated by the amount of natural gas and electricity consumption. Construction and industrial equipment generate pollutant emissions that are highly

variable by type and technology of specific equipment. Vegetation emits volatile organic compounds (VOCs) which are ozone precursors.

A brief description of the six criteria air pollutants noted above is provided below.

Ozone (O_3). Ozone (O_3) is a photochemical oxidant - a substance whose oxygen combines chemically with another substance in the presence of sunlight. In the lower atmosphere, ozone is the primary component of smog. Ozone is not emitted directly into the air but is formed through complex chemical reactions between certain emissions, known as "precursor emissions," in the presence of sunlight. The precursor emissions for ozone are reactive organic gases (ROG) and nitrogen oxides (NOX). ROGs are volatile organic compounds that are photochemically reactive. ROG emissions result primarily from incomplete combustion and the evaporation of chemical solvents and fuels. Common sources of ROG emissions include solvents, pesticides, the burning of fuels, and organic wastes. NOX is a group of gaseous compounds of nitrogen and oxygen that result from the combustion of fuels. Common sources of NOX emissions include emissions from burning of fuel in cars, trucks, buses, power plants, and off-road equipment (USEPA 2020). Ozone located in the upper atmosphere (stratosphere) shields the earth from harmful ultraviolet radiation emitted by the sun. However, ozone located in the lower atmosphere (troposphere) is a major health and environmental concern. As described below, breathing ozone can trigger a variety of health problems, particularly for children, elderly, and people of all ages who have lung disease such as asthma. Ground level ozone can also have harmful effects on sensitive vegetation and ecosystems, including forests, parks, wildlife refuges, and wilderness areas. Ozone can especially cause damage during the growing season (USEPA, 2020).

The adverse health effects associated with exposure to ozone pertain primarily to the respiratory system. Scientific evidence indicates that ambient levels of ozone affect not only sensitive receptors, such as people with asthma and children, but healthy adults as well. Exposure to ambient levels of ozone ranging from 0.10 to 0.40 parts per million (ppm) for one or two hours has been found to substantially alter lung function by increasing respiratory rate and pulmonary resistance, decreasing tidal volume, and impairing respiratory mechanics. Ambient levels of ozone above 0.12 ppm are linked to symptomatic responses that include such symptoms as throat dryness, chest tightness, headache, and nausea. In addition to these adverse health effects, ozone exposure can cause an increase in the permeability of respiratory epithelia (i.e., the thin tissue forming the outer layer of the body's respiratory system); such increased permeability leads to an increase in the respiratory system's responsiveness to challenges and the inhibition of the immune system's ability to defend against infection (Godish, 2004). These effects may lead to increased school absences, medication use, visits to doctors and emergency rooms, and hospital admissions.

Meteorology and terrain play a major role in ozone formation in the troposphere (i.e., at ground level). Generally, low wind speeds or stagnant air coupled with warm temperatures and clear skies provide the optimum conditions for formation; therefore, summer generally is the peak ozone season. Peak ozone concentrations often occur far downwind from the precursor emissions due to the time it takes for reactions to complete. Therefore, ozone is a regional pollutant that often affects large areas. In general, ozone concentrations over or near urban and rural areas reflect an interplay of emissions of ozone precursors, transport, meteorology, and atmospheric chemistry.

Nitrogen Dioxide (NO_2). Nitrogen Dioxide (NO_2) is a brownish, highly reactive gas that is present in all urban environments. The major human-made sources of NO_2 are combustion devices, such as boilers, gas turbines, and reciprocating internal-combustion engines (mobile as well as stationary). Combustion devices emit primarily nitric oxide (NO), which reacts with oxygen in the atmosphere to form NO_2 (USEPA, 2020). The combined emissions of NO and NO_2 are referred to as NOx, which is reported as equivalent NO_2. Since NO_2 is formed and depleted by reactions associated with photochemical smog (ozone), the NO_2 concentration in a particular geographical area may not be representative of the local NOx emission sources.

Inhalation is the most common form of exposure to NO_2, with the principal site of toxicity being the lower respiratory tract. The severity of adverse health effects depends primarily on the concentration of NO2 inhaled rather than the duration of exposure. An individual may experience a variety of acute symptoms, including coughing, difficulty with breathing, vomiting, headache, and eye irritation, during or shortly after exposure. After approximately 4 to 12 hours of exposure, an individual may experience chemical pneumonitis or pulmonary edema, with breathing abnormalities, cough, cyanosis, chest pain, and rapid heartbeat. Severe, symptomatic NO_2 intoxication after acute exposure has been linked on occasion with prolonged respiratory impairment, including symptoms such as chronic bronchitis and decreased lung function.

Sulfur Dioxide (SO_2). Sulfur dioxide (SO_2) is produced by stationary sources like coal and oil combustion, steel mills, refineries, and pulp and paper mills. The major adverse health effects associated with SO_2 exposure relate to the upper respiratory tract. SO_2 is a respiratory irritant, with constriction of the bronchioles occurring with inhalation of SO_2 at 5 parts per million (ppm) or more. On contact with the moist mucous membranes, SO_2 produces sulfurous acid, which is a direct irritant. Concentration rather than duration of the exposure is the most important determinant of respiratory effects. Exposure to high SO_2 concentrations may result in edema of the lungs or glottis and respiratory paralysis (USEPA, 2020).

Carbon Monoxide (CO). CO is a colorless, odorless, and poisonous gas, produced by incomplete burning of carbon in fuels, primarily from internal-combustion engines used for transportation. In fact, 77 percent of nationwide CO emissions are from transportation. The other 23 percent of emissions are from wood-burning stoves, incinerators, and industrial sources.

CO enters the bloodstream through the lungs by combining with hemoglobin, a component of red blood cells, which normally carries oxygen to the red blood cells. CO combines with hemoglobin much more readily than oxygen does, resulting in a drastic reduction in the amount of oxygen available to the cells. Adverse health effects associated with exposure to CO concentrations include symptoms such as dizziness, headaches, and fatigue. CO exposure is especially harmful to individuals who suffer from cardiovascular and respiratory diseases (USEPA, 2020).

The highest CO concentrations generally are associated with the cold, stagnant weather conditions that occur in winter. In contrast to ozone, which tends to be a regional pollutant, CO tends to cause localized problems.

Particulate matter (PM). Particulate matter (PM) is a mixture of solid particles and liquid droplets found in air. PM that is small enough to be inhaled has a diameter of 10 microns or less is referred to

as PM_{10}. PM_{10} consists of particulate matter emitted directly into the air, such as fugitive dust, soot, and smoke from mobile and stationary sources, construction operations, fires, natural windblown dust, and can be formed in the atmosphere by condensation or transformation of SO_2 and ROG (USEPA, 2020). $PM_{2.5}$ includes a subgroup of finer particles that have a diameter of 2.5 microns or less. Generally, adverse health effects associated with PM_{10} may result from both short-term and long-term exposure to elevated concentrations, and may include breathing and respiratory symptoms, aggravation of existing respiratory and cardiovascular diseases, alterations to the immune system, carcinogenesis, and premature death (USEPA, 2020). The adverse health effects associated with PM_{10} depend on the specific composition of the particulate matter.

For example, health effects may be associated with adsorption of metals, polycyclic aromatic hydrocarbons, and other toxic substances onto fine particulate matter (referred to as the "piggybacking effect"), or with fine dust particles of silica or asbestos. $PM_{2.5}$ poses an increased health risk when compared to PM_{10} because the particles can deposit deep in the lungs and are more likely to contain substances that are particularly harmful to human health.

Lead (Pb). Lead is a metal found naturally in the environment as well as in manufactured products. The major sources of lead emissions historically have been mobile and industrial sources. Due to the phase-out of leaded gasoline, as discussed in detail in this section, metal processing currently is the primary source of lead emissions. The highest levels of lead in the atmosphere generally are found near lead smelters. Other stationary sources include waste incinerators, utilities, and lead-acid battery manufacturers.

Twenty years ago, mobile sources (e.g., motor vehicles using leaded fuel) were the main contributor to ambient lead concentrations in the air. In the early 1970s, the USEPA established national regulations to gradually reduce the lead content in gasoline. In 1975, unleaded gasoline was introduced for motor vehicles equipped with catalytic converters. USEPA banned the use of leaded gasoline in highway vehicles in December 1995 (USEPA, 2020).

Due to USEPA's regulatory efforts to remove lead from gasoline, emissions of lead from the transportation sector declined by 95 percent between 1980 and 1999, and levels of lead in the air decreased by 94 percent between 1980 and 1999. Transportation sources, primarily airplanes, now contribute to only 13 percent of lead emissions. A recent National Health and Nutrition Examination Survey reported a 78 percent decrease in the levels of lead in people's blood between 1976 and 1991. This dramatic decline can be attributed to the move from leaded to unleaded gasoline (USEPA, 2020).

Similarly, lead emissions and ambient lead concentrations have decreased dramatically in California over the past 25 years. The phase-out of lead in gasoline began during the 1970s, and subsequent CARB regulations have eliminated virtually all lead from gasoline now sold in California. All areas of the state currently are designated as attainment for state lead standard (USEPA does not designate areas for the national lead standard). Although the ambient lead standards are no longer violated, lead emissions from stationary sources still pose "hot spot" problems in some areas. Therefore, CARB has identified lead as a Toxic Air Contaminant (TAC).

California Ambient Air Quality Standards

In 1959, California enacted legislation requiring the state Department of Public Health to establish air quality standards. California law continues to mandate CAAQS, which are often more stringent than the NAAQS. The CAAQS includes the six criteria pollutants noted above as well as visibility-reducing particulates, hydrogen sulfide, sulfates, and vinyl chloride. A brief description of the four additional pollutants addressed in the CAAQS is provided below.

Visibility-reducing particles. Visibility-reducing particles consist of suspended particulate matter, which is a complex mixture of tiny particles that consists of dry solid fragments, solid cores with liquid coatings, and small droplets of liquid. These particles vary greatly in shape, size and chemical composition, and can be made up of many different materials such as metals, soot, soil, dust, and salt. Major sources: Natural wildfires and biogenic emissions, dust and fume-producing construction, industrial, and agricultural operations, combustion, atmospheric photochemical reactions, and natural activities (e.g., wind-raised dust and ocean sprays).

Sulfates (SO_4). SO_4 is oxidized to SO_2 during the combustion process and is subsequently converted to sulfate compounds in the atmosphere. Major sources: Industrial processes and the combustion of petroleum-derived fuels (e.g., gasoline and diesel fuel) that contain sulfur.

Hydrogen sulfide (H_2S). Hydrogen sulfide is a colorless gas with the odor of rotten eggs. Major sources: Decomposition of sulfur-containing organic substances. It can be present in sewer gas and some natural gas and can be emitted as the result of geothermal energy exploitation.

Vinyl chloride (chloroethene). Vinyl chloride, a chlorinated hydrocarbon, is a colorless gas with a mild, sweet odor. Most vinyl chloride is used to make PVC plastic and vinyl products. Vinyl chloride has been detected near landfills, sewage plants, and hazardous waste sites, due to microbial breakdown of chlorinated solvents.

The California Air Resources Board (CARB) is responsible for setting standards and adopting regulations to achieve the maximum degree of emissions reduction possible from vehicular and other mobile sources at the state level, as well as for state implementation of the CAA. For areas within the State that have not attained air quality standards, the CARB works with local air districts to develop and implement attainment plans to obtain compliance with air quality standards established under both the federal and California CAA.

Toxic Air Contaminants

TACs, referred to at the federal level as hazardous air pollutants (HAPs), are defined as air pollutants that may cause or contribute to an increase in mortality or serious illness or pose a hazard to human health. TACs usually are present in small quantities in the ambient air. However, in some cases, their high toxicity or health risk may pose a threat to public health even at low concentrations. Of the TACs for which data are available in California, diesel PM, benzene, 1,3-butadiene, acetaldehyde, carbon tetrachloride, hexavalent chromium, paradichlorobenzene, formaldehyde, methylene chloride, and perchloroethylene pose the greatest risks. TACs can cause long-term health effects such as cancer, birth defects, neurological damage, and genetic damage; or short-term acute effects such as eye watering, respiratory irritation, rhinitis, throat pain, and headaches.

According to CARB, the majority of the estimated health risk from TACs can be attributed to

relatively few compounds, the most important being particulate matter from diesel-fueled engines (diesel PM) (CARB, 2013). Diesel PM differs from other TACs in that it is not a single substance but rather a complex mixture of hundreds of substances. Although diesel PM is emitted by diesel-fueled, internal combustion engines, the composition of the emissions varies depending on engine type, operating conditions, fuel composition, lubricating oil, and whether an emission control system is present. Statewide, diesel PM emissions account for approximately two percent of the annual average for on-road emissions, while other diesel PM emissions from offroad mobile sources (e.g., construction and agricultural equipment) account for an additional three percent (CARB, 2013). Statewide diesel PM emissions decreased approximately 37 percent from year 2000 to 2010, primarily from implementation of more stringent federal emission standards and cleaner burning diesel fuel (CARB, 2013). CARB anticipates that diesel PM emissions from onroad and other mobile sources (e.g., construction and agricultural equipment) will continue to decrease into 2035. This decrease would also be attributed to more stringent emissions standards and the introduction of cleaner burning diesel fuel.

In addition, asbestos is also considered a TAC. Naturally occurring asbestos, which was identified as a TAC in 1986 by CARB, is located in the existing geology in many parts of California. Naturally occurring asbestos typically occurs in ultramafic rocks with a mineral content of serpentine and amphibole, which are not known to occur in the project area. The U.S. Geological Survey (USGS, 2011) has published mapping identifying areas that are known to contain naturally occurring asbestos (NOA). The mapping indicates that there are several locations within Humboldt County that are known to contain NOA. The project site is located along Humboldt Bay and is not identified as being in close proximity to areas that contain NOA. The closest areas containing NOA are located in inland areas of the County over 10 miles to the east of the project site (USGS, 2011).

North Coast Unified Air Quality Management District

Air quality in the project area is regulated by the North Coast Unified Air Quality Management District (NCUAQMD). The Air District's primary responsibility is to achieve and maintain federal and State air quality standards, subject to the powers and duties of the CARB. As noted above, Humboldt County is designated as "non-attainment" for the state's PM_{10} standard. To address nonattainment for PM_{10}, the NCUAQMD prepared a Draft Particulate Matter Attainment Plan in 1995. The Plan includes a description of the planning area (Air District), an emissions inventory, general attainment goals, and a listing of cost-effective control strategies. The Plan established goals to reduce PM_{10} emissions and eliminate the number of days in which standards are exceeded. The Plan includes three areas of recommended control strategies to meet these goals: transportation, land use, and burning (NCUAQMD, 1995). Control measures for these areas are included in the Draft Attainment Plan and have also been incorporated as policies in the Arcata General Plan Air Quality Element (City of Arcata, 2008).

In determining whether a project has significant air quality impacts on the environment, planners typically apply their local air district's thresholds of significance to projects in the environmental review process. However, the NCUAQMD has not formally adopted significance thresholds for land use or infrastructure projects. Since the NCUAQMD has not adopted significance thresholds, the stationary source thresholds in District Rule 110 (New Source Review and Prevention of Significant Deterioration) are often used in environmental documents for the purposes of determining whether

potential impacts from construction and operation of a project would be significant (NCUAQMD, 2015).

City of Arcata

The City of Arcata General Plan addresses air quality in its Air Quality Element. The City's Air Quality Element has specific Goals and related Policies that primarily address reducing stationary and mobile sources of air pollutants. Since the Proposed Project will not increase the capacity of the AWTF, the Goals and Policies related to operational air quality impacts are not applicable to the Proposed Project. However, the Goals and Polices related to air quality impacts from construction activity would be applicable. Policy AQ-2f of the Air Quality Element contains control measures intended to reduce air quality impacts from construction activity. Implementation of Policy AQ-2f is a standard condition required for all construction projects in the City of Arcata (City of Arcata, 2008).

4.3.2 Environmental Analysis

a) Conflict with or obstruct implementation of the applicable air quality plan? (Less Than Significant)

As described in the Environmental Setting, the project is located in the NCAB and is subject to the jurisdiction of the NCUAQMD. The Air District is currently listed as being in "attainment" or is "unclassified" for all Federal health protective standards for air pollution (ambient air quality standards). However, under State ambient air quality standards, the Air District has been designated "nonattainment" for particulate matter less than ten microns in size (PM_{10}) (NCUAQMD, 2020). PM_{10} air emissions include chemical emissions and other inhalable particulate matter with an aerodynamic diameter of less than 10 microns. PM_{10} emissions include, but are not limited to, smoke from wood stoves, dust from traffic on unpaved roads, vehicular exhaust emissions, and airborne salts and other particulate matter naturally generated by ocean surf. The Proposed Project has the potential to generate PM_{10} during construction activity. Since the Proposed Project will not increase the capacity of the AWTF, the project would not result in the generation of additional PM_{10} during operation beyond the existing baseline condition.

The Air District prepared a Particulate Matter Attainment Plan, Draft Report, in May 1995. This report includes a description of the planning area (Air District), an emissions inventory, general attainment goals, and a listing of cost-effective control strategies. The Air District's Attainment Plan established goals to reduce PM_{10} emissions and eliminate the number of days in which standards are exceeded. The plan includes three areas of recommended control strategies to meet these goals: transportation, land use, and burning (NCUAQMD, 1995). Control measures for these areas are included in the Draft Attainment Plan and have also been incorporated as policies in the Arcata General Plan Air Quality Element (City of Arcata, 2008). Since the Proposed Project would not result in an increase in operational emissions, the control strategies in the Draft Attainment Plan are not applicable to the project. However, as noted above, the Proposed Project will generate PM_{10} during construction activity.

The Air District's Regulation 1 prohibits nuisance dust generation, such as that generated by construction activity. Regulation 1 requires that reasonable precautions shall be taken to prevent

particulate matter from becoming airborne. As is required for all project in City limits, the City's standard condition for controlling dust emissions during construction activity (General Plan Policy AQ-2f [Control Measures 1-10], pgs. 4-47 and 4-48) will be implemented for the Proposed Project (City of Arcata, 2008). Compliance with the existing regulatory requirements in General Plan Policy AQ-2f will minimize dust generation during construction activity and provide consistency with the Draft Attainment Plan.

In compliance with existing regulatory requirements, the Proposed Project would not conflict with or obstruct implementation of an applicable air quality plan. Therefore, the Proposed Project would result in a less than significant impact.

b) Result in a cumulatively considerable net increase in any criteria pollutant for which the Project region is non-attainment under an applicable federal or state ambient air quality standard? (Less Than Significant)

The project is located in NCAB and is subject to the jurisdiction of the NCUAQMD. As discussed above, under State ambient air quality standards, the Air District has been designated "nonattainment" for particulate matter less than ten microns in size (PM_{10}) (NCUAQMD, 2020). As discussed in the Environmental Setting, the NCUAQMD District has not formally adopted significance thresholds for land use or infrastructure projects. Since the NCUAQMD has not adopted significance thresholds, the stationary source thresholds in District Rule 110 (New Source Review and Prevention of Significant Deterioration) are used for the purposes of this analysis to determine the potential impacts from construction and operation of the Proposed Project. If the Proposed Project's construction or operational emissions are below these thresholds, then the project would not result in a cumulatively considerable net increase in any criteria air pollutant and would be considered to result in a less than significant impact. The NCUAQMD stationary source thresholds for criteria air pollutants are shown below in Table 4.3-1 (NCUAQMD, 2015).

Table 4.3-1 NCUAQMD Stationary Source Thresholds

Pollutant	Significance Thresholds	
	Daily (pounds per day)	Annual (tons per year)
Reactive organic compounds	50	40
Nitrogen oxides	50	40
Carbon monoxide	500	100
Sulfur oxides	80	40
Particulate matter (PM_{10})	80	15
Particulate matter ($PM_{2.5}$)	50	10

As with any new development project, the Proposed Project has the potential to generate pollutant concentrations during both construction activities and long-term operation. Both construction and operational emissions for the Proposed Project were estimated using the California Emissions Estimator Model (CalEEMod), which is a statewide land use emissions computer model designed to provide a uniform platform for government agencies to quantify potential criteria pollutant emissions associated with both construction and operations from a variety of land use projects (CAPCOA, 2017). The model can be used for a variety of situations where an air quality analysis is necessary or

desirable, such as CEQA documents. The model applies inherent default values for various land uses, including trip generation rates based on the Institute of Transportation Engineers (ITE) Manual, vehicle mix, trip length, average speed, etc. However, where project-specific data is available, such data should be input into the model. Project-specific information input into the model was derived from project description at the beginning of this document as well as supplemental information provided by the project engineer related to the size of proposed structures and equipment, area of paving, area of vegetation removal, equipment that will be used for construction, number of days for each construction activity, quantities for the import and export of material, and the quantity of demolition debris that will be exported.

Construction-Related Emissions

Construction activities associated with the Proposed Project will result in emissions of ROG, NOx, CO, SOx, PM10, and PM2.5. It is estimated that the project will occur in two phases from 2021 to 2025 and would be fully operational in 2025. Construction-related emissions are expected from the following construction activities:

- Demolition
- Site Preparation
- Grading
- Building Construction
- Trenching
- Paving
- Architectural Coatings (Painting)

The assumptions for equipment use and duration used to estimate construction emissions for Phase 1 and Phase 2 are shown in Tables 4.3-2 and 4.3-3.

Table 4.3-2 Construction Equipment – Phase 1

Phase	Days	Equipment
Demolition	32	1 concrete/industrial saw (8 hrs/day) 1 rubber-tire dozer (8 hrs/day) 3 tractor/loader/backhoes (8 hrs/day)
Site Preparation	10	1 grader (8 hrs/day) 1 tractor/loader/backhoe (8 hrs/day) 1 rubber-tire dozer (7 hrs/day)
Grading	20	1 rubber-tire dozer (6 hrs/day) 1 tractor/loader/backhoe (7 hrs/day) 1 grader (6 hrs/day)
Building Construction	160	1 generator set (8 hrs/day) 2 cranes (6 hrs/day) 1 forklift (6 hrs/day)

		1 tractor/loader/backhoe (6 hrs/day) 3 welders (8 hrs/day) 1 bore/drill rig (6 hrs/day)
Trenching	5	1 tractor/loader/backhoe (8 hrs/day) 2 excavators (8 hrs/day)
Paving	10	1 cement and mortar mixer (6 hrs/day) 1 paver (6 hrs/day) 1 roller (7 hrs/day) 1 tractor/loader/backhoe (8 hrs/day) 1 paving equipment (8 hrs/day)
Architectural Coatings	44	1 air compressor (6 hrs/day)
Source: California Emissions Estimator Model and project plans		

Table 4.3-3 Construction Equipment – Phase 2

Phase	Days	Equipment
Demolition	10	1 concrete/industrial saw (8 hrs/day) 1 rubber-tire dozer (8 hrs/day) 3 tractor/loader/backhoes (8 hrs/day)
Site Preparation	20	1 grader (8 hrs/day) 1 tractor/loader/backhoe (8 hrs/day) 1 rubber-tire dozer (7 hrs/day)
Grading	30	1 rubber-tire dozer (6 hrs/day) 1 tractor/loader/backhoe (7 hrs/day) 1 grader (6 hrs/day)
Building Construction	160	1 generator set (8 hrs/day) 2 cranes (6 hrs/day) 1 forklift (6 hrs/day) 1 tractor/loader/backhoe (6 hrs/day) 3 welders (8 hrs/day) 1 bore/drill rig (6 hrs/day)
Trenching	5	1 tractor/loader/backhoe (8 hrs/day) 2 excavators (8 hrs/day)
Paving	10	1 cement and mortar mixer (6 hrs/day) 1 paver (6 hrs/day) 1 roller (7 hrs/day) 1 tractor/loader/backhoe (8 hrs/day) 1 paving equipment (8 hrs/day)
Architectural Coatings	25	1 air compressor (6 hrs/day)
Source: California Emissions Estimator Model and project plans		

Other assumptions input into the emissions modeling for the Proposed Project include, but are not limited to, the following:

- Material Import – Phase 1 = 880 cubic yards
- Material Import – Phase 2 = 3,350 cubic yards
- Material Export – Phase 1 = 6,200 cubic yards
- Material Export – Phase 2 = 20,000 cubic yards
- Demolition Debris Export – Phase 1 = 206 tons
- Demolition Debris Export – Phase 2 = 80 tons

Tables 4.3-4 and 4.3-5 show the NCUAQMD stationary source thresholds compared to the unmitigated construction emissions that would be generated by Phase 1 and Phase 2 of the Proposed Project.

Table 4.3-4 Daily Construction Emissions (Unmitigated) – Phase 1

Construction Year	Daily Emissions (pounds per day)					
	ROG	NOx	CO	SOx	PM_{10}	$PM_{2.5}$
2021	4.0	43.7	28.2	0.1	12.6	7.0
2022	11.3	20.3	20.0	0.0	1.3	1.0
Significance Threshold	50	50	500	80	80	50
Exceeds Significance Threshold?	No	No	No	No	No	No
Source: NCUAQMD, 2015; CAPCOA, 2017						

Table 4.3-5 Daily Construction Emissions (Unmitigated) – Phase 2

Construction Year	Maximum Daily Emissions (pounds per day)					
	ROG	NOx	CO	SOx	PM_{10}	$PM_{2.5}$
2024	3.5	38.0	27.0	0.1	12.7	6.7
2025	14.4	16.6	19.3	0.0	1.2	0.7
Significance Threshold	50	50	500	80	80	50
Exceeds Significance Threshold?	No	No	No	No	No	No
Source: NCUAQMD, 2015; CAPCOA, 2017						

As indicated in Tables 4.3-4 and 4.3-5, the construction emissions from the Proposed Project are below the NCUAQMD significance thresholds. Therefore, the construction emissions from the Proposed Project would not result in a cumulatively considerable increase of PM_{10} or other criteria air pollutants.

Fugitive dust has the potential to be generated during construction from activities including site preparation, grading, and trenching. Fugitive dust generated from construction activity can result in nuisances and localized health impacts. Construction-related dust emissions typically vary from day to day, depending on the level and type of activity, silt content of construction site soil, and weather conditions. To reduce potential impacts from fugitive dust generation during construction activity,

the City's standard condition for controlling dust emissions during construction activity (General Plan Policy AQ-2f [Control Measures 1-10], pgs. 4-47 and 4-48) will be implemented for the Proposed Project. General Plan Policy AQ-2f requires the following control measures (City of Arcata, 2008):

1) Water all active construction areas twice per day and use erosion control measures to prevent water runoff containing silt and debris from entering the storm drain system.

2) Cover trucks hauling soil, sand, and other loose material.

3) Pave, water, or apply non-toxic soil stabilizers on unpaved access roads and parking areas.

4) Sweep paved access roads and parking areas daily.

5) Sweep streets daily if visible material is carried onto adjacent public streets.

6) Hydroseed or apply non-toxic soil stabilizers to inactive construction areas.

7) Enclose, cover, water, or apply non-toxic soil binders to open materials stockpiles.

8) Limit traffic speeds to 15 mph on unpaved access roads.

9) Install erosion control measures to prevent silt runoff onto public roadways.

10) Replant vegetation in disturbed areas within 30 days after project completion.

Compliance with the existing regulatory requirements in General Plan Policy AQ-2f will minimize dust generation during construction activity and result in less than significant impacts.

Operational-Related Emissions

The Proposed Project would not increase the amount of wastewater treated beyond the existing permitted treatment capacity. In addition, the Proposed Project would not directly or indirectly increase the population or vehicle miles traveled that could result in a permanent increase in ROG or NOx emissions and does not include any other components that would substantially increase long-term operational emissions. The Proposed Project includes converting the AWTF from a chlorine disinfection process to the UV disinfection process. There would be a slight decrease in emissions from truck trips because chemicals would no longer need to be delivered to the AWTF.

Table 4.3-6 shows the NCUAQMD stationary source thresholds compared to the unmitigated operational emissions that would be generated by both Phase 1 and Phase 2 of the Proposed Project.

Table 4.3-6 Daily Operational Emissions (Unmitigated) – Phase 1 and Phase 2

Phase	Daily Emissions (pounds per day)					
	ROG	NOx	CO	SOx	PM_{10}	$PM_{2.5}$
Phase 1 Emissions	0.5	0.5	1.1	<0.1	0.2	0.1
Phase 2 Emissions	0.7	0.5	1.2	<0.1	0.3	0.1
Total Emissions	1.2	1.0	2.3	<0.2	0.5	0.2
Significance Threshold	50	50	500	80	80	50

Exceeds Significance Threshold?	No	No	No	No	No	No
Source: NCUAQMD, 2015; CAPCOA, 2017						

As indicated in Table 4.3-6, the operational emissions from the Proposed Project are below the NCUAQMD significance thresholds. Therefore, the operational emissions from the Proposed Project would not result in a cumulatively considerable increase of PM_{10} or other criteria air pollutants.

In compliance with existing regulatory requirements, the Proposed Project would not result in a cumulatively considerable net increase of any criteria pollutant for which the region is in non-attainment during either construction or operation. Therefore, impacts from the Proposed Project would be less than significant.

c) Expose sensitive receptors to substantial pollutant concentrations? (Less Than Significant)

This discussion addresses whether the Proposed Project would expose sensitive receptors to substantial concentrations of criteria air pollutants or TACs including asbestos, diesel particulate matter (diesel PM) from construction equipment and vehicle traffic, and fugitive dust (PM_{10} and $PM_{2.5}$) from construction activity.

As noted in the Environmental Setting, high concentrations of criteria air pollutants and TACs can result in adverse health effects to humans. Some population groups are considered more sensitive to air pollution and odors than others; in particular, children, elderly, and acutely ill and chronically ill persons, especially those with cardio-respiratory diseases, such as asthma and bronchitis. Sensitive land uses are facilities that generally house more sensitive people (e.g., schools, hospitals, nursing homes, residences, etc.). Since the project site is located on the southern end of the City of Arcata, there are limited sensitive receptors in the project area. The nearest known sensitive receptors to the Proposed Project include residential uses, which are over a quarter mile to the north, and recreationists at the adjacent AMWS and Humboldt Bay Trail (City of Arcata, 2020).

The NCUAQMD has not adopted guidance for health risk assessments or health risk significance thresholds. However, on the NCUAQMD's website, the District recommends the use of the California Air Pollution Control Officers Association (CAPCOA) guidance document entitled "Health Risk Assessment for Proposed Land Use Projects" to assist lead agencies with the requirements of CEQA when projects may involve exposure to TACs. The document primarily focuses on addressing long-term public health risk impacts from and to proposed land use projects. The document does not provide guidance on how risk assessments for construction projects should be addressed in CEQA (CAPCOA, 2009).

Air quality issues occur when sources of air pollutants and sensitive receptors are located near one another. As discussed in the CAPCOA guidance document (2009), there are basically two types of land use projects that have the potential to cause long-term public health risk impacts:

- Land use projects with toxic emissions that impact receptors. Examples of these types of projects include combustion-related power plants, gasoline dispensing facilities, asphalt batch plants, warehouse distribution centers, and quarry operations.

- Land use projects that will place receptors in the vicinity of existing toxic sources. This would occur when residential, commercial, or institutional developments are proposed to be located in the vicinity of existing toxic emission sources such as stationary sources, high traffic roads, freeways, rail yards, and ports.

The following analysis evaluates whether the project would result in construction- or operational-related impacts to sensitive receptors.

Construction

Criteria Air Pollutants. Construction of the proposed improvements to the AWTF includes demolition, site preparation, grading, building construction, trenching, paving, and architectural coating. All of these construction activities have the potential to result in the emission of criteria air pollutants. As indicated in Tables 4.3-4 and 4.3-5, the construction emissions from the Proposed Project are below the NCUAQMD significance thresholds. These thresholds were developed by the NCUAQMD to ensure that stationary sources would not contribute to an exceedance of federal and State ambient air quality standards in the region (NCUAQMD, 2015). As discussed in the Environmental Setting, the USEPA has concluded that the current NAAQS protect the public health, including the at-risk populations, with an adequate margin of safety. Since the construction emissions from the Proposed Project would not exceed the NCUAQMD thresholds, the project would not expose sensitive receptors to substantial concentrations of criteria air pollutants.

Asbestos. As discussed in the Environmental Setting, the U.S. Geological Survey (USGS, 2011) has published mapping identifying areas that are known to contain naturally occurring asbestos (NOA). The mapping indicates that there are several locations within Humboldt County that are known to contain NOA. The project site is located along Humboldt Bay and is not identified as being in close proximity to areas that contain NOA. The closest areas containing NOA are located in inland areas of the County over 10 miles to the east of the project site (USGS, 2011). Therefore, the project site does not contain NOA that could be released during construction activities such as site preparation, grading, and trenching.

Diesel PM. The use of diesel-powered equipment during construction activity would result in emissions of diesel PM, which is a known carcinogen. The majority of heavy diesel equipment used during construction activity would occur during grading of the project site. Exhaust fumes from construction equipment will be isolated to areas immediately surrounding the sources and will dissipate rapidly. It is estimated that grading activity for Phase 1 would occur over an approximately 20-day period and grading activity for Phase 2 would occur over an approximately 30-day period. Residents and other sensitive receptors located within the vicinity of the project site would be exposed to construction contaminants only for the duration of construction activity. These brief exposure periods would substantially limit exposure to hazardous emissions.

In addition, any relevant vehicle or equipment use associated with construction of the project will be subject to CARB standards. The CARB In-Use-Off-Road Diesel Vehicle Regulation applies to

certain off-road diesel engines, vehicles, or equipment greater than 25 horsepower. The regulations: 1) imposes limits on idling, requires a written idling policy, and requires a disclosure when selling vehicles; 2) requires all vehicles to be reported to CARB (using the Diesel Off-Road Online Reporting System, DOORS) and labeled; 3) restricts the adding of older vehicles into fleets starting on January 1, 2014; and 4) requires fleets to reduce their emissions by retiring, replacing, or repowering older engines, or installing Verified Diesel Emission Control Strategies, VDECS (i.e., exhaust retrofits). The requirements and compliance dates of the Off-Road regulation vary by fleet size, as defined by the regulation (CARB, 2011).

Due to the short duration of construction activity requiring heavy diesel equipment, and in compliance with CARB regulations, construction of the Proposed Project would not expose sensitive receptors to substantial concentrations of diesel PM.

Fugitive Dust. Fugitive dust has the potential to be generated during construction from activities including site preparation, grading, and trenching. Fugitive dust generated from construction activity can result in nuisances and localized health impacts. The NCAUQMD Regulation 1 prohibits nuisance dust generation, such as that generated by construction activity. As discussed above, the City's standard condition for controlling dust emissions (General Plan Policy AQ-2f [Control Measures 1-10], pgs. 4-47 and 4-48) will be implemented for the Proposed Project. The Arcata General Plan PEIR concludes that the control measures in Air Quality Element Policy AQ-2f are similar to the most stringent adopted by other agencies in the State, and when implemented, would adequately reduce dust emissions (City of Arcata, 2000).

With the implementation of Policy AQ-2f, the limited duration of construction activities, and the distance of the project site from known sensitive receptors, the Proposed Project will not expose sensitive receptors to substantial concentrations of fugitive dust.

Operation

The project proposes improvements to the existing AWTF, which itself is not considered a sensitive receptor. Although a wastewater treatment facility has the potential to emit odors, it is not generally considered to be a land use that emits substantial quantities of toxic emissions. Any emissions currently being emitted by operation of the AWTF would be considered part of the existing baseline conditions. Since the Proposed Project would not increase the capacity of the AWTF, it would not result in any significant increases in operational emissions.

As indicated in Table 4.3-6, the operational emissions from the Proposed Project are below the NCUAQMD significance thresholds. These thresholds were developed by the NCUAQMD to ensure that stationary sources would not contribute to an exceedance of federal and State ambient air quality standards in the region (NCUAQMD, 2015). As discussed in the Environmental Setting, the USEPA has concluded that the current NAAQS protect the public health, including the at-risk populations, with an adequate margin of safety. Since the operational emissions from the Proposed Project would not exceed the NCUAQMD thresholds, operation of the Proposed Project would not expose sensitive receptors to substantial pollutant concentrations.

In compliance with existing regulatory requirements, construction and operation of the Proposed Project would not expose sensitive receptors to substantial pollutant concentrations. Therefore, impacts from the Proposed Project would be less than significant.

d) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people? (Less Than Significant)

The construction phase of the Proposed Project will include several activities that have the potential to result in odors. Construction of the project would require the use of a variety of gasoline- or diesel-powered equipment that would emit exhaust fumes. The paving proposed by the project also would result in odors from the application of hot asphalt. In addition, the application of architectural coatings (paint) has the potential to result in odors. Odors from these activities may be considered objectionable, however, these odors would be isolated to areas immediately surrounding their sources and would dissipate rapidly. Furthermore, the generation of odors will be temporary and subside once project construction is concluded. Since the project site is located on the southern end of the City of Arcata, there are limited sensitive receptors in the project area. The nearest known sensitive receptors to the Proposed Project include residential uses, which are over a quarter mile to the north, and recreationists at the adjacent AMWS and Humboldt Bay Trail. Therefore, a substantial number of people would not be adversely affected by odors from construction of the Proposed Project.

Operation of a AWTF is a type of land use that would generally be considered to result in odor impacts. The odors currently generated by the AWTF are part of the existing baseline condition. As discussed above, the project does not propose to increase the capacity of the AWTF and, therefore, does not have the potential to result in significant new sources of odors during operation. Therefore, operation of the Proposed Project would not result in odors that would adversely affect a substantial number of people.

Therefore, the Proposed Project would result in a less-than-significant impact on this resource category.

4.3.3 Mitigation Measures

None required.

4.3.4 References

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4.4 Biological Resources

	Potentially Significant Impact	Less-than-Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the Project:				
a. Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?		✔		
b. Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or US Fish and Wildlife Service?		✔		
c. Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?		✔		

d. Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?			✔	
e. Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?			✔	
f. Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?			✔	

4.4.1 Environmental Setting

The Proposed Project is located at the northeast edge of Humboldt Bay. In the late 1800s, much of the Project area was used for various industrial activities (e.g., wharf, railroad, timber transport) and later diked for agricultural purposes (i.e., farming and pasture) and nearby lumber mill operations. The site of the Proposed Project is located primarily on these former filled tidelands at elevations of approximately 10-14 (NAVD 88) feet above sea level and is relatively flat. Surrounding land uses include Humboldt Bay to the south and is primarily surrounded by adjacent salt marsh habitat between the Bay and project improvements. Freshwater wetlands, riparian areas, and agricultural lands are found sporadically within and adjacent to the Project area's Area of Potential Effect (APE) -See Figures 3.2-2 and 3. Jolly Giant Creek/Butcher Slough flows through the Project Area, and Janes Creek/McDaniel Slough is hydrologically connected to proposed Outfall 003. The AMWS is within and adjacent to project improvements. The City's Corporation Yard is co-located and adjacent to the wastewater treatment facility. The South G Street and South I Street areas are to the north and has a mixture of industrial, commercial, residential, and agricultural uses. U.S. Highway 101 is located to the east of the project site. The area within and adjacent to the AWTF receives high public use through numerous trails, parking areas, and access points that provide abundant recreational opportunities.

The AWTF, which includes the AMWS, is part of the coastal Humboldt Bay ecosystem and provides rich coastal habitat. This habitat supports nursery and harvest functions for fish, shellfish, waterfowl, and wildlife species within the expansive bay ecosystem (Barnhart et al, 1992). In

general, estuarine and tidal marsh ecosystems are important coastal habitats characterized by high biotic diversity and high primary productivity. Tidal marshes provide vital habitat for fish and shellfish, as well as waterfowl and water related birds.

The original treatment oxidation ponds were constructed in Humboldt Bay in 1949. Subsequent upgrades to the City wastewater treatment facility included the current AWTP with oxidation ponds, treatment wetlands and the AMWS enhancement marshes, which together comprise the AWTF. Additional upgrades to the Arcata Marsh and Wildlife Sanctuary include the McDaniel Slough project, which included tidal and seasonal freshwater habitat constructed on both City and state property to the west. That project included restoration of tidal function of over 300 acres in the Janes Creek Estuary, construction of Brackish Marsh with tidal exchange, three additional permanent freshwater wetlands, and public trails for passive recreation/wildlife viewing on City property. The McDaniel Slough Project created Brackish Marsh, Eastern Pond, Western Pond, and North Pond, which were formerly grazed pasture prior to construction.

The AWTF is a unique hybrid of wastewater treatment and wildlife habitat. A series of oxidation ponds, treatment wetlands, and enhancement wetlands are used to treat sewage waste. The freshwater marshes also serve as wildlife habitat. With their location adjacent to Humboldt Bay, they are on the Pacific Flyway, a major north-south corridor for migratory birds, extending from Alaska to Patagonia (USFWS, Flyways-Administrative, NR). Arcata's Wastewater Treatment Facility (the Arcata Marsh and Wildlife Sanctuary with the McDaniel Slough addition) has resulted in a net benefit for a variety of wildlife species.

The AMWS-constructed freshwater enhancement wetlands include Allen, Gearheart, and Hauser Marshes. The Treatment Wetlands are located within the AWTP envelope. Water associated with Allen, Gearheart, and Hauser Enhancement Marshes originates from the AWTP. Currently this disinfected and treated wastewater is then pumped back to the AWTP for a second final disinfection, then discharged via an outfall pipe (Outfall 001) into Butcher Slough, which drains to the Arcata Bay section of Humboldt Bay. The Brackish and Western ponds have direct connections (e.g., pipes with tidal flap, adjustable tide gate) to McDaniel Slough and eventually the Arcata Bay section of Humboldt Bay. The McDaniel Slough EIR (SCH 2003022091) (City and CDFG, 2006) noted that one purpose of constructing Brackish Marsh was that the future outfall (Outfall 003) of treated AWTP effluent would discharge into Brackish Marsh some-day. As such, Brackish Marsh is not currently brackish and is awaiting the Proposed Project to fulfill its intended purpose.

The proposed process changes are outlined on the process flow diagram presented in Figure 3.5-1 of the project description. Following completion of Phase 1, up to 5 million gallons per day (mgd) will continue to be pumped through the improved headworks and clarifier before gravity flowing to Oxidation Ponds 1 and 2. Flows between 1 and up to 5 mgd will undergo further treatment through the treatment wetlands and enhancement marshes. Both the treatment wetlands effluent (up to 5 mgd) and the treated/aerated Oxidation Pond wastewater (up to 7.5 mgd) will be pumped to the 9.8 mgd UV system for disinfection prior to discharge to the two discharge points. As a result, up to 9.8 mgd will UV disinfected and will be acceptable to discharge to the Bay at two locations: the new Outfall 003 at the existing Brackish Marsh adjacent to McDaniel Slough (up to 6 mgd), and existing Outfall 001 at Butcher Slough for flows above 6 mgd. (See Figure 4.4-1)

Figure 4.4-1: Existing and Proposed Outfall locations

Figure 4.4-2: Proposed Outfall 003 at the "Brackish Marsh

Biological Resources in Project Area

To determine which species to include in the assessment of potential impacts, a Rarefind5 query of the California Natural Diversity Database (CNDDB) was conducted for known occurrences within the 9 USGS Quadrangles surrounding the project area; a CDFW Biogeographic Information and Observation System (BIOS) viewer species list was generated for the 9 USGS Quadrangles surrounding the project area; and a United States Fish and Wildlife Service (USFWS) Information for Planning and Conservation (IPaC) species list was generated that included the APE. In addition, the California Native Plant Society Inventory of Rare and Endangered Plants of California, 6th Edition, existing City biological surveys and reports for the project area, and previously conducted environmental review documents for nearby similar projects were reviewed. Based on the review of the above-referenced data sources, a list of sensitive species with the potential of being found in the project area is included in section (a) of the Section 3.42 Environmental Analysis below. Further information and analysis is found in both the Biological Assessment (City of Arcata, 2020a) and the Part 58-EA form with attachments (City of Arcata, 2020b).

Stillwater Sciences Wetland Delineation (2020)

A delineation of potential jurisdictional waters and wetlands were conducted by qualified personnel in accordance with the Corps of Engineers Wetlands Guidance (Stillwater Sciences, 2020). The delineation included features that met the definition of waters protected under the Clean Water Act (CWA; and thus subject to United States Army Corps of Engineers [USACE] jurisdiction), the Porter-Cologne Water Quality Control Act (State Water Resources Control Board [SWRCB] jurisdiction), Section 1602 of Streambed Alteration Agreement (California Department of Fish and

Wildlife [CDFW] jurisdiction) and the City of Arcata Local Coastal Program (LCP)/Land Use and Development Guide (LUDG) (LCP jurisdiction). LCP jurisdiction includes one-parameter wetlands within the coastal zone and two-parameter wetlands within the City of Arcata. In addition, any wetland feature delineated within the Coastal Zone was reviewed for consistency against the LCP Coastal Wetland Map and the USFWS NWI map.

A total of 28 data points were sampled in potential USACE- and LCP-jurisdictional wetlands in the Survey area. If a data point met all three wetland parameters, it was considered an USACE wetland; if a point only met one or two wetland parameters, it was considered a LCP wetland; if a point met no wetland parameters, it was considered upland. The survey determined there are a total of 15.9 acres that fall within the definition of a "Wetland." The following table (Table 4.4-1) provides detail on acreage of wetlands within the project area broken down by jurisdiction.

Table 4.4-1 Acreage of Anticipated Wetland Impacts, per Stillwater, 2020.

Description	Acreage
Waters	
Arcata Bay (Humboldt Bay) (W-1) [1, 2]	0.3
Brackish Pond (W-2) [1]	0.1
Western Pond (W-3) [1]	1.8
North Pond (W-4) [3]	0.7
Roadside Ditch (W-5) [1]	<0.1 (0.04)
Tributary to Butcher Slough (W-6)	<0.1 (0.01)
Arcata WWTP enhancement marshes (SW-01 and SW-02)[3, 4]	0.6
AWTF oxidation ponds and treatment marshes (SW-03 through SW-11)	3.0
***Wetlands*[1]**	
Seasonally saturated palustrine persistent emergent wetlands (SS-01 through SS-05)	0.7
Seasonally flooded palustrine persistent emergent wetlands (SF-01)	0.4
Semipermanently flooded palustrine persistent emergent wetlands (SP-01)	<0.1 (0.06)
Seasonally saturated/flooded palustrine broadleaved deciduous scrub-shrub wetlands (BL-01 and BL-04)	0.6
Estuarine regularly flooded persistent emergent wetlands (EP-01 and EP-02)	0.3
Additional LCP-jurisdictional wetlands	
One-parameter wetlands within the City of Arcata Coastal Zone (OP-01)	1.5
One-parameter riparian within the City of Arcata Coastal Zone (R-01 through R-14)	0.8
Two-parameter wetlands within the City of Arcata Coastal Zone (TP-01 through TP-13)	5.0

[1] Subject to Section 404 of the CWA thus under USACE-jurisdiction as well as State- and LCP-jurisdiction.
[2] Subject to Section 10 of the Rivers and Harbors Act and USACE-jurisdictional
[3] Subject to State- and LCP-jurisdiction
[4] The constructed freshwater WWTP enhancement ponds in the Survey area were not considered USACE-jurisdictional waters and are described in Section 3.2.1.2.

In general, due to landscape position and historic land modification, delineated wetlands did not always border a vegetated upland and a wetland data point was not paired. All constructed features (e.g., paved and graveled roads, trails) in the Survey area were delineated as upland. Four staging areas were assessed during the March 12, 2020 wetland delineation. Except for the staging area along the northern end of South I Street, these features were paved and/or graveled areas with frequent use by the public (e.g., vehicle parking, access) and lacked wetland hydrology, hydrophytic vegetation and hydric soils. In general, all paved and graveled areas in the Survey area were delineated as upland developed habitat. Adjacent vegetated habitats of the two staging areas along South G Street were not assessed as the Project activities will not extend beyond the paved/graveled features.

Previous analysis and mitigation of Biological Resources in Project area discussed in McDaniel Slough Restoration Project Environmental Impact Report

The McDaniel Slough Restoration project was a partnership of the City of Arcata, the California Department of Fish and Wildlife (CDFW), the California Wildlife Conservation Board, the US Fish and Wildlife Service (USFW), and the California Coastal Conservancy to restore tidal wetland functions to 205 acres of 240 acres of former tidal salt/brackish marsh and freshwater wetlands adjacent to Humboldt Bay. The project site is located adjacent to the existing AMWS's northwest boundary. This 88-acre City-owned property provides a critical link from the 154-acre AMWS to the CDFG Mad River Slough Wildlife Area (547 acres) located west of Janes Creek/McDaniel Slough. Overall project objectives were to enhance McDaniel Slough/Janes Creek by removing barriers to fish access by deepening historic slough channels, removing failing or obsolete levees, and restoring the tidal estuary. More specific primary project objectives included providing unimpeded access for anadromous fish migration between Humboldt Bay and McDaniel Slough; creating a tidal channel system that maximizes the estuarine fisheries habitat in large high-order subtidal channels; providing connectivity of habitats using "eco levees" to create a gradation between the salt marsh/mudflat habitats and uplands; providing connectivity with existing habitats which also include freshwater meadows, riparian, fresh and brackish marsh) at the AMWS and the CDFG Mad River Slough Wildlife Area; and achieving desired wetland ecological function for the freshwater and brackish water ponds that surrounding the AWTF.

The upgrades to the AWTF and the new outfall location in Brackish Marsh, which drains to McDaniel Slough tiers from the Environmental Impact Report prepared for the McDaniel Slough Restoration Project (City and CDFG, 2006). The proposed location and use of Outfall 003, located in Brackish Marsh, was analyzed in the McDaniel's Slough Environmental Impact Report (EIR). Please refer to that document for more detail on the Biological setting and the environmental analysis for Outfall 003. Much of the Project area has been studied as part of environmental review for the previously described projects and have been continuously studied/monitored. This information, along with past federal and state agency permits/approvals, have been used to inform the analysis of the Proposed Project. Since the McDaniel Slough EIR analyzed the operational impacts of redirecting treated wastewater to McDaniel Slough via Outfall 003, this section will focus on construction impacts.

EIR findings referenced the McDaniel Slough Marsh Restoration/Enhancement Plan (Phillip Williams and Associates, 2002) and included facts relating to WWTP upgrades, including the effect that a new outfall (Outfall 003) would have on the habitats created as part of the McDaniel Slough Restoration Project. It was noted the three newly created freshwater ponds would utilize ground and stormwater and the Brackish Marsh would utilize a mix of treated wastewater discharges and bay water. Islands in the Brackish Marsh were designed, not only to provide roosting and nesting habitat, but to maximize hydraulic mixing of treated wastewater within the Brackish Marsh, which was created to extend the estuarine conditions of the McDaniel Slough and provide a muted tidal exchange after the construction of Outfall 003, which would serve as a necessary freshwater input.

Regulatory Setting

In general, federal, state and local agencies all have, in one form or another, policies and/or ordinances addressing the loss of wetland and 'wetted' lands. Most call for a "no net loss" of wetlands. When wetlands are to be lost and/or filled as a result of project implementation, the loss needs to be mitigated by creation of habitat of equal or greater value. Wetland impacts (Waters of the State [WOTS], Waters of the United States [WOTUS]) are subject to permit approval from both state and federal agencies, and the permit applications will be required to include project-specific

mitigation proposals. Much of the Project area has been studied, as part of environmental review for the previously described projects and have been continuously studied/monitored. These past projects have received past federal and state agency permits/approvals, which have been used to inform the currently Proposed Project. Certain features at the AWTF have been determined by previous permits to be, or not be, WOTS or WOTUS, as defined in Table 4.4-2.

Table 4.4-2 Jurisdictional Classification Related to 'Wet" Areas

Feature	WOTS	WOTUS
Oxidation Ponds	No	No
Treatment Wetlands	No	No
Enhancement Wetlands	Yes	No
Brackish Marsh	Yes	Yes

As the site is located in an environmentally sensitive coastal habitat area and will affect wetlands and WOTS and WOTUS, the following regulatory agencies have jurisdiction over elements of the Proposed Project's development. These agencies and their oversight of the project are briefly discussed below.

City of Arcata. The City of Arcata (2008) General Plan supports a "no net loss" policy with respect to wetlands and wetland values, encourages enhancement of wetlands, and is in favor of wetland mitigation, including enhancing or replacing wetlands, if the wetland values lost to development can be replaced (City of Arcata, 2008a).

The City of Arcata General Plan's Resource Management and Conservation Element establishes policies to protect biological resources within City limits including protected streams and wetlands (City of Arcata, 2008b). Applicable policies include:

- RC-1a Maintain biological and ecological integrity.
- RC-1c Habitat value protection.
- RC-1d Sensitive habitat definition.
- RC-2c & RC-3d Allowable uses and activities in Environmental Buffer Area.
- RC-2g Maintenance of streams as natural drainage systems.
- RC-3k Wetland functional capacity maintenance requirement. The Resource Conservation & Management Element designates environmentally sensitive habitat areas (ESHAs) that includes the Bay and the AMWS, and limits activities within and adjacent to these areas.
- RC-3i Management of Arcata Marsh for wetlands values as well as wastewater treatment.
- Policy RC-1c: Habitat Value Protection. Mandates that ESHAs be protected against any significant disruption of their habitat values.
- Policy RC-3k: Requires that diking, filling, or dredging of a wetland shall maintain or enhance the functional capacity.

The "Arcata Creeks Management Plan" (1991) guides "Management of creeks that flow through Arcata in order to provide the fullest realization of the creeks' beneficial uses" which includes freshwater habitat, riparian habitat, scenic enjoyment, water quality, education, fish habitat, open space, and marine habitat.

The City of Arcata has a Stormwater Best Practices Manual as well as Municipal Code Sections (Title VII Chapter V Articles 2 and 3) that apply to all construction projects to minimize impacts to wetlands and other ESHA, including vegetation disturbance and water quality protection. These will apply to the Proposed Project. The City will also adhere to the City's Water Quality Ordinance No. 1319 and Grading Ordinance No. 1355.

California Department of Fish and Wildlife (CDFW). CDFW has jurisdiction over alterations to lake or stream beds, banks, or channels under California Fish and Game Sections 1600-1616. Permitting for construction that is outside of the wastewater treatment flow process may require meeting CDFW standards addressing impacts to habitats, vegetation removal, water quality, and mitigation and monitoring. As mentioned previously, CDFW (formerly CDFG) was a partner in the development of the McDaniel Slough Restoration Project and EIR, which anticipated the use of Brackish Marsh for discharge of treated wastewater and the anticipated beneficial uses of this water to the overall Restoration Project.

North Coast Regional Water Quality Control Board (NCRWQCB). Projects within California are subject to compliance to the Wetlands Program, consistent with the Porter-Cologne Water Quality Control Act to minimize impacts to WOTS. Federally permitted projects are also subject to a Clean Water Act Section 401-water quality certification from the NCRWQCB to minimize impacts to WOTUS. Because the project will affect both federal jurisdictional wetlands, a 401-certification and compliance with the State Wetlands Program from the RWQCB will be required.

California Coastal Commission (CCC). Pursuant to the California Coastal Act, the CCC has jurisdiction over activities defined as "development" within the Coastal Zone retained state jurisdiction, and the City of Arcata has jurisdiction over activities defined as "development" within the Coastal Zone local jurisdiction. The project is considered "development," and will require the project to obtain a Coastal Development Permit (CDP) from the CCC. Section 30000 of the California Coastal Act defines 'wetlands' as: *"lands within the coastal zone that may be covered periodically or permanently with shallow water and include saltwater marsh, freshwater marshes, open or closed brackish water marshes, swamps, mudflats, and fens."* For coastal development permits issued by the CCC involving wetlands and ESHAs, Section 13577 of the Commission's Administrative regulations (14 CCR 13000 et seq.) defines 'wetlands' as extending 100 feet landward of the upland limit of the wetland area.

All wetland features in the 2020 Stillwater Sciences Wetland Delineation (Stillwater Sciences, 2020) were evaluated for potential Coastal Commission-jurisdiction wetlands, which requires that only one or two of the three USACE wetland parameters (hydrophytic vegetation, hydric soils, and/or wetland hydrology) be present (1976 California Coastal Act, Public Resources Code Section 30000 et seq., City of Arcata, 2008).

US Army Corps of Engineers (USACE). The USACE, under provisions of Section 404 of the Clean Water Act (1972) and Section 10 of the Rivers and Harbors Act (1899), has jurisdiction over WOTUS. These waters include waters subject to the ebb and flow of the tide, all interstate waters, jurisdictional wetlands, and all other navigable waters (intrastate lakes, rivers, streams, mudflats, sand flats, playa lakes, natural ponds, etc.). Construction activities within jurisdictional waters are regulated by the USACE. Because the project will affect jurisdictional wetlands, a Section 404 Permit from the USACE will be required. USACE permitting also requires water quality certification pursuant to Section 401 of the Clean Water Act. The SWRCB is the state agency charged with implementing water quality certification in California.

A three-parameter wetland with a direct hydrological surface connection to a jurisdictional water in a typical year is considered an USACE jurisdictional wetland (i.e., adjacent wetlands). A USACE standard wetland delineation was conducted by Stillwater Sciences (Stillwater Sciences, 2020) for the project area, as discussed below.

The US Fish and Wildlife Service (USFWS) and National Marine Fisheries Service (NMFS). USFWS and NMFS have jurisdiction over species listed as threatened or endangered under the Federal Endangered Species Act (ESA). NMFS jurisdiction is limited to marine species. NMFS also has jurisdiction over Essential Fish Habitat governed by the Magnuson-Stevens Fisheries Conservation and Management Act. Because portions of the project are federally funded and issuance of a Section 404 Permit is considered a Federal Action, the project will be required to comply with Section 7 of the Federal ESA.

Additionally, the Project is subject to the following Federal and State plans:

1) North American Waterfowl Management Plan (USFWS, updated 2004).
The North American Waterfowl Management Plan calls for protection, restoration and enhancement of wetlands and waterfowl habitat.

2) Pacific Coast Joint Venture Strategic Plan (CAPCJVSP et al., 2004).
The Pacific Coast Joint Venture Strategic Plan calls for the following actions in the Humboldt Bay Region:

- Restore diked former tidelands where feasible and appropriate;
- Restore or enhance floodplain riparian forests;
- Support creation of wetlands for wildlife habitat and water quality management where feasible and appropriate; and
- Acquire additional wetland areas from willing sellers.

3) USFWS Coastal Program–Humboldt Bay North Coast Region Coastal Program (USFWS, 2005). The USFWS Coastal Program lists Humboldt Bay as one of 18 high-priority coastal habitats in the United States.

Figure 4.4-3: National Wetlands Inventory of Survey Area (Stillwater Sciences, 2020)

4.4.2 Environmental Analysis

a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service? (Less-Than-Significant Impact with Mitigation Incorporated).

The objective of the proposed WWTF improvements is to improve the quality of treated and discharged effluent into the Bay. The Proposed Project improvements that could potentially impact biological resources during construction activities include vegetation maintenance and limited removal within Treatment and Enhancement Marshes, rerouting of underground pipelines and electrical conduit, construction of Outfall 003, removal of a bridge deck over Butcher Slough, raising levee elevations above flood elevations, and construction of proposed wetland mitigation areas and areas temporarily disturbed by construction activities such as staging and stockpiling areas. Post-construction biological impacts are not expected to be substantially different from the current environmental setting. The McDaniel Slough EIR (City, CDFG, 2006) found that:

- *The new brackish pond would be filled with a mix of treated wastewater and tidal water from Humboldt Bay. The inflow would range from 1-6 cubic feet per second depending upon the season. This new discharge point must be amended into the City's permit with the California Regional Water Quality Control Board.*
- *Routing a portion of the marsh system treated wastewater to the project site would create additional brackish conditions in a portion of the project area. Thereby additional habitat enhancement value would be derived from treated wastewater.*
- *Utilizing McDaniel Slough as an additional discharge point for treated wastewater will not impact the existing freshwater marshes at the AMWS. There will be a decrease in freshwater discharge to Humboldt Bay south of Butcher Slough. Impacts to fish and wildlife at this location are not expected to be significant.*
- *Anadromous fish access Butcher Slough/ Jolly Giant Creek during high stream flow periods. The wastewater discharge point is not likely a key attractant flow for fish as it is not in the main entrance to Butcher Slough and fish migrate during winter runoff periods.*
- *The current wastewater discharge during low tide is onto mudflat areas that do not support terrestrial vegetation.*
- *The new treated wastewater discharge point at the brackish marsh will increase the area estuarine conditions in McDaniel Slough that may result in an increase in food sources for fish. The brackish marsh area will be controlled with tidal inlet/outlet structures that provide for a muted tidal exchange. Low summer discharge to the brackish marsh will be equivalent*

to the natural discharge of nearby Jolly Giant Creek. The pipes will be installed to create conditions that provide shallow water fish habitat.

- *The current wastewater discharge point to Humboldt Bay south of Butcher Slough will be maintained although there will be a decrease in the amount of treated wastewater discharged at that point.*
- *The project would result in a beneficial impact to waterfowl and shorebirds by including construction of freshwater ponds, and restoration/enhancement of brackish and salt marsh habitat. The brackish marsh will provide for increased aquatic invertebrates that serve as a food source. During construction, the project would include design features to mitigate any impacts to a less-than-significant level. The project would include operation of heavy equipment within wetland habitat where avian species are known to occur.*

The majority of AWTF improvements that have the potential to impact the natural environment will take place in Phase 1. Phase 1 includes flow reconfiguration and treatment plant rehabilitation elements, including changes to the Oxidation Ponds configuration, increasing the elevation of surroundings levees, rerouting underground pipelines and electrical conduit, construction of Outfall 003, construction of an oxidation ditch and other secondary treatment improvements, treatment and enhancement wetland improvements (such as Hauser Enhancement Wetland improvements at the southern end and baffles between islands in Gearheart and Allen Enhancement Wetlands to improve wastewater routing), removal of an old bridge deck over Butcher Slough, and constructing proposed wetland mitigation areas and areas disturbed by construction activities such as staging and stockpiling areas.

Phase 2 work will include a new oxidation ditch, approximately 32,000 ft.^{2} in size, to be used for secondary treatment of wastewater. Phase 2 also includes consolidation and relocation of several elements of the City Corporation Yard, including the composting facility, which will remain within the AWTP footprint. Other Phase 2 improvements will be related to miscellaneous site improvements to address aging infrastructure and are generally limited to electrical instrumentation and control facilities improvements. All of Phase 2 improvements are contained in the existing developed portions of the AWTP/Corporation Yard and are not anticipated to have biological impacts other than construction timing-related impacts, discussed later. Further information and analysis is found in both the Biological Assessment (City of Arcata, 2020a) and the Part 58-EA form with attachments (City of Arcata, 2020b).

To determine which **candidate, sensitive, or special-status** species may be impacted by project elements, the following resources and studies were utilized:

1) Rarefind5 query of the CNDDB for known occurrences within the 9 USGS Quadrangles within and adjacent to the project area;

2) CDFW BIOS viewer species list for the 9 USGS Quadrangles within and adjacent to the project area;

3) USFWS IPaC Species list that includes the APE;
4) California Native Plant Society Inventory of Rare and Endangered Plants of California, 6th Edition;

5) Existing City biological surveys and reports for the project area; and

6) Previously conducted environmental review documents for nearby similar projects were reviewed.

As mentioned previously, the upgrades to the AWTF and the new outfall location in Brackish Marsh, which drains to McDaniel Slough, tiers from the EIR prepared for the McDaniel Slough Restoration Project (City and CDFG, 2006). The proposed location and use of Outfall 003, located in Brackish Marsh, was analyzed in the McDaniel Slough EIR. Please refer to that document for more detail on the Biological environmental analysis for Outfall 003. Much of the Project area has been studied as part of environmental review for the previously described projects and have been continuously studied/monitored. This information, along with past federal and state agency permits/approvals, have been used to inform the analysis of the currently Proposed Project.

Table 4.4-3 outlines special status species that may be present within the project area based on the above information that could be directly or indirectly impacted by the Proposed Project. Discussion of potential impacts for each species can be found following Table 4.4-3.

Table 4.4-3 Special-status Species with Suitable Habitat

Scientific Name	Common Name	Status[1]	Description/Habitat	Potential Habitat Present
Aquatic Species				
Eucyclogobius newberryi	tidewater goby	SSC, FE	Shallow lagoons and coastal streams with brackish to fresh and slow-moving or fairly still water.	Yes (CH)
Oncorhynchus tshawytscha pop. 17	chinook salmon - California coastal ESU	FT	Spawn and rear in coastal and interior rivers in Northern California and Southern Oregon, and forage in vast nearshore and marine zones of the Northern Pacific Ocean.	Yes (CH)
Oncorhynchus kisutch pop. 2	coho salmon - southern Oregon / northern California ESU	FT, ST	Coho spawn in Humboldt Bay tributary watersheds, and juveniles and yearlings spend various amounts of time in the freshwater/estuary transition zone, averaging about a month up to two months, with spring being the heaviest time of use. Spend the remainder of their lives in marine habitats.	Yes (CH)
Oncorhynchus mykiss irideus	steelhead - northern California DPS	FT	Anadromous trout. Spawn and rear in freshwater rivers and streams. Requires cool water temperatures for spawning, egg incubation, and rearing. Spend remainder of lifecycle in marine habitats.	Yes (CH)
Thaleichthys pacificus	eulachon	FT	Anadromous smelt. Spawning occurs in the lower reaches of streams from December to June. Juveniles move fairly quickly into estuarine areas, and then into deeper offshore waters up to 180 meters in depth.	Yes
Acipenser medirostris	green sturgeon	SSC, FT	Anadromous fish, which spawn and rear in freshwater environments and spend the remainder of their lifecycle in saltwater habitats.	Yes (CH)
Entosphenus tridentatus	Pacific lamprey	SSC	Hatches in freshwater and spends its early life in the bottom sediments of rivers. Adults usually stay in the ocean near the shore, and then return to freshwater to spawn.	Yes
Oncorhynchus clarkii clarkii	coast cutthroat trout	SSC	Small, slow coastal freshwater streams, estuaries and bays.	Yes
Spirinchus thaleichthys	longfin smelt	ST	Anadromous fish occupying bays, estuaries, and near-shore coastal environments from San Francisco, CA to Oregon.	Yes
Reptiles				
Emys marmorata	western pond turtle	SSC	Permanent and intermittent waters of rivers, creeks, small lakes and ponds, marshes, unlined irrigation canals, and reservoirs. Sometimes this turtle is found in brackish water. It often basks on logs, vegetation mats, or rocks.	Yes

Scientific Name	Common Name	Status[1]	Description/Habitat	Potential Habitat Present
Amphibians				
Rana aurora	northern red-legged frog	SSC, FT	Permanent ponds, marshes, stream pools and the like. They are often found in wet areas away from water.	Yes
Birds				
Asio flammeus	short-eared owl	SSC	Suitable habitats may include salt- and freshwater marshes, irrigated alfalfa or grain fields, ungrazed grasslands. and old pastures.	Yes
Chaetura vauxi	Vaux's swift	SSC	Hollow trees and chimneys for nests and roosts.	Yes
Circus hudsonius	northern harrier	SSC	Open grasslands, agricultural fields, and marshes throughout much of North America. They are ground nesters, building nests in areas where the ground vegetation is sufficient to allow cover.	Yes
Coccyzus americanus	Yellow Billed Cuckoo	FT	Dense riparian vegetation	Yes
Coturnicops noveboracensis	yellow rail	SSC	Inhabit wet meadows and coastal tidal marshes during winter.	Yes
Elanus leucurus	white-tailed kite	FP	Found in brushy grasslands and agricultural areas with low ground cover, as well as grassy foothills, marsh, riparian, woodland, and savanna. This species requires tall alders, willows, or other broad-leaved deciduous trees for nesting. Locally, they are also known to nest in conifers.	Yes
Empidonax traillii	Willow Flycatcher	SE	Nest in low shrubs, often willow, usually near water. Riparian forests during migration.	Yes
Falco peregrinus anatum	American peregrine falcon	FP	Wide range of habitats from wetlands, deserts, forests and islands. In California, breeding habitats include a variety of locations from cliffs in uninhabited areas to tall buildings or bridges.	Yes
Haliaeetus leucocephalus	bald eagle	SE, FP	Bald eagles in winter may be found throughout most of California at lakes, reservoirs, rivers, and some rangelands and coastal wetlands. The State's breeding habitats are mainly in mountain and foothill forests and woodlands near reservoirs, lakes, and rivers.	Yes

Scientific Name	Common Name	Status[1]	Description/Habitat	Potential Habitat Present
Icteria virens	Yellow-breasted Chat	SSC	Breed in dense shrubby areas, often on edges of streams and ponds, winter in riparian forests and shrubby tropical areas.	Yes
Passerculus sandwichensis alaudinus	Bryant's savannah sparrow	SSC	Low tidally-influenced habitats (1-3m), adjacent ruderal areas, moist grasslands within and just above the fog belt, and, infrequently, drier grasslands.	Yes
Pelecanus occidentalis californicus	California brown pelican	FP	River mouth/tidal river, Lagoon, Scrub-shrub wetland, Bay/sound, Near shore Marine.	Yes
Riparia riparia	bank swallow	ST	They nest in sand, dirt, or gravel burrows in tops of banks, often near streams, and return to the same nesting vicinity each year.	Yes
Mammals				
Corynorhinus Plecotus townsendii	Townsend's big-eared bat	SSC	Roost in caves, prefer coniferous and deciduous forest. Moth specialist, aerial forager.	Yes
Plants				
Lilium occidentale	*Western lily*	CNPS 1B.1	sphagnum bogs, thicket openings along the margins of ephemeral ponds	*Yes*
Angelica lucida	sea-watch	CNPS 4.2	Coastal strand, coastal salt marsh; flowers May-Sept.	Yes
Castilleja ambigua var. *humboldtiensis*	Humboldt Bay owl's-clover	CNPS 1B.2	Coastal salt marsh and swamps; flowers April-Aug.	Yes
Carex lyngbyei	Lyngbye's sedge	CNPS 2B.2	Brackish or freshwater marshes and swamps; flowers May-Aug.	Yes
Glehnia littoralis ssp. *leiocarpa*	American glehnia	CNPS 4.2	Coastal dunes; flowers May-August.	No
Listera cordata	heart-leaved twayblade	CNPS 4.2	Bogs and fens; flowers Feb-July	No
Mitellastra caulescens	leafy-stemmed mitrewort	CNPS 4.2	Meadows and seeps; flowers March-Oct.	No
Pityopus californicus	California pinefoot	CNPS 4.2	NC conifer forest clearings near coast, disturbed areas. flowers May-Sept.	No
Pleuropogon refractus	nodding semaphore grass	CNPS 4.2	Meadows and seeps, NC conifer forest, riparian; flowers Mar-Aug.	No
Sidalcea malachroides	maple-leaved checkerbloom	CNPS 4.2	NC conifer forest clearings near coast, disturbed areas; flowers Mar-Aug.	No

Scientific Name	Common Name	Status[1]	Description/Habitat	Potential Habitat Present
Sidalcea malviflora ssp. *patula*	Siskiyou checkerbloom	CNPS 1B.2	Openings in redwood & open coastal forests; coast scrub and prairie; flowers late May-June.	No
Sidalcea oregana ssp. *eximia*	coast checkerbloom	CNPS 1B.2	North coast coniferous forests; Meadows and seeps; Lower montane coniferous forests.	Yes
Chloropyron maritimum ssp. *palustre*	Point Reyes bird's-beak	CNPS 1B.2	Annual hemi-parasitic herb occurs in coastal salt marsh. The blooming period extends from June to October.	Yes
Spergularia canadensis var. *occidentalis*	western sand-spurrey	CNPS 2B.1	Coastal salt marshes and swamps; flowers June-Aug.	Yes
Viola palustris	alpine marsh violet	CNPS 2B.2	Coastal scrub and coastal bogs and fens; flowers March-August.	Yes

1. FE – Federally Endangered
FT – Federally Threatened
SE – State Endangered
ST – State Threatened
SSC – State Species of Special Concern
0.1-Seriously threatened in California (over 80% of occurrences threatened / high degree and immediacy of threat)
FP – State Fully Protected
CNPS 1 – California Rare Plant Rank 1
CNPS 2 - California Rare Plant Rank 2
CNPS 4 - California Rare Plant Rank 4
0.2-Moderately threatened in California (20-80% occurrences threatened / moderate degree and immediacy of threat)

Special-status Aquatic Species

Potential Impacts to listed aquatic species are limited to activities associated with construction of Outfall 003 in Brackish Marsh, the Oxidation Pond, the Treatment Marshes, and the three Enhancement Wetlands.

In 2006, The City of Arcata approved the McDaniel Slough Restoration EIR (SCH 2003022091) (City and CDFG, 2006), which included analysis of potential environmental effects of Outfall 003, and Brackish Marsh upon the AMWS and greater habitat area. Biological impacts analyzed in the McDaniel Slough EIR share many similarities to the biological impacts that may result from the construction of Outfall 003, including impacts to the tidewater goby and salmonids. Analysis concluded the new treated wastewater discharge point at Brackish Marsh will improve the area estuarine conditions in McDaniel Slough by creating a new freshwater input that will result in an increase in food sources for fish, and by providing the estuarine conditions critical for tidewater goby, salmonids, and a variety of other aquatic species (City and CDFG, 2006.) The Brackish Marsh area is controlled with tidal inlet/outlet structures that will provide for a muted tidal exchange after construction of Outfall 003 is complete. Low summer discharge to the Brackish Marsh will be similar to the natural discharge of nearby Jolly Giant Creek. The determination of the McDaniel Slough EIR was that if properly mitigated for construction impacts, the project would result in less-than-significant impacts to fish and their habitat. The following outfall design features, as

documented in the McDaniel Slough EIR, were intended to be incorporated into the AWTF upgrade project as mitigation to reduce the impacts of construction to less than significant:

- *Construction activities occurring within the watercourse would occur following recommendations from qualified CDFG biologists.*

- *In-stream work will be done during the dry season at low tide with a fish biologist on-site during in-stream operations to monitor for the presence of anadromous fish and other wildlife species.*

- *Consult with the USFWS regarding Tidewater Goby.*

- *Consult with the NOAA Fisheries regarding salmonids.*

These measures have therefore been incorporated into this project to reduce impacts to aquatic species in the project area and included as Mitigation Measure Biol-1.
An additional mitigation measure (Biol-2) has been added to address impacts related to construction activity (water quality, presence) on aquatic fish species to reflect the City's standard practices to minimize impacts in aquatic environments.

Mitigation Measure Biol-2
Potential impacts to aquatic species are limited to activities associated with construction of Outfall 003. The City's standard practices include the following to minimize impacts; 1) the work area will be isolated during construction; 2) In-water construction activities required to isolate the work area will be scheduled during low tides between June 15 and September 15, when species are least likely to be present; 3) a qualified biologist will survey the area and relocate any fish species before commencement of construction activities; and 4) consistent with the City of Arcata's Stormwater Best Management Practices Manual, the City's stormwater ordinance, and the SWRCB's construction general permit, Standard best management practices will be implemented to prevent sedimentation and/or turbidity from entering WOTS or WOTUS.

Following is an analysis of potential impacts to each aquatic species with suitable habitat within a portion(s) of the project area.

Tidewater goby (*eucyclogobius newberryi*): The tidewater goby is generally found in fresh or low salinity (brackish) water (less than ten parts per thousand [ppt]) of shallow (less than one meter) lagoons, coastal wetlands, and lower stream reaches where the water is fairly still but not stagnant. The preferred habitat for both spawning (usually occurs spring to early summer) and juveniles is slack, shallow water, seasonally disconnected from the ocean or tidally muted lagoons, estuaries, and sloughs. High-water refugia for juveniles and adults include "perched" habitats, off-channel sloughs, and pockets of still water. Threats at numerous sites with suitable habitat in Humboldt Bay include operation of tide gates to control water flow, grazing, oil spill contamination, contamination from adjacent paper and lumber mill sites, highway construction and maintenance, alteration of stream flood flows, and possibly sedimentation. The Primary Constituent Elements (PCEs) for tidewater goby are 1) Persistent, shallow (~0.1- 2m), still to slow moving water with 0.5-20 ppt salinity; 2)

Silt, sand and mud substrates that can be used for burrows; 3) Vegetative protection of submerged and emergent species (e.g. *Potamogeton pectinatus, Ruppia maritima, Typha latifolia,* and *Scirpus* spp.); and 4) Sandbar(s) that close (fully or partially) an estuary or lagoon during late spring to fall for stable salinity and water flow (NOAA, 2013). In 2013, USFWS designated Brackish Marsh as Critical Habitat for tidewater goby (78 FR 8745). Tidewater goby presence has been documented in Brackish Marsh as part of McDaniel Slough survey efforts (City of Arcata, 2017), including near the proposed location of Outfall 003.

The WWTP upgrade ensures that Outfall 003 will consistently meet Humboldt Bay discharge standards and will be an expansion of the City's beneficial use of wastewater.

During the environmental review of the McDaniel Slough project, the construction of Brackish Marsh was determined to provide habitat conditions suitable for tidewater goby by providing a freshwater input. As part of the McDaniel Slough Project, Brackish Marsh was excavated to appropriate elevations for mixing bay water with treated wastewater to create the brackish wetland habitat. Up to 7 cubic feet per second (CFS) of treated wastewater was planned to be gravity fed to Brackish Marsh. Flow volumes were planned to be managed to mimic natural seasonal fluctuations in other Humboldt Bay tributaries. The Brackish Marsh Outlet 003 is adjustable in order to mute the tidal cycle and to provide flexibility to adjust salinity to desired ranges. Desired salinity ranges of 5-10 ppt within Brackish Marsh will be suitable for tidewater gobies.

The finding that tidewater goby habitat will be improved through construction and maintenance of Outfall 003 was also supported by analysis undertaken in 2008 by the USFWS in a formal biological opinion created in consultation with the USACE regarding the McDaniel Slough Wetland Enhancement Project. It was determined that some elements of the Restoration would involve a small incidental take of tidewater goby, but Brackish Marsh and the planned Outfall 003 would have a net beneficial impact on tidewater goby. This beneficial effect included approximately 6 acre (ac) (2.4 hectare [ha]) of habitat with depth and diversity, and an expected range of suitability for the tidewater goby. (USACE, 2008a).

More specifically, impacts to tidewater goby identified in the McDaniel Slough EIR were mitigated to less-than-significant level with the incorporation of the following mitigation measure: *"3.2.2d: Consult with the U.S Fish and Wildlife Service regarding Tidewater Goby"*. The issuance of the Biological Opinions that determined that the project, including its minimization measures, would not likely adversely affect tidewater goby, fulfilled the requirements of the McDaniel Slough mitigation measures identified in the EIR.

The WWTF project, which includes the construction of Outfall 003 into Brackish Marsh, will fulfill the portion of the McDaniel Slough Project, and its associated Biological Opinions, that has yet to be constructed.

To ensure that construction methods and the design of Outfall 003 do not adversely impact tidewater goby, a similar mitigation measure will be re-incorporated into this document. Undergoing the Section 7 Consultation process will enable USFWS to determine avoidance and minimization to ensure impacts to tidewater goby remain less than significant.

With the City's standard mitigation measure for work within aquatic habitats (Mitigation Measure Biol-2), impacts to this species would be less than significant.

Additionally, the City will be required to comply with Section 7 of the Federal ESA, which requires consultation with the NMFS to ensure this species and designated critical habitat within the project area is not adversely impacted as a result of project activities.

CA coastal Chinook salmon *(Oncorhynchus tshawytscha):* Critical Habitat for this species in Humboldt Bay is defined by "The perimeter of the water body as displayed on standard 1:24,000 scale topographic maps or the elevation of extreme high water, whichever is greater" (50 CFR 226.211), which includes the portions of the APE that are within Brackish Marsh. The California Coast ESU Chinook salmon are fall-run, ocean-type fish. Chinook salmon usually enter rivers from August to January at an advanced stage of maturity (Caltrans, 2015a). They move rapidly to their spawning areas on the main stem or lower tributaries of rivers and spawn within a few weeks of freshwater entry (Healey, 1991). Run timing is, in part, a response to stream flow characteristics, with most spawning occurring in November and December (Caltrans, 2015b). In California, ocean-type Chinook salmon tend to use estuaries and coastal areas for rearing more extensively than stream-type Chinook salmon (Thorpe, 1994). Generally, juveniles begin migrating to sea shortly after emerging. Freshwater residence, including outmigration, usually ranges from two to four months (Caltrans, 2015a).

No recent Chinook spawning has been documented in the tributaries of North Humboldt Bay. Juvenile Chinook salmon have been irregularly captured in small numbers in Freshwater Creek Slough to the south (Caltrans, 2015a). As part of the McDaniel Slough monitoring efforts, bimonthly fish surveys were conducted on a regular basis from 2014-2017. No Chinook were documented within the survey area. However, because the portions of Brackish Marsh are influenced by tides, it is possible that non-natal juvenile Chinook salmon periodically occur in the Brackish Marsh, although they are likely to be limited in number and their residence time, given their ocean-type life history.

With the City's standard mitigation measure for work within aquatic habitats (MM Biol-2), impacts to this species would be less than significant.

Additionally, the City will be required to comply with Section 7 of the Federal ESA, which requires consultation with the NMFS to ensure this species and designated critical habitat within the project area is not adversely impacted as a result of project activities.

S. OR/N. CA coho salmon *(Oncorhynchus kisutch* pop. 2*):* Coho salmon are semelparous, spending the first half of their life cycle rearing in streams and freshwater tributaries, and the remainder of their life cycle foraging in estuarine and marine waters of the Pacific Ocean before returning to their stream of origin to spawn and die. Nearly all adult coho salmon returning to spawn in coastal systems along the northern California coast system enter the estuary in December and January, spawn in mid-winter, and then die. Fry typically rear in freshwater for up to 15 months, migrating to the ocean in the spring as smolts (Caltrans, 2015a). In the estuary, smolts often linger for a period, moving up and down with tidal currents. The average coho salmon smolt residence time in Humboldt Bay is between 14 and 21 days (Nielson, 1994), and the migration period of coho salmon smolts through Humboldt Bay is late-April through early-July (Pinnix et al., 2013). As part of the McDaniel Slough monitoring efforts, bimonthly fish surveys were conducted on a regular basis from 2014-2017. While coho were

documented in portions of the McDaniel Slough complex, there was only one detection downstream of the Highway 255 bridge, and none were detected in the Brackish Marsh. However, the Brackish Marsh provides potential foraging habitat and therefore they may be present, on a transient basis only.

With the City's standard mitigation measure for work within aquatic habitats (MM Biol-2), impacts to this species would be less than significant.

Additionally, the City will be required to comply with Section 7 of the Federal ESA, which requires consultation with the NMFS to ensure this species and designated critical habitat within the project area is not adversely impacted as a result of project activities.

N. CA steelhead *(Oncorhynchus mykiss irideus):* Federally designated Critical Habitat for this species in Humboldt Bay is defined by "The perimeter of the water body as displayed on standard 1:24,000 scale topographic maps or the elevation of extreme high water, whichever is greater" (50 CFR §226.211), which includes the portions of the APE that are within the Brackish Marsh. Steelhead adults spawn in freshwater and spend a part of their life at sea; they may spawn more than once during their life. The typical life pattern for steelhead is to rear in freshwater streams for two years, followed by up to two or three years of residency in the marine environment. Most outmigration is during the spring (January to June), but some outmigration may occur during any significant runoff event (Caltrans, 2015a). As part of the McDaniel Slough monitoring efforts, bimonthly fish surveys were conducted on a regular basis from 2014-2017. No steelhead were documented within the survey area. However, the Brackish Marsh provides suitable habitat and therefore they may be present, likely on a transient basis only.

With the City's standard mitigation measure for work within aquatic habitats (MM Biol-2), impacts to this species would be less than significant.

Additionally, the City will be required to comply with Section 7 of the Federal Endangered Species Act, which requires consultation with the National Marine Fisheries Service to ensure this species and designated critical habitat within the project area is not adversely impacted as a result of project activities.

Eulachon *(Thaleichthys pacificus)***:** There is no designated critical habitat for this species in the project area. Eulachon are anadromous smelt which typically spawn at age 2-5 years in lower portions of rivers. The spawning migration usually occurs between December and June (NOAA Fisheries, 2020a). The southern DPS eulachon populations are thought to consist of spawning runs in the Klamath River, Del Norte County, and in the Mad River and Redwood Creek, Humboldt County. Small numbers of eulachon have been observed to sporadically occur in Humboldt Bay tributaries, though their presence is rare (Barnhart et al., 1992). Eulachon spend most of their life in the sea, moving up rivers to spawn in large numbers in the spring. Spawning usually occurs in the lower reaches of rivers or tributaries with pea-sized gravel or semi-sandy areas with woody and other debris (Caltrans, 2015a). Although the project area contains suitable habitat for this species, it is likely that any species that may be present in Brackish Marsh will be present for a very short time period. As part of the McDaniel Slough monitoring efforts, bimonthly fish surveys were conducted on a regular basis from 2014-2017. No eulachon were documented within the survey area. However, the Brackish Marsh provides suitable habitat and therefore they may be present, likely on a transient basis only.

With the City's standard mitigation measure for work within aquatic habitats (MM Biol-2), impacts to this species would be less than significant.

Additionally, the City will be required to comply with Section 7 of the Federal ESA, which requires consultation with the NMFS to ensure this species and designated critical habitat within the project area is not adversely impacted as a result of project activities.

Green Sturgeon Southern DPS *(Acipenser medirostris):* Critical Habitat for this species in Humboldt Bay is defined as "All tidally influenced areas of Humboldt Bay up to the elevation of mean higher high water" (50 CFR §226.219), which includes the Brackish Marsh. Green sturgeon are anadromous fish, which spawn and rear in freshwater environments and spend the remainder of their lifecycle in saltwater habitats (NOAA Fisheries, 2020b). No spawning or rearing habitat is located within or near the project area. Sub-adult and adult green sturgeon may enter Humboldt Bay to forage. As part of the McDaniel Slough monitoring efforts, bimonthly fish surveys were conducted on a regular basis from 2014-2017. No sturgeon were documented within the survey area. However, the Brackish Marsh provides suitable habitat and therefore they may be present, likely on a transient basis only. Therefore, it is highly unlikely that green sturgeon of any life stage would be expected to occur.

With the City's standard mitigation measure for work within aquatic habitats (MM Biol-2), impacts to this species would be less than significant.

Additionally, the City will be required to comply with Section 7 of the Federal ESA, which requires consultation with the NMFS to ensure this species and designated critical habitat within the project area is not adversely impacted as a result of project activities.

Pacific Lamprey *(Lampetra tridentata):* The Pacific lamprey, is a jawless fish that hatches in freshwater and spends its early life in the bottom sediments of rivers. Adults usually stay in the ocean near the shore, and then return to freshwater to spawn (City and CDFG, 2006). As part of the McDaniel Slough monitoring efforts, bimonthly fish surveys were conducted on a regular basis from 2014-2017. No Pacific lamprey were documented within the survey area. However, the Brackish Marsh provides suitable habitat and therefore they may be present.

With the City's standard mitigation measure for work within aquatic habitats (MM Biol-2), impacts to this species would be less than significant.

Coastal Cutthroat Trout *(Oncorhynchus clarkii clarkii):* Often found in small, coastal streams as opposed to larger channels. They require watercourses with shaded areas, cool water, and small-grained gravel for spawning. The coastal cutthroat trout is unlike most of the other salmon species, because it may spawn more than once. Spawning can occur from December through May, dependent upon the water conditions. Young cutthroat can spend 1 to 9 years in fresh water before they migrate to the estuaries and ocean in the spring, most commonly three years from emergence. Coastal cutthroat trout usually spend less than 1 year in salt water before returning to spawn. They spawn in small tributary streams and utilize slow flowing backwater areas, low velocity pools, and side channels for rearing of young. During the estuarine or ocean phase of life, the cutthroat trout utilizes tidal sloughs, marshes, and swamps as holding areas and feeding grounds (City and CDFG, 2006). As part of the McDaniel Slough monitoring efforts, bimonthly fish surveys were conducted on a regular basis from

2014-2017. No Coastal cutthroat trout were documented within the survey area. However, the Brackish Marsh provides suitable habitat and therefore they may be present, likely on a transient basis only.

With the City's standard mitigation measure for work within aquatic habitats (MM Biol-2), impacts to this species would be less than significant.

Longfin smelt *(Spirinchus thalyichthys)*: All life stages of longfin smelt are known to occur in Humboldt Bay and tributary streams; however, with some seasonal variability in presence. Adult longfin smelt could be present in the Bay at any season. Longfin smelt apparently occur in Humboldt Bay at very low density, and presently they are considered uncommon in Humboldt Bay (W&K, 2009).

With the City's standard mitigation measure for work within aquatic habitats (MM Biol-2), impacts to this species would be less than significant.

Special Status Reptile and Amphibian Species

Northern red-legged frog *(rana aurora):* Northern red-legged frogs are found in permanent ponds, marshes, and streams. They breed from December until April (USFWS, 2002). Potential habitat exists within and adjacent to wetland and riparian areas. This includes freshwater and wetland areas in the vicinity of Brackish Marsh, treatment and enhancement wetlands, oxidation ponds, and wetland ditches where trenching will occur. Because suitable habitat is present, there is a potential for impact to Northern red-legged frogs if they are present during construction activities. Impacts to Northern red-legged frogs could potentially occur to egg masses or tadpoles within wetted areas, or to adults out of water, on land during and after the breeding season.

Implementation of Mitigation Measure Biol-3 will reduce potential impacts to breeding frogs, egg masses or tadpoles to less than significant. Outside of the breeding season, potential direct effects to adults may include harassment, injury, and mortality due to equipment and vehicle traffic, and construction-related ground disturbance in wetland areas. Implementation of Mitigation Measure Biol-4 will reduce potential construction impacts to adult frogs to less than significant. Finally, the species may be indirectly affected if construction activities result in degradation of adjacent or nearby aquatic habitat and water quality due to erosion and sedimentation, accidental fuel leaks, and spills leaving the Project site. Compliance with the City of Arcata's Stormwater Best Management Practices (BMPs) Manual, the City's stormwater ordinance, and the SWRCB's construction general permit, BMPs will reduce this potential impact to less than significant.

Western pond turtle (*emys marmorata*): Western pond turtles occur in both permanent and intermittent waters, including marshes, streams, rivers, ponds, and lakes, but not typically salt or brackish waters. This species has the potential to occur within the Project area within or adjacent to wetted areas, though the potential is low. There is a potential for impact to western pond turtles if they are present during construction activities. However, through implementation of Mitigation Measure Biol-4, impacts will be reduced to less than significant.

Special-status Bird Species

The AWTF provides habitat for a large number of resident and migratory avian species. Table 4.4-3 identifies avian species with suitable habitat within the project area that must be analyzed under CEQA due to their status; some of which are state and/or federally listed species. In addition, there are many more species not included in Table 4.4-3 which are protected by the Migratory Bird Treaty Act.

There are several special-status species known to occur in habitats that are present on the site or that may forage in the project area. The special-status animal species that occur in the vicinity of the project area are described below. Descriptions are included only for those species for which suitable habitat exists in the project area.

Short-eared Owl (*Asio flammeus*): Short-eared Owls live in large, open areas with low vegetation, including prairie and coastal grasslands and marshes. Winter habitat is similar, but is more likely to include large open areas within woodlots and marshes. Short-eared Owls nest on the ground amid grasses and low plants. During breeding season, Short-eared Owls are active during all hours of the day and night; in winter, they favor low-light conditions. This species occurs year-round in Northern California. There is habitat for this species in the vicinity of the project site and they are known to occur in the vicinity. Mitigation Measure Biol-5 will ensure impacts are reduced to less than significant.

Vaux's swift *(Chaetura vauxi):* The Vaux's Swift is a common summer resident and breeder in the vicinity of the project site. They use hollow trees and chimneys for nests and roosts. In coastal northern and central California, where the state's highest breeding densities occur, preferred nesting habitat is old-growth redwood (*Sequoia sempervirens*) forests. In the spring, large numbers of swifts concentrate over lakes and marshes, often mixed with flocks of migrant swallows. A potential threat to migrants is the loss of important, traditional roost sites. Old-growth habitat does not occur on site or adjacent to the project site. There is habitat at the project site for these birds for aerial foraging but not for nesting. Project activities are not likely to impact this species.

Northern harrier (*Circus cyaneus*): Northern harriers are found in open grasslands, agricultural fields, and marshes throughout much of North America. They perch and fly low, hunting for a variety of prey such as mice, birds, frogs, reptiles, and insects. Northern harriers can be locally abundant where suitable habitat remains free of disturbance, especially that from intensive agriculture and other human activities. They rely on the use of tall grasses and forbs in wetlands or at wetland/field borders for suitable cover. These borders or edges are especially important for nesting, feeding and cover. Their home range usually includes a freshwater site. This species is known to occur in the vicinity of the project site and may nest in the area. This hawk nests on the ground in shrubby vegetation, usually at the edge of a marsh. Most of the nests are found in emergent wetlands or along rivers or lakes, but it may also nest in grasslands, grain fields, or on sagebrush flats that are several miles from water.

Breeding commences during the months of April through September, and peak activity occurs during June and July. Mitigation Measure Biol-5 will ensure impacts are reduced to less than significant.

Yellow-billed Cuckoo (*Coccyzus americanus*): Yellow-billed Cuckoos use wooded habitat with dense cover and water nearby, including woodlands with low, scrubby, vegetation, and dense

thickets along streams and marshes. Nest heights can range from 3 feet to as much as 90 feet off the ground, with the nest placed on a horizontal branch or in the fork of a tree or large shrub. In the West, nests are often placed in willows along streams and rivers, with nearby cottonwoods serving as foraging sites. This is one of California's rarest birds and there are very few records of their occurrence in Humboldt County, one of which was at the Arcata Marsh & Wildlife Sanctuary in 2015 (eBird, 2020). Small breeding populations exist in the California Central Valley in dense riparian habitat. Mature riparian habitat does not exist within the project site and the yellow-billed cuckoo is not likely to occur, although Mitigation Measure Biol-5 will ensure impacts are reduced to less than significant.

Yellow Rail (*Coturnicops noveboracensis*): Yellow Rails occur in shallow marshes with fairly short vegetation such as sedges and rushes. Breeding range of this species is typically in marshy areas of Canada, with a small breeding population in north central California/South central Oregon. Migrating Yellow Rails turn up in wet meadows, shallow marshes, and agricultural fields with grassy cover or heavy stubble. Wintering Yellow Rails use shallow wetlands as they do in breeding areas. Yellow Rail may occur in California coastal habitats in the winter, primarily around San Francisco Bay. Although habitat exists for this species, based on their typical range, the Yellow Rail is not likely to occur within the project area. However, Mitigation Measure Biol-5 will ensure impacts are reduced to less than significant.

White-tailed kite (*Elanus caeruleus*): The White-tailed Kite is found in brushy grasslands and agricultural areas with low ground cover, as well as grassy foothills, marsh, riparian, woodland, and savanna. This species requires tall alders, willows, or other broad-leaved deciduous trees for nesting. Locally, they are also known to nest in conifers. Prey items comprise primarily rodents and insects, although they will also take reptiles, amphibians, and small birds. Kites are quite common on and around the project area and nest on an abandoned log pond adjacent to the site, but optimal nesting trees are lacking on the project site. There are foraging areas adjacent to the project site, and it is more likely that kites use this area primarily for foraging. Suitable foraging habitat exists within the project site and suitable nesting habitat exists adjacent to the project site, therefore, Mitigation Measure Biol-5 will ensure impacts are reduced to less than significant.

Willow Flycatcher (*Empidonax traillii*): Willow Flycatchers occupy areas with willows or other shrubs near standing or running water. In the Pacific Northwest, they may also breed in drier scrubby areas. Most nests are in willow, 2-5 feet above the ground in the understory of riparian woodlands. Typical breeding range is well north and east of the Northern California coast and most records of this species in Humboldt County are during migration, however breeding and foraging habitat does exist for this species within the project site. Mitigation Measure Biol-5 will ensure impacts are reduced to less than significant.

American Peregrine Falcon (*Falco peregrinus anatum*): The American Peregrine Falcon breeds in open landscapes with cliffs or tops of buildings or other human made structures for nest sites. In migration and winter you can find Peregrine Falcons in nearly any open habitat, but with a greater likelihood along barrier islands, mudflats, coastlines, lake edges, and mountain chains. This species occurs year-round in Northern California and is known to forage within and adjacent to the project

site. Suitable habitat exists within the project site, however Mitigation Measure Biol-5 will ensure impacts are reduced to less than significant.

Bald Eagle (*Haliaeetus leucocephalus*): Bald Eagles typically nest in forested areas adjacent to large bodies of water, staying away from heavily developed areas when possible. For nest sites, they tend to use tall, sturdy conifers that protrude above the forest canopy, providing easy flight access and good visibility. For perching, Bald Eagles prefer tall, mature coniferous or deciduous trees that afford a wide view of the surroundings. In winter, Bald Eagles can also be seen in dry, open uplands if there is access to open water for fishing. This species is known to nest in the forests in the surrounding hills and are occasionally observed flying above the vicinity of the project site. There is no adequate nesting habitat within the project site and very little to no foraging or perching habitat. The project is not expected to impact this species.

Yellow-breasted Chat (*Icteria virens*): The Yellow-breasted Chat breeds in areas of dense shrubbery, including abandoned farm fields, clearcuts, powerline corridors, fencerows, forest edges and openings, swamps, and edges of streams and ponds. Its habitat often includes blackberry bushes. Wintering habitat includes riparian and tropical forest and tropical scrub. This species is known to occur and breed in the vicinity of the project site. Suitable habitat exists for this species, therefore, Mitigation Measure Biol-5 will ensure impacts are reduced to less than significant.

Bryant's Savannah Sparrow (*Passerculus sandwichensis alaudinus*): On both their summer and winter ranges, Savannah Sparrows live in grasslands with few trees. Near oceans, they also inhabit tidal saltmarshes and estuaries. This species usually nests on the ground or low in grasses, saltmarsh vegetation, or low shrubs. Savannah Sparrows are known to occur and breed in the vicinity of the project site. Suitable habitat exists for this species, therefore, Mitigation Measure Biol-5 will ensure impacts are reduced to less than significant.

California Brown Pelican (*Pelecanus occidentalis californicus*): Brown Pelicans live year-round in estuaries and coastal marine habitats. They breed on dry, rocky offshore islands. Nest sites are on the ground or in an exposed treetop, occasionally on bare sand or shell. When not feeding or nesting, they rest on sandbars, pilings, jetties, breakwaters, mangrove islets, and offshore rocks. This species is most abundant on the North Coast during fall migration and is not known to nest in the vicinity of the project site. No suitable nesting habitat exists at the site, although there is potential for birds to visit the ponds on site for foraging. The project is not likely to impact this species.

Bank Swallow (*Riparia riparia*): Bank Swallows live in low areas along rivers, streams, ocean coasts, and reservoirs. Their territories usually include vertical cliffs or banks where they nest in colonies. They forage in open areas and avoid places with tree cover. This species is known to breed in Humboldt County along the Eel River and have been observed foraging in the vicinity of the project site. No nesting habitat exists within the project site, though foraging habitat is available. However, the project is not likely to impact this species.

Potential impacts to avian species include vegetation removal associated with construction that impacts nesting sites. Other impacts related to disturbance such as noise or proximity exist. For instance, black crowned night herons may temporarily leave the roosting area at times of disturbance

for a more remote location (suitable habitat exists within the APE). To minimize potential adverse impacts, vegetation removal will occur outside of the avian nesting season (generally March - August) to the extent practicable. If vegetation removal must occur during the avian nesting season, implementation of Mitigation Measure Biol-5 will ensure impacts are reduced to less than significant.

Special-status Mammal Species

Townsend's big-eared bat (*Corynorhinus Plecotus townsendii*): The Townsend's big-eared bat was once common in California, but now is considered uncommon to rare. This species frequents rural buildings, woodlands, and xeric environments, but is extremely sensitive to human disturbance and will quickly abandon roosting sites if disturbed. Females form maternity colonies of up to 200 individuals in spring and give birth in late spring to early summer, while males remain solitary. Townsend's big-eared bats hibernate when wintering in cold areas and may share hibernation locations with other bat species.

This species is common throughout western North America, especially at upper elevations. The wide environmental tolerance of Townsend's big-eared bat is reflected in its wide geographic range. Townsend's big-eared bat prefers mesic habitats, in particular coniferous and deciduous forests. Townsend's big-eared bat is a cave roosting species but will inhabit human-built caves such as mines, tunnels, bridges, and buildings. There is no roosting habitat for this species at the project site and although foraging opportunity may exists, this species is typically found at higher elevations and away from human disturbance, therefore the project is not likely to impact this species.

Special-status Plant Species

As noted in Table 4.4-3, sensitive plant species may be present and potentially impacted by the project.

Humboldt Bay owl's-clover *(Castilleja ambigua* var. *humboldtiensis),* sea-watch (*Angelica lucida*), Point Reyes bird's-beak *(Chloropyron maritimum* ssp. *palustre),* and western sand-spurrey *(Spergularia canadensis* var. *occidentalis)* are sensitive plant species found in salt marsh habitat, which is located within and adjacent to the project area. Specifically, suitable habitat includes the outer levees surrounding AWTF and Brackish Marsh. Brackish Marsh is the only suitable habitat within the overall project area that will be impacted by construction activities and the footprint is small; limited to the footprint of the proposed Outfall 003 construction impacts, which is approximately 0.06 acre of impacted suitable habitat. Potential presence for these species is low, and construction will avoid the majority of the blooming season of these species. Therefore, there is likely to be a less-than-significant impact. However, if construction in this area is to occur during the species' blooming period, Mitigation Measure Biol-6 will be implemented to reduce potential impacts to less than significant.

Siskiyou checkerbloom *(Sidalcea malviflora* ssp. *patula),* coast checkerbloom *(Sidalcea oregana* ssp. *eximia),* alpine marsh violet (*Viola palustris),* and western lily (*Lilium occidentale)* are sensitive plant species that were identified in the CNDDB RareFind Search for the Arcata North and/or South

Quadrangles and have suitable habitat within portions of the project area. However, there is a low potential for presence. City staff annually surveys portions of the AMWS for vegetation and has not identified these species during those survey efforts. Furthermore, AMWS is a heavily used public recreation area, and there have been no reports of presence of these species. Despite evidence of no known presence, there still exists a low potential that these species are present within the project area if suitable habitat is present. Therefore, Mitigation Measure Biol-7 has been added to require surveying for these species at the correct time and prior to construction activities and either fencing off areas or removal and replanting at similar locations. Implementation of this mitigation measure will reduce potential impacts to less than significant.

Lyngbye's Sedge (*Carex lyngbyei*) has been found within the greater AMWS area, and suitable habitat includes marsh habitats within the project area, particularly brackish marsh habitat. To ensure potential impacts to this species are reduced to less than significant, Mitigation Measure Biol-7 has been added to require surveying for these species at the correct time and prior to construction activities and either fencing off areas or removal and replanting at similar locations. Implementation of this mitigation measure will reduce potential impacts to less than significant.

b,c) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or US Fish and Wildlife Service? Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means? (Less-Than-Significant Impact with Mitigation Incorporated).

Pursuant to Clean Water Act Section 404, a Section 404 Permit is required for any fill or dredging within jurisdictional wetlands or waters of the USACE. USACE has jurisdiction over wetlands which meet the three-parameter wetland criteria (hydrophytic vegetation, hydric soils, and wetland hydrology) defined in the USACE Wetlands Delineation Manual and regional supplement. The USACE does not regulate wetland buffers, development adjacent to wetlands, or ESHAs. Additionally, such federally permitted projects are subject to a 401-water quality certification from the RWQCB to minimize impacts to WOTUS. Projects within California are subject to compliance to the State's Wetlands Program, consistent with the Porter-Cologne Water Quality Control Act, to minimize impacts to WOTS. Because the project will affect both federal and state jurisdictional wetlands, a 401-certification and compliance with the State Wetlands Program from the NCRWQCB will be required.

The Coastal Commission requires a minimum of one-parameter to be considered a wetland. All development within the Coastal Zone requires a Coastal Development Permit, which includes development affecting wetlands. Furthermore, the Coastal Commission regulates ESHAs, discussed in a later section.

The AWTF contains various wetlands and riparian habitats, with portions located within or adjacent to the project area. The oxidation ponds and inward facing levees as well as the wastewater Treatment Wetlands (TW) are not WOTUS (40 CFR 230.3(s)) or WOTS. They have been and will continue to be used for wastewater treatment. The Enhancement Marshes (EMs) are classified as

WOTS (Section 13050-13051). Therefore, the City is required to meet certain performance standards for the EMs that are part of the treatment process. The Brackish Marsh and Outfall 003 are WOTS and WOTUS, as are portions of the bay side of the WWTP levees (which are not planned for augmentation, See Figure 3.5-7).

The Wetland Delineation undertaken by Stillwater Sciences in 2020 determined there are a total of 15.9 acres that fall within the definition of a "Wetland." Table 4.4-1 provides detail on acreage of wetlands within the project area broken down by jurisdiction.

As will be determined during preparation of construction bid documents, the City shall identify specific wetlands to be directly impacted by construction activities and compensate for these permanent wetland impacts through restoration, rehabilitation, and/or creation of wetland at a ratio of no less than 1:1. Figure 4.4-4 depicts mitigation areas where this is to occur. A Wetlands Mitigation and Monitoring Plan shall also be prepared in coordination with the NCRWQCB, USACE, and CCC permit conditions. Compensation for wetlands shall occur so there is no net loss of wetland habitat at ratios to be determined in consultation with the permitting authorities. Wetland mitigation monitoring will be conducted for a minimum of five years to ensure successful establishment. Specific monitoring and remediation procedures will be developed in coordination with permitting authorities to ensure that the plan meets regulatory agency requirements, and in a manner where impacts would be less than significant.

The Wetlands Mitigation and Monitoring Plan will include the following elements: proposed mitigation ratios; description and size of the restoration or compensatory area; site preparation and design; success criteria; monitoring schedule; and remedial measures. The Plan shall be implemented by the City.

d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites? (Less Than Significant Impact)

This potential impact has been analyzed in Section 4.4.2 (a). As described there, the project improvements themselves do not result in a potential significant impact. However, construction activities within and adjacent to sensitive habitats have the risk of impacting these areas temporarily, if not adequately mitigated by measures that notes any presence, minimizes disturbance, and restores disturbed areas from construction activities. The addition of a year-round fresh water source to Brackish Marsh has been previously analyzed in the McDaniel Slough Restoration EIR. Since brackish wetlands are a limited habitat type in the greater Humboldt Bay area, the addition of freshwater to this 6-acre area will enhance habitat diversity in the north Humboldt Bay area. Since the proposed work will not result in conditions that would impede the local or regional movements of wildlife or impede the use of native wildlife nursery sites, the Proposed Project would not substantially interfere with the use of nursery sites or the movement of migratory birds or other wildlife species. With the proposed mitigation measures described in Section 4.4.3 (a) and listed in Section 4.4.3, the impact would be less than significant.

e,f) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance? Would the project conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan? (Less Than Significant Impact)

The project will not conflict with any local policies or ordinances protecting biological resources, including tree preservation policies or ordinances. There are no adopted habitat conservation plans (https://databasin.org/maps/new#datasets=c116dd0d32df408cb44ece185d98731c) or Natural Community Conservation Plans (https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=68626&inline) or other plans located in or adjacent to the project area. The City of Arcata has a number of General Plan policies to protect biological resources. In addition, there are state and federal regulations and permit conditions, which are generally discussed in the Regulatory Setting. The Proposed Project includes enhancing freshwater habitat, estuarine habitat, brackish wetlands, and water quality. It is consistent with local biological protection policies. While short-term impacts associated with construction may occur, the incorporation of minimization and avoidance measures found in the City's General Plan/ LCP and the outlined regulatory process described above, the Proposed Project will result in a less-than-significant impact.

4.4.3 Mitigation Measures

Mitigation Measure Biol-1: Section 7 Consultation

(Note: This measure is from the McDaniel Slough EIR for Outfall 003). Through the Section 7 process, consult with the USFWS and NMFS regarding federally listed species. Adhere to minimization measures that are developed as part of this process, to ensure that no adverse impacts occur.

- Construction activities occurring within the watercourse would occur following recommendations from qualified CDFG biologists.
- In-stream work will be done during the dry season at low tide with a fish biologist on-site during in-stream operations to monitor for the presence of anadromous fish and other wildlife species.
- Consult with the USFWS regarding Tidewater Goby.
- Consult with the NOAA Fisheries regarding salmonids.

Mitigation Measure Biol-2: Aquatic Species at Outfall 003

Potential impacts are limited to activities associated with construction of Outfall 003. The City's standard practices include the following to minimize impacts; 1) the work area will be isolated during construction; 2) In-water construction activities required to isolate the work area will be scheduled during low tides between June 15 and September 15, when aquatic species are least likely to be present; 3) a qualified biologist will survey the area and relocate any fish species before commencement of

construction activities; and 4) consistent with the City of Arcata's Stormwater Best Management Practices Manual, the City's stormwater ordinance, and the SWRCB's construction general permit, Standard best management practices will be implemented to prevent sedimentation and/or turbidity from entering WOTS or WOTUS.

Mitigation Measure Biol-3: Northern Red-Legged Frog

All construction in waterways and wetlands with standing water, shall be outside of the Northern red-legged frog breeding season (Nov-Apr).

Mitigation Measure Biol-4: Northern Red-Legged Frog & Western Pond Turtle

If any Northern red-legged frogs or western pond turtles are encountered during construction activities, activities in the vicinity shall cease until appropriate corrective measures have been implemented or it has been determined by a qualified biologist that the species will not be harmed. This includes relocating these species to an appropriate habitat adjacent to the work area. Any listed reptile or amphibian species that are trapped, injured, or killed, shall be reported immediately to CDFW.

Mitigation Measure Biol-5: Conduct Nest Survey and Establish Buffers

If vegetation removal or disturbance cannot be confined to periods outside of the nesting season (generally March-August), a qualified biologist shall conduct pre-construction surveys, within the vicinity of the Proposed Project (construction buffer area) to check for nesting activity of native birds. The construction buffer area is 50 feet beyond disturbance areas for native birds and 500 feet for raptors and special-status bird species. The biologist shall conduct a minimum one day pre-construction survey within the 7-day period prior to vegetation removal and ground-disturbing activities. If ground disturbance and vegetation removal work lapses for seven days or longer during the breeding season, a qualified biologist shall conduct a supplemental avian pre-construction survey before project work is reinitiated.

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

If active nests are detected during the pre-construction surveys, the qualified biologist shall monitor all nests at least once per week to determine whether birds are being disturbed. Activities that might, in the opinion of the qualified biologist, disturb nesting activities (e.g., excessive noise), shall be prohibited within the buffer zone until such a determination is made. If signs of disturbance or distress are observed, the qualified biologist shall immediately implement adaptive measures to reduce disturbance. These measures may include, but are not limited to, increasing buffer size,

halting disruptive construction activities in the vicinity of the nest until fledging is confirmed, placement of visual screens or sound dampening structures between the nest and construction activity, reducing speed limits, replacing and updating noisy equipment, queuing trucks to distribute idling noise, locating vehicle access points and loading and shipping facilities away from noise-sensitive receptors, reducing the number of noisy construction activities occurring simultaneously, and/or reorienting and/or relocating construction equipment to minimize noise at noise-sensitive receptors.

Mitigation Measure Biol-6: Salt Marsh Plant Species

If construction occurs within suitable habitat during the blooming season of any of the sensitive annual salt marsh species (Humboldt Bay owl's-clover [*Castilleja ambigua* var. *humboldtiensis*], sea-watch [*Angelica lucida*], Point Reyes bird's-beak [*Chloropyron maritimum* ssp. *Palustre*], western sand-spurrey [*Spergularia canadensis* var. *occidentalis*]), the area shall be surveyed at appropriately timed surveys (early/late season) by a qualified biologist prior to construction. If any species are present within the vicinity, they shall be flagged for avoidance. If avoidance is infeasible, construction will occur after seeds have been set. Seeds from the affected individuals shall be collected and planted in appropriate locations the following year during the phenologically appropriate time.

Mitigation Measure Biol-7: Non-Salt Marsh Plant Species

Prior to vegetation removal, vegetated areas shall be surveyed for Lyngbye's sedge (*Carex lyngbyei*), Siskiyou checkerbloom (*Sidalcea malviflora* ssp. *patula*), coast checkerbloom *(Sidalcea oregana* ssp. *eximia),* western lily (*Lilium occidentale)* and alpine marsh violet (*Viola palustris)* by a qualified biologist. If these species are found to be present and impacted by construction, they shall be transplanted and/or compensatory planting shall occur in a suitable habitat such that there is no net loss of these species. Transplants and/or new plantings shall be monitored for five years to ensure survival.

Mitigation Measure Biol-8: Compensatory Mitigation for Wetlands Impacts

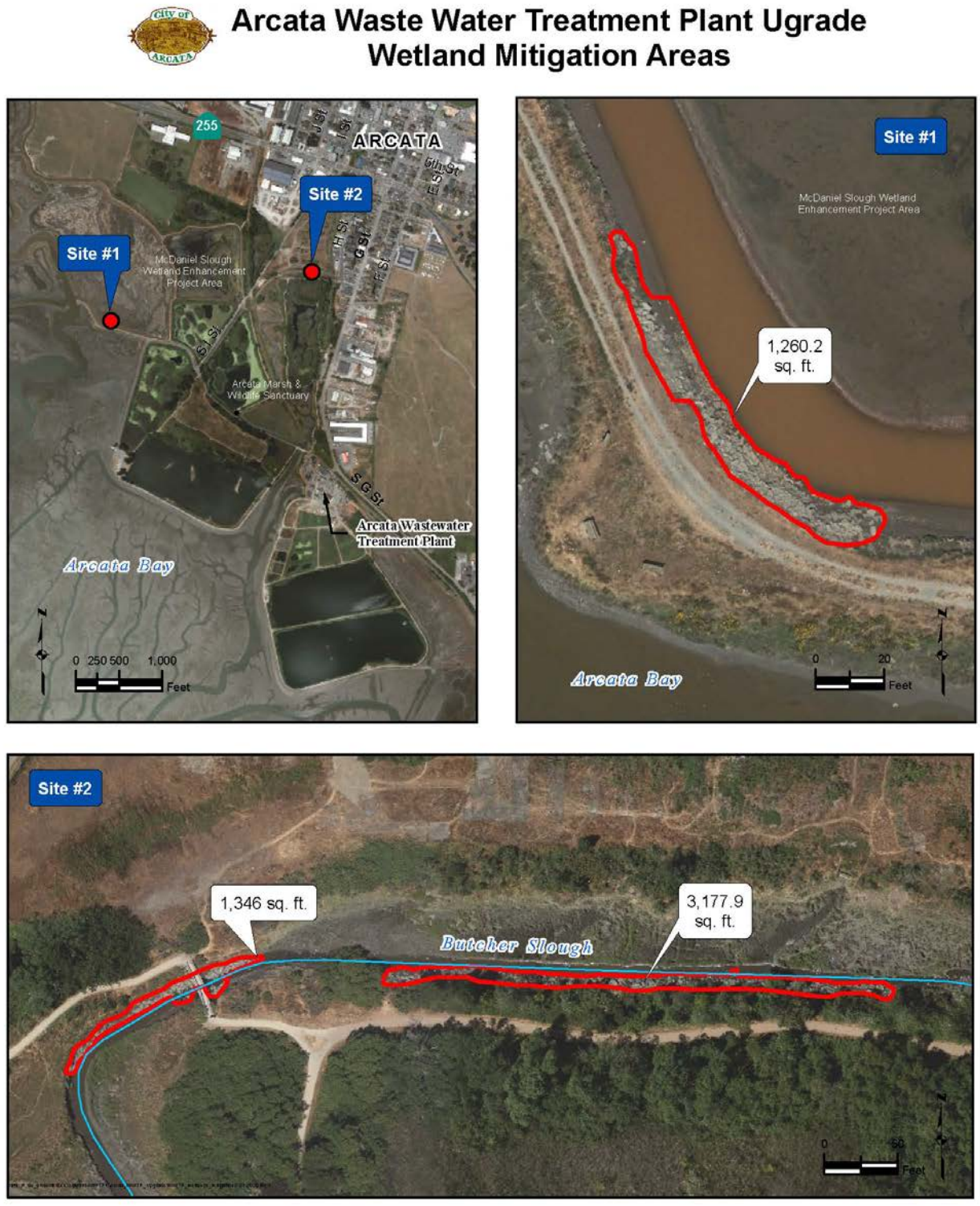
As specifically determined during preparation of construction bid documents, the City shall identify specific wetlands to be directly impacted by construction activities and compensate for these permanent wetland impacts through restoration, rehabilitation, and/or creation of wetland at a ratio of no less than 1:1. A Wetlands Mitigation and Monitoring Plan shall be prepared prior to project construction in coordination with the North Coast Regional Water Quality Control Board, US Army Corps of Engineers, and California Coastal Commission. Compensation for wetlands shall occur so there is no net loss of wetland habitat at ratios to be determined in consultation with the permitting authorities. Wetland mitigation monitoring will be conducted for a minimum of five years to ensure successful establishment. Specific monitoring and remediation procedures will be developed in coordination with permitting authorities to ensure that the plan meets regulatory agency requirements.

The Wetlands Mitigation and Monitoring Plan shall be acceptable to the permitting authorities and include the following elements: proposed mitigation ratios; description and size of the restoration or

compensatory area; site preparation and design; success criteria; monitoring schedule; and remedial measures. The Plan shall be implemented by the City.

Mitigation Measures Biol-1 through Biol-8 would reduce impacts on biological resources to a less-than-significant level by minimizing areas disturbed during construction activities at proper times of the year and restoring those disturbed areas.

Figure 4.4-4 Potential Wetland Mitigation Areas



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4.5 Cultural Resources

	Potentially Significant Impact	Less-than-Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the Project:				
a) Cause a substantial adverse change in the significance of a historical resource pursuant to §15064.5?				✔
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?				✔
c) Disturb any human remains, including those interred outside of formal cemeteries?		✔		

4.5.1 Environmental Setting

The first known inhabitants of the Humboldt Bay Region were Wiyot Indians, a member of the Algonquin linguistic group. The Wiyot population prior to 1850 is estimated to have been between 1,000 and 3,300 individuals (Roscoe, et. Al., 2010). Wiyot settlements were located chiefly along the lower Mad River, around Humboldt Bay, and the lower Eel River. Village sites were located at the water's edge, ocean, bay, or creek, with trails leading to grassy openings, and from one village to another. A small part of the population lived in an area from the Mad River to the northern portion of Humboldt Bay; they lived in settlements of one to three families. Within the Arcata planning area, they lived in semi-permanent settlements and often traveled seasonally for hunting and gathering. The estimated population for the Arcata planning area, in or about the year 1848, is 600 inhabitants (City of Arcata, 2008a).

After the start of the California Gold Rush, from 1850 to 1860, Wiyot territory became the center of the largest concentrations of European settlers in California, north of San Francisco. The settlers utilized Humboldt Bay as a major shipping point for supplies to the gold mines on the Trinity, Klamath, and Upper Sacramento Rivers. In addition, the establishment of the Redwood timber industry, and homesteading of the Eel River and Arcata Bottom for ranching and farming purposes, brought more people into the area. The influx of new settlers brought violence, including the Indian Island Massacre of February 26, 1860, which nearly destroyed the entire Wiyot population. There are currently 32 recorded archaeological sites in the Arcata planning area. Most sites are situated along the margins of Humboldt Bay, along the edges of marshes and sloughs, and in the Arcata Bottom area. Sites also tend to be located at the base of hills and on mid-slope terraces near sources of water.

According to the Arcata General Plan, the most likely location for additional (unrecorded) archaeological sites is a band approximately 1,000 meters wide along the original Humboldt Bay

shoreline and the Mad River. There is also the possibility of encountering archaeological resources elsewhere in the Arcata planning area. (City of Arcata, 2008a).

A cultural resource assessment was completed for the Area of Potential Effect (APE) by DZC Archeology and Cultural Resource Management in 2019 (DZC, 2019).

The City subsequently requested formal Section 106 Consultation in letters dated July 9, 2020 with the Tribes that have a current or ancestral interest in the Arcata area. Responses were received from the Tribal Historic Preservation Officers (THPOs) of the Wiyot Tribe, Bear River Band of the Rohnerville Rancheria, and Blue Lake Rancheria. The THPOs were sent the project description and APE, as well as existing soils data. The THPOs were also provided a full copy of the Cultural Resources Assessment Report completed by DZC in November 2019. The findings of the report are discussed below.

The THPOs declined formal consultation on the project but recommended that the project be required to observe an inadvertent archaeological discovery protocol that includes notification to the Tribes should Native American archaeological deposits be found during construction (City of Arcata, 2020c).

The Cultural Resources Inventory conducted by DZC Archaeology &Cultural Resource Consulting, LLC (DZC, 2019) analyzed approximately 123 acres of land which represent the APEs. The review identified 16 previously conducted archaeological surveys of interest: 10 surveys within the APE, and six outside the APE but either partially or completely within the ESL. Five previously recorded resources were identified within the Environmental Study Limits (ESL) and one within the APE. The geoarchaeological research indicated a low potential for buried and surface prehistoric resources, and a moderate potential for buried and surficial historical resources within the APE.

Two historic features were identified within the APE: the AWTF and remnants of the Arcata Mad River Railroad/Union Wharf and Plank Walk Company. The AWTF was determined ineligible for the National Register of Historic Places in 2006. Portions of the Arcata Mad River Railroad/Union Wharf and Plank Walk Company landmark within the APE are limited to a historically mapped alignment; the remaining physical elements are located outside and immediately adjacent to the APE, as the last remaining wharf piles in Klopp Lake were destroyed by storms several years ago.

The report recommended a Finding of No Impacts to historical, archaeological, or tribal cultural resources, as defined by CEQA, and a Finding of No Effects, as defined by NEPA. The report did note that regardless of no known significant affected resources, it is best practice to avoid cultural resources whenever possible.

The City has a standard inadvertent discovery protocol for all City projects, which will be adhered to for the proposed activities (City of Arcata, 2008b). While it already applies to this project, it has been included as a mitigation measure, as noted below.

4.5.2 Environmental Analysis

a, b) Cause a substantial adverse change in the significance of a historical resource pursuant to §15064.5 or cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5? (No Impact)

The Cultural Resources Report completed by DZC evaluated resources in the APE (Figure 3.1-2 and 3), totaling roughly 123 acres. The Report examined standard sources of information that identify known and potential historic resources to ascertain whether any buildings, structures, objects, districts, or sites have been previously recorded or evaluated in or near the project study area. The Report notes that based on field visits undertaken on October 9th and November 5th, 2019, no archeological resources were noted in the project area.

One previously recorded historical resource as defined in §15064.5 is recorded within the APE, California Historical Landmark No. 842. The Arcata and Mad River Railroad (Union Wharf and Plank Walk Company) is a linear historical feature recorded and mapped as present in the northern portion of the APE, and also mapped as continuing southward into Arcata Bay. However, there are no physical remnants of the resource within the APE as most physical features associated with the resource within the APE were removed prior to the construction of the AWTF, and the last remaining wharf piles in Klopp Lake were destroyed by storms several years ago. Any remaining physical remnants associated with this feature (pilings) can be seen in Arcata Bay, outside of the APE.

Additionally, the mapped location of the resources within the APE, a portion of which is paved over, will be used only as a staging area with no ground disturbance. DZC concluded the Project would not result in the physical demolition, destruction, relocation, or alteration of this historic landmark site or any other building in the APE. Therefore, there is no potential impact to cause a substantial adverse change in the significance of a historical resource pursuant to CEQA §15064.5, nor potential to cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5.

The City contacted the State Historic Preservation Officer (SHPO) on July 21, 2020, requesting formal SHPO consultation, and received a clearance letter dated July 28, 2020 (SHPO, 2020).

c) Disturb any human remains, including those interred outside of formal cemeteries? (Less Than Significant with Mitigation)

The Report notes that based on field visits, coordination with the three local Tribal Historic Preservation Officers, and an information search of Sacred Lands from the Native American Heritage Commission (NAHC), no archeological resources were noted in the project area. However, inadvertent discovery of human remains has the potential to result in a significant impact to cultural resources. Implementation of existing City inadvertent discovery protocol, approved by the local Tribal Historic Preservation Officers, would reduce the potential impact to be less than significant by requiring specific protocols in the event human remains are discovered during construction. Implementation of existing City protocols will ensure the potential impact to cultural resources resulting from any inadvertent discovery of human remains will be less than significant.

4.5.3 Mitigation Measures

Mitigation Measure CU-1

If human remains are discovered during project construction, work within the discovery location plus nearby areas reasonably suspected to overlie human remains, will cease (Public Resources Code, Section 7050.5). The Humboldt County Coroner will be contacted by the Project Archaeologist to determine if the cause of death must be investigated. If the Coroner determines that the remains are of Native American origin, it is necessary to comply with state laws regarding the disposition of Native American burials, which fall within the jurisdiction of the California NAHC (Public Resources Code, Section 5097). In this case, the Coroner will contact NAHC. The descendants or most likely descendants (MLD) of the deceased will be contacted, and work will not resume until they have made a recommendation to the landowner or person responsible for excavation work with direction regarding appropriate means of treatment and disposition, with appropriate dignity, of the human remains and any associated grave goods, as provided in Public Resources Code, Section 5097.98.

Mitigation Measure CU-1 would reduce the impact on cultural resources to a less-than-significant level by assuring proper protocols are in place for inadvertent discovery of potential cultural resources disturbed during construction.

4.5.4 References

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4.6 Energy

	Potentially Significant Impact	Less-than-Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the Project:				
a) Result in potentially significant environmental impacts due to wasteful, inefficient, or unnecessary consumption of energy resources, during Project construction or operation?			✔	
b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?				✔

4.6.1 Environmental Setting

In Humboldt County, energy is used as a transportation fuel and as electrical and heat energy in homes, businesses, industries, and agriculture. The majority of primary energy used in Humboldt County is imported, with the exception of biomass energy. Essentially all of the county's transportation fuels are imported. Although the majority of electricity is generated in the county, a large portion of it is generated using natural gas. Approximately 90% of natural gas is imported into the County, while the rest is obtained locally from fields in the Eel River Valley (Schatz Energy Lab, 2005).

Humboldt County is remotely located at the end of the electrical and natural gas supply grids, and this limits both energy supply options and system reliability. Pacific Gas & Electric (PG&E) owns the natural gas and electricity transmission and distribution systems in Humboldt County. There is one major natural gas supply line that serves the county and four electrical transmission circuits (Schatz Energy Lab, 2005). The AWTF is connected to the existing electrical and natural gas infrastructure that serves the City of Arcata.

Prior to May 2017, electricity to the project site was provided by the PG&E Humboldt Bay Generating Station (HBGS) which is located just south of the City of Eureka along Humboldt Bay. The HBGS began commercial operation in 2010 and normally runs on natural gas, with ultra-low sulfur diesel as its backup fuel. As indicated on the PG&E website, the HBGS is 33 percent more efficient than the previous Humboldt Bay Power Plant (HBPP) fossil fuel units (PG&E, 2020).

Beginning in May 2017, electricity service for the City of Arcata was transitioned to the Redwood Coast Energy Authority (RCEA) Community Choice Energy (CCE) program. The CCE program allows city and county governments to pool (or aggregate) the electricity demands of their communities in order to increase local control over electric rates, purchase power with higher renewable content, reduce greenhouse gas emissions, and reinvest in local energy infrastructure. The electricity continues to be distributed and delivered over the existing power lines by PG&E. The CCE program procures approximately 47% of its power from renewable and carbon-free sources, which is approximately 8% more renewable energy than the power sources previously provided by PG&E (RCEA, 2020). In addition, customers can choose to opt up to a premium service called Repower+, which is 100% renewable energy at only $0.01 more per kilowatt hour (kWh). The City has opted into the RCEA Repower+ service, which provides 100 percent renewable energy to the AWTF.

Regulatory Setting

State Plans & Standards

Energy Action Plan

In 2003, the three key energy agencies in California— the California Energy Commission (CEC), the California Power Authority (CPA), and the California Public Utilities Commission (CPUC)— jointly adopted an Energy Action Plan (EAP) that listed goals for California's energy future and set forth a commitment to achieve these goals through specific actions. In 2005, the CPUC and the CEC jointly prepared the EAP II to identify the further actions necessary to meet California's future energy needs. To the extent that efficiency, demand response, renewable resources, and distributed generation are unable to satisfy increasing energy and capacity needs, the EAP II supports the use of clean and efficient fossil-fired generation. The plan recognizes that concurrent improvements are required to the bulk electricity transmission grid and distribution facility infrastructure to support growing demand centers and the interconnection of new generation, both on the utility and customer side of the meter.

Title 24, Energy Efficiency Standards

Title 24, which was promulgated by the CEC in 1977 in response to a legislative mandate to create uniform building codes to reduce California's energy consumption, provides energy efficiency standards for residential and nonresidential buildings. These standards conserve electricity and natural gas and prevent the state from having to build more power plants. The success of these standards and other energy efficient efforts is a significant factor in California's per capita electricity use remaining flat over the last 40 years while the rest of the country's use continues to rise. The energy efficient standards have saved Californians billions in reduced electricity bills since 1977.

Green Building Standards Code

On January 12, 2010, the California Building Standards Commission adopted the 2010 California Green Building Standards Code, otherwise known as CALGreen. (CALGreen took effect in January 2014.) CALGreen is contained within Part 11 of the California Building Standards Code, otherwise known as the state Building Code, Title 24 of the California Code of Regulations. The list below identifies the most substantive CALGreen requirements. In addition, CALGreen encourages local

governments to adopt voluntary provisions, known as Tier 1 and Tier 2 provisions, to reduce air pollutant emissions, improve energy efficiency, and conserve natural resources. If a local government adopts one of the tiers, the provisions become mandates for all new construction within that jurisdiction. CALGreen includes the following provisions:

- A 20 percent mandatory reduction in indoor water use, along with fixture-specific restrictions on water flow
- Separate indoor and outdoor water meters to measure nonresidential buildings' indoor and outdoor water use, with a requirement for moisture-sensing irrigation systems for larger landscape projects
- Diversion of 50 percent of construction waste from landfills
- Mandatory periodic inspections of energy systems (i.e., heat furnace, air conditioner and mechanical equipment) for nonresidential buildings over 10,000 square feet to ensure that all are working at their maximum capacity according to their design efficiencies
- Mandatory use of low-pollutant-emitting interior finish materials such as paints, carpet, vinyl flooring, and particleboard.

Renewable Portfolio Standards

In 2002, California established a Renewable Portfolio Standard (RPS) that requires a retail seller of electricity to include in its resource portfolio a certain amount of electricity from renewable energy sources, such as wind, geothermal, small hydro, and solar energy. The retailer can satisfy this obligation by using renewable energy from its own facilities, purchasing renewable energy from another supplier's facilities, using Renewable Energy Credits that certify renewable energy has been created, or a combination of all of these. California's RPS requirements have been accelerated and expanded a number of times since the program's inception. Most recently, then-Governor Jerry Brown signed into law Senate Bill (SB) 100 in September 2018, which requires utilities to procure 60 percent of their electricity from renewables by 2030, and sets as a state policy that state agencies and end-use retail customers receive 100 percent of energy from renewable and zero-carbon resources by 2045.

Local Plans

Humboldt County

In cooperation with RCEA and the various cities in the County, Humboldt County is currently developing a Climate Action Plan, which would address planning for reductions in greenhouse gas emissions by reducing energy use and improving energy efficiency. The plan is not yet complete.

City of Arcata

The City's General Plan includes several policies related to energy resources management in the Resource Conservation and Management Element. Policy RC-8 (Energy Resource Management) encourages the purchase of energy from within the region and increasing public awareness of energy

issues and energy conservation (City of Arcata, 2008).

In 2006, the City developed a Community Greenhouse Gas Reduction Plan (City of Arcata, 2006). The plan focuses on six action areas: energy efficiency, renewable energy, sustainable transportation, waste and consumption reduction, carbon sequestration and other methods, and cross-cutting approaches. In addition to reducing greenhouse gas emissions it is expected that the implementation of the Plan would offer many other community benefits. These include energy cost savings with subsequent benefits to the local economy, cleaner air, less reliance on fossil fuels and imported energy sources, and a move toward a more sustainable energy economy.

4.6.2 Environmental Analysis

a) Result in potentially significant environmental impacts due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation? (Less Than Significant)

Construction

During construction of the Proposed Project, energy would be consumed in the form of petroleum-based fuels used to power off-road construction vehicles and equipment on the project site, construction worker travel and delivery truck trips to and from the project site, and to operate generators to provide temporary power for lighting and electronic equipment. Construction would consist of demolition, site preparation, grading, building construction, trenching, paving, and architectural coating.

There are no unusual project characteristics that would need construction equipment or practices that would be less energy efficient than at comparable construction sites in the region or state. Construction activity would be temporary and fuel consumption would cease once construction ends. Further, various equipment would be supplied by onsite generators, and would not require permanent connections to or otherwise burden local utilities. Due to the temporary nature of construction activities, the fuel and energy needed during project construction would not be considered a wasteful or inefficient use of energy. Therefore, it is expected that construction energy consumption associated with the Proposed Project would be comparable to other similar construction projects, and would therefore not result in potentially significant environmental impacts due to wasteful, inefficient, or unnecessary consumption of energy resources during project construction.

Operation

Energy use during long-term operation of the improvements to the AWTF will relate primarily the operation of new or upgraded equipment and buildings. Operational energy consumption will increase as a result of the proposed improvements including, but not limited to, the electrical building, UV system, aerators, and oxidation pond. Table 4.6-1 provides a summary of the current and expected loads after implementation of the Proposed Project.

Table 4.6-1 Existing and Future Loads at the AWTF

Facilities	Existing Load (kVA)	Modified Load (kVA)	Buildout Load (kVA)
Additional Electrical Building	27	878	1144
Existing Electrical Building	193	205	205
Emergency Pond Pump Station and Oxidation Ponds Process	66	219	219
Enhancement Wetlands Process	23	57	57

1. kVA: kilo-volt-ampere

The AWTF is currently enrolled in the RCEA CCE program which procures a greater percentage of its power from renewable and carbon-free sources than the power sources provided by PG&E (RCEA, 2020). In fact, the City has opted into the RCEA Repower+ service, which provides 100 percent renewable energy to the AWTF. In addition, the City has installed solar panels on the roof of the drying bed and other buildings at the AWTF to provide an onsite source of renewable energy. The existing solar panels have the capacity to generate 70 kilowatts (kW) of energy. The City also has plans to install additional rooftop solar panels at the AWTF to generate an additional 60 kW of renewable energy. Additionally, the project proposes installation of a Supervisory Control and Data Acquisition (SCADA) system that will ensure efficiency of energy use by updating in real time based on daily wastewater flows. The SCADA system also tracks daily electricity efficiency, which allows for review, reporting, and resulting manual adjustment to the UV light banks as necessary.

The project would be required to comply with Title 24 Building Energy Efficiency Standards for Residential and Nonresidential Buildings (Title 24, Part 6, of the California Code of Regulations), which provide minimum efficiency standards related to various building features, including appliances, water and space heating and cooling equipment, building insulation and roofing, and lighting. Implementation of the Title 24 standards significantly reduces energy usage. It has generally been the presumption throughout the State of California that compliance with Title 24 (as well as compliance with the federal and state regulations) ensures that projects will not result in the inefficient, wasteful, and unnecessary consumption of energy.

The City has also recently lined a significant amount of sewer mainlines as part of a collection system upgrade. The City anticipates having significantly less inflow and infiltration during the wet season that will result in reduced energy consumption from pumping and wastewater treatment.

As proposed, in compliance with existing regulatory requirements, and with enrollment in the RCEA CCE REPower+ service, the Proposed Project would not result in potentially significant environmental impacts due to wasteful, inefficient, or unnecessary consumption of energy resources during project operation.

For the reasons noted above, the Proposed Project would result in a less-than-significant impact during construction and operation.

b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency? (No Impact)

As described above, the proposed improvements to the AWTF would be constructed in compliance with Title 24 Building Energy Efficiency Standards, which requires minimum efficiency standards related to various building features to reduce energy use. In addition, the proposed project would be provided 100% renewable energy from the RCEA CCE REPower+ service, would offset energy use with onsite solar panels, and would install energy efficiency improvements including a SCADA system. For the reasons noted above, the proposed project would not conflict with or obstruct a state or local plan for renewable energy or energy efficiency. Therefore, the Proposed Project would result in no impact.

4.6.3 Mitigation Measures

None required.

4.6.4 References

City of Arcata. 2006. Community Greenhouse Gas Reduction Plan. August.

City of Arcata. 2008. Resource Conservation and Management Element. Amended Oct. 2008.

Pacific Gas & Electric (PG&E). 2020. Website – Learn the History of the Humboldt Bay Power Plant. Available at: www.pge.com/en_US/about-pge/environment/what-we-are-doing/buildings-and-operations/humboldt-bay-power-plant.page. Accessed 10/8/20.

RCEA. 2020. Webpage – Community Choice Energy. Available at: https://redwoodenergy.org/community-choice-energy/about-community-choice/. Accessed on: 10/8/20.

Schatz Energy Research Center Humboldt State University. 2005. Humboldt County Energy Element Background Technical Report, Administrative Draft. July.

4.7 Geology/Soils

	Potentially Significant Impact	Less-than-Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the Project:				
a. Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i. Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42?				✔
ii. Strong seismic ground shaking?				✔
iii. Seismic related ground failure, including liquefaction?			✔	
iv. Landslides?				✔
b. Result in substantial soil erosion or the loss of topsoil?			✔	
c. Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the Project, and potentially result in on, or off, site landslide, lateral spreading, subsidence, liquefaction or collapse?			✔	
d. Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994),			✔	

	creating substantial direct or indirect risks to life or property?				
e.	Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?				✔
f.	Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?				✔

4.7.1 Environmental Setting

The project's scope is limited to improving effluent quality of treated wastewater and undertaking maintenance/repair activities to aging treatment plant infrastructure. The following project activities, related to treatment plant site maintenance, will involve ground-disturbance.

Table 4.7-1 Arcata Wastewater Treatment Facility Improvements
List of Improvements/Structures

Facility	Plan Dimensions (feet)	Foundation Depth (feet)	Pile Supported
Phase 1			
Headworks – Grit removal and flow split	35 ft x 45 ft	El 3.8	yes
Primary clarifier – foundation rehabilitation	26 ft diameter	El 5.2	yes
New outfall pipe and outfall	1000 ft	Varies	no
New electrical building / generator	43 ft x 96	El 6.0 (at conduit trench)	yes
New UV in existing CCB structure	30 ft x 70 ft	Existing structure	no, existing
Hauser pump station – wetland outlet structures	Three – 6 ft by 12 ft	0 to 10 ft below grade	yes
Outfall 002 flow split structures	Two – 10 ft by 10 ft	5 ft below grade	yes
Pond transfer structure	10 ft by 12 ft	10 ft below grade	yes

Facility	Plan Dimensions (feet)	Foundation Depth (feet)	Pile Supported
Electrical ductbank	4,000 LF	Varies 2 ft to 5 ft below grade	no
Phase 2			
Oxidation ditch	50 ft x 200 ft	TBD (Assume El 3.0)	yes
Secondary Clarifier	75 ft diameter	TBD (Assume El 10)	yes
Thickener (Slab on grad)	25 ft x 50 ft	TBD	yes
Chemical storage facility	25 ft x 50 ft	TBD (Assume El 6.0)	yes
RAS pump station	40 ft x 26 ft	TBD (Assume El 6.0)	yes
WAS pump station	18 ft x 18 ft	TBD (Assume El 6.0)	yes

A Geotechnical Exploration and Geologic Hazards Report Part 1: Arcata Wastewater Treatment Facility Improvements Project. August 28, 2018 was prepared for Carollo Engineers, Inc. by LACO Associates (LACO Associates, 2018). Results are discussed in brief below; the full report is available at the City. A supplemental geotechnical evaluation was conducted by Crawford & Associates in May 2020 (Crawford and Associates, 2020). This section is also informed by the soils data provided in the delineation of waters and wetlands prepared by Stillwater Sciences in 2020 (Stillwater, 2020).

Geology

The Site is located in the Coast Ranges geomorphic province, which is characteristic of northwest-trending ridges and valleys running subparallel to the San Andreas Fault Zone. Prior to development in the area, the landscape was covered with delta marsh deposits that were saturated and tidally influenced.

Published Geologic maps (CDMG, 1983; McLaughlin et. al., 1965) indicate, the site is underlain by a layer of fill bay mud primarily consisting of alluvial fan and marine deposits that include clays, silts, and fine sands. Coarser deposits of sand and gravel are present in isolated areas as discontinuous lenses within the otherwise fine-grained deposits. At unknown depth, the alluvial deposits unconformably overlie poorly cemented alluvial deposits of the early to middle-Pleistocene Falor Formation. Based on the morphology of the slopes in the vicinity, the contact between the unconsolidated bay margin sediments and underlying poorly cemented alluvial deposits unconformably overlies the Jurassic to Cretaceous age Franciscan Formation bedrock.

The project is not located within the Alquist-Priolo Earthquake fault hazard area. The project area and surrounding region are in a seismically active area that experiences faulting along major regional tectonic plate boundaries (i.e., the Cascadia subduction zone) as well as along smaller faults within individual plates. It has been estimated that there is a 37 to 42% probability of a magnitude 8 Cascadia subduction zone earthquake event capable of producing severe ground shaking and permanent ground elevation changes along portions of the northern California, Oregon, and Washington coasts by 2062; and estimated a 7 to 10% probability of a magnitude 9 earthquake over the same time period. Because of its capability, recurrence interval, and timing of its last known earthquake (AD 1700), this is the largest source of consideration for earthquake hazards potentially affecting the Proposed Project. However, several known active and potentially active faults are located in the region. All coastal Northern California is subject to potentially strong seismic ground shaking.

Subsurface Conditions/Soils

The Project is in the Mad River Lowland Subbasin of the Mad River Groundwater Basin. This basin includes the coastal floodplain from the Freshwater Fault north to the Mad River and is primarily composed of alluvium that is underlain by the Pleistocene Hookton Formation. This water-bearing formation consists of clay, sand, and gravel. Prior to the current setting of the AMWS, Arcata WTTP, McDaniel Slough Restoration, this region consisted of bay tidelands that were eventually diked and used for various industrial and agricultural purposes. As such, soils at these locations are disturbed and contain dredge spoils and nonnative fill material.

LACO's borings indicate the site is blanketed by a layer of fill approximately 5 feet thick. The fill is underlain by marsh deposits approximately 40 to 60 feet thick. The marsh deposits are underlain by old terrace deposits. The fill consists of dense clayey sand with gravel. During boring activities, free groundwater was discovered in borings between two and eight feet.

Although the facility was developed on historic tidal flats consisting of 20-30 feet of bay mud deposits on northern section of Humboldt Bay, there are historic channels, creeks, and sloughs which traverse the area, potentially associated with granular soils that have a significantly higher permeability than the bay mud deposits, which may affect flux between the oxidation ponds and bay. Soil units in the survey area included Occidental, 0–2% slopes; Hydraquents-Wassents mucky silt loam, strongly saline, 0–3 % slopes, very frequently flooded; and Urban land-Anthraltic Xerorthents association, 0–2% slopes (Figure 4.7.1-1). The NRCS soil survey mapped the AMWS as water and no mapped soil unit is described within its limits.

- **Urban land soils (0 to 2% slopes).** The AWTF and levees adjacent to the Arcata Bay section of Humboldt Bay as well as the industrial areas along South G Street are included in this mapped soil unit. Urban land soils, named Anthraltic Xerorthents association, are comprised of 80% urban land, industrial and 20% anthralitic xerorthents, and similar soils. This association is found from 0 to 10 feet above mean sea level with a mean annual precipitation of 41–43 inches, a mean annual air temperature of 50–55ºF, and a frost-free period of 275–330 days (NRCS, 2019). Anthraltic Xerorthents is located on backslopes of fluviomarine terraces with a parent material of coarse- loamy fluviomarine deposit or coarse-loamy dredge spoils. A typical profile consists of gravelly loamy fine sand within the upper 0–6 inches with sandy loam, gravelly sand, and sand forming the horizons below. It has a drainage class of moderately well drained (NRCS 2019a).

- **Occidental soils (0 to 2% slopes)**. The Project's potential mitigation site near the McDaniel Slough and one staging area on the South I Street were located within this mapped soil unit. Occidental soils are found in areas with elevations that range from 0 to 30 feet above mean sea level and with a mean annual precipitation of 35–80 inches, a mean annual air temperature of 50–55º F, and a frost-free period of 275–330 days (NRCS 2019a).The Occidental series is primarily located along the backslope of salt marshes. A typical profile consists of peat in the upper 0–3 inches (Oi horizon) with silty clay loam forming all other horizons below. It has a drainage class of very poorly drained with a depth to water table and redoximorphic features ranging from 0–4 inches (NRCS, 2017). It frequently ponds and is occasionally flooded with a slightly saline to strong saline profile. Occidental series is listed as a hydric soil in the region (NRCS, 2017) with an aquic soil regime (NRCS, 2017). The water table from August through November is typically ≥35 inches (NRCS, 2017) however ranges from 0–35 inches depth in December–July.
- **Hydraquents-Wassents soils (0–3 % slopes)**. The Arcata Bay section of Humboldt Bay is mapped as this soil unit type. These soils include mucky silt loam, are strongly saline, and are very frequently flooded. Minor components of this map unit include the Hydraquents, high tidal (5%) and marine waters (5%) (NRCS, 2019). This soil type is comprised of 50% Hydraquents, low tidal and similar soils, 40% Wassents, and 10% minor components. It is found from 0 to 10 feet above mean sea level with a mean annual precipitation of 35–80 inches, a mean annual air temperature of 50–55ºF, and a frost-free period of 275–365 days (NRCS, 2019). Hydraquents, low tidal is located on tidal flats with a parent material of mucky, silty, and clayey estuarine deposits and a slope of 0–3%. A typical profile consists entirely (0–59 inches) of mucky silty clay loam. It has a drainage class of very poorly drained, a depth to water table of 0 inches, is very frequently flooded, and strongly saline (NRCS, 2019). Hydraquents, low tidal is listed as a hydric soil in the region. The Wassents series shares Hydraquents properties and qualities except for its typical profile has mucky silt loam in the upper 6 inches, has a slope of 0–1%, and a subaqueous drainage class. Wassents is also listed as a hydric soil in the region.

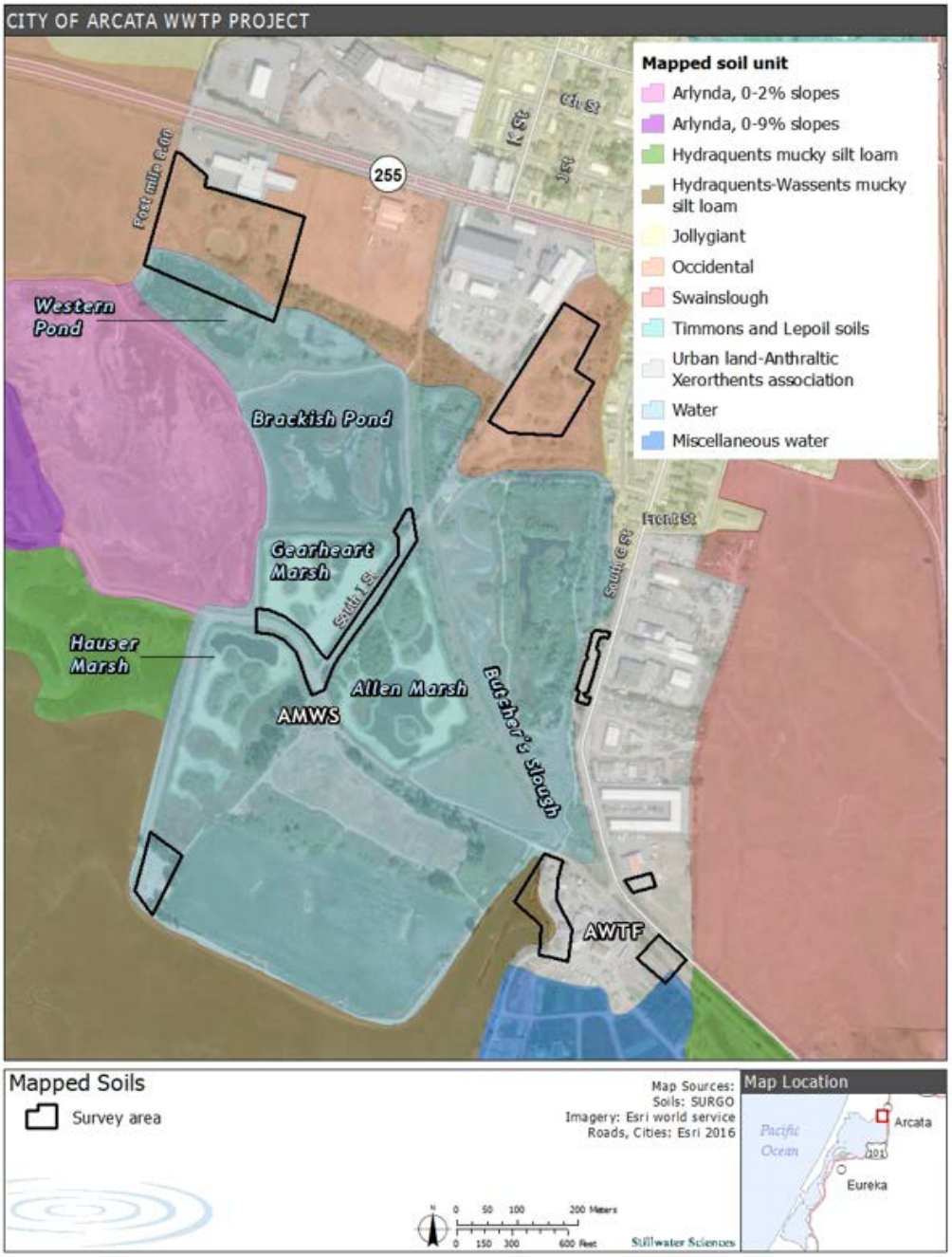

Figure 4.7.1-1: Mapped Soil Units in the Survey Area

4.7.2 Environmental Analysis

a.i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42. (No Impact)

The Project would have no impact with regard to the rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake fault Zoning Map. The nearest fault, the Fickle Hill fault, is approximately 1.3 miles northeast of the Project site. Project activities, which include shallow excavation to a depth of 8 feet, would not rupture the Fickle Hill fault or any other known fault. The Proposed Project does not involve construction of any roads or habitable structures, and therefore will

not expose people or structures to potential adverse effects including risk of loss, injury, or death involving rupture of a known earthquake fault, strong seismic ground shaking, seismic induced ground failure, or landslides. The project will not cause rupture of a known earthquake fault, will not cause seismic ground shaking, will not cause seismic-related ground failure, including liquefaction, and will not cause any landslides or increase landslide potential because it is located on a flat surface and not within close proximity to any significant slopes capable of generating landslides. No impact would occur.

a.ii) Strong seismic ground shaking? (No Impact)

The Project is situated within a seismically active area close to several seismic sources capable of generating moderate to strong ground motions. Given the proximity of the Fickle Hill fault and other significant active faults (the Little Salmon fault to the southwest, the Mad River fault zone to the north, and the Cascadia subduction zone offshore to the west), as well as other active faults within and offshore of northern California, the Project site could experience strong ground shaking during the economic life span of the proposed development.

The Fickle Hill fault is located 1.3 miles northeast of the Project and is the closest recognized active fault (California Division of Mines and Geology, 1983). The Project site is not located within an Alquist-Priolo earthquake fault zone, in which the State requires special studies for structures for human occupancy. Due to the distance from the Project site to the nearest recognized active fault, and based on the information available, the potential for ground surface fault rupture to occur at the Project site is considered low. Project implementation would not increase risk of strong seismic ground shaking or exposure to strong seismic ground shaking above existing conditions. No impact would occur.

a.iii, c, d) Liquefaction or otherwise unstable soils? (Less than significant Impact)

Liquefaction and Lateral Spreading

Liquefaction is a phenomenon involving loss of soil strength and resulting in fluid mobility through the soil. Liquefaction typically occurs when loose, uniformly sized, saturated sands or silts are subjected to repeated shaking in areas where the groundwater is less than 50 feet below ground surface. Lateral movement occurs when earthquake shaking causes a mass of soil to lose cohesion and move relative to the surrounding soil. Lateral movement can be entirely horizontal and occur on flat ground, but it is more likely to occur on or around sloping ground, such as adjacent to hillsides and waterways.

The potential for liquefaction-related settlement and lateral spreading exists at the Project site. In addition to the necessary soil and groundwater conditions, the ground acceleration must be high enough, and the duration of the shaking must be sufficient, for liquefaction to occur. Liquefaction is more likely to occur in sandy or silty non-plastic soils but may in rare cases occur in gravels and sensitive clays. Deposits most susceptible to liquefaction are young (deposited in the last 10,000 years), contain sands and silts of a similar grain size, and are in beds at least one meter thick and saturated with water. Earthquake-related liquefaction could result in sand boils and minor differential settlement on the site.

LACO's 2018 Geotechnical Hazards Report included an analysis of potential impacts from liquefaction using two methods: the Standard Penetration Test (SPT) and the Cone Penetration Test (CPT). Both methods used the same input scenario of a 7.3 magnitude earthquake. The SPT model resulted in a potential liquefaction-induced settlement of 15 inches; the CPT model resulted in a

potential liquefaction induced settlement of between 2.46 and 7.43 inches. The variability in depth of the two models is attributed to "inherent variability, sensitivity to test procedure and uncertainty", but it is noted that the CPT model tends to be more accurate due to the fact that "they provide an almost continuous penetration resistance profile for stratigraphic interpretation and the test's repeatability is very good" (LACO, 2018). In either case, there is liquefaction potential at the site in the event of an earthquake of a magnitude 7.3 or above, which could result in differential settling if not constructed correctly.

All new structures built at the site are required to adhere to the 2019 Uniform Building Code, which includes design provisions to ensure danger of settlement is reduced to a less-than-significant level (See Table 4.7-1). All rehabilitation/maintenance activities onsite will similarly be subject to the rehabilitation requirement of the 2019 Uniform Building Code. Adherence to the set design requirements will ensure all site modifications will not result in liquefaction, lateral spreading, or collapse, and will reduce the effects of the project upon unstable soils to less than significant. New structures will be supported on 36-inch drilled piers to address liquefaction and seismic design requirements. Driven piles were also considered in the earlier LACO report, but the drilled piers were selected based on constructability and lower environmental impact.

The potential for liquefaction-related settlement and lateral spreading exists at the Project site, but it has been determined the Proposed Project will not create risks to life and property because although new structures are proposed, they will be designed and built to withstand the effects of liquefaction and shrinking soils through adherence to the standards of the 2019 Uniform Building Code.

Expansive Soils

Expansive soils, generally consisting of cohesive, fine-grained clay soils, represent a significant structural hazard to buildings founded on them, especially where seasonal fluctuations in soil moisture occur at the foundation-bearing depth. Surface soils encountered during field explorations consisted of coarse- and fine-grained soils, with a low expansion potential. However, marsh deposits below the fill have expansive soil characteristics which could result in damage to project improvements if not constructed correctly.

The Proposed Project will not create risks to life and property because although new structures are proposed, they will be designed and built to withstand the effects of shrinking soils through adherence to the standards of the 2019 Uniform Building Code (See Table 4.7-1). Adherence to the set design requirements will ensure all site modifications will not result in lateral spreading and will reduce the effects of the project upon unstable soils to less-than significant.

a.iv) Landslides? (Less than significant Impact)

Landslides

The project is located on a relatively flat site that is currently being used as the City's Wastewater Treatment Plant and Corporation Yard. While the project includes upgrades to the existing system, no new uses are proposed. Because steep slopes and hillslopes are not present within the project vicinity, landslides within or near the project are unlikely to occur and the potential for landslide occurrence is not increased by the project. No impact would occur.

b) Result in substantial soil erosion or the loss of topsoil? (Less than Significant Impact)

The majority of the site is graveled or paved on level ground. All work that is performed inboard of the levees surrounding the entire WWTP drain to the wastewater system. The levees, which will be raised as a part of the Project, have the potential to cause the loss of topsoil, but this impact will remain less than significant through the implementation of standard BMPs. Given the site topography and drainage, the project is not expected to generate significant soil erosion and will not deliver sediment into watercourses.

Construction activities, including cut, fill, removal of vegetation, and operation of heavy machinery would disturb soil and, therefore, have the potential to cause erosion. These activities would be performed in compliance with the BMPs prescribed in the Arcata Municipal Code, NCRWQCB regulations and the California Building Code (CBC). BMPs may include silt fences, straw wattles, soil stabilization controls, site watering for controlling dust, and sediment detention basins. Protection measures include a SWPPP which would be required prior to any grading or construction activities in excess of one acre. Furthermore, work will occur during the dry season, from May 15 through November 15 to avoid substantial erosion or topsoil loss associated with rainfall events.

Due to the flat topography, the lack of significant cut or fill slopes and the requirements of the City and State with regard to stormwater management and erosion control, soil erosion and loss of topsoil are considered to be less than significant.

e) Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater? (No Impact)

Project activities are limited upgrades to the City of Arcata's wastewater treatment system and would not require the use of additional septic tanks or an alternative wastewater disposal system. There would be no impact.

f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature? (No Impact)

Paleontological resources are the remains or traces of prehistoric animals and plants. Paleontological resources, which include fossil remains and geologic sites with fossil-bearing strata are non-renewable and scarce and are a sensitive resource afforded protection under environmental legislation in California. Under California PRC Section 5097.5, unauthorized disturbance or removal of a fossil locality or remains on public land is a misdemeanor. State law also requires reasonable mitigation of adverse environmental impacts that result from development of public land and affect paleontological resources (PRC Section 30244). Due to Humboldt County's continuous tectonic activity through the ages, there is a low probability of finding unique paleontological resources. There are no unique geologic features located on former tidelands in this area of Humboldt Bay.

A Cultural Resources Inventory was conducted by DZC Archaeology & Cultural Resource Consulting, LLC (DZC, 2019), which analyzed approximately 123 acres of land which represent the APEs. The geoarchaeological research indicated a low potential for buried and surface prehistoric resources, and a moderate potential for buried and surficial historical resources within the APE. Based on these findings, the Project construction activities would not impact potentially significant paleontological resources.

4.7.3 Mitigation Measures

None required

4.7.4 References

California Division of Mines and Geology (CDMG). 1983. State of California Special Studies Zones, Arcata South 7.5-Minute Quadrangle, Humboldt County, CA.

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4.8 Greenhouse Gas Emissions

	Potentially Significant Impact	Less-than-Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the Project:				
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?			✔	
b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?			✔	

4.8.1 Environmental Setting

Greenhouse gases (GHGs) are gases in the atmosphere that absorb and emit radiation. The greenhouse effect traps heat in the troposphere through a three-fold process, summarized as follows: short wave radiation emitted by the sun is absorbed by the Earth; the Earth emits a portion of this energy in the form of longwave (thermal) radiation, and GHGs in the upper atmosphere absorb and emit this longwave radiation into space and toward the Earth. This "trapping" of the longwave radiation emitted back toward the Earth is the underlying process of the greenhouse effect. Other than water vapor, the primary GHGs contributing to global climate change include the following gases:

- Carbon dioxide (CO_2), primarily a byproduct of fossil fuel combustion in stationary and mobile sources.
- Nitrous oxide (N_2O), a byproduct of fuel combustion and also associated with agricultural operations such as the fertilization of crops;
- Methane (CH_4), commonly created by off-gassing from agricultural practices (e.g., livestock), wastewater treatment, and landfill operations;
- Chlorofluorocarbons (CFCs), which were used as refrigerants, propellants, and cleaning solvents, although their production has been mostly prohibited by international treaty;
- Hydrofluorocarbons (HFCs), which are now widely used as a substitute for chlorofluorocarbons in refrigeration and cooling;

- Perfluorocarbons (PFCs) and sulfur hexafluoride (SF_6) emissions, which are commonly created by industries such as aluminum production and semiconductor manufacturing.

Global climate change is not confined to a particular project area and is generally accepted as the consequence of GHG emissions from global industrialization over the last 200 years. A typical project, even a very large one, does not generate enough GHG emissions on its own to influence global climate change significantly; hence, the issue of global climate change is, by definition, a cumulative environmental impact.

According to the most recently available data in the 2015 Community Greenhouse Gas Emissions Inventory prepared by the Redwood Coast Energy Authority (RCEA) for the City of Arcata, the wastewater treatment facility is estimated to generate 4,253 metric tons of carbon dioxide equivalent (CO_2e) annually. This constitutes roughly 2.4% of Arcata's overall annual emissions; as a comparison, transportation sources account for 69% of Arcata's overall emissions (RCEA, 2017).

Regulatory Setting

State Guidance

The leading guidance on GHG emissions within the State of California is the Global Warming Solutions Act of 2006 (Assembly Bill 32), which committed the State of California to reduce GHG emissions to 1990 levels by 2020. The statute requires the California Air Resources Board (CARB) to track emissions through mandatory reporting, determine the 1990 emission levels, set annual emissions limits that would result in meeting the 2020 target, and design and implement regulations and other feasible and cost effective measures to ensure that statewide GHG emissions would reach its target.

In December 2008, pursuant to Assembly Bill 32 (AB 32), the CARB adopted the Climate Change Scoping Plan (*Scoping Plan*), which outlined measures to attain the 2020 GHG emissions target. The Scoping Plan estimated that implementation of identified measures would result in a reduction of emissions from various sectors including transportation, energy, forestry, and high global warming potential gas sectors. The CARB has updated the Scoping Plan twice, approving the First Update to the Climate Change Scoping Plan (*Updated Scoping Plan*) in May 2014, and the 2017 Scoping Plan in December 2017. The 2017 Scoping Plan identifies progress made to meet the near-term (2020) objectives of AB 32 and defines California's climate change priorities and activities for the next several years (CARB, 2017). The 2017 Scoping Plan provides strategies for meeting the mid-term 2030 greenhouse gas reduction target of 40 percent below 1990 levels by year 2030 set by SB 32. The plan also identifies how the State can substantially advance toward the 2050 greenhouse gas reduction target of Executive Order S-3-05, which consists of reducing greenhouse gas emissions to 80 percent below 1990 levels.

It is noted that the CARB announced in July 2018, that the State has already met the AB 32 goal of reducing emissions to 1990 levels by 2020 approximately four years early (CARB, 2018). As stated in the Executive Summary of the 2018 Edition of the California Greenhouse Gas Emissions Inventory: 2000-2016:

"The inventory for 2016 shows that California's GHG emissions continue to decrease, a trend observed since 2007. In 2016, emissions from routine GHG emitting activities statewide were 429 million metric tons of CO2 equivalent ($MMTCO_2e$), 12 $MMTCO_2e$ lower than 2015 levels. This puts total emissions just below the 2020 target of 431 million metric tons. Emissions vary from year-to-year depending on the weather and other factors, but California will continue to implement its greenhouse gas reductions program to ensure the state remains on track to meet its climate targets in 2020 and beyond."

Section 15064.4 of the CEQA Guidelines states a lead agency has the discretion to determine whether to use a model or methodology to quantify GHG emissions or to rely on a qualitative or performance-based standard. The GHG analysis should consider: 1) the extent to which the project may increase or reduce GHG emissions as compared to the existing environmental setting; 2) whether the project emissions exceed a threshold of significance that the lead agency determines applies to the project; and 3) the extent to which the project complies with any regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of GHG emissions. A lead agency is not responsible for wholly eliminating all GHG emissions from a project; the CEQA standard is to mitigate to a level that is "less-than-significant" or, in the case of cumulative impacts, less than cumulatively considerable (SMAQMD, 2018).

Regional Guidance

The project site is located in the North Coast Air Basin and is under the jurisdiction of the North Coast Unified Air Quality Management District (NCUAQMD). The NCUAQMD does not have rules, regulations, or thresholds for analyzing the impacts of GHG emissions from land use or infrastructure projects. In 2011, the NCUAQMD adopted Rule 111 (Federal Permitting Requirements for Sources of Greenhouse Gases) to establish a threshold above which New Source Review and federal Title V permitting apply, and to establish federally enforceable limits on the potential to emit GHGs for stationary sources. These are considered requirements for stationary sources and are not recommended as a threshold of significance for use in environmental documents. For reference, Sections D(1)(a) and D(1)(b) of Rule 111 have applicability thresholds of 75,000 $MTCO_2e$ per year and 100,000 metric tons of carbon dioxide equivalent ($MTCO_2e$) per year (NCUAQMD, 2015). The applicability thresholds in Rule 111 are significantly higher than the project-level GHG thresholds adopted by other air districts in the State. In the absence of quantitative thresholds applicable to the Proposed Project, the NCUAQMD recommends the use of thresholds and guidance provided by other air districts in the State.

Other Air District Guidance

In the North Coast Air Basin (NCAB), the closest air district to the Proposed Project that has adopted GHG significance thresholds is the Mendocino Air Quality Management District (MCAQMD). MCAQMD has adopted an operational emissions threshold of 1,100 metric tons of CO_2e per year ($MTCO_2e$/yr) (MCAQMD, 2010). This threshold is also recommended for use by the Bay Area Air Quality Management District (BAAQMD, 2017) and the Sacramento Metropolitan Air Quality Management District (SMAQMD, 2020). The SMAQMD also recommends use of this threshold for analyzing GHG emissions from construction activity. This threshold was developed to ensure at least 90 percent of new GHG emissions would be reviewed and assessed for mitigation, thereby contributing to GHG emissions reduction goals of AB 32, SB 32, the Scoping Plan, and

Executive Orders (SMAQMD, 2018). As such, this threshold has been adopted for use in the NCAB and is one of the most used thresholds in the State for analyzing the potential impacts of construction and operational GHG emissions. For the reasons noted above, the threshold of 1,100 $MTCO_2e$/yr is used to evaluate the proposed project's construction and operational GHG emissions. If the threshold is exceeded, then the project would have a cumulatively considerable contribution to a significant cumulative environmental impact and would conflict with an applicable plan, policy, or regulation adopted for the purposes of reducing GHG emissions.

Humboldt County

In cooperation with Redwood Coast Energy Authority (RCEA) and the various cities in the County, Humboldt County is currently developing a Climate Action Plan, which would address planning for reductions in greenhouse gas emissions. The plan is not yet complete. Humboldt County has also not adopted any significance thresholds to analyze project-level impacts from GHG emissions.

City of Arcata

The City of Arcata does not have an adopted Climate Action Plan (CAP) and is currently working with Humboldt County and RCEA on a County-wide CAP. The City of Arcata has also not adopted any significance thresholds to analyze project-level impacts from GHG emissions.

In 2006, the City developed a Community Greenhouse Gas Reduction Plan. The Plan was developed in part by analyzing an inventory of community-wide GHG emissions that was conducted in 2000. The plan focused on six action areas including energy efficiency, renewable energy, sustainable transportation, waste and consumption reduction, carbon sequestration and other methods, and cross-cutting approaches (City of Arcata, 2006). Arcata's GHG inventory has since been updated in the 2010 Greenhouse Gas Emissions Inventory of Government Operations (RCEA, 2012) and the 2015 Community Greenhouse Gas Emissions Inventory (RCEA, 2017).

4.8.2 Environmental Analysis

a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment? (Less than Significant)

As discussed in the Environmental Setting, the City of Arcata wastewater treatment facility is estimated to generate 4,253 metric tons of CO_2e annually (RCEA, 2017). The emissions currently generated by the AWTF are part of the existing baseline condition. The project proposes improvements to the AWTF that would not increase capacity and, therefore, would not result in a significant increase in GHG emissions.

Both construction and operational GHG emissions for the Proposed Project were estimated using the California Emissions Estimator Model (CalEEMod), which is a statewide land-use emissions computer model designed to provide a uniform platform for government agencies to quantify potential criteria air pollutants and GHG emissions associated with both construction and operation of a variety of land use projects.

As discussed in the Environmental Setting, the NCUAQMD, County of Humboldt, and City of Arcata have not adopted thresholds to analyze project-level impacts from GHG emissions. Therefore, the threshold of 1,100 MTCO2e/yr is used to evaluate the Proposed Project's construction and operational GHG emissions. This threshold has been adopted for use in the NCAB and is one of the most used thresholds in the State for analyzing the potential impacts of construction and operational GHG emissions. Table 4.7-1 presents the estimates of unmitigated GHG emissions from the Proposed Project and compares project-related GHG emissions to the 1,100 $MTCO_2e/yr$ threshold of significance. Since construction activities for Phase 1 and Phase 2 are not anticipated to occur within the same year, the maximum annual emissions from each phase are compared to the threshold separately. Since both phases of the project will result in increases in operational emissions, the estimated increase in annual operational emissions from both phases of the project are combined and compared to the threshold. If the threshold is exceeded for either construction or operation of the Proposed Project, then the project would have a cumulatively considerable contribution to a significant cumulative environmental impact.

Table 4.8-1 Unmitigated GHG Emissions (Annual Metric Tons Per Year)

Phase	GHG Emissions ($MTCO_2e/yr$)[1]	Threshold of Significance ($MTCO_2e/yr$)	Significant Impact
Construction – Phase 1	273.3	1,100	No
Construction – Phase 2	333.1	1,100	No
Operation – Both Phases Combined	218.3	1,100	No

1. $MTCO_2e/yr$: metric tons of carbon dioxide equivalent per year

Source: MCAQMD, 2010; SMAQMD, 2020; BAAQMD, 2017; CAPCOA, 2017

As shown in Table 4.8-1, the construction and operational GHG emissions from the Proposed Project are below the threshold of significance. In addition, if the construction emissions for Phase 1 and 2 were combined, they would also be below the threshold.

Due to the limitations of the CalEEMod, electricity was assumed to be provided to the Proposed Project by Pacific Gas & Electric (PG&E) Company (CAPCOA, 2017). However, the AWTF is currently enrolled in the RCEA Community Choice Energy (CCE) program which procures a greater percentage of its power from renewable and carbon-free sources than the power sources provided by PG&E (RCEA, 2020). In fact, the City has opted into the RCEA Repower+ service, which provides 100 percent renewable energy to the AWTF. In addition, the City has installed solar panels on the roof of the drying beds at the AWTF to provide an onsite source of renewable energy. The existing solar panels have the capacity to generate 64 kilowatts (kW) of energy. The City also has plans to install additional rooftop solar panels at the AWTF to offset an additional 60 kW of energy. Since the reductions in GHG emissions from these renewable sources of energy were not factored into the

emissions modeling, the estimates in Table 4.8-1 provide a conservative estimate of operational GHG emissions from the Proposed Project.

As proposed and with enrollment in the RCEA CCE REPower+ service, the Proposed Project would not generate GHG emissions, either directly or indirectly, that would have a significant impact on the environment. Therefore, GHG emissions from the Proposed Project would be less than significant.

b) Will the project conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases? (Less than Significant)

A GHG impact would be significant if GHG emissions from the Proposed Project would conflict with an applicable plan, policy, or regulation for the purpose of reducing GHG emissions. As noted in the Environmental Setting, the City of Arcata does not have an adopted CAP and is currently working with Humboldt County and RCEA on a County-wide CAP. For the Proposed Project, it is analyzed whether the emissions obstruct compliance with the GHG emission reduction goals in Assembly Bill (AB 32), Senate Bill 32 (SB 32), Executive Order S-3-05 (EO S-3-05), and the City of Arcata Community Greenhouse Gas Reduction Plan. As stated in the Environmental Setting, to the extent that the Proposed Project does not exceed the threshold of significance of 1,100 MTCO2e/yr, it would not result in a conflict with GHG reduction plans.

The Proposed Project is subject to a myriad of state regulations applicable to project design, construction, and operation that would reduce GHG emissions, increase energy efficiency, and provide compliance with the CARB Climate Change Scoping Plan (CARB, 2017). The State of California has the most comprehensive GHG regulatory requirements in the United States, with laws and regulations requiring reductions that affect project emissions. Legal mandates to reduce GHG emissions from vehicles, for example, reduce project-related vehicular emissions. Legal mandates to reduce GHG emissions from the energy production sector that will serve the Proposed Project would also reduce project related GHG emissions from electricity consumption. Legal mandates to reduce per capita water consumption and impose waste management standards to reduce methane and other GHGs from solid wastes are all examples of mandates that reduce GHGs.

As discussed in the Environmental Setting, the AWTF is estimated to generate 4,253 metric tons of CO_2e annually (RCEA, 2017). The emissions currently generated by the AWTF are part of the existing baseline condition. The project proposes improvements to the AWTF that would not increase capacity and, therefore, would not result in a significant increase in GHG emissions. As discussed above, GHG emissions from the Proposed Project's construction and operational activity are below the threshold of significance of 1,100 MTCO2e/yr. As discussed in the Environmental Setting, this threshold has been adopted for use in the NCAB and is one of the most used thresholds in the State for analyzing the potential impacts of construction and operational GHG emissions. Therefore, construction and operational emissions from the Proposed Project would be less-than-significant.

As described above, the AWTF is currently enrolled in the RCEA CCE program which procures a greater percentage of its power from renewable and carbon-free sources than the power sources provided by PG&E (RCEA, 2020). In fact, the City has opted into the RCEA Repower+ service,

which provides 100 percent renewable energy to the AWTF. In addition, the City has installed solar panels on the roof of the drying beds at the AWTF to provide an onsite source of renewable energy. The existing solar panels have the capacity to generate 64 kilowatts (kW) of energy. The City also has plans to install additional rooftop solar panels at the AWTF to offset an additional 60 kW of energy. Since the reductions in GHG emissions from these renewable sources of energy were not factored into the emissions modeling, the estimates in Table 4.8-1 provide a conservative estimate of operational GHG emissions from the Proposed Project.

The City has also recently lined a significant amount of sewer mainlines as part of a collection system upgrade. The City anticipates having significantly less inflow and infiltration during the wet season that will result in reduced energy consumption from pumping and wastewater treatment.

As proposed, in compliance with existing regulatory requirements, and with enrollment in the RCEA CCE REPower+ service, the Proposed Project would not generate GHG emissions that would conflict with an applicable plan, policy, or regulation for the purpose of reducing GHG emissions. Therefore, the Proposed Project would result in a less-than-significant impact.

4.8.3 Mitigation Measures

None required.

4.8.4 References

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SMAQMD. 2020. CEQA Guide: SMAQMD Thresholds of Significance Table. Available at: http://www.airquality.org/LandUseTransportation/Documents/CH2ThresholdsTable4-2020.pdf.

4.9 Hazards and Hazardous Materials

	Potentially Significant Impact	Less-than-Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the Project:				
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?			✔	
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?			✔	
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?				✔
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?			✔	
e) For a Project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport,				✔

would the Project result in a safety hazard or excessive noise for people residing or working in the Project Area?				
f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?				✔
g) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?				✔

4.9.1 Environmental Setting

This section evaluates the potential impacts related to hazards and hazardous materials during construction and operation of the Project.

The Project would be located on the existing Arcata Wastewater Treatment Facility site zoned Public Facilities. The site has been used as a wastewater treatment facility since 1949. The wastewater treatment facility is currently operational and has been for decades, and the proposed improvements do not constitute a new use at the site. The continued intended use of the site will be to disinfect and treat wastewater, which currently requires a balance of chemicals to ensure the treated effluent meets the standards of the National Pollution Discharge Elimination System (NPDES) Standards. The Proposed Project will generally reduce the treatment facility's reliance on toxic substances used in the treatment of wastewater, most notably chlorine gas and sulfur dioxide. The proposed UV Disinfection System will reduce the use of chlorine and sulfur dioxide that the current system requires, which poses an environmental and employee safety hazard. Moving to a UV Disinfection System will also remove the disinfection byproducts that chlorine creates. Onsite chemicals and contaminants categorized as "Toxic Substances" are discussed below.

Chlorine Gas and Sulfur Dioxide

The Treatment Facility currently uses liquid chlorine, extracted as a gas, to treat wastewater. After the disinfection process is complete, the water is dechlorinated prior to discharge by adding sulfur dioxide. Both chlorine and sulfur dioxide are considered potentially hazardous toxic substances. Both substances are stored onsite and are subject to the City's Risk Management Prevention Plan (Attachment 23) to ensure site safety. It has been reported in the City's Risk Management Prevention Plan that the AWTF has been handling chlorine for over 25 years and has never experienced a release. As noted in the plan, the plant, on average, has fifteen (one ton) chlorine cylinders on site. Typically, six cylinders are on-line and nine are in storage. In addition, there are also six sulfur dioxide-containing cylinders on-site, with two cylinders on-line and four in storage. As part of the Risk Management Prevention Plan evaluation, plant staff determined that due to an annual average chlorine consumption of 1.5-2 tons per week, chemical supplier location (500 miles away), delivery delays due to road conditions and effluent disinfection requirements, that the amount of on-site chemical was necessary.

The facility operates under an NPDES permit issued in 2012 and updated in 2014 and 2019, which includes requirements for disinfection, treatment processes, and outfalls. Due to compliance issues, new regulatory discharge requirements and the City's desire to change from chlorine to UV disinfection for environmental reasons, the permit was changed to improve wastewater treatment and reduce chemical usage. The 2019 permit introduced new lower limits for effluent ammonia, and revised requirements for the new UV disinfection system.

The City of Arcata will phase out the existing chlorine and sulfur dioxide gas system as the primary disinfection process after the implementation of the new UV system in an attempt to improve water quality and move away from use of gaseous chlorine as a disinfectant. The existing system will still remain as a backup to the UV and for peak wet weather flow disinfection. This will require that the plant maintain the system and store chlorine and sulfur dioxide ton cylinders on site, especially during wet weather.

Improvements include a 9.8-million-gallons per day effluent UV disinfection facility, and new UV and enhancement wetlands effluent flow meters. Flows in excess of 9.8 million gallons per day will still need to be treated by other disinfection methods, which may include continued chlorine use, but any use of chlorine past Phase 1 of the proposed improvements will use chlorine in a solid, not gaseous form, which significantly reduces its potential toxicity. Furthermore, the likelihood of needing to utilize other disinfection methods in addition to UV is very small, as the highest daily flow recorded from 2013-2017 was 9.1 million gallons per day, and the average annual flow is only 1.7 million gallons per day (Carollo, 2019). The improved system will significantly reduce the need for toxic substances in the treatment of Arcata's wastewater. Reduced need for chlorine and sulfur dioxide will ensure reduced potential of chlorine cylinder spills in the event of a catastrophic event and will reduce hazards to employees on an ongoing basis.

While the amount of chemical stored on-site in this scenario can be reduced once the UV system is online, chlorine and sulfur dioxide will still need to be stored on-site, and ready for use during wet weather. In the future, the system could be retrofitted to a liquid chemical system for use during wet weather or as a redundant system to the new UV system. The reason to retrofit the system is to reduce the overall potential risk from the one-ton chlorine cylinder system. Commonly sodium hypochlorite and sodium bisulfite are used to retrofit gas systems. The benefit of using the liquid chemical is lower potential for release of hazardous gas, and a fairly simple chemical dosing system. The chemicals would be stored in high-density polyethylene tanks. The tanks could be located in the existing chlorine gas storage area, with slight modifications to provide containment. Chemical metering pumps could be installed adjacent to the tanks and used to pump the chemical solution directly to the existing Chlorine Contact Basin. The existing chemical induction units could be reused for this application.

Alkalinity Solution

Future wastewater treatment may require an alkalinity solution to treat wastewater to ensure the proposed pH level of treated effluent prior to discharge. Based on current testing results it is unlikely to be needed, as alkalinity readings are currently within optimal range. Continued testing over the course of Phase 1 will determine if sodium hydroxide or other chemical compounds will be required to balance pH of treated effluent, and provide alkalinity and buffering capacity. Large quantities of alkalinity solution may be required if it is determined the site needs buffering capacity when attempting to reach desired alkalinity. Adopted safety protocols currently in place will be expanded

to include sodium hydroxide /or other chemicals determined to be necessary to achieve desired pH per the site's adopted Hazardous Materials Business Plan.

Historic Contaminated Soils

EnviroStor included two sites within the APE. The first is RB Case No. 1NHU767 at the AWTP. This site, at the City Corporation Yard, was most recently analyzed through the preparation of a Soil and Groundwater Management Contingency Plan (SHN, 2020). The second is RB Case No. 1NHU018 at Little Lake Industries site and surrounding area and its potential contribution of dioxins to the adjacent slough and drainages.

The Corporation Yard site contains contaminated soils due to leaking above-ground storage tanks and pump islands. Investigation and remediation of the release was undertaken by SHN. The site remains open and is in the process of being "Closed" by the North Coast Regional Water Quality Control Board (NCRWQCB). Residual petroleum hydrocarbons in the soil and groundwater remain at the site at levels over industrial screening levels. A Soil and Groundwater Management Contingency Plan for the Arcata Corporation Yard was prepared in 2020 for the impacted area and was approved by the NCRWQCB. In addition, a land use covenant will be in place for the impacted area that will restrict future uses but maintain industrial type current uses. Residential development is restricted and installation of water supply wells without NCRWQCB approval is prohibited (SHN, 2020). These provisions will ensure that contaminated soil and groundwater is handled properly and disposed in accordance with applicable regulations for protection of worker safety and the environment.

The project's staging areas include a City-owned site located on South I Street in the northernmost section of the APE. Now known as the "Little Lakes" site, the area consists of three parcels that historically housed mill yard operations and the soils contains trace amounts of historic contaminants from mill operations including diesel, motor oils, metals and dioxins (RWQCB Case No. 1NHU018). The site also included two 1,000-gallon underground storage tanks that were removed in 1987. The City of Arcata acquired the property in 2001, and by 2010, all structures located on the property had been removed. The site currently consists of building foundations and footings, bare ground, vegetated areas, and various stockpiles of soil and gravel. Two targeted Brownfields assessments of the site were completed by Weston Solutions in December 2002 (Phase II) and April 2004 (Phase IIB) to determine if soil and groundwater at the site were impacted by contaminants. Based on the findings of the Weston Phase II and Phase IIB reports, as well as current site investigation data prepared by SHN in 2019 and 2020, onsite contamination above regulatory screening levels is present in soils located at the former kiln buildings in the northern portion of the site. Impacts to groundwater at the site from mill operations appears to be limited and further investigation is not warranted based on current findings. Supplies staged at the central and southern portion of the Little Lakes site will have no effect upon equipment or personnel onsite if used for

short-term staging. No ground-disturbing activity is proposed and historic contamination in this area is observed to be below environmental screening levels.

4.9.2 Environmental Analysis

a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials? (Less Than Significant Impact)

b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment? (Less Than Significant Impact)

As discussed above, the City's wastewater treatment system requires the use of chemicals, some of which may be categorized as hazardous in concentration; however, the area where chemicals are used is secure and closed to the public and safety protocols are in place to ensure onsite staff handles all chemicals safely. The State Water Board regulates chemical use through its NPDES permit procedures, which requires daily reporting and testing onsite.

In addition to adopted protocols, the treatment facility and Corporation Yard are inspected on a semi-annual basis by the County Certified Unified Program Agency (CUPA). The CUPA is charged by the State Secretary for Environmental Protection and Hazardous Materials Program of the Humboldt County Division of Environmental Health with the responsibility of conducting compliance inspections of facilities handling hazardous materials, generating or treating hazardous waste and/or operating underground storage tanks in Humboldt County. The CUPA uses education and enforcement to minimize the risk of chemical exposure to human health and the environment. The CUPA forwards important facility information to local fire prevention agencies that enables them to take appropriate protective action in the event of an emergency at regulated facilities.

The Proposed Project improvements will reduce the potential for site contamination and will reduce risks to onsite staff and the greater community by instituting a significant decrease in the amount of gaseous chlorine used onsite. The project will result in a net decrease in onsite hazardous materials by reducing chlorine treatment of wastewater. Any other potentially hazardous chemicals associated with ongoing disinfection and treatment will continue to adhere to adopted site protocols and safety data sheets and will receive oversight from the County CUPA. The project will have a net beneficial impact on toxic substances and will reduce potential contamination.

Construction of the Project would include the transport and use of common hazardous materials inherent to the construction process, including petroleum products for construction equipment and vehicles, and paints, asphalt materials, concrete curing compounds, and solvents for construction of Project improvements. These materials are commonly used during construction, are not acutely hazardous, and would be used in relatively small quantities.

The Project would be required to implement storm water best management practices during construction in accordance with the State Water Resources Control Board General Construction Storm Water Permit. Best management practices addressing materials management would be required, including proper material delivery and storage, spill prevention and control, and management of concrete and other wastes.

Because the City and its contractors would be required to comply with existing and future hazardous

materials laws and regulations and applicable best management practices addressing the transport, storage, use, and disposal of hazardous materials, the potential to create a significant hazard to the public or the environment during construction of the Project would be less than significant. Following construction, operation of the Project would not result in the need for new hazardous materials that would need to be transported, used, or disposed that would create a hazard to the public or the environment. No impact would occur.

The Project would utilize heavy machinery to perform some tasks including grading/excavation, paving, and transportation of materials. There is always the possibility when equipment is operating that an accident could occur, and fuel could be released onto the soil. Equipment on site during construction would be required to have emergency spill cleanup kits immediately accessible in the case of any fuel or oil spills.

c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school? (No Impact)

The closest existing school is Union Street Charter School, located roughly 0.8 miles from the Project site. There are no known proposed schools located within one-quarter mile of the Project site. Therefore, there would be no impact to schools within one-quarter mile of the Project.

d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment (Less Than Significant Impact)

The provisions in Government Code Section 65962.5 are commonly referred to as the "Cortese List." A search of the Cortese List search (CalEPA, 2019) was completed to determine if any known hazardous waste sites have been recorded on or adjacent to the Project. The Proposed Project APE contains two sites that comprise the Cortese List or Envirostar/Geotracker databases. As noted in Section 3.9-1 Environmental Setting, both these sites are under cleanup and closure procedures under the Water Board and the Proposed Project will not directly impact the areas that have been identified. The Corporation Yard and a northern staging area (Little Lakes) have historic contamination and both sites are moving towards site closure in partnership with the Regional Water Quality Control Board. Staging supplies on the Little Lakes site will have no effect upon equipment or personnel onsite, used for short-term staging as no ground-disturbing activity is proposed and historic contamination in this area is observed to be below environmental screening levels. Proposed Project activities that may affect contaminated soils at the City Corporation Yard site will be mitigated through the application of the site’s approved Soil and Groundwater Management Contingency Plan.

There are no known hazardous materials sites that impact the Project. As such, a less-than-significant impact would occur that would create a significant hazard to the public or the environment.

e) For a Project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the Project result in a safety hazard or excessive noise for people residing or working in the Project Area? (No Impact)

The Project is not located within an airport land use plan. The closest airports are 8 miles to the north and 3.6 miles to the southwest. No project improvements are taller than existing improvements, thereby not creating a safety hazard. See Section 3.13 Noise for additional information related to noise. The APE would not be adversely affected by airport noise. No impact would occur.

f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan? (No Impact)

The City does not have an independent emergency response plan, but the treatment facility has site-specific emergency response plans, including a risk management plan and a chlorine/sulfur dioxide emergency response plan. The Proposed Project will decrease risk of chlorine contact and contamination, and no element of the Proposed Project will increase site risks. During construction, the project area will continue to be accessible using existing entrances to the AWTF. The project will not include development that would increase the number of people exposed to emergencies and would not include uses that would require an amendment of a locally adopted emergency plan. The Humboldt County Emergency Operations Plan (Humboldt County, 2015) does not designate specific evacuation routes or emergency shelter locations or include policies or procedures with which the Project would conflict. Therefore, the Project would not impair implementation of or physically interfere with the plan. No impact would occur.

g) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires? (Less Than Significant Impact)

The California Department of Forestry and Fire Protection (CAL FIRE) is required by law to map areas of significant fire hazards based on fuels, terrain, weather, and other relevant factors. These Fire Hazard Severity Zones (FHSZ) influence how people construct buildings and protect property to reduce risk associated with wildland fires. The Project site is located in a local responsibility area (LRA) meaning an area where local governments have financial responsibility for wildland fire protection (Humboldt County 2019). The Project site is in an area that has low potential for wildland fire. No portion of the Project is located in a state responsibility area (SRA). It is possible fire ignition could occur during construction (e.g. related to heavy machinery usage). The project is located within and would receive support from the Arcata Voluntary Fire Department. The Project would not otherwise increase exposure to wildland fires above the existing conditions. The impact would be less than significant.

4.9.3 Mitigation Measures

None required

4.9.4 References

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4.10 Hydrology and Water Quality

	Potentially Significant Impact	Less-than-Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the Project:				
a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?			✔	
b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the Project may impede sustainable groundwater management of the basin?				✔
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:				
i) Result in substantial erosion or siltation on- or off-site?			✔	
ii) Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?			✔	
iii) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?			✔	
iv) Impede or redirect flood flows?			✔	
d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to Project inundation?			✔	
e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?				✔

4.10.1 Environmental Setting

The Proposed Project is located at the northeast edge of Humboldt Bay. In the late 1800s, much of the Project area was used for various industrial activities (e.g., wharf, railroad, timber transport) and later diked for agricultural purposes (i.e., farming and pasture) and nearby lumber mill operations. The site of the Proposed Project is located primarily on these former filled tidelands at elevations of approximately 10-14 feet (NAVD 88) above sea level and is relatively flat. Surrounding land uses include Humboldt Bay to the south and is primarily surrounded by adjacent salt marsh habitat between the Bay and project improvements. Freshwater wetlands, riparian areas, and agricultural lands are found sporadically within and adjacent to the Project area's Area of Potential Effect (APE) -See Figures 3.2-2 and 3. Jolly Giant Creek/Butcher Slough flows through the Project Area. The AMWS is within and adjacent to project improvements. The City's Corporation Yard is co-located and adjacent to the wastewater treatment facility. The South G Street and South I Street areas are to the north and have a mixture of industrial, commercial, residential, and agricultural uses. U.S. Highway 101 is located to the east of the project site.

The AWTF, which includes the AMWS, is part of the coastal Humboldt Bay ecosystem and provides rich coastal habitat. The original treatment oxidation ponds were constructed in Humboldt Bay in 1949. Subsequent upgrades to the AWTF included the current AWTP with oxidation ponds, treatment marshes and the AMWS enhancement marshes. Additional upgrades to the AMWS include the McDaniel Slough project, which included tidal and seasonal freshwater habitat constructed on both City and state property to the west. That project included restoration of tidal function of over 300 acres in the Janes Creek Estuary, construction of Brackish Marsh with tidal exchange, two additional permanent freshwater wetlands, and public trails for passive recreation/wildlife viewing on City property. The McDaniel Slough Project created Brackish Marsh, Eastern Pond, Western Pond, and North Pond, which were formerly grazed pasture prior to construction.

The AWTF is a unique hybrid of wastewater treatment and wildlife habitat. A series of oxidation ponds, treatment wetlands, and enhancement wetlands are used to treat sewage waste. The AMWS-constructed freshwater enhancement marshes include Allen, Gearheart, and Hauser Marshes. The Treatment Wetlands are located within the AWTP envelope. Water associated with Allen, Gearheart, and Hauser Enhancement Marshes originates from the AWTP. Currently this disinfected and treated wastewater is then pumped back to the AWTP for a second final disinfection, then discharged via an outfall pipe (Outfall 001) into Butcher Slough, which drains to the Arcata Bay section of Humboldt Bay. The Brackish and Western ponds have direct connections (e.g., pipes with tidal flap, adjustable tide gate) to McDaniel Slough and eventually the Arcata Bay section of Humboldt Bay. The McDaniel Slough EIR (SCH# 2003022091) (City and CDFG, 2006) noted that one purpose of constructing Brackish Marsh was that the future outfall (Outfall 003) of treated AWTP effluent would discharge into Brackish Marsh someday. As such, Brackish Marsh is not currently brackish and is awaiting the Proposed Project to fulfill its intended purpose.

The proposed process changes are outlined on the process flow diagram presented in Figure 3.5-1 of the project description. Following completion of Phase 1, up to 5 million gallons per day (mgd) will continue to be pumped through the improved headworks and clarifier before gravity flowing to Oxidation Ponds 1 and 2. Flows between 1 and up to 5 mgd will undergo further treatment through the treatment wetlands and enhancement marshes. Both the treatment wetlands effluent (up to 5

mgd) and the treated/aerated Oxidation Pond wastewater (up to 7.5 mgd) will be pumped to the 9.8 mgd UV system for disinfection prior to discharge. As a result, up to 9.8 mgd will be UV disinfected and will be acceptable to discharge to the bay at two locations: the new Outfall 003 at the existing Brackish Marsh adjacent to McDaniel Slough (up to 6 mgd), and existing Outfall 001 at Butcher Slough for flows above 6 mgd. (See Figure 4.4-1)

Groundwater

According to the City's General Plan, the City of Arcata obtains most of its domestic water supply from the Mad River and a small portion from a municipal domestic water source 3.5 miles north of the Proposed Project. Agricultural operations in the area rely on groundwater and municipal supplied water. Proposed Project implementation would use municipal supplied water during construction by allowing contractors to hookup to fire hydrants. The project site is not located on nor does it affect a sole source aquifer. The closest sole source aquifer located near Fresno, California is more than 350 miles from the site of the Proposed Project (USEPA, 2020).

Drainage and Stormwater, Erosion Control

The APE is generally flat with dispersed runoff into vegetated areas. The exception to this is the AWTP where stormwater is collected and pumped to the oxidation pond, and then subject to additional treatment as it circulates through the enhancement wetlands. Improvements to this storm drainage system within the headworks of the AWTP is proposed as part of the Proposed Project (See Section 2). The site has little topographic relief (See 3.6 Geology) with no potential for erosion and sedimentation from slopes. Construction activities that result in exposing soils and other materials, through trenching, excavation and stockpiling activities would be subject to regulatory requirements, as described below.

Flooding / Tsunami

The Project site is located adjacent to Humboldt Bay, a large isolated body of water that may be affected by a seiche or tsunami. The Project is also located inside of the FEMA 100-year flood zone (AE Zone) and is nearby to a FEMA Coastal High Hazard Area (VE Zone). The current Base Flood Elevation (BFE) for a 100-year flood is 10.05 ft (NAVD 88). See Figure 4.10-1 for extent of FEMA base flood (from FEMA Panels 06023CD- 0852G and 0855G, 2017).

The McDaniel Slough Restoration Project (City, CDFG, 2006) noted that:

> *"Flows on Janes Creek can vary seasonally from a few cubic feet per second (cfs), to more than 1,000 cfs during extreme floods (Klein and Anderson, 2000a). There have been various estimates of 100-year peak flow discharges at Samoa Boulevard. The 10- and 100-year peak flood flows given by the Federal Emergency Management Agency (FEMA) for Janes Creek further upstream at Q Street are 610 cfs and 1030 cfs respectively (FEMA, 1997). Klein and Anderson (2000a) estimated the 10-year peak flow to be between 516 cfs and 695 cfs and the 100-year peak flow to be between 974 cfs and 1,312 cfs based on a 3.9 square mile watershed. Scalici et al (1992) more accurately estimated the watershed limits to be 4.5 square miles. Applying this to Klein and Anderson's analysis gives an upper estimate of 730 cfs for*

the 10- year peak flow and 1,400 cfs for the 100-year peak flow, which include estimated baseflows of 50 cfs and 30 cfs respectively.

"The McDaniel Slough channel is expected to scour and widen when tidal action is restored to the site, which will increase channel conveyance. Accumulated sediment is expected to erode from the aggraded channel in McDaniel Slough channel when the tidegates are removed, the levee is breached, and water flows without obstruction from Janes Creek to Humboldt Bay. The impact of channel erosion is not anticipated to be significant. The restored marsh will serve as a net sediment sink with a capacity to store much more sediment than the expected volume of eroded material. As discussed in Section 3.1.2, erosion of the silted channel will reduce existing flood hazards.

"The McDaniel Slough channel will scour after restoration due to a combination of tidal flows and flows from the Janes Creek watershed. Fine-grained material and cohesive Bay mud will readily erode from the channel within the site and the Bay channel downstream of the site. Vegetation in the slough channel, which is concentrated in upstream portions of McDaniel Slough, will tend to stabilize sediments and slow erosion."

The scouring of the McDaniel Slough channels was determined to likely occur over a seven-year period. This scouring has been occurring over the last ten years, and suggests that the contribution of treated wastewater to assist in keeping these channels cleared of fine sediments is a beneficial impact. The maximum inflow of treated wastewater from Brackish Marsh to McDaniel Slough will be 9.3 cfs. Flows above this will be directed to Outfall 001.

The majority of the APE is also subject to tsunami run-up. See Figure 4.10-2 for extent of anticipated run-up (State of California, 2020). Mitigation for tsunami runup was included in the McDaniel Slough EIR, consisting of warning signs; these are in place.

Water Quality

As described below, under Regulatory Setting, the APE is subject to a number of regulations pertaining to water quality. The APE contains areas of wastewater treatment, storage of chemicals, stormwater runoff, contaminated soils, environmentally sensitive habitat areas, and recreational uses. These areas, in respect to water quality, have been described in more details under Sections 3.4 Biological Resources, 3.7 Geology, and 3.9 Hazards and Hazardous materials.

The McDaniel Slough Restoration Project (City, CDFG, 2006) noted that:

"*Surface water quality in Janes Creek and surrounding drainage ditches is poor during winter months due to a high-suspended sediment load. During the summer months, agricultural runoff and livestock grazing can contribute to poor water quality. The tidegates inhibit circulation of water between the project site and*

Humboldt Bay, which also effects water quality. In Humboldt Bay, the water is naturally very muddy due to high estuarine suspended sediment concentrations. Concentrations vary seasonally and in response to the tide cycle and wind wave conditions. As described above, PWA estimated an average annual concentration of 125 mg/L of sediment.

The Basin Plan, which was adopted by the California Regional Water Quality Control Board, North Coast Region, establishes a number of policies regarding discharges of wastewater and includes water quality objectives for the Arcata Plain Hydrologic Unit (which includes the preferred and alternative project sites). The Basin Plan also includes a 'Water Quality Control Plan for the Enclosed Bays and Estuaries of California', and a specific 'Action Plan for Humboldt Bay' (Water Quality Control Plan for the North Coast, 1996). The Action Plan for Humboldt Bay requires surveillance and monitoring, review and assessment of land use activities, and Regional Board coordination with other state and local agencies with regard to protecting water quality in Humboldt Bay. In order to assure protection of waters in the Arcata Plain Hydrologic Unit and Humboldt Bay, the Regional Board closely monitors construction and industrial activities that could potentially impact water quality.

Determination
Less than significant adverse impact with the incorporation of mitigation measures.

Mitigation
3.1.4a *The Erosion and Sediment Control Plan shall include storm water pollution prevention measures applicable to the scope of construction activities proposed and shall include Best Management Practices (BMPs) as provided in the CalTrans Storm Water Quality Handbook or an equivalent approved by the City.*

3.1.4b *A Stormwater Pollution Prevention Plan (SWPPP) would be prepared as required by the Regional Water Quality Control Board."*

These were implemented for the McDaniel Slough project and are now standard regulations that will be met for this project.

FIGURE 4.10-1

Arcata Wastewater Treatment Facility Upgrade

FEMA Flood Zone

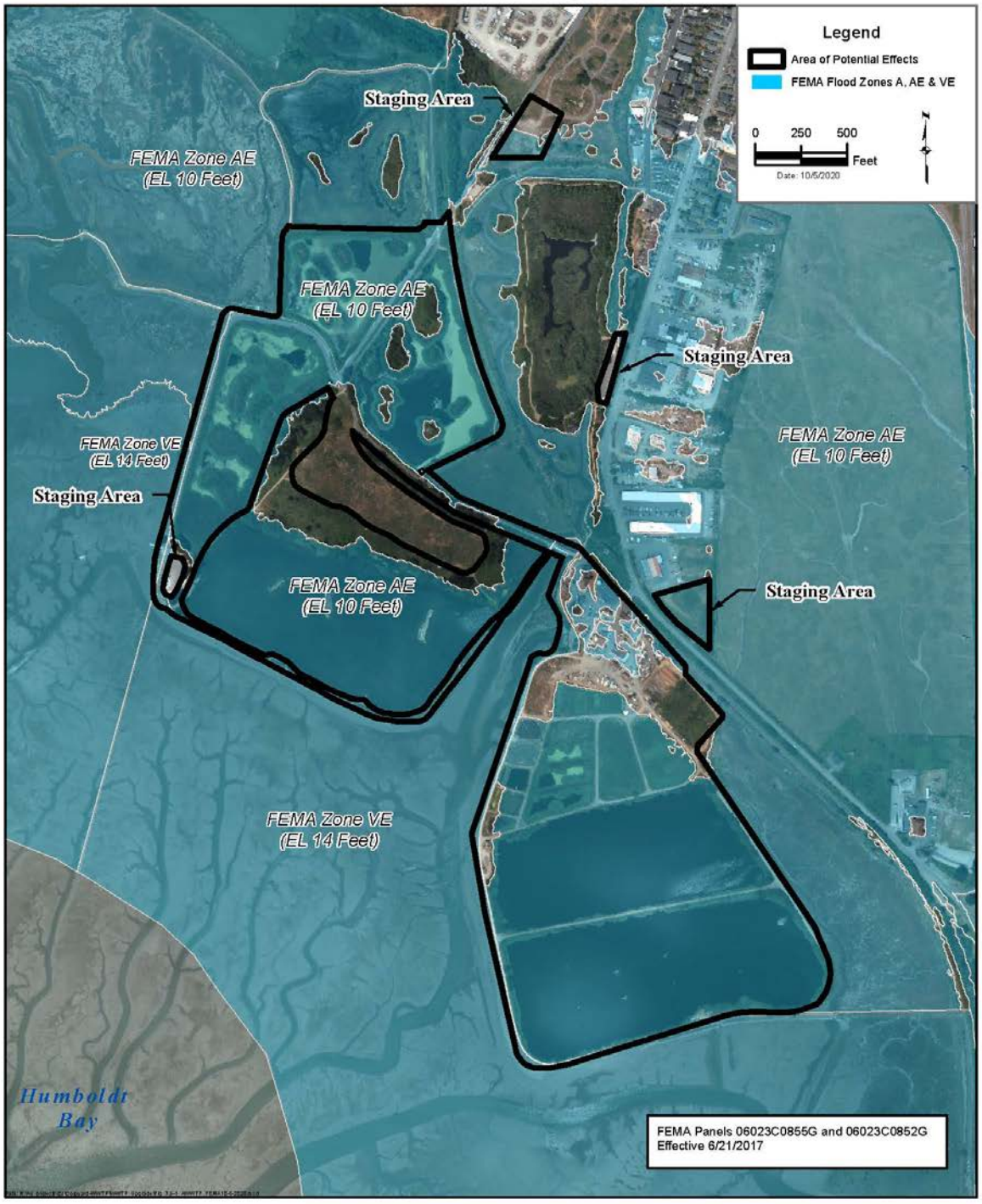
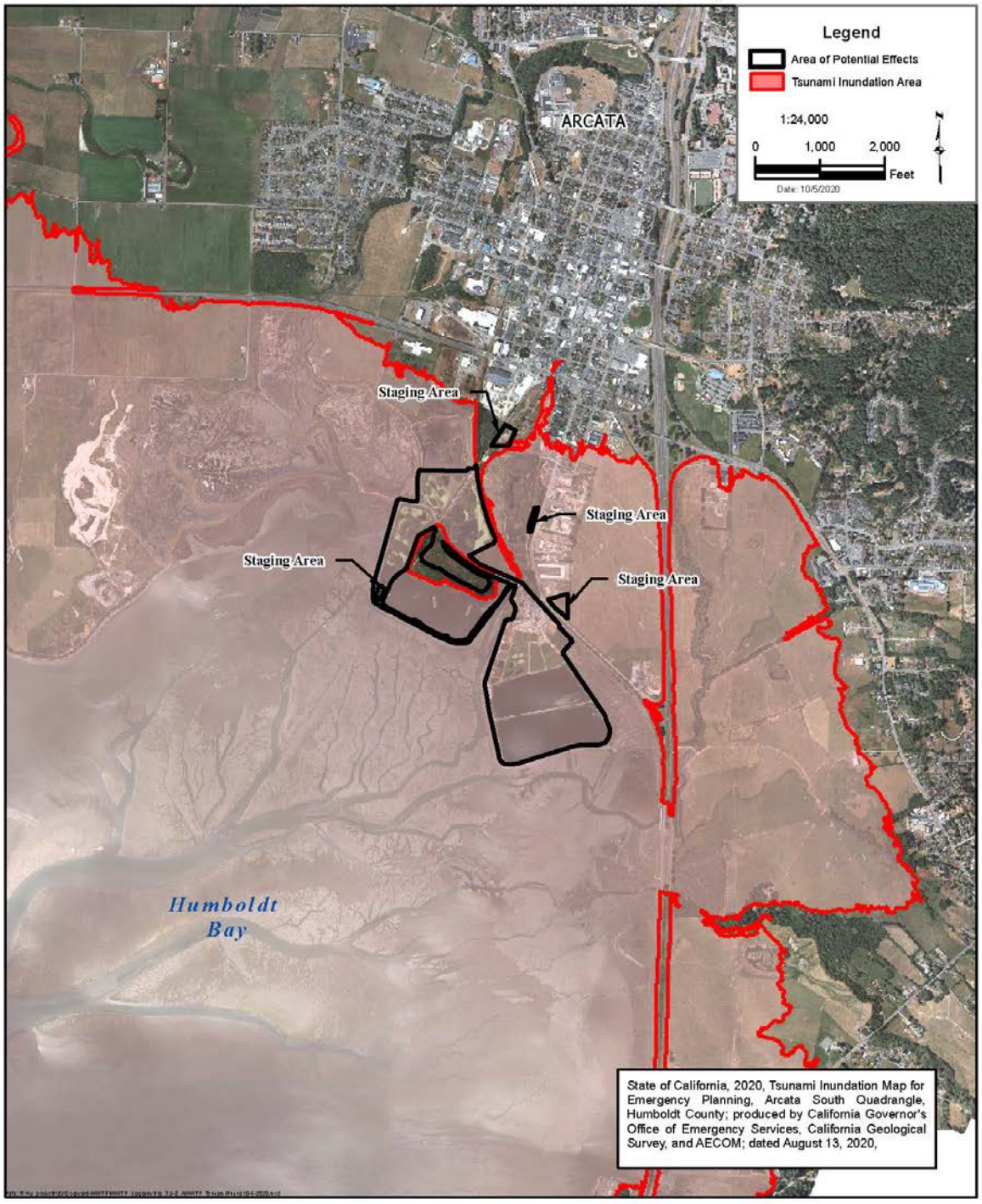


FIGURE 4.10-2

Arcata Wastewater Treatment Facility Upgrade

Tsunami Inundation Map



Regulatory Setting

As discussed in the project description, the main objectives of the Proposed Project are to improve the quality of treated effluent into Humboldt Bay and to come into compliance with National Pollutant Discharge Elimination System (NPDES) permit requirements (Order No. R1-2019-0006) under the authority of the North Coast Regional Water Quality Control Board (NCRWQCB). Order compliance includes maintenance, replacement and upgrades to elements of the existing treatment facility to ensure the City has a continued ability to effectively treat its wastewater prior to discharge into Humboldt Bay. As a result, improved water quality is an anticipated outcome of the Project.

Clean Water Act (CWA). The CWA (33 USC §1251-1376), as amended by the Water Quality Act of 1987, is the major federal legislation governing water quality and was established to *"restore and maintain the chemical, physical, and biological integrity of the Nation's waters. "* Pertinent sections of the Act are as follows:

1. Sections 303 and 304 provide for water quality standards, criteria, and guidelines. Under Section 303(d) of the CWA, the USEPA publishes a list every two years of impaired bodies of water for which Water Quality Objectives are not attained. Total Maximum Daily Loads are established for contaminants of concern in order to ensure contamination levels decrease over time.
2. Section 401 (Water Quality Certification) requires an applicant for any federal permit that would authorize a discharge to waters of the United States to obtain certification from the state that the discharge will comply with other provisions of the Act.
3. Section 402 establishes the NPDES, a permitting system for the discharge of any pollutant (except for dredged or fill material) into waters of the United States. This permit program is administered by the SWRCB and is discussed in detail below.
4. Section 404, jointly administered by the USACE and USEPA, establishes a permit program for the discharge of dredged or fill material into waters of the United States.

National Pollution Discharge Elimination System Permits. Under Section 402(p) of the CWA, the USEPA established the NPDES to enforce discharge standards for both point source and non-point-source pollution. Dischargers can apply for individual discharge permits or apply for coverage under the General Permits that cover certain qualified dischargers. Point source discharges include municipal and industrial wastewater, stormwater runoff, combined sewer overflows, sanitary sewer overflows, and municipal separate storm sewer systems. NPDES permits impose limits on discharges based on minimum performance standards or the quality of the receiving water, whichever type is more stringent in a given situation. The AWTF operates under an NPDES permit issued in 2012 and updated in 2016, which includes requirements for disinfection, treatment processes, and outfalls. Due to compliance problems, the permit required that changes be made to improve wastewater treatment, protect beneficial uses, and reduce chemical usage. A new permit was adopted by the NCRWQCB on October 17, 2019 (Order No R1-2019-0006) that introduced new lower limits for effluent ammonia. The permit also includes a Time Schedule Order compliance schedule, and revised requirements for the new ultraviolet light (UV) disinfection system.

NPDES General Permit. On May 2, 2006, the State Water Board adopted Statewide General Waste Discharge Requirements for Sanitary Sewer Systems General Order 2006-0003DWQ (the General Order). The Monitoring and Reporting Program component of the General Order was amended by the Water Board in 2008 (Order 2008-002-EXEC) and 2013 (Order 2013-058-EXEC). Because the City's collection system exceeds one mile in length, the City is enrolled under the General Order for operation of its wastewater collection system.

NPDES Municipal Separate Storm Sewer System Program. The Municipal Storm Water Program regulates storm water discharges from municipal separate storm sewer systems (MS4s) throughout California. U.S. EPA defines an MS4 as a conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, man-made channels, or storm drains) owned or operated by a State (40 CFR 122.26(b)(8)). The SWRCB issued a General Permit for the Discharge of Storm Water from Small MS4s (Order 2003-0005-DWQ) to provide permit coverage for smaller municipalities, including non-traditional Small MS4s, which include facilities such as military bases, public campuses, prison and hospital complexes. The Phase II Small MS4 General Permit covers Phase II permittees statewide. On February 5, 2013 the Phase II Small MS4 General Permit was re-adopted (Order 2013-0001-DWQ) and the new requirements became effective on July 1, 2013. The City of Arcata is enrolled in the Phase II Small MS4 General Permit.

NPDES Program – Construction Activities. Discharges from construction sites that disturb one acre or more of total land area are subject to the NPDES permit for Discharges of Storm Water Runoff Associated with Construction Activity (currently Order No. 2009-009-DWQ). The permitting process requires the development and implementation of an effective SWPPP. The Project applicant must submit a Notice of Intent to the SWRCB to be covered by a NPDES permit and prepare the SWPPP prior to the beginning of construction. The SWPPP must include BMPs to reduce pollutants and any more stringent controls necessary to meet water quality standards. Dischargers must also comply with water quality objectives as defined in the North Coast Region Basin Plan. If Basin Plan objectives are exceeded, corrective measures are required.

State Anti-Degradation Policy. In 1968, as required under the Federal Anti-Degradation Policy, the SWRCB adopted an Anti-Degradation Policy, formally known as the Statement of Policy with Respect to Maintaining High Quality Waters in California (State Water Board Resolution No. 68-16). Under the Anti-Degradation Policy, any actions that can adversely affect water quality in surface and ground waters must be consistent with maximum benefit to the people of the State, not unreasonably affect present and anticipated beneficial use of the water, and not result in water quality less than that prescribed in water quality plans and policies.

Porter-Cologne Water Quality Control Act. The Porter-Cologne Water Quality Control Act (California Water Code §13000 et seq.) is the principal law governing water quality regulation in California. It establishes a comprehensive program to protect water quality and the beneficial uses of

waters of the State. The Porter-Cologne Water Quality Control Act applies to surface waters, wetlands, and ground water, and to both point and non-point sources of pollution. The Act requires a "Report of Waste Discharge" for any discharge of waste (liquid, solid, or otherwise) to land or surface waters that may impair a beneficial use of surface or groundwater of the state. The NCRWQCB enforces waste discharge requirements identified in the Report.

Water Quality Control Plan for the North Coast Region (Basin Plan). The Water Quality Control Plan for the North Coast Region (Basin Plan) contains the regulations adopted by the NCRWQCB (Regional Water Board) to control the discharge of waste and other controllable factors affecting the quality of waters of the state within the boundaries of the North Coast Region. The Basin Plan, as amended periodically, establishes the beneficial uses of water within the region; the water quality objectives necessary to protect those uses, including an antidegradation policy; the prohibitions, policies, and action plans, by which protections are implemented; and the monitoring, which is conducted to ensure attainment of water quality standards.

US Army Corps of Engineers (USACE). The U.S. Army Corps of Engineers (USACE), under provisions of Section 404 of the Clean Water Act (1972) and Section 10 of the Rivers and Harbors Act (1899), has jurisdiction over Waters of the United States. These waters include waters subject to the ebb and flow of the tide, all interstate waters, and all other waters (intrastate lakes, rivers, streams, mudflats, sand flats, playa lakes, natural ponds, etc.). Construction activities within jurisdictional waters are regulated by the USACE. Because the project will affect jurisdictional wetlands, a Section 404 Permit from the USACE will be required. No USACE permit would be approved in the absence of state water quality certification pursuant to Section 401 of the CWA. The SWRCB is the state agency charged with implementing water quality certification in California.

North Coast Regional Water Quality Control Board (NCRWQCB). In addition to the requirements of Order R1-2019-0006, Federally permitted projects are subject to a 401-water quality certification from the NCRWQCB to minimize impacts to Waters of the State. Because the project will affect jurisdictional wetlands, a 401-certification from the NCRWQCB will be required. In addition, if greater than one acre of area is disturbed as a result of project construction, the project will be required to comply with the provisions of the Construction General Permit (Order No. 2009-009-DWQ). Finally, because the City is enrolled in the Phase II Small MS4 General Permit Order 2013-0001-DWQ), the project will be required to comply with provisions to ensure prohibited non-stormwater discharges to not occur. As a result, the water quality impacts of the Project will already be stringently regulated by the NCRWQCB through four regulatory processes.

NCRWQCB Order No. R1-2019-0006. A new permit was adopted by the NCRWQCB on October 17, 2019 (Order No R1-2019-0006) that introduced new lower limits for effluent ammonia. The permit also includes a Time Schedule Order compliance schedule, and revised requirements for the new UV disinfection system.

This permit became effective on December 1, 2019 and shall expire on November 30, 2024. The City is required to submit a Report of Waste Discharge as an application for reissuance of Waste Discharge Requirements in accordance with Title 23, California Code of Regulations, and an

application for reissuance of a NPDES permit no later than December 1, 2023. Time Schedule Order No R1-2019-0011 was issued by the NCRWQCB Executive Officer concurrent to adoption of the 2019 NPDES Permit to set a schedule when improvements to the AWTF were required.

The Code of Federal Regulations (40 C.F.R. §122.48) requires that all NPDES permits specify monitoring and reporting requirements. California Water Code section 13383 authorizes the NCRWQCB to required technical and monitoring reports. The Monitoring and Reporting Program (MRP) established in Order R1-2019-0006 implements federal and state regulation. The MRP establishes monitoring locations, requirements and schedules for Influent, Effluent and treatment system locations. The MRP includes the following locations and activities related to the Project.

1. **Effluent Monitoring Requirements.** Monitoring during periods of discharge at Discharge Point 001, Discharge Point 002 and Discharge Point 003, for a variety of conventional and non-conventional pollutants, pollutants of concern (nutrients with biostimulatory effects) and acute and chronic toxicity.

2. **Receiving Water Monitoring of location RSW-001 (Outfall 003).** Monitoring shall occur during periods of discharge to the Brackish Marsh through Outfall 003, with a variety of parameters set by NPDES including salinity, turbidity, dissolved oxygen, and temperature.

3. **Arcata Marsh and Wildlife Sanctuary Monitoring Locations.** Monitoring implemented in accordance with the work plan approved by the NCRWQCB Executive Officer.

4. **Monitoring of UV Disinfection system.** Monitoring shall be continuous and recorded at monitoring location INT-001. The City shall report daily average and lowest daily UV transmittance (UVT) and operations UV dose on its monthly Self-Monitoring Reports.

5. **Visual Monitoring of Locations EFF-001, EFF-003, and RSW-001.** Visual observations of the discharge and the receiving water shall be recorded monthly and on the first day of each intermittent discharge. Visual monitoring shall include, but not be limited to, observations for floating materials, coloration, objectionable aquatic growths, oil and grease films, and odors. Visual observations and immediate actions taken necessary to clean up shall be recorded and included in the City's quarterly reports.

6. **Biosolids Monitoring.** Biosolids monitoring shall be conducted as required by the Biosolids General Order No. 2004-0012-DWQ.

4.10.2 Environmental Analysis

a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality? (Less than Significant Impact)

The Project is required to obtain and comply with necessary permits requirements, acting to

prevent, or essentially reduce the potential for the Project and operations to violate any water quality standards or waste discharge requirements. In addition, as discussed above, the intent of the project is to address violations of water quality standards due to discharge of treated effluent that did not meet effluent limitations and discharge standards specified in Waste Discharge Requirements standards. As a result of this project, water quality will improve.

As noted under Regulatory Setting above, the discharge of wastewater from the WWTP is regulated by the SWRCB under Order No. 1-2012-0031.The NPDES Permit incorporates the Basin Plan that designates beneficial uses, establishes water quality objectives, and contains implementation programs and policies to achieve those objectives for all waters addressed through the Basin Plan. The Permit includes receiving water limitations based on the Basin Plan's guidelines to protect water quality in Humboldt Bay.

As discussed in the Environmental Setting, converting the WWTP from a chlorine disinfection process to a UV disinfection process would eliminate risks associated with chlorine disinfection. Proposed upgrades include headworks and primary clarifier rehabilitation, oxidation pond and wetland treatment system improvements, construction of a parallel oxidation ditch treatment system, construction of a UV disinfection system upstream of discharge to the AMWS, and flow reconfiguration allowing for flows up to wet weather design flow to discharge to the AMWS prior to final discharge to the Brackish Marsh, in order to provide overall improvements to effluent quality discharged to Humboldt Bay.

A major element of the proposed upgrades will be to replace the existing chlorine disinfection system with a UV disinfection system for flows up to 9.8 mgd. Peak wet weather flows up to 6.0 mgd will discharge to the AMWS via Outfall 002 for enhanced treatment prior to final discharge to the Brackish Marsh via Outfall 003. UV disinfected effluent in excess of 6.0 mgd will discharge to Humboldt Bay via Discharge Point 001. The City will attenuate flow in excess of 9.8 mgd within Oxidation Pond 1. However, the City plans to maintain the chlorine disinfection system, for a limited time, to provide a backup disinfection system for flow in excess of 9.8 mgd. Flow in excess of 9.8 mgd will be disinfected with chlorine prior to discharge to Humboldt Bay at Outfall 001.

Eliminating, or greatly reducing, the use of chlorine will reduce the number of violations for dichlorobromomethane, a chlorine disinfection by-product, and one of the most frequent pollutants detected in excess of effluent discharge limitations in Arcata's treated effluent. Another major element of the proposed upgrades will be the addition of an oxidation ditch and two secondary clarifiers to provide a secondary treatment system operating in parallel to the oxidation pond/treatment wetland system. The oxidation ditch and secondary clarifiers will provide full secondary treatment to a portion of flow and provide consistent ammonia removal. Secondary clarifier effluent will co-mingle with equivalent to secondary effluent from the treatment wetlands prior to disinfection in the UV disinfection system. The UV disinfected effluent will meet full secondary biochemical oxygen demand (BOD), total suspended solids (TSS) and fecal coliform effluent limits at Discharge Point 002.Disinfection byproducts in the final effluent would be reduced by not using chlorine. Regulated disinfection byproducts that could adversely affect water quality, aquatic species, and environmentally sensitive habitats, would not be created in the UV disinfection process.

As the quality of the treated effluent will be improved as a result of this project, the greatest potential for the Proposed Project to impact water quality would result from sediment mobilization during construction and operations. Construction and operation activities such as site clearing, grading, excavation, and material stockpiling could leave soils exposed to rain or surface water runoff that may carry soil contaminants (e.g., nutrients or other pollutants) into waterways adjacent to the site, degrade water quality, and potentially violate water quality standards for specific chemicals, suspended sediment, or nutrients.

The Proposed Project has the potential to temporarily degrade water quality due to increased erosion during Project construction; however, as discussed in the Biological Resources and Air Quality Sections of the Initial Study, BMPs would be implemented to control erosion and sedimentation and prevent damage to streams, watercourses and aquatic habitat. In addition, SWQCB Order No. 2009-0009 applies to public and private construction projects that include one or more acres of soil disturbance. Because the Proposed Project is anticipated to disturb over one (1) acre of land, compliance with Order No. 2009-0009 would be required.

In compliance with the NPDES requirements, a Notice of Intent (NOI) would be prepared and submitted to the NCRWQCB, providing notification and intent to comply with the State of California Construction General Permit. In addition, a Construction SWPPP would be prepared for pollution prevention and control prior to initiating site construction activities. The Construction SWPPP would identify and specify the use of erosion sediment control BMPs for control of pollutants in stormwater runoff during construction related activities, and would be designed to address erosion control, sediment control, off-site tracking control, wind erosion control, non-stormwater management control, and waste management and materials pollution control. A sampling and monitoring program would be included in the Construction SWPPP that meets the requirements of the NCRWQCB to ensure the BMPs are effective. A Qualified SWPPP Practitioner would oversee implementation of the Plan, including visual inspections, sampling and analysis, and ensuring overall compliance.

The McDaniel Slough Restoration Project EIR (City, CDFG, 2006) noted that treated wastewater that will be discharged to the Brackish Marsh and subsequently McDaniel Slough was estimated to range from 1 to 7 cfs. Based on the current design, up to approximately 9.3 cfs of treated wastewater is planned to be gravity fed to Brackish Marsh. Additional flows would then be directed to Outfall 001. Flow volumes are planned to be managed to mimic natural seasonal fluctuations in other Humboldt Bay tributaries. The Brackish Marsh Outlet 003 is adjustable in order to mute the tidal cycle and to provide flexibility to adjust salinity to desired ranges. Desired salinity ranges of 5-10 parts per thousand (ppt) within Brackish Marsh will be suitable for tidewater gobies.

Based on the above analysis, the Project will result in an increased quality of treated effluent and will improve compliance with water quality standards. The potential degradation of surface and groundwater quality from short-term construction activities will be reduced to less than significant through the incorporation of BMPs and NPDES and SWPPP requirements. The Impact is Less than Significant.

b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the Project may impede sustainable groundwater management of the basin? (No Impact)

The City's current NPDES permit with the NCRWQCB states: "The storage, use or disposal of wastewater or recycled water shall not cause or contribute to a statistically significant degradation of groundwater quality, cause exceedance of applicable water quality objectives or create adverse impacts to beneficial uses of groundwater". The project will comply with the requirements of the NPDES permit and therefore there will be no impact to groundwater.

The Project would not decrease groundwater supplies or interfere with groundwater management. During construction, isolated and short-duration dewatering of surface and groundwater (within the treatment and enhancement wetlands, etc.) may occur as needed. Dewatering would be small in scale and limited to shallow groundwater only and not impede sustainable groundwater management of the basin. There would be no resulting impact.

c, i-iv) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would result in substantial erosion or siltation on- or off-site? Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site? Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff? Impede or redirect flood flows? (Less than Significant Impact)

The potential impacts to drainage patterns of the Project Area are limited to utilities improvements and the construction of new structures within the footprint of the existing AWTF, which would not result in a realignment of the existing drainage pattern of the site. The project site is relatively flat and no significant grading is proposed. The project proposes minimal impervious surfaces and will be required to comply with post-construction MS4 requirements. Therefore, there will not be a substantial increase in the rate or amount of surface runoff in a manner which would result in flooding on- or off-site.

The proposed improvements to the WWTP would have a minimal impact on the drainage conditions of the Project site when compared to the existing baseline environmental conditions. The project allows for the ability to increase wastewater storage capacity by the addition of parallel treatment units (oxidation ditch and secondary clarifiers). Increased storage capacity may be achieved in the oxidation ponds, treatment wetlands and enhancement wetlands during rehabilitation activities such as vegetation removal, however, none of the planned activities are expected to have a significant impact on storage capacity. The project allows for increased control of water elevation in the Oxidation Ponds, which will allow the facility to increase available storage capacity in advance of wet season storm events. The Project has been designed to achieve adequate wastewater storage capacity while maintaining proper stormwater collection systems in the event of potential flooding. All stormwater runoff within the footprint of the Corporation Yard, Treatment Wetlands, and Oxidation Ponds currently drains to the WWTP and post-project stormwater runoff is not expected to be significantly different than pre-project stormwater runoff. Stormwater that is located within the larger

AMWS drains either to enhancement wetlands or directly to Humboldt Bay. No additional sources of pollution will be introduced through Proposed Project actions and all runoff will drain to the WWTP and therefore will be treated to NPDES standards.

In accordance with the Construction General Permit requirements, post-construction peak runoff volume would not exceed pre-construction peak runoff volume and will be required to comply with the post-construction requirements of the MS4 permit. The Project would be designed to meet NCRWQCB stormwater requirements and to address any impervious surface changes. The Project would not be expected to cause on- or off-site flooding given that post-construction runoff would be detained on site and limited to pre-construction runoff rates, and that proper installation and long-term maintenance of the storm water controls would be required.

Based on the above considerations, the Project would result in a less than significant impact to drainage conditions, based on project scope, existing site conditions, and post-construction requirements of the MS4 permit. The project would not result in erosion, siltation, or flooding on- or off-site; significantly increase runoff; or create runoff water that would exceed capacity of drainage systems. The impact is less than significant.

d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to Project inundation? (Less Than Significant Impact)

The Project site is located adjacent to Humboldt Bay, a large isolated body of water that may be affected by a seiche or tsunami. The Project is also located inside of the FEMA 100-year flood zone (AE Zone) and is near to a FEMA Coastal High Hazard Area (VE Zone). The AWTF is a pre-existing facility, and proposed improvements will increase the site's resiliency to these hazards and will not increase use patterns at the site or increase the region's susceptibility to earthquake/ tsunami/ flooding risk.

The current Base Flood Elevation (BFE) for a 100-year flood is 10.05 ft (NAVD 88). Current plans call for any new structures and above ground electrical equipment or connections to be located a minimum of 2.0 feet above the Zone "AE" BFEs within the existing protective bayfront levee within the AWTP core and Corporation Yard. The protective levees surrounding the AWTP and oxidation pond/wetlands (See Figure 3.5-7 Proposed AWTP Levee Augmentation) will be raised/augmented to a minimum of 14 feet (NAVD 88) within the FEMA (VE zones), areas identified for storm driven (erosive) waves or to a minimum of 12 feet at the additional FEMA (AE zones) surrounding all critical AWTP infrastructure. The following actions will allow the AWTP to be protected from the most credible storm events and have the protective infrastructure in place to augment existing levee elevations according to the best available trends and technologies.

- Placement of engineered fill (light rock facing) on top and interior sides of the levees to a minimum elevation of 14' NAVD to be protective of improvements and be incompliance with FEMA standards in the "VE" zone surrounding the AWTF, for approximately 1.25 miles, maintaining a minimum driving surface width of 8' wide. Interior side slopes will be a maximum 1:1.5 or per engineered recommendations.

• Placement of fill, excavations and new structures to the top and interior of existing earthen levees will be engineered. Elevations of all new essential facilities (Flood design class 4) will be protected to the BFE of 10.0' (NAVD 88) plus 2.0' within the protective earthen levee. Engineered Fill will vary from between 0'-3' predominantly from the southeastern and eastern side of the Oxidation Pond earthen levee, and along the trail access to the existing trail parking lot.

Due to the known seismic activity in the Pacific Rim, a tsunami could impact Humboldt Bay. The last known tsunami to occur in Humboldt Bay was in 1964, as a result of the Gulf of Alaska earthquake. It had a recorded maximum height of twelve feet on the inside of the north spit, with lower heights occurring along the Eureka waterfront area. It is expected that the impact of a tsunami on Humboldt Bay would primarily occur along the north and south spits and the King Salmon and Fields Landing areas, which are located directly across from the opening to Humboldt Bay, at an elevation approximately twenty feet above sea level. Due to the project's distance from the opening of Humboldt Bay, there is no expectation that significant impacts from a tsunami will occur. The majority of the project site (APE) is within the tsunami inundation area, as mapped by the California Geological Survey (State of California, 2020). Additionally, the Humboldt State University Tsunami Hazard Map (HSU, 2020) shows the bay edge as having a high potential for tsunami. A seiche in the bay would have less run-up potential than a tsunami. While the area could be inundated, the project upgrades will not alter the area's potential for inundation by seiche, tsunami or mudflow.

If a tsunami occurred during construction, pollutants from heavy machinery (e.g. diesel) could be released into the environment. The Project's SWPPP and NCRWQCB CWA Section 401 permit would both include provisions for managing stormwater runoff and ensuring any changes in impervious surfaces are addressed through stormwater runoff treatment areas. No additional sources of pollution would be introduced through Project actions.

All projects in Arcata are required to comply with the State Water Board General Construction NPDES permit and/or local regulations for stormwater runoff, and erosion and sediment control. These regulations are intended to reduce the potential for cumulative impacts to water quality during construction. In addition, all projects in Arcata are subject to regulations for development in flood hazard areas to ensure that impacts related to flooding are minimized or avoided. Compliance with County, State, and federal regulations would reduce cumulatively considerable impacts to a less-than-significant level.

In the event of a tsunami that was severe enough to extend to the northeastern edge of the Tsunami Inundation Area, the cumulative environmental and human impact would be catastrophic and the impact directly attributable to the Proposed Project as a result of diesel runoff from heavy equipment would be insubstantial by comparison. Existing water quality regulations minimizes the impact to water quality. The impact would be less than significant.

e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan? (No Impact)

The relevant water quality control plan is the NCRWQCB Basin Plan, which establishes thresholds for key water resource protection objectives for both surface waters and groundwater. The Project is required to obtain coverage under State Water Resources Control Board Order No. 2009-0009-DWQ, Waste Discharge Requirements for Discharges of Storm Water Runoff Associated with Construction and Land Disturbance Activities, which would include a SWPPP. The Project is also required to obtain a NCRWQCB CWA Section 401 Water Quality Certification. These regulatory requirements and associated requisite monitoring would ensure a conflict with the Basin Plan (water quality control plan) does not occur. There would be no impact.

4.10.3 Mitigation Measures

None required

4.10.4 References

City of Arcata and California Department of Fish and Game (City, CDFG). 2006. McDaniel Slough Wetland Enhancement Project Draft EIR, SCH#2003022091.

Federal Emergency Management Agency (FEMA). 2017. *FEMA's National Flood Hazard Layer. City of Arcata*. Accessed September 30, 2020 at http://msc.fema.gov/portal.

HSU. 2020. Humboldt County Hazard Web App. Accessed September 30, 2020 at https://rctwg.humboldt.edu/sites/default/files/arcata.pdf .

North Coast Regional Water Quality Control Board. Waste Discharge Requirements for the City of Arcata Municipal Wastewater Treatment Facility. 2019.

State of California. 2020. Tsunami Inundation Maps for Emergency Planning, Humboldt County; produced by the California Geological Survey and the California Governor's Office of Emergency Services; dated 2020, displayed at 1:24,000 scale. Accessed September 30, 2020 at https://www.conservation.ca.gov/cgs/Documents/SHP/Tsunami/Inundation/Maps/Arcata-South-Inundation-SECURED.pdf .

SRWQCB. 2020. Plan and Policies. Accessed May 1, 2020 at https://www.waterboards.ca.gov/plans_policies/ .

United State Environmental Protection Agency (EPA). 2020. *Sole Source Aquifers.* Accessed September 21, 2020 at https://epa.maps.arcgis.com/apps/webappviewer/index.html?id=9ebb047ba3ec41ada1877155fe31356b.

4.11 Land Use and Planning

	Potentially Significant Impact	Less-than-Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the Project:				
a) Physically divide an established community?				✔
b) Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?				✔

4.11.1 Environmental Setting

The Proposed Project is at the existing AWTF, which is located in the southern portion of the City of Arcata adjacent to Humboldt Bay. The Project is located on lands zoned Public Facility and Natural Resource Protection. The land to the west of the AWTF is zoned Open Space, Agriculture to the east, Industrial to the north and is adjacent to the Humboldt Bay to the south. The nature of the AWTF includes the adjacent AMWS which was constructed primarily to facilitate wastewater treatment. The project effectively uses the surrounding areas as a natural resource and enhances the land use in the area. As described in Section 3.16 Recreation, the AMWS is accessible to a range of recreational opportunities. The Humboldt Bay Trail also transects the AMWS.

Regulatory Setting

The APE is within the City of Arcata jurisdictional boundaries and is subject to the City's General Plan, Local Coastal Plan, Land Use Development Code, and other City regulations. The APE is also within the CA Coastal Zone and subject to coastal development permit approval. The City of Arcata's Public Facilities & Infrastructure Element includes the following policies regarding the WWTF:

Policy PF 2-B: ***Arcata Marsh wastewater treatment system.*** *The City shall update its Wastewater Treatment Plant Master Plan, at least every five years, to evaluate the entire system; reflect any changes in treatment standards; ensure wastewater treatment is meeting current standards; verify that there is adequate treatment system capacity; and ensure adequate water flows to maintain habitat. The City shall maintain the existing facilities of the Arcata Marsh and Wildlife Sanctuary and construct new facilities consistent with the Marsh Enhancement Plan adopted by the City Council.*

Policy PF-2c: ***Compliance with California Regional Water Quality Control Board wastewater treatment and discharge standards.*** *The City shall regularly test its wastewater and make necessary*

adjustments in treatment levels, to ensure that it meets California Regional Water Quality Control Board standards. The City shall also keep its National Pollution Discharge Elimination System Permit (NPDES) current and in compliance with U.S. Environmental Protection Agency standards.

Improvements to the WWTF have been included in the City's adopted Capital Improvements Program, which includes the Ultraviolet Disinfection/PV System. The Planning Commission is charged with ensuring that City-adopted plans are consistent with the goals and policies of the adopted General Plan [California Government Code, Section 65401]. The Planning Commission annually adopts the Capital Improvement Program List of Projects and makes the finding that the Capital Improvements Program is consistent with the City's General Plan, and the City's adopted Local Coastal program. The most recent consistency determination was made on April 14, 2020, at the regularly scheduled meeting of the Arcata Planning Commission. The Commission voted to find the proposed 2020/2021 Capital Improvements Program consistent with the City General Plan and Local Coastal Program and adopted Planning Commission Resolution No. PC-20-02.

4.11.2 Environmental Analysis

a) Physically divide an established community? (No Impact)

The Project is zoned Public Facility and Natural Resource Protection. The land to the west of the AWTF is zoned Open Space, Agriculture to the east, Industrial to the north and is adjacent to the Humboldt Bay to the south. The Project's renovations to the existing AWTF will remain consistent with uses allowed in the areas zoned Public Facility and Natural Resource Protection. This section evaluates the potential impacts related to land use, as it applies to construction and operation of the Project. No long term/operational changes will occur as a result of this project. There is not an existing community or residential neighborhood in close proximity to the project site and therefore the project will not physically divide an established community. The project would have no impact.

b) Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect? (No Impact)

The Project will be subject to and is consistent with the City of Arcata's land use regulations. Post-Project operation of the AWTF will be similar to existing activities and uses, as described in Section 2 Project Description.

The Proposed Project is consistent with the City of Arcata General Plan and Zoning Ordinance. The guiding principles and goals in the General Plan Land Use Element include maintaining public facilities and recreation areas. The project site is zoned Public Facility (P-F) and is within the City Urban Services Boundary and inside of the Coastal Zone Boundary. No General Plan amendment or zone change is proposed; public infrastructure is a permitted use within the P-F zone. The treatment facility is a pre-existing use, and the project does not propose an expansion in use.

The project is also supported by policies PF 2-B and PF 2-C of the Public Facilities and Infrastructure Element of the General Plan, as the project will maintain infrastructure and water quality of the wastewater treatment system.

Based on the developed condition of the project site and the project's consistency with the City's General Plan Policies, the project is in compliance with City Plans and Policies, including the Land Use Plan and Zoning Code. The site's footprint will not be expanded and all structural improvements

will be of similar scale to the pre-existing facility's scale and massing. There will be no significant increase in the overall site footprint or day-to-day operations. The Project would not alter existing land uses. There would be no impact.

4.11.3 Mitigation Measures

None required

4.11.4 References

City of Arcata. 1991. Arcata Creeks Management Plan.

City of Arcata. 2000a. General Plan 2020. Public Facilities & Infrastructure Element, 2.11 Policies.

City of Arcata. 2000b. Draft Final Program EIR (PEIR) for the Arcata General Plan and Local Coastal Land Use Plan. SCH# 98072069.

City of Arcata. 2003. Stormwater best practices. Available at: https://www.cityofarcata.org/DocumentCenter/View/1055/Arcata-BMP-Manual-PDF?bidId=.

City of Arcata. 2015a. Arcata Municipal Code Title VII Chapter 5 Division 2 - Reduction of Stormwater Pollution Articles I-V.

City of Arcata. 2015b. Arcata Municipal Code Title VII.

City of Arcata Local Coastal Program, 1989, as amended. Available at: https://www.cityofarcata.org/161/Certified-Local-Coastal-Program

Humboldt County. 2012. Humboldt County General Plan Update Draft Environmental Impact Report. SCH# 2007012089. April 2012.

4.12 Mineral Resources

	Potentially Significant Impact	Less-than-Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the Project:				
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?				✔
b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?				✔

4.12.1 Environmental Setting

Humboldt County has a wealth of mineral resources, primarily instream aggregate and hard rock quarries. There are 93 extraction sites around the county producing sand and gravel, metals, stone, and clay. Mining provides an input of vital importance to a number of key activities in the construction industry, primarily the raw materials for concrete used in foundations, base rock and asphalt for road paving aggregate for utility trench backfill and quarry rock for rock slope protection. Mining materials are also used for road construction, maintenance and repair, and other important uses (Humboldt County, 2012). The mineral resources in the City of Arcata planning area are primarily aggregate deposits found along the Mad River and in the Arcata Bottom. Areas along the Mad River, within and upstream of the City's Sphere of Influence, are currently used for aggregate resource extraction (gravel). The Arcata Bottom is not an aggregate reserve. Other than instream aggregate, no locally important mineral resources have been identified in Arcata. No mineral of state importance has been identified in or near the City's planning area (City of Arcata, 2000).

4.12.2 Environmental Analysis

a, b) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state, or a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan? (No Impact)

The project will not result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state or loss of availability of a locally important mineral resource recovery site delineated on a local General Plan, specific plan or other land use plan. The Proposed Project site is neither mapped nor known to contain any mineral resources of local or State significance. The project is limited in size and will not use quantities of rock, aggregate, or sand that will reduce availability of these materials for construction or other consumptive uses. The Proposed Project site is not delineated in the City of Arcata General Plan or Humboldt County General Plan as designated for mineral resource recovery. Therefore, the Proposed Project will not result in the loss

of mineral resources of value to the region or residents of the state or result in the loss of the availability of a locally important mineral resource recovery site delineated on a local General Plan, specific plan, or other land use plan.

4.12.3 Mitigation Measures

None required

4.12.4 References

City of Arcata. 2000. Draft Final Program EIR (PEIR) for the Arcata General Plan and Local Coastal Land Use Plan, Pgs. 5-43. SCH# 98072069.

Humboldt County, 2017. Humboldt County General Plan Update Draft and Final Environmental Impact Report. SCH# 2007012089. September 2017. Accessed at: https://humboldtgov.org/626/Draft-Environmental-Impact-Report-EIR

4.13 Noise

	Potentially Significant Impact	Less-than-Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the Project:				
a) Result in generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the Project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?			✔	
b) Result in generation of excessive groundborne vibration or noise levels?			✔	
c) For a Project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the Project expose people residing or working in the Project Area to excessive noise levels?				✔

4.13.1 Environmental Setting

Current conditions in the Project Area included noise sources associated with operations of the existing treatment plant, traffic on South G and South I Street, and noise from U.S. Highway 101, located roughly one-quarter of a mile from the Project site at its closest point. Pre-existing noise sources include accelerating and decelerating vehicles, and pre-existing features of the AWTF, which create low levels of noise, including mechanized pumps and motors from treatment operations in the various pond and wetland features. There are no human sensitive receptors within a quarter mile of the APE (e.g., schools, housing); however, the AMWS is used for a range of recreational uses, and provides habitat to wildlife, which may be sensitive to loud and repetitive noises.

Background noise for a busy urban street is estimated at 90 decibels (City of Arcata, 2008). However, the City of Arcata projected noise contours for the year 2020 predict a noise level of 55

decibels through parts of the existing AWTF closest to the Highway (City of Arcata, 2008). Thus, existing noise in the Project Area likely ranges between approximately 65 and 90 decibels, depending on the time of day and types of vehicles utilizing the roadway.

Regulatory Setting

The City of Arcata currently regulates construction-related noise through the application of the following policies of the Arcata General Plan, as discussed below:

Noise Element: Policy N-5d Construction site tool or equipment noise. The following shall apply to construction noise from tools and equipment:

1. The operation of tools or equipment used in construction, drilling, repair, alteration or demolition shall be limited to between the hours of 8 a.m. and 7 p.m. Monday through Friday, and between 9 a.m. and 7 p.m. on Saturdays.

2. No heavy equipment related construction activities shall be allowed on Sundays or holidays.

This shall apply to construction noise from tools and equipment which are subject to the review of the City, and which may affect receptor uses. This policy shall not apply to emergency work of public service utilities or by variance under a noise ordinance.

Noise Element: Policy N-5e Stationery and construction equipment noise. All stationery and construction equipment shall be maintained in good working order and fitted with factory approved muffler systems.

4.13.2 Environmental Analysis

a) Result in generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the Project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies? (Less Than Significant Impact)

There are no noise-sensitive urban uses, such as housing and schools, within a quarter mile of the project site. Construction of the Proposed Project would temporarily increase noise in the immediate vicinity of the Project site. The temporary noise increases would result from use of construction equipment for the Project, as well as from increased traffic as construction workers commute to and from the Project site. To prevent noise disturbance to the community, City of Arcata General Plan Noise Element Policy N-5d limits construction activity to the hours between 8 a.m. and 7 p.m. Monday through Friday, and between 9 a.m. and 7 p.m. on Saturdays. There are no sensitive noise receptors, including housing and schools, within a quarter mile of the Project.

Noise levels would be consistent with the reference noise levels in Table 4.13-1

Table 4.13-1 Construction Equipment Reference Noise Levels as Measured at 50'

Equipment	Noise Level (dBA[1])
Drill rig truck	84
Horizontal Boring Hydraulic Jack	80
Front end loader or Backhoe	80
Excavator	85
Jackhammer	85
Large Generator	82
Paver or Roller	85
Dump truck	84

1. dBA: A-weighted decibels

Source: FHWA, 2006.

Sound from a point source is known to attenuate at a rate of -6 dB for each doubling of distance. For example, a noise level of 84 dBA as measured at 50 feet from the noise source would attenuate to 78 dBA at 100 feet from the source and to 72 dBA at 200 feet from the source to the receptor. Based on the reference noise levels in Table 4.13-1, the noise levels generated by construction equipment at the Project site may reach a maximum of approximately 85 dBA at 50 feet during site excavation and construction. Typical noise levels projections at distances away from an equipment item (beyond 50 feet) tend to be conservative, as in a typical projection, the only attenuating mechanism considered was divergence of the soundwaves in open air. Attenuation from air absorption, ground effects, and shielding from intervening topography, structures and vegetation are not included in these tabled calculations. Noise will also vary throughout the Project according to specific activities, location, orientation of the activities, and changing equipment operations. Thus, even high levels of noise will be intermittent and partially absorbed by surrounding vegetation, in addition to being temporary.

For measuring noise levels and setting noise standards, the City uses the Community Noise Equivalent Level (CNEL) and the Day/Night Noise Level (Ldn). The Ldn measure averages a weighted noise over a 24-hour period, and adds 5 dBA (A-weighed decibel) to noise levels between 7:00 p.m. and 10:00 p.m. The CNEL uses the same methodology, plus adds 10 dBA to noise levels between 10:00 p.m. and 7:00 a.m.

Adherence to City of Arcata General Plan Policy N-5d which limits construction activity hours, and Policy N-5e which requires that all construction equipment be maintained in good working order and fitted with factory approved mufflers would limit construction noise intensity and duration such that construction noise at sensitive receptors would be reduced. The temporary impacts would be less than significant.

Operational noise associated with the Proposed Project would consist of standard treatment facility noise. There is no anticipated permanent increase in noise in the Project Area as a result of this

[1] "dBA" is a weighted decibel measurement for assessing hearing risk and, therefore, is used by most regulatory compliance.

Project. The permanent impacts would be less than significant.

For related noise impacts to environmentally sensitive habitat areas -see Biological Resources Section 4.4.3 Mitigation Measures for avoidance measures for construction activities.

b) Result in generation of excessive ground borne vibration or noise levels? (Less Than Significant Impact)

Earthmoving and earth compacting activities using heavy machinery would create ground borne vibrations and noise that may be noticeable on a temporary and intermittent basis at nearby commercial and industrial businesses. Construction vibrations can be transient, random, or continuous. Vibrations associated with the Proposed Project may include earthmoving activities associated with creating berms, installing pipelines, and installing equipment. Piles driven using a vibratory pile driver associated with the construction of the upgrades to the headworks facility within the footprint of the existing Corporation Yard and AMWS; but the associated noise will be sporadic and temporary. Drilled piers/posts which will result in temporary noise and vibrations (See Table 4.7-1 for additional information).

Any use of equipment with the potential to generate perceptible vibration would be localized, temporary and intermittent. Vibration levels associated with the project's level of landform modification will not be perceptible at the nearest residential unit (1,650 feet to the north) and would not result in cosmetic or structural damage to buildings. Furthermore, construction work must comply with the standards of the City's Noise Ordinance and Noise Element of the General Plan. The Project would not create substantial new sources of permanent or ongoing groundborne vibration. There would be no permanent impacts related to vibration as a result of the project. Impacts will be less than significant.

For related ground vibration and noise impacts to environmentally sensitive habitat areas -see also Biological Resources Section 4.4.3 Mitigation Measures for avoidance measures for construction activities.

c) For a Project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the Project expose people residing or working in the Project Area to excessive noise levels? (No Impact)

The Project is not located within the vicinity of a private airstrip or subject to an airport land use plan, or within two miles of a public airport. The closest airstrip is Murray Field Airport and is approximately 3.5 miles to the south. The project does not involve construction of residences and existing baseline for workers or users of the AWTF would not change as a result of the project. There would be no impact.

4.13.3 Mitigation Measures

None required

4.13.4 References

City of Arcata. 2008. General Plan Noise Element. Arcata, CA. Accessed June 2020 at http://www.cityofarcata.com/DocumentCenter/View/39/Chapter-6-Health-and-Safety---2-Noise-Element-PDF?bidId=.

FHWA, 2006. Construction Noise Handbook, Final Report August 2006. Accessed September 22, 2020 at https://www.fhwa.dot.gov/environment/noise/construction_noise/handbook/

4.14 Population and Housing

	Potentially Significant Impact	Less-than-Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the Project:				
a) Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?				✔
b) Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?				✔

4.14.1 Environmental Setting

According to the U.S. Census Bureau, the City of Arcata had a population of 18,431 residents in 2019. The Proposed Project focuses on improvements to the City of Arcata's wastewater treatment plant. The AWTP is zoned Public Facility and is surrounded by Industrial General, Agricultural Exclusive, and Natural Resource Protection-zoned lands. The closest residentially zoned parcels are located roughly 0.4 miles to the north on South G Street. Treatment Facility rehabilitation and improvements are designed to maintain the existing 2.3 mgd dry weather flow treatment capacity to serve the existing population in the City of Arcata.

4.14.2 Environmental Analysis

a) Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)? (No Impact)

The Proposed Project does not include components that would directly support unplanned population growth, such as new housing, roads, utilities, or other development. Project elements are not expected to induce population growth or result in a demand for additional housing. Arcata's population was 18,431 in 2019, less than the 20,000 estimated for 2020 in Arcata's General Plan. The overall goal of the Project is to maintain and upgrade the existing wastewater treatment system and increase the quality of discharged effluent. There would be no impact.

b) Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere? (No Impact)

The project will not displace any existing housing, necessitating the construction of replacement housing elsewhere. The Proposed Project is on existing Public Facility and Natural Resource Protection-zoned lands, on which there is no existing housing, and thus, will not displace any existing housing. The Proposed Project will utilize existing roads and infrastructure, and thus, will not displace any people. There would be no impact.

4.14.3 Mitigation Measures

None required

4.14.3 References

City of Arcata. 2000. Growth Management Element. City of Arcata General Plan, City of Arcata, CA. October 2000.

United States Census Bureau for Arcata. 2020. City California-Quick Facts. United States Census Bureau. Accessed April 30, 2020 at https://www.census.gov/quickfacts/arcatacitycalifornia.

4.15 Public Services

	Potentially Significant Impact	Less-than-Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the Project:				
a) Would the Project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:				
Fire Protection?				✔
Police protection?				✔
Schools?				✔
Parks?				✔
Other public facilities?				✔

4.15.1 Environmental Setting

Emergency response and evacuation in the project area is the responsibility of the Arcata Volunteer Fire Department and Arcata Police Department. These agencies provide critical emergency response services and leadership and serve as the community's primary response agencies under the City's Emergency Response Plan. The Arcata Police Station is located at City Hall, which is approximately 1.1 mile from the project site. The Arcata Fire Protection District Headquarters is located approximately 0.9 miles from the project area. The AWTF is a city facility and houses some of the City's public safety equipment. The treatment facility is regulated under emergency protocols that are regularly updated and all staff and trained on emergency protocols in case of fire or other emergency.

This project is limited to improvements to the wastewater treatment facility, and would not eliminate any parks, recreational facilities or open space and would not require the development of additional parks, recreational facilities, or open space for the City.

Fire

The Proposed Project is located within and currently served by the Arcata Volunteer Fire District (AVFD). The AVFD boundaries encompass 65 square miles and extend west to the Pacific Ocean,

north to the Clam Beach area, east to Essex Lane, and south to Indianola Cutoff and the town of Manila. The AVFD is an all-risk fire department responsible for protecting life, property, and the environment from the hazards of fire and hazardous materials incidents and providing emergency medical services.

Police

The Proposed Project is located within and currently served by the Arcata Police Department, which provides public safety services within the City limits. The Arcata Police Department provides 24-hour police protection within the City of Arcata. The Arcata Police Department is part of the multi-agency Standardized Emergency Management System emergency response network. The main station office is at City Hall, 736 F Street, which is approximately 1.1 miles from the Proposed Project. The department currently employs twenty-seven sworn officers (full-time), one police service officer (full-time), thirteen full-time support positions (dispatch, parking, front office, etc.), and four part-time positions (parking, front office, maintenance, etc.).

Schools

The Proposed Project is within the Arcata School District, which offers preschool through eighth grade at Arcata Elementary School, Sunny Brae Middle School, and four charter schools. The City of Arcata and surrounding areas are also within the Northern Humboldt Unified High School District, which serves ninth through twelfth grades at Arcata High School and two charter high schools within City limits. Private schools also exist within the City limits.

Humboldt State University (HSU) is located approximately 1.3 miles to the northeast of the Proposed Project. Humboldt State is a public institution and part of the 23-campus California State University system. With about 7,000 students and 534 faculty members, HSU offer a wide array of academic choices, with 51 majors and 12 graduate programs in three Colleges.

Parks

The City of Arcata maintains a network of parks distributed throughout the City. Arcata's parks have varied facilities and offer many recreational and educational opportunities. The State of California guidelines establish a ratio of at least five acres of parkland for each 1,000 residents of the State; Arcata would need 20 acres to meet this ratio. Arcata's existing park system, according to the 2010 Arcata Park and Recreation Master Plan, contains 3,744 acres of parkland at 41 sites. More than 97% of this acreage is provided as natural areas or undeveloped park reserves. Approximately 89 acres of the City's park system consists of developed parks.

4.15.2 Environmental Analysis

a) Would the Project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant

environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for public services? (No Impact)

The Proposed Project does not include any improvements that would increase the need for services for the above described public services nor require modifying any existing facilities. Due to the Project's location and type, the Proposed Project would not require any changes to maintain an acceptable service ratio for fire and police protection services. Based on the fact the project will not result in a population increase, and that existing safety protocols are in place to ensure the safety of onsite staff, there will be no increase in the demand for police, fire, or emergency medical services. The Proposed Project would not create substantial adverse physical impacts by requiring new police or fire department facilities. The Proposed Project would not result in new users and will not have significant adverse effects on school district service ratios or school facilities. Parks and other public facilities will not be affected for the same reasons discussed above. Minor temporary impacts may occur to trail users along South G Street in the vicinity of the Corporation Yard during construction, but the trails will still be accessible, as will the marsh and wildlife sanctuary. The project will not create an increase in population that would drive the need for the creation of new parks facilities or open space and will not create a significant barrier to use of existing parks or open space. There would therefore be no construction impacts which could cause significant environmental impacts. There would be no impact.

4.15.3 Mitigation Measures

None required

4.15.4 References

Arcata School District. 2017. Website – About Us. Accessed September 29, 2020 at https://www.arcataschooldistrict.org.

City of Arcata. 2000a. General Plan 2020.

City of Arcata. 2000b. Draft Final Program EIR (PEIR) for the Arcata General Plan and Local Coastal Land Use Plan. SCH# 98072069.

Humboldt State University. 2020. Website. Accessed September 29, 2020 at https://www.humboldt.edu/about.

United States Census Bureau for Arcata City California-Quick Facts. United States Census Bureau. Accessed April 30, 2020 at https://www.census.gov/quickfacts/arcatacitycalifornia.

4.16 Recreation

	Potentially Significant Impact	Less-than-Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the Project:				
a) Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?				✔
b) Include recreational facilities or require the construction or expansion of recreational facilities, which might have an adverse physical effect on the environment?				✔

4.16.1 Environmental Setting

The Proposed Project area includes public access to Humboldt Bay, the City's Bay Trail system, and the AMWS. The City of Arcata maintains a network of parks distributed throughout the City. Arcata's parks have varied facilities and offer many recreational and educational opportunities. The State of California guidelines establish a ratio of at least five acres of parkland for each 1,000 residents of the State. Arcata's existing park system, according to the 2010 Arcata Park and Recreation Master Plan, contains 3,744 acres of parkland at 41 sites. Based on the City's current population of 18,431, there is approximately 4.8 acres of developed parks and 199 acres of undeveloped park reserves per 1,000 residents in the City.

4.16.2 Environmental Analysis

a) Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated? (No Impact)

The AMWS will remain open during the construction period. Impacts to recreational users may include noise and construction traffic that will be temporary. There also may be temporary trail closures during construction, however the majority of the trail system will remain open during construction activities and recreational improvements impacted would be restored to pre-project conditions. The Proposed Project would not impact any existing recreational facilities. There would be no impact.

The Proposed Project would not increase the use of existing neighborhood parks or recreational facilities except during any temporary construction activities that limit access. Access (e.g., additional parking, new roadway construction, directional signage) to AMWS would not be impacted such that a change in use would occur. The Proposed Project does not include the construction of additional recreational facilities within the APE. There would be no impact.

b) Include or require the construction or expansion of recreational facilities, which might have an adverse physical effect on the environment? (No Impact)

The Proposed Project does not include the construction or expansion of additional recreational facilities. While there may be minor impacts to recreational users throughout the AWTF, the Proposed Project does not involve the construction or expansion of recreational features that might have an adverse physical impact on the environment. There would be no impact.

4.16.3 Mitigation Measures

None required

4.16.4 References

City of Arcata. 2010. Arcata Park and Recreation Master Plan. October 2010. Accessed September 30, 2020 at https://www.cityofarcata.org/DocumentCenter/View/5580/Parks-and-Recreation-Master-Plan-2010-PDF?bidId= .

4.17 Transportation

	Potentially Significant Impact	Less-than-Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the Project:				
a) Conflict with a program plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?				✔
b) Conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)?			✔	
c) Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?			✔	
d) Result in inadequate emergency access?				✔

4.17.1 Environmental Setting

The Proposed Project transportation setting is limited to routes that are currently utilized for transportation by operational activities to the AWTF and by recreational users making use of the parking areas, trails, and open space. These same routes will be utilized by the construction of proposed improvements to the AWTF, within the area depicted by the APE (Figures 3.3-2 and 3). Construction-related traffic will utilize these same existing routes, South G Street or South I Street, either through existing surface streets or use one of the following routes.

Highway 101 South G Street exit or Samoa Boulevard exit to either:

1. Samoa Boulevard or South G Street to the AWTF at 600 South G Street
2. Samoa Boulevard to the AMWS via South I Street.

Regulatory Setting

The City of Arcata General Plan 2020 and the related PEIR (City of Arcata, 2000) included analysis of the adequacy of Arcata's transportation system at buildout for 2020. Development has been less than predicted but the discussion of unsafe intersections, intersections needing improvements and proposals for improving non-vehicular modes of transportation, including transit is still relevant. No improvements are proposed on roadways and intersections to be utilized by the Proposed Project.

On July 1, 2020, the CEQA Guidelines officially changed the criteria for determination of environmental significance of traffic impacts from Level of Service (LOS) to Vehicle Miles Traveled (VMT). VMT measures the per capita number of car trips generated by a project and distances cars will travel to and from a project, rather than congestion levels at intersections (level of service or "LOS," graded on a scale of A – F). This is in an effort to shift the state focus from vehicle congestion to vehicle emissions when considering a Project's environmental impact.

The more technical details of calculating VMT and assessing impacts are found in a Technical Advisory issued by OPR in 2018. The Technical Advisory provides guidance on assessing VMT, different methodologies, significance thresholds, and mitigation measures. The City of Arcata and the regional Humboldt County Association of Governments (HCAOG) has yet to set thresholds of significance for VMT project impacts. According to the Technical Advisory issued by the Governor's Office of Planning and Research (OPR), small projects that generate fewer than 110 trips per day may generally be assumed to cause a less-than-significant transportation impact.

4.17.2 Environmental Analysis

a) Conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities? (No Impact)

The City of Arcata General Plan 2020 (City of Arcata, 2000) and the related PEIR included analysis of the adequacy of Arcata's transportation system at buildout for 2020. Development has been less than predicted but the discussion of unsafe intersections, intersections needing improvements and proposals for improving non-vehicular modes of transportation, including transit is still relevant. No improvements are proposed on roadways and intersections to be utilized by the Proposed Project. Therefore, the Proposed Project will not adversely affect, in a manner that conflicts with, an applicable program, plan, ordinance, or policy, addressing the performance of the circulation system, including public transit, bicycle or pedestrian facilities. During Project construction, the existing trail systems surrounding the AWTF will remain operational with only limited portions having temporary closures (See Section 3.16 Recreation). There would be no impact.

b) Conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)? (Less Than Significant Impact)

As discussed above, CEQA Section 15064.3(b) provides criteria for analyzing traffic impacts of a project using VMT as the criteria for determining significance. The Governor's OPR has the following guidance for determining the VMT threshold for small projects, which include alterations to existing facilities:

> "Absent substantial evidence indicating that a project would generate a potentially significant level of VMT, or inconsistency with a Sustainable Communities Strategy (SCS) or general plan, projects that generate or attract fewer than 110 trips per day generally may be assumed to cause a less-than-significant transportation impact...CEQA provides a categorical exemption for existing facilities, including additions to existing structures of up to 10,000 square feet, so long as the project is in an area where public infrastructure is available to allow for maximum planned

development and the project is not in an environmentally sensitive area. (CEQA Guidelines, § 15301, subd. (e)(2).) Typical project types for which trip generation increases relatively linearly with building footprint (i.e., general office building, single tenant office building, office park, and business park) generate or attract an additional 110-124 trips per 10,000 square feet. Therefore, absent substantial evidence otherwise, it is reasonable to conclude that the addition of 110 or fewer trips could be considered not to lead to a significant impact" (OPR, 2018).

The project is limited to rehabilitation upgrades to the existing AWTF. The Proposed Project would not, either directly or indirectly, result in an increase in development that would cause a permanent increase in traffic in the surrounding transportation network. Operational transportation will remain at existing levels and continue to utilize the existing transport network. Operational vehicle trips to and from the facility will not increase significantly as a result of the Proposed Project. An increase of 1-2 vehicle trips per day, of which at least one (City compost vehicle) would begin and end within City limits, is not considered a significant increase in VMT when applying OPR Guidance. The impact would be less than significant.

Although a temporary increase in traffic will occur during construction, construction-related traffic would be spread over the duration of the construction schedule and would be a minimal addition on a daily basis. These impacts have been quantified and analyzed in Section 3.3 Air Quality and 3.8 Greenhouse Gas and will not result in substantial air emissions. Temporary trips such as these are not considered in VMT analysis. This would be a less than significant impact.

c) Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)? (Less than Significant Impact)

The Proposed Project includes work in the public road right-of-way that may impede traffic but will not result in temporary or permanent hazards due to incompatible uses. A Class I bike and pedestrian trail (Bay Trail) intersects with the main access roads to the AWTF. Increased truck traffic during construction will cause a minor conflict with the use of the trail but will not preclude usage (See Section 3.16 Recreation). There would be a less than significant impact.

d) Result in inadequate emergency access? (No Impact)

The majority of Proposed Project improvements will occur within the existing footprint of the AWTF, with the exception of trips to and from staging areas. The Proposed Project includes work in the public road right-of-way that may impede traffic but will not result in temporary or permanent hazards due to incompatible uses. Emergency access to the work areas would be maintained throughout construction. No impacts to emergency access will result. See also Section 3.9 Hazards. As noted there, the City does not have an independent emergency response plan, but the AWTP has site-specific emergency response plans, including a risk management plan and a chlorine/sulfur dioxide emergency response plan. The Proposed Project will decrease risk of chlorine contact and contamination, and no element of the Proposed Project will increase site risks. During construction, the project area will continue to be accessible using existing entrances to the AWTF. The project

will not include development that would increase the number of people exposed to emergencies and would not include uses that would require an amendment of a locally adopted emergency plan. The Humboldt County Emergency Operations Plan (Humboldt County, 2015) does not designate specific evacuation routes or emergency shelter locations or include policies or procedures with which the Proposed Project would conflict. Therefore, the Project would not impair implementation of or physically interfere with the plan. There would be no impact.

4.17.3 Mitigation Measures

None required

4.17.4 References

City of Arcata. 2000. Draft Final Program EIR (PEIR) for the Arcata General Plan and Local Coastal Land Use Plan.

Humboldt County. 2015. Humboldt County Emergency Operations Plan. Accessed September 29, 2020 at https://www.humboldt.gov.org/374/Emergency-Operations-Plan.

OPR. 2018. Technical Advisory on Evaluating Transportation Impacts in CEQA (December 2018). Governor's Office of Planning and Research. Accessed May 8, 2020 at http://opr.ca.gov/docs/20190122-743_Technical_Advisory.pdf.

4.18 Tribal Cultural Resources

	Potentially Significant Impact	Less-than-Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the Project:				
a) Cause a substantial adverse change in the significance of a tribal cultural resource listed or eligible for listing in the California Register of Historic Resources, or in a local register of historic resources as defined in Public Resources Code section 5020.1(k)?		✔		
b) Cause a substantial adverse change in the significance of a tribal cultural resource that is a resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to the criteria set forth in subdivision (c) of the Public Resources Code section 5024.1? In applying the criteria set forth in subdivision (c) of the Public Resources Code section 5024.1, the lead agency shall consider the significance of the resource to a California Native American Tribe.		✔		

4.18.1 Environmental Setting

This section evaluates the potential impacts related to tribal cultural resources resulting from construction and operation of the Project. Impact assessment is based upon cultural resource investigations detailed in the Project's Cultural Resource Assessment Report (DZC Archeology and Cultural Resource Management, 2019).

The Cultural Resources Inventory conducted by DZC Archaeology & Cultural Resource Consulting, LLC (DZC) analyzed approximately 123 acres of land which represent the APE. The APE covers the City of AWTF and City Corporation Yard (portions of Assessor's Parcel Numbers 503-241-010, 503-232-013, 503-251-012, 503-211-026, 503-241-016, 503-251-009, 503-241-011, 503-241-013, 503-211-005, 503-241-012, and one unnumbered parcel). The Environmental Study Limits (ESL) constitute a 0.5-mile radius around the APE. (See Section 3.5 Cultural resources).

The Report notes that based on field visits, coordination with the three THPOs, and an information search of Sacred Lands from the NAHC, no archeological resources were noted in the project area.

The report did note that regardless of no known significant affected resources, it is best practice to avoid cultural resources whenever possible.

As of July 2015, Assembly Bill (AB) 52 requires that lead agencies consider the effects of projects on tribal cultural resources and that consultation with federally and non-federally recognized Native American Tribes take place early in the environmental review process. As Defined in PRC §21074, tribal cultural resources are sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American Tribe that are listed, or determined to be eligible for listing, on the national, state, or local register of historical resources.

Formal AB 52 letters were sent July 2020 to area tribal governments to provide notification of the decision to undertake a project and consultation opportunities. The letters were distributed to the THPOs at the Blue Lake Rancheria, Wiyot Tribe, and Bear River Band of the Rohnerville Rancheria. As there are no Tribal Cultural Resources that will be affected by this project, all three THPOs declined the invitation for government consultation with the City of Arcata.

Mitigation Measure CU-1 (existing City policy): If human remains are discovered during project construction, work within the discovery location plus nearby areas reasonably suspected to overlie human remains, will cease. THPOs appointed by the Blue Lake Rancheria, Bear River Band of Rohnerville Rancheria and Wiyot Tribe shall be immediately notified. If deemed necessary by the THPOs, a qualified archaeologist with local experience shall be retained to consult with the City, THPOs, and other applicable regulatory agencies to employ best practices for assessing the significance of the find and developing and implementing a treatment and reporting plan. Ground-disturbing project work at the find locality shall be suspended until a plan is agreed upon by all parties.

The Humboldt County Coroner will be contacted by the Project Archaeologist to determine if the cause of death must be investigated. If the Coroner determines that the remains are of Native American origin, it is necessary to comply with state laws regarding the disposition of Native American burials, which fall within the jurisdiction of the California NAHC (Public Resources Code, Section 5097). In this case, the Coroner will contact NAHC. The descendants or most likely descendants (MLD) of the deceased will be contacted, and work will not resume until they have made a recommendation to the landowner or person responsible for excavation work with direction regarding appropriate means of treatment and disposition, with appropriate dignity, of the human remains and any associated grave goods, as provided in Public Resources Code, Section 5097.98.

4.18.2 Environmental Analysis

a, b) Cause a substantial adverse change in the significance of a tribal cultural resource? (Less Than Significant with Mitigation Incorporated)

As a result of informal AB 52 consultation and findings of cultural resource investigations (see Section 3.5 – Cultural Resources), consulting tribes have indicated that no known tribal cultural resources are present within the Project APE. Should an archaeological resource be inadvertently discovered during ground-disturbing activities, such resource may be considered a tribal cultural resource. With the implementation of existing City inadvertent discovery protocol (Mitigation Measure CU-1), potential impacts to tribal cultural resources would be less than significant.

4.18.3 Mitigation Measure

See Mitigation Measure CU-1

Mitigation Measure CU-1 would reduce the impact on tribal cultural resources to a less-than-significant level by assuring proper protocols are in place for inadvertent discovery of potential tribal cultural resources disturbed during construction.

4.18.4 References

City of Arcata. 2020. File emails from Bear River Band of Rohnerville Rancheria, Blue Lake Rancheria, and Wiyot Tribe. E-mails from Wiyot Area Tribal Historic Preservation Officers (THPO) Erika Cooper of the Bear River Band of Rohnerville Rancheria, Jacob Pounds of the Blue Lake Rancheria, and Ted Hernandez of the Wiyot Tribe stating that the inadvertent discovery protocol for Native American archaeological deposits recommended in the Cultural Resources Study performed by DZC Archeology and Cultural Resource Management is sufficient. July 9, 15 and 16, 2020.

DZC. 2019. Cultural Resource Assessment Report for the City of Arcata Wastewater Treatment Facilities Improvement Project, Arcata, Humboldt County, California. DZC Archeology and Cultural Resource Management. 2019.

4.19 Utilities and Service Systems

	Potentially Significant Impact	Less-than-Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the Project:				
a) Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electrical power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?				✔
b) Have sufficient water supplies available to serve the Project and reasonably foreseeable future development during normal, dry and multiple dry years?				✔
c) Result in a determination by the wastewater treatment provider which serves or may serve the Project that it has adequate capacity to serve the Project's Projected demand in addition to the provider's existing commitments?				✔
d) Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?			✔	
e) Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?				✔

4.19.1 Environmental Setting

Water/ Wastewater

The Proposed Project consists of upgrading the current AWTF treatment configuration to meet new

regulatory requirements. Water is utilized at the AWTP as part of its treatment process, but increases in water use will not be necessary. Upgrades to the AWTF are part of an overall program for improving delivery, treatment, and discharge for Arcata's wastewater.

The proposed process changes are outlined on the process flow diagram presented in Figure 3.5-1 of the project description. Following completion of Phase 1, up to 5 mgd will continue to be pumped through the improved headworks and clarifier before gravity flowing to Oxidation Ponds 1 and 2. Flows between 1 and up to 5 mgd will undergo further treatment through the treatment wetlands and enhancement marshes. Both the treatment wetlands effluent (up to 5 mgd) and the treated/aerated Oxidation Pond wastewater (up to 7.5 mgd) will be pumped to the 9.8 mgd UV system for disinfection prior to discharge. As a result, up to 9.8 mgd will be UV disinfected and will be acceptable to discharge to the bay at two locations: the new Outfall 003 at the existing Brackish Marsh adjacent to McDaniel Slough (up to 6 mgd), and existing Outfall 001 at Butcher Slough for flows above 6 mgd. **(**See Figure 4.4-1**).**

Stormwater

See Section 3.10 Hydrology for discussion of stormwater. The project will not require or result in the construction of new stormwater drainage facilities or expansion of existing facilities.

Other Utilities

Solid waste within the City of Arcata is currently collected by Recology Arcata, which provides waste and recycling bins and provides for the special hauling of building materials and recyclables. Recology Arcata delivers the solid waste to the Humboldt Waste Management Authority (HWMA) Solid Waste Transfer Station in Eureka, where waste is sorted, and recyclables and hazardous materials are removed.

As discussed in Section 2 Project Description and Section 3.6 Energy, electrical upgrades, additional solar arrays, and additional backup power generators are part of the Proposed Project. There are no planned upgrades to other utilities or telecommunication systems.

Regulatory Setting

California Green Building Code

The project will be required to comply with Sections 301.1.1 and 301.3 of the California Green Building Standards Code. This includes the requirement that a minimum 65% waste diversion is met.

City of Arcata Zero Waste Action Plan

In April 2017, the City Council adopted the City's Zero Waste Action Plan. This plan includes a goal to Reduce Construction and Demolition Waste and promote reuse of Construction and Demolition materials, which includes a number of short-, mid-, and long-term implementation tasks including coordinating with the Humboldt Waste Management Authority and local builders to salvage reusable building materials and separate recyclable debris.

4.19.2 Environmental Analysis

a, c) Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electrical power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects? Result in a determination by the wastewater treatment provider which serves or may serve the Project that it has adequate capacity to serve the Project's Projected demand in addition to the provider's existing commitments? (No Impact)

The Proposed Project is intended to upgrade the AWTF to meet regulatory requirements. The Proposed Project will not impact the existing treatment capacity or create additional demand, and, other than the upgrades proposed by the Proposed Project (See Section 2 Project Description), will not require relocation or construction of facilities that result in significant impacts.

This project is limited to improvements to the wastewater treatment facility and will not result in a population increase. There will be no increased demand for wastewater. The project will improve the functioning of the existing treatment facility and ensure compliance with NPDES requirements. Therefore, the project will result in a net beneficial increase in wastewater capacity and functioning.

Following construction, the Project would not directly or indirectly induce population growth and would not increase the amount of wastewater generated. The addition of the Brackish Marsh Outfall 003 that will receive the treated wastewater will provide additional beneficial use of treated wastewater and not result in the need for increased wastewater treatment capacity. Because there would be no increase in wastewater discharges, the Project would not impair the ability of the AWTF to continue serving existing commitments, even during construction activities.

The Proposed Project will likewise not require relocation or construction of facilities for other utilities (stormwater, electrical, natural gas, telecommunication, etc.) and will not impact the existing capacity or create additional demand, and, other than the upgrades proposed by the Proposed Project (See Section 2 Project Description), will not require relocation or construction of facilities that result in significant impacts. Therefore, no impact would occur.

b) Have sufficient water supplies available to serve the Project and reasonably foreseeable future development during normal, dry and multiple dry years? (No Impact)

During construction, City water supplies could potentially be required for dust control and other construction-related activities. Construction-related water demands would be temporary and minimal in volume and would be sufficiently served by existing entitlements. Following construction, the Proposed Project would not directly or indirectly induce population growth and would not result in an increased demand for water. Therefore, no new entitlements or facilities would be required. No impact would occur.

d) Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals? (Less Than Significant)

Construction of the Project would result in a temporary increase in solid waste disposal needs associated with demolition and construction wastes. Potential construction wastes would include, but not be limited to, demolished asphalt pavement, concrete, small tree/shrub removals, and excavated soils. The project will be required to comply with the California Green Building Standards Code and the City's Zero Waste Action Plan. This will include the requirement that all recyclable waste be diverted, and that a minimum of 65% diversion rate be achieved. Locally recyclable construction and demolition waste materials include, but are not limited to, asphalt pavement, concrete, tree/shrubs, and various types of metal. Construction waste with no practical reuse or that cannot be salvaged or recycled would be disposed of at a local transfer station. Active permitted in-County transfer stations include the HWMA facilities in Eureka or Samoa, California and Humboldt Sanitation's McKinleyville, California transfer station. Solid waste generated by the Project would represent a small fraction of the daily permitted tonnage of these facilities. This would be a less than significant impact on landfill capacity with the implementation of federal, state, and local statutes and regulations related to solid waste. Therefore, the Project's construction-related solid waste disposal needs would be sufficiently accommodated by existing landfills, and the impact would be less than significant.

Following construction, Project operation would not generate additional solid waste. Operations resulting from the Project will continue to include the processing of biosolids into usable compost, and the re-location of the City's existing compost facility to a location within the current Wastewater Treatment Facility footprint. The construction of a new oxidation ditch will result in a greater volume of biosolids to be composted. However, all biosolids will be composted and land-applied in compliance with Section 503 of the Clean Water Act and Calrecycle composting facility regulations. Because the increase in biosolids will constitute an increase in waste diversion, rather than disposal, the impact will be less than significant.

Because the project will comply with federal, state, and local regulations related to solid waste during the life of the project, and because the operation of the project will not result in a significant increase in solid waste, the impact is less than significant.

e) Comply with federal, state, and local management and reduction statutes and regulations related to solid waste? (No Impact)

No applicable federal solid waste regulations would apply to the Project. At the State level, the Integrated Waste Management Act mandates a reduction of waste being disposed and establishes an integrated framework for program implementation, solid waste planning, and solid waste facility and landfill compliance. The Project would not conflict with or impede implementation of such programs. All demolition and construction waste will be handled and disposed in accordance with applicable local, state, and federal regulations and guidance, including the City's Requirements for Construction and Demolition. The contractor is required to submit a debris management plan detailing the amount of project construction and demolition debris the project expects to generate and the service and/or recycling facility the project intends to use for waste disposal, and, where possible, to avoid landfill able waste.

The Proposed Project will comply with City recycling and waste stream reduction requirements, including the City's Zero Waste Action Plan, to minimize waste going to the landfill. There would be no impact related to non-compliance or inconsistency with applicable solid waste regulations. Onsite containers will be used for all recyclable material including cans, bottles, cardboard, paper, and other material. Following construction, Project operation would not generate additional solid waste. Therefore, no construction or operational impact would occur.

4.19.3 Mitigation Measures

None required

4.19.4 References

City of Arcata. 2017. City of Arcata Zero Waste Action Plan. April 2017.

4.20 Wildfire

	Potentially Significant Impact	Less-than-Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the Project:				
a) Substantially impair an adopted emergency response plan or emergency evacuation plan?				✔
b) Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose Project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?				✔
c) Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?				✔
d) Expose people or structures to significant risks, including downslope or downstream flooding or landslides as a result of runoff, post-fire slope instability, or drainage changes?				✔

4.20.1 Environmental Setting

The Project is located in the City's Local Responsibility Area (LRA) and is rated as "LRA- Low and Moderate" in terms of Fire Hazard Severity rating (OPR, 2020). The closest area where the rating increases to High (and also reaches a State Responsible Area (SRA) is approximately one mile to the east. Policy documents and plans for addressing wildfire risks in Humboldt County include the

Public Safety Element, the Humboldt County Hazard Mitigation Plan, the Humboldt County Community Wildfire Protection Plan (2019), and Strategic Fire Plan Humboldt-Del Norte Unit (Cal Fire, 2018). The site is nearly flat for an area at least 0.9 miles in any direction. Prevailing winds are from the south west (winter) or northwest (summer), the opposite direction of the forested hillslopes (east) and the source of smoke from inland fires. Numerous water bodies are adjacent to the project area and are available for fire suppression and fire hydrants are available within the APE with municipal water as the source. The Arcata Voluntary Fire District has, and will continue to have, the primary fire suppression responsibility.

4.20.2 Environmental Analysis

a) Substantially impair an adopted emergency response plan or emergency evacuation plan? (No Impact)

The City of Arcata does not have an independent emergency response plan. The Humboldt County Emergency Operations Plan (Humboldt County, 2015) does not designate specific evacuation routes or emergency shelter locations or include policies or procedures with which the Project would conflict. See additional discussion of emergency response in Section 3.9 Hazards and 3.17 Transportation. Therefore, the Project would not impair implementation of or physically interfere with the plan. No impact would occur.

b) Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose Project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire? (No Impact)

The Project Area is located in the coastal bottomland adjacent to Humboldt Bay. Due to its flat to low slopes in the area and drainage towards Humboldt Bay, the Proposed Project does not pose a risk to fuel the spread of wildfire. Coastal winds are common in the coastal bottom land. General wind directions in the Arcata area are from the northwest during the summer and southwest in the winter (WWRC, 2020). With regards to the project site, general wind directions blow towards Humboldt Bay and do not pose a high risk for the spread of wildfire. Fire ignition risk associated with construction activities is low and limited to accidental ignition associated with a potential heavy machinery-related incident. The Project would not otherwise increase exposure to wildfire above existing conditions and will have no impact.

c) Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment? (No Impact)

New construction at the project site may result in a low fire ignition risk, associated with a potential heavy machinery. However, BMPs and regulations are in place to ensure low-level risks are avoided. The Proposed Project does not require installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) so fire risk is not exacerbated. Ongoing operation of the plant after construction is complete would also not result in an exacerbated fire risk and will therefore have no impact.

d) Expose people or structures to significant risks, including downslope or downstream flooding or landslides as a result of runoff, post-fire slop instability, or drainage changes? (No impact)

The project site is not in proximity to any structure or community at risk of downhill flooding, landslide, or run off due to post-fire slope instability. The project area is adjacent to Humboldt Bay. The APE and adjacent land areas are generally flat in grade and drain towards Humboldt Bay. The Proposed Project does not have the potential to expose people or structures to post-fire instability. No impact would occur.

4.20.3 Mitigation Measures

None required

4.20.4 References

CalFire. 2018. Strategic Fire Plan for the Humboldt-Del Norte Unit, 2018.

City of Arcata. 2008. City of Arcata General Plan 2020 Public Safety Element, Amended October 2008. Accessed September 30, 2020,at https://www.cityofarcata.org/DocumentCenter/View/42/Chapter-6-Health-and-Safety---1-Public-Safety-Element-PDF.

FRAP. 2020. California Fire Hazard Severity Zone Viewer. Accessed September 29, 2020 at https://gis.data.ca.gov/datasets/789d5286736248f69c4515c04f58f414.

Humboldt County. 2015. Humboldt County Emergency Operations Plan. Accessed September 29, 2020 at https://humboldtgov.org/374/Emergency-Operations-Plan.

Humboldt County. 2019. Humboldt County Community Wildfire Protection Plan (2019) Accessed September 30, 2020 at https://humboldtgov.org/762/Humboldt-County-Community-Wildfire-Prote.

Humboldt County. 2020. 2020 Humboldt County Operational Area Hazard Mitigation Plan Volumes 1 and 2. Accessed September 30, 2020 at https://humboldtgov.org/506/Local-Hazard-Mitigation .

OPR. 2020. Site Check. Accessed September 29, 2020 at https://sitecheck.opr.ca.gov/ .

WRCC, 2020, Prevailing Wind Directions, Western Regional Climate Center (WRCC). 2020 .

3.21 Mandatory Findings of Significance

	Potentially Significant Impact	Less-than-Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
a) Does the Project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?		✔		
b) Does the Project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a Project are considerable when viewed in connection with the effects of past Projects, the effects of other current Projects, and the effects of probable future Projects)?			✔	
c) Does the Project have environmental effects which would cause substantial adverse effects on human beings, either directly or indirectly?				✔

4.21.1 Environmental Setting

Refer to Sections 3.3 Air Quality, 3.4 Biology, 3.5 Cultural Resources, 3.8 Greenhouse Gasses, and 3.18 Tribal Cultural Resources for background setting information and analysis.

4.21.2 Environmental Analysis

a) **Does the Project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory? (Less Than Significant with Mitigation Incorporated)**

As evaluated in this Initial Study, the Project would not substantially degrade the quality of the environment; substantially reduce the habitat of a fish or wildlife species; cause a fish or wildlife population to drop below self-sustaining levels; threaten to eliminate a plant or animal community; reduce the number or restrict the range of an endangered, rare, or threatened species; or eliminate important examples of the major periods of California history or prehistory. Effects to tidewater goby and other rare and endangered species will be mitigated to a less-than-significant level and there will be no substantial reduction in population.

Mitigation measures have been incorporated to reduce impacts related to Biological resources and Cultural Resources to less than significant. With implementation of the required mitigation measures, impacts to the environment would be less than significant.

b) Does the Project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a Project are considerable when viewed in connection with the effects of past Projects, the effects of other current Projects, and the effects of probable future Projects)? (Less-than-Significant Impact)

Cumulative impacts are defined as "two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts" (CEQA Guidelines Section 15355). Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time. In the case of the wastewater treatment facility improvements project, a cumulative impact could be a nearby construction project, or another physical action in the vicinity of the project areas that could compound impacts to wildlife or habitat. There are no known development or restoration projects slated for work to begin in the next few years that would negatively impact wildlife, habitat, or other natural resources. In addition to these considerations, the treatment facility is pre-existing, and will only be improved in order to better serve the existing City population. As a result, the project would not result in additional cumulative impacts from future related actions. Because the proposed improvements are being completed to comply with NCRWQCB requirements for wastewater treatment and discharge and would not increase the capacity of the AWTF, there would be no additional growth inducement over what was analyzed in the City's General Plan and related PEIR (City of Arcata, 2000). There would also be no

impact to existing wastewater treatment capacity, which has been a subject of review for several projects in the Foster Avenue area. This project neither exacerbates or improves the cumulative impact discussed on those projects. Therefore, based on the discussion and findings in this Initial Study, cumulative impacts would be less than significant.

c) Does the Project have environmental effects which would cause substantial adverse effects on human beings, either directly or indirectly? (No Impact)

The Proposed Project has been designed and mitigated to avoid significant environmental impacts. As discussed in the analysis throughout Section 3 of this Initial Study, the Proposed Project would not have environmental effects that would cause substantial adverse direct or indirect effects on human beings. The project will in fact benefit humans, as the functioning of the AWTF is essential to City functioning and public health. There would be no impact.

4.21.3 Mitigation

Measures None required

4.21.4 References

City of Arcata. 2000. Draft Final Program EIR (PEIR) for the Arcata General Plan and Local Coastal Land Use Plan. SCH# 98072069.

City of Arcata. 2008a. Arcata General Plan and Local Coastal Land Use Plan. Amended Oct. 2008.

City of Arcata. 2008b. City of Arcata Municipal Code – Title 9 – Land Use Code. Oct. 2008.

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6. Abbreviations and Acronyms

µg/L	Micrograms per liter
ac	acre
AE	Agriculture Exclusive Zone
AMRI	Arcata Marsh Research Institute
AMWS	Arcata Marsh and Wildlife Sanctuary
APE	Area of Potential Effect
AVFD	Arcata Volunteer Fire Department
AWTF	Arcata Wastewater Treatment Facility (includes the AWTP and AMWS)
AWTP	Arcata Wastewater Treatment Plant
BAAQMD	Bay Area Air Quality Management District
BFE	base flood elevation
BIOS	Biogeographic Information and Observation System
BMP	best management practice
BOD	Biochemical Oxygen Demand
CAA	Clean Air Act
CAAQS	California Ambient Air Quality Standards
CalEEMod	California Emissions Estimator Model
CalEPA	California Environmental Protection Agency
CAP	Climate Action Plan
CAPCJVSP	California Pacific Coast Joint Venture Strategic Plan
CAPCOA	California Air Pollution Control Officers Association
CARB	California Air Resources Board
CCB	chlorine contact basin
CCC	California Coastal Commission
CCE	Community Choice Energy
CCR	California Code of Regulations
CDFG	California Department of Fish and Game
CDFW	California Department of Fish and Wildlife
CDP	Coastal Development Permit
CEC	California Energy Commission
CEC	Constituents of Emerging Concern
CEQA	California Environmental Quality Act
CFC	chlorofluorocarbon
CFR	Code of Federal Regulations
cfs	cubic feet per second
CH_4	methane
CIP	capital improvement program
CN	cyanide
CNDDB	California Natural Diversity Database
CNEL	Community Noise Equivalent Level
CO	carbon monoxide
CO_2	carbon dioxide
CO_2e	carbon dioxide equivalent
CPA	California Power Authority
CPT	Cone Penetration Test
CPUC	California Public Utilities Commision

CUPA	Certified Unified Program Authority
CWA	Clean Water Act
dB	decibel
dBA	A-weighted decibels
DOORS	Diesel Off-road Online Reporting System
DZC	DZC Archeology and Cultural Resource Management
EAP	Emergency Action Plan
EAP	Energy Action Plan
EM	Enhancement Marsh
EPPS	Emergency Pond Pump Station
ESA	Endangered Species Act
ESHA	environmentally sensitive habitat area
ESL	Environmental Study Limits
ESU	evolutionary significant unit
EWPS	Enhancement Wetlands Pump Station
FE	Federally Endangered Status
FEMA	Federal Emergency Management Agency
FESA	Federal Endangered Species Act
FHSZ	Fire Hazard Severity Zones
FP	Fully Protected Status
FT	Federally Threatened Status
ft^2	square feet
GHG	greenhouse gas
H_2S	hydrogen sulfide
ha	hectare
HAP	hazardous air pollutant
HBGS	Humboldt Bay Generation Station
HBPP	Humboldt Bay Power Plant
HCAOG	Humboldt County Association of Governments
HFC	hydrofluorocarbon
HPS	Houser Pump Station
HRT	hydraulic retention time
HSU	Humboldt State University
HWMA	Human Waste Management Authority
I/I	inflow and infiltration
IDA	International Dark-Sky Association
IEPR	Integral Energy Policy Report
IPaC	Information for Planning and Conservation
ITE	Institute of Transportation Engineers
KW	kilowatt
kWh	kilowatt hour
kVA	kilo-volt-ampere
LCP	Local Coastal Program
Ldn	averaged dB day/night levels
LED	light emitting diode
LOS	level of service
LRA	local responsibility area
LUDG	Land Use and Development Guide
m	meter
MCAQMD	Mendocino County Air Quality Management District

MG	million gallons
mgd	million gallons per day
mg/L	milligrams per liter
ml	milliliter
MLD	most likely descendants
MM	Mitigation Measure
MMP	Mandatory Minimum Penalties
MND	Mitigated Negative Declaration
MPN	most probable number
MRP	Monitoring and Reporting Program
MS4	municipal separate storm sewer system
$MTCO_2e$	metric tons of carbon dioxide equivalent
MW	megawatt
N_2O	nitrous oxide
NAAQS	National Ambient Air Quality Standards
NAHC	Native American Heritage Commission
NAVD	North American Vertical Datum
NCAB	North Coast Air Basin
NCRWQCB	North Coast Regional Water Quality Control Board
NCUAQMD	North Coast Unified Air Quality Management District
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NMFS	National Marine Fisheries Service
NO	nitric oxide
NO_2	nitrogen dioxide
NOA	naturally occurring asbestos
NOAA	National Oceanic & Atmospheric Administration
NOI	Notice of Intent
NOX	nitrogen oxide
NPDES	National Pollutant Discharge Elimination System
NRCS	Natural Resource Conservation Service
NRP	Natural Resource Protection
NWI	National Wetlands Inventory
O&M	Operation and Maintenance
O_3	Ozone
OPR	Office of Planning and Research
Pb	lead
PCE	Primary Constituent Elements
PEIR	Program Environmental Impact Report
P-F	Public Facility Zone
PFC	perfluorocarbon
PG&E	Pacific Gas & Electric
PM_{10}	inhalable particulate matter less than 10 microns in size
$PM_{2.5}$	inhalable particulate matter less than 2.5 microns in size
ppd	pounds per day
ppm	parts per million
PPS	Pond Pump Station

ppt	parts per thousand
PS1	Pump Station 1
PWA	Phillip Williams & Associates
RAS	return activated sludge
RCEA	Redwood Coast Energy Authority
ROG	reactive organic gas
RPS	Renewable Portfolio Standard
SCADA	Supervisory Control and Data Acquisition
SCS	Sustainable Communities Strategy
SE	State Endangered Status
SF_6	hexa fluoride
SHPO	State Historic Preservation Officer
SMAQMD	Sacramento Metropoloitan Air Quality Management District
SO_2	sulfur dioxide
SO_4	sulfates
SPT	Standard Penetration Test
SRA	state responsibility area
SSC	Species of Special Concern
ST	State Threatened Status
SWPPP	Stormwater Pollution Prevention Plan
SWRCB	State Water Resources Control Board
TAC	Toxic Air Contaminants
TBD	to be determined
THPO	Tribal Historic Preservation Officer
TSO	Time Schedule Order
TSS	Total Suspended Solids
TW	Treatment Wetlands
USACE	United States Army Corps of Engineers
USEPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service
UV	ultraviolet light
UVT	UV Transmittance
VDECS	Verified Diesel Emission Control Strategies
VMT	vehicle miles traveled
VOC	volatile organic compound
WAS	waste activated sludge
WOTS	Waters of the State
WOTUS	Waters of the United States