



Wastewater Treatment and Effluent Percolation System Upgrade Project

Public Review Draft Initial Study & Proposed
Mitigated Negative Declaration

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Public Review Draft
Initial Study/Proposed Mitigated Negative Declaration
City of Fortuna
Wastewater Treatment and Effluent Percolation
System Upgrade Project



Prepared for:

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P.O. Box 545
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Prepared by:



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April 2020

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Table of Contents

1.	Project Information.....	1-0
1.1	CEQA Requirements	1-0
1.2	Project Background	1-1
1.1	Purpose and Need.....	1-2
1.2	Project Location	1-2
1.3	Surrounding Land Uses and Existing Setting.....	1-2
1.4	Project Description	1-2
1.5	Project Construction	1-6
1.6	Operation and Maintenance	1-8
1.7	Environmental Protection Actions Incorporated into the Project.....	1-8
1.8	Required Agency Approvals	1-9
1.9	Tribal Consultation.....	1-9
2.	Environmental Factors Potentially Affected	2-1
3.	Environmental Analysis.....	3-1
3.1	Aesthetics	3-1
3.2	Agriculture and Forest Resources	3-4
3.3	Air Quality	3-9
3.4	Biological Resources	3-12
3.5	Cultural Resources	3-22
3.6	Energy	3-25
3.7	Geology and Soils	3-27
3.8	Greenhouse Gas Emissions.....	3-31
3.9	Hazards and Hazardous Materials	3-33
3.10	Hydrology and Water Quality.....	3-37
3.11	Land Use and Planning	3-42
3.12	Mineral Resources.....	3-44
3.13	Noise.....	3-45
3.14	Population and Housing	3-48
3.15	Public Services	3-49
3.16	Recreation	3-50
3.17	Transportation.....	3-51
3.18	Tribal Cultural Resources	3-54
3.19	Utilities and Service Systems	3-56
3.20	Wildfire.....	3-59
3.21	Mandatory Findings of Significance	3-60
4.	References.....	4-1

5.	Report Preparers	5-1
5.1	City of Fortuna	5-1
5.2	GHD	5-1
5.3	Sub-consultants	5-1

Table Index

Table 3.3-1 Construction Regional Pollutant Emissions.....	3-11
Table 3.13-1: Construction Equipment Reference Noise Levels as Measured at 50'	3-46

List of Figures

Figure 1	Vicinity Map
Figure 2	Project Overview
Figure 3	Prime Agriculture Soils

Appendix Index

Appendix A	Air Quality Modeling Results
Appendix B	Biological Resources Report

1. Project Information

Project Title	Wastewater Treatment and Effluent Percolation System Upgrade Project
Lead Agency Name & Address	City of Fortuna 621 11 th Street P.O. Box 545 Fortuna, CA 95540
Contact Person & Phone Number	Merritt Perry, City Manager, (707) 725-1410
Project Location	Fortuna and Humboldt County, CA
Project Sponsor's Name & Address	City of Fortuna 621 11 th Street P.O. Box 545 Fortuna, CA 95540
General Plan Land Use Designation	Fortuna WWTP: Public (PUB) Contingency Mid-River Drilling Point: Natural Resources (NR) Percolation Field: Agriculture Exclusive (AE)
Zoning	Fortuna WWTP: Public Facilities (PF) Contingency Mid-River Drilling Point: Natural Resources, Streams and Riparian Corridors Protection (NR/R) Percolation Field: Agriculture Exclusive, Archeological Resource Area, Streams and Riparian Corridors Protection, Transitional Agricultural Lands (AE-60/A, F, R, T)

1.1 CEQA Requirements

This project is subject to the requirements of the California Environmental Quality Act (CEQA). The lead agency is the City of Fortuna (City). The purpose of this Initial Study is to provide a basis for deciding whether to prepare an Environmental Impact Report, a Mitigated Negative Declaration or a Negative Declaration. This Initial Study is intended to satisfy the requirements of the California Environmental Quality Act, CEQA, (Public Resources Code, Div 13, § 21000-21177), and the CEQA Guidelines (California Code of Regulations, Title 14, § 15000-15387). CEQA encourages lead agencies and applicants to modify their projects to avoid significant adverse impacts.

§ 15063(d) of the State CEQA Guidelines states the content requirements of an Initial Study as follows:

1. A description of the project including the location of the project;

2. An identification of the environmental setting;
3. An identification of environmental effects by use of a checklist, matrix, or other method, provided that entries on a checklist or other form are briefly explained to indicate that there is some evidence to support the entries;
4. A discussion of the ways to mitigate the significant effects identified, if any;
5. An examination of whether the project would be consistent with existing zoning, plans; and other applicable land use controls;
6. The name of the person or persons who prepared or participated in the Initial Study.

1.2 Project Background

The City's Wastewater Treatment Plant (WWTP) is regulated under the North Coast Regional Water Quality Control Board (NCRWQCB), and operates under waste discharge requirements issued by the NCRWQCB in Order No. R1-2017-0005, effective November 1, 2017.

The WWTP has a permitted dry weather average daily flow (ADF) capacity of 1.5 Million Gallons per Day (MGD), and wet weather ADF capacity of 7.0 MGD. According to the 2017 Annual Report (City of Fortuna 2018), the WWTP operates at an average dry weather flow of 0.760 MGD, and, during wet weather, can experience flows above 4.5 MGD. Peak influent flows over 3 to 4 MGD are diverted to equalization ponds and returned for treatment during lower flow periods. The WWTP currently treats an ADF of approximately 1.0 MGD (accounting for both dry weather and wet weather conditions). Approximately 90% of the connections to the collection system are residential and commercial users; the remaining 10% are industrial. The WWTP was originally constructed in 1974 under the City of Fortuna Water Pollution Control Facilities Project. In June 2007, an upgrade was completed to provide additional primary treatment, secondary clarification and a solids handling facility. The existing liquid treatment facilities include screening, grit removal, equalization, primary clarification, secondary biological treatment, secondary clarification, and chlorination/dechlorination.

The treated effluent is discharged to the Eel River or percolation ponds, depending on the time of year. From May 15th through September 30th, the City is prohibited from discharging treated effluent to the Eel River, and discharges to two percolation ponds, which allow disposal through infiltration into groundwater. The percolation ponds are located approximately 180 feet from the edge of the Eel River. From October 1st through May 14th, treated effluent is discharged into either the percolation ponds or Strongs Creek, a tributary of the Eel River. Studies have shown that there is the potential for hydraulic connection between the existing percolation ponds and the Eel River. The Regional Board has required the City to implement an alternative method of summertime effluent disposal due to potential connectivity during periods when river discharge is not allowed. The Regional Board is also requiring the City to upgrade the treatment system to improve treatment for ammonia and nitrate. As a result, the City must implement alternative methods of effluent disposal or reuse during the period May 15th through September 30th and upgrade the treatment system.

1.3 Purpose and Need

The City obtained funding through the Clean Water State Revolving Fund (CWSRF) for planning of the Wastewater Treatment and Effluent Percolation System Upgrade Project (project). The objective of the project is to address compliance issues related to the disposal of treated effluent and construct a new disposal system to replace the historic May 15th through September 30th use of the WWTP percolation ponds. This will avoid the potential connection to the Eel River during the discharge prohibition period.

The City previously evaluated wastewater treatment, disposal, and reuse alternatives to address the compliance requirements related to the City's discharge permit issued by the Regional Board. A number of alternatives were evaluated. The preferred alternative (the project) includes upgrade of the WWTP within the existing developed site to add Biological Nutrient Removal (BNR) and development of a treated effluent subsurface percolation facility (percolation field) on the opposite (western) side of the Eel River. The new percolation facility is located approximately 2,800 feet from the water's edge during low flow conditions. This site is more than 15 times further from the river than the existing percolation ponds and thus has much greater hydrologic separation from the Eel River. Under the proposed project, treated effluent would be pumped from the existing treatment plant under the Eel River through a new, directionally-drilled pipeline. A new pump station and piping modifications at the treatment plant would be required, along with a network of subsurface percolation pipes at the percolation site.

1.4 Project Location

The treatment upgrades would all be completed within the footprint of the existing developed WWTP. The new effluent percolation system would be located on the western side of the Eel River, opposite Fortuna, California (see Figure 1). The nearest roads are Pleasant Point Road and Renner Lane (see Figure 2). The new percolation field would be located on APN 106-091-030 and 106-091-040 currently owned by Troy Land and Trudy Ehmke. A temporary construction easement would be needed for APN 106-041-016 owned by Lester Pedrazzini, for the drill exit pit and pipe trenching. The new percolation field would be connected to the existing WWTP via the new pipeline directionally drilled under the Eel River.

1.5 Surrounding Land Uses and Existing Setting

The eastern project area consists of the existing WWTP. Surrounding land uses are a combination of heavy industrial (gravel operations) and commercial (wholesale/retail horticulture products). Highway 101 is located to the east, and the Eel River is located to the west.

The western project area consists of the new effluent percolation fields. The site of the proposed percolation fields is generally surrounded by riparian forest land and open gravel bar areas used for four-wheel drive recreation. The site is bordered to the southeast by agricultural fields.

1.6 Project Description

1.6.1 Establish Site Access

The overall site for the new effluent percolation field is comprised of 60 acres that are generally located along the Eel River. Soils within the proposed site are primarily classified as Water and Fluvents, which is reflective of the historical movement of the Eel River in the area. Slopes range

from 0 to 2 percent. The western and southern portions of the site are classified as Udifluvents. The soil classifications are sourced from the most current USDA Natural Resources Conservation Service Web Soil Survey for Humboldt County (NRCS 2019).

According to the Humboldt County General Plan, the parcels are primarily zoned agriculture exclusive (AE) with the eastern edge of the parcels zoned natural resources (NR), both with combining overlays. The project site is located in the coastal zone and includes both State Coastal Jurisdiction and Local (Humboldt County) permit jurisdiction.

Site access to both the existing treatment plant as well as the new percolation field would be required for construction and ongoing operations. Existing roads would be used to access the WWTP.

The horizontal directionally drilled pipeline would be installed from the western side of the Eel River at the percolation field site. There would be up to three directional drill pits, including one main inlet pit, one main outlet pit, and, potentially, a third contingency inlet/outlet pit mid span, located on the Eel River floodplain. The main inlet pit would be located on the western side of the Eel River at the percolation field site. Existing farm roads off of Renner Lane would be utilized to provide site access to the main inlet pit on the western side of the Eel River at the percolation field. The existing farm roads would require minor grading and would be extended.

One drill pit would be located on the eastern side of the Eel River at the WWTP. Two potential western drill pit locations have been identified (see Figure 2; Option A, within an existing equalization basin at the WWTP, and Contingency B, just north of the WWTP). Existing access to the WWTP area would be used on the eastern side off of Dinsmore Drive.

A third drill pit may be installed along the pipe alignment if required by actual drilling conditions and would be accessed via existing unimproved roads along the Eel River gravel bar.

1.6.2 Improvement of Western Access Road

The existing farm road off Renner Lane is a dirt and gravel road that would be graded, and additional gravel would be placed and compacted to provide access to the treated effluent percolation field site. The improved access road would be approximately 15 feet wide by 5,150 feet long and would remain unpaved. The City of Fortuna would procure an easement or other legal right through the private property to provide access to the percolation field area.

1.6.3 Conveyance Pipe Connecting Existing WWTP and New Percolation Field

The new conveyance pipe would connect to the WWTP at an existing concrete wet well structure, which currently contains the City's treated effluent pumps for emergency discharge to Strongs Creek during high flows. The new connection at the WWTP existing concrete wet well would include piping, pump installation, electrical connections, and installation of piping and fittings in the bottom of the earthen basin. Across the Eel River at the percolation field, there would be new piping fittings, and related appurtenances only.

The new conveyance pipe would be directionally drilled approximately 20 feet to 40 feet below the Eel River and 10 feet to 20 feet below Strongs Creek. The length of the directional drilling route would be approximately 4,800 feet. A drill pit would be required at the WWTP side and the

percolation field side. A third drill pit location may be utilized along the pipeline route and outside of the Eel River active channel if required by the actual drilling conditions and the contractor's means and methods. The eastern pit would provide piping connectivity to the existing WWTP. The eastern pit location includes Option A, within an existing equalization basin at the WWTP, and Contingency B, just north of the WWTP (see Figure 2). The western pit would provide connectivity to the new percolation field.

A Horizontal Directional Drilling Hydrofracture Contingency Plan would be prepared to ensure that the potential for contamination of the surrounding area from drilling slurry is minimized and that contingency methods are in place in the event that the slurry is introduced into surface waters.

A linear pipe staging area is planned to the west of the percolation field along existing agricultural field fence lines. The pipe would be laid out in its entirety and fed into the directionally drilled inlet pit at the percolation field until it reaches the drill pit at the WWTP.

1.6.4 Effluent Percolation System

The new percolation system would be located on an approximate 2.0 acre portion of the upper river bar that is currently undeveloped (Figure 2). The river bar and future percolation area are used informally for off-road vehicle recreation. The percolation area is relatively open and is covered with seasonal grasses as well as occasional shrubs and trees. Off-road vehicles have heavily impacted the area, which is scarred with numerous vehicle trails and depressions. Areas surrounding the subsurface percolation site are characterized by areas of denser stands of riparian vegetation including cottonwood trees and willows. Historically, the proposed percolation area may have been riparian forest similar to the surrounding habitat, and subsequently cleared, although no historical photos observed show previous forest in the percolation area.

Construction of the percolation system would include: site grading and vegetation removal; trenching for transmission and infiltration pipes; and installation of valve boxes, cleanouts, and monitoring wells. Existing vegetation would be removed during grading and trenching, and seeded upon completion. During construction of the percolation system, existing illegal off-road vehicle trails and jumps in the infiltration area would be graded to be relatively flat which could support future re-established of agricultural use (e.g., grazing) or environmental enhancements in the infiltration area (Figure 2), depending on agricultural use demand or resource agencies permit requirements. Potential future agricultural use would be compatible with the percolation system, and the parcel is zoned for agricultural uses. The area may also be fenced to support grazing or other agricultural uses in the future. Agricultural fencing would also support site security and help to discourage post-construction use by off-road vehicles. Potential future environmental enhancement would also be compatible with the percolation system.

The new percolation system would distribute secondary treated effluent through a network of perforated pipes in trenches filled with porous gravel. The new percolation system would be designed for a maximum month average summer flow of 1.3 MGD with flexibility to expand in the future if needed.

The system was sized based on the results of field investigations and soils testing, field percolation testing, and laboratory testing using U.S. Environmental Protection Agency methods to guide the analysis and sizing of the system.

The primary percolation area would likely consist of two sets of 16 parallel pipes which are 2 inches in diameter, 100 feet long each, and perforated with 3/16 inch holes. The perforated pipes would be installed in infiltration trenches. These pipes would be connected through a manifold with isolation valves to control water to the pipes in pairs. Isolation valves would be installed in concrete boxes with lockable lids. A second identical reserve field would also be constructed as part of the initial project to support the existing WWTP effluent flows. The configuration allows for the potential to extend headers and install additional perforated piping if needed for future flows. It is expected that future extensions would have a similar configuration as proposed for the current project.

Typically half of the infiltration lines would be in service at any one time, and able to infiltrate the maximum month average summer flow of 1.3 MGD. The use of the lines would be rotated periodically to allow them to rest. The rotation of the percolation system lines would be operated manually through the use of isolation valves without the need for electrical systems. Isolation valves would be installed to switch between main fields and to control pairs of infiltration lines in use.

No chemicals would be used at the percolation field.

1.6.5 WWTP Treatment Upgrades: Non-Proprietary Biological Nutrient Removal (BNR) Improved Secondary Treatment and Ultraviolet Disinfection

The City is required to meet effluent targets per the NPDES permit issued by the Regional Board. The City's NPDES permit currently required the City to upgrade the treatment system for improved removal of ammonia and nitrate. The City is proposing to add Biological Nutrient Removal (BNR) to the existing treatment train, which would include converting the aeration basins to the Modified Ludzack Ettinger (MLE) process, as well as modifying the waste activated sludge (WAS) and filtrate equalization (EQ) basins.

A phased construction approach would be used for the WWTP upgrades to allow the WWTP to stay in operation during construction. The construction to modify the WWTP to include the MLE process would consist of the following elements:

- Construction of a new aeration basin distribution box;
- Sequentially converting aeration basins one at a time;
- Implementing new dissolved oxygen (DO) control for each new basin as it comes online;
- Installation of motorized inlet valves;
- Connecting each basin to new distribution box as it is brought online;
- Building an optional supplemental carbon storage tank; and
- Installation of a permanent automated pumping system to meter stored peakflows of untreated effluent back to the treatment system headworks.

The upgrade to the WAS and filtrate EQ basins includes the following:

- Demolition of some of the existing compost storage and construction of new compost storage;

- Construction of new WAS and filtrate EQ tanks;
- Connection of existing WAS and filtrate piping;
- Converting existing WAS and filtrate EQ tanks to expanded aeration tanks;
- Aligning the new aeration tanks with the existing three aeration basins; and
- Connecting the expanded aeration basins in sequence with the corresponding MLE tanks.

WWTP treatment upgrades may also include the addition of ultraviolet (UV) disinfection. If UV disinfection is implemented, iron that is present in the treated effluent can foul the UV bulbs and reduce the effectiveness over time. Therefore, an aluminium-based metal coagulant such as alum, sodium aluminate or polyaluminum chloride (PAC) may be used operationally.

1.6.6 Revegetation

Following construction, the percolation field area would be replanted with appropriate grass species. Additional areas outside of the percolation area may be planted with trees or other vegetation to develop additional riparian habitat and provide buffer and screening areas. Vegetation would generally not be removed at the WWTP facility; although disturbed ground would be reseeded, as has been the practice with previous WWTP upgrade projects.

1.7 Project Construction

1.7.1 Construction Schedule

Construction is anticipated to occur over an eight-month construction window planned to commence during a single construction season (2021, 2022, or 2023). Anticipated daytime work hours are 7:00 a.m. to 7:00 p.m., Monday through Friday with occasional work on Saturdays. Construction on Sunday or legal and county holidays is not currently anticipated, except for emergencies or with prior approval from the City.

1.7.2 Construction Staging, Activities, and Equipment

Staging areas would be located at the existing WWTP and around the new percolation area. The approximate dimensions of the staging area at the WWTP would be 250 feet by 450 feet, and 350 by 150 feet staging area for the treatment upgrades. The staging area near the percolation field would be approximately 600 feet by 700 feet. The staging for the directionally drilled-pipeline would be roughly 4,300 feet long by 20 feet wide and extend along the edge of existing agricultural fields. See Figure 2 for all staging locations.

Excess soils and construction materials would be stored on site within previously designated staging areas only. Excess soils may be re-used on site for backfill and finished grading. Excess soils would not be stockpiled on-site once the project is complete. The contractor may haul additional excess soils off site for use at other permitted sites.

Construction would primarily include site preparation such as trimming and/or removal of trees and vegetation, excavation and grading, open trench pipe installation, gravel access, roadway development, directional drilling, monitoring well installation, and final site grading and revegetation. Water from permitted sources would be used for dust control and compaction and re-vegetation.

All construction activities would be accompanied by both temporary and permanent erosion and sediment control best management practices (BMPs). Project construction would include the following activities:

- Directional drilling – To install the new subsurface transmission piping under the Eel River;
- Clearing and grubbing – To clear trees, vegetation and topsoil from the proposed treatment area and access road;
- Grading – Minor trenching for piping surface leveling and grading;
- Excavation – Primarily at shallow excavations to maintain design grades;
- Embankment – Fill to maintain design grades through low areas;
- Aggregate base – For the existing and extended access road;
- Trenching – For the installation of piping including importing river run for trench backfill;
- Demolition– For the treatment upgrades at the WWTP, including demolition of the compost storage;
- Structure Erection – For the WWTP treatment upgrades, including construction of an aeration basin distribution box, a carbon storage tank, and new compost storage;
- Tank Erection – For the WWTP treatment upgrades and modifications to the existing WWTP.

Equipment required for construction would include: tracked excavators, backhoes, graders, bulldozers, dump trucks, vertical monitoring well drill rig, pipe drilling equipment, pipe fusing equipment, water trucks, bobcat, and pick-up trucks. It is not anticipated that any temporary utility extensions, such as electric power or water, would be required for construction.

1.7.3 Traffic and Access Control

The anticipated access route to the new effluent percolation field would be Highway 211 near Ferndale, California. Local roads then connect Waddington Road to Pleasant Point Road. The access road along existing farm roads would connect to Pleasant Point Road and Renner Lane and provide access to the site. Construction-related traffic would be limited to equipment mobilization at the new waste water disposal area and daily personnel travel. Due to the rural nature of the area, existing low levels of traffic, and anticipated low levels of construction-related traffic, the need for formal traffic control is not anticipated.

Secondary access is also available along multiple existing unimproved gravel roads near the Eel River floodplain departing from East Ferry Road. Floodplain access may be utilized to support the mid-point directional drilling location depending on the contractor's means and methods.

Construction traffic would be limited to earthwork and directional drilling equipment and related support vehicles. Due to the minimal construction traffic anticipated at the waste water treatment plant, traffic control would not be necessary. Approximately 40 daily haul trips are anticipated on a peak day. Up to four work-weeks of peak days may occur.

1.7.4 Groundwater Dewatering

Groundwater dewatering is generally not expected to be required. However, if needed, temporary groundwater dewatering would involve pumping water out of a trench or excavation. Groundwater

would typically be pumped to a settling pond, Baker tanks (or other similar type of settling tank), or into a dewatering bag. Dewatering water may also be percolated back into the ground (in uplands) or used for dust control and compaction, or re-vegetation irrigation.

1.7.5 Site Restoration and Closure

Following construction, the contractor would demobilize and remove equipment, supplies, and construction wastes. The disturbed areas would be restored to pre-construction conditions or stabilized with a combination of grass seed (broadcast or hydroseed), straw mulch, rolled erosion control fabric, and/or other plantings/vegetation.

1.8 Operation and Maintenance

Maintenance and operation of the new treated effluent percolation system would generally require the following:

- Access road maintenance including periodic blading and grading and addition of gravel;
- Ongoing monitoring of the system per the permit requirements;
- Periodic site observation and operation of valves to rotate active fields;
- Vegetation management;
- Groundwater sampling;
- General WWTP equipment maintenance;
- Use of an aluminium-based metal coagulant to support UV disinfection at the WWTP, and
- Use of supplemental carbon for the nitrification reaction at the WWTP.

Operationally, pumping would be required to transport up to a monthly average of 1.3 MGD of treated effluent through the underground pipe to the opposite bank of the Eel River generally during the summer time subsurface effluent percolation period (spring through fall). Three 10 to 20 horsepower pumps would be used for pumping, although a maximum of two of the pumps would typically be in service at any one time.

1.9 Environmental Protection Actions Incorporated into the Project

The following actions are included as part of the project to reduce or avoid potential adverse effects that could result from construction or operation of the project. Additional mitigation measures are presented in the following analysis sections in Chapter 3, Environmental Analysis. Environmental protection actions and mitigation measures, together, would be included in a Mitigation Monitoring Program at the time that the project is considered for approval.

1.9.1 Environmental Protection Action 1 – Implement Geotechnical Design Recommendations

As part of the project design process, the City would engage a California-registered Geotechnical Engineer to conduct a design-level geotechnical study for the project. The City would design the project to comply with the site-specific recommendations made in the project's geotechnical report. The report would include seismic and foundation design criteria, technical requirements for direction

drilling, as well as for site preparation and grading. The geotechnical recommendations would be incorporated into the final plans and specifications for the project, and would be implemented during construction.

1.9.2 Environmental Protection Action 2 – Stormwater Pollution Prevention Plan (SWPPP)

The project would seek coverage under State Water Resources Control Board (Water Board) Order No. 2009-0009-DWQ, Waste Discharge Requirements for Discharges of Storm Water Runoff Associated with Construction and Land Disturbance Activities. The City would submit permit registration documents (notice of intent, risk assessment, site maps, SWPPP, annual fee, and certifications) to the Water Board. The SWPPP would address pollutant sources, best management practices, and other requirements specified in the Order. The SWPPP would include erosion and sediment control measures, and dust control practices to prevent wind erosion, sediment tracking, and dust generation by construction equipment. A Qualified SWPPP Practitioner would oversee implementation of the project SWPPP, including visual inspections, sampling and analysis, and ensuring overall compliance.

1.10 Required Agency Approvals

The following permits and approvals are likely to be required prior to construction:

- Humboldt County – Encroachment, Grading, and Conditional Use Permits;
- North Coast Regional Water Board (NCRWB, or Regional Board) Clean Water Act Section 401 certification (if impacts to Waters or wetlands would occur);
- Construction stormwater discharge permit (National Pollutant Discharge Elimination System) from the State Water Resources Control Board;
- Approval of State Revolving Fund application and initiation of consultation with applicable federal agencies with the State Water Resources Control Board Division of Financial Assistance;
- U.S. Army Corps of Engineers (USACE) Clean Water Act Section 404 permit (if impacts to Waters or wetlands would occur);
- California Department of Fish and Wildlife (CDFW) Streambed Alteration Agreement;
- Coastal Commission Coastal Development permit;
- State Lands Commission lease or permit.

1.11 Tribal Consultation

The City has received requests for notification of proposed projects from California Native American tribes pursuant to Public Resources Code Section 21080.3.1. Under Assembly Bill (AB) 52, notification letters were sent to local Native American tribes on January 13, 2020. Responses were received from the Bear River Band of the Rohnerville Rancheria and the Wiyot Tribe requesting that appropriate tribal representatives would be notified in the case of inadvertent discovery of archaeological resources. The requested language is included in Mitigation Measures CUL-1 and CUL-2 (see Section 3.5 and Section 3.18).

2. Environmental Factors Potentially Affected

The environmental factors checked below would be potentially affected by this project, involving at least one impact that is a “Potentially Significant Impact” as indicated by the checklist on the following pages. Where checked below, the topic with a potentially significant impact would be addressed in an appropriate environmental document:

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

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.

Liz Shorey
Deputy Director of Community Development

Date

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3. Environmental Analysis

3.1 Aesthetics

	Potentially Significant Impact	Less-than-Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Except as provided in Public Resources Code § 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?				✓

Visual resources within the project area east of the Eel River include the WWTP. Visual resources within the project area west of the Eel River include rural pastoral and riparian forest views, and western views into the coastal mountain foothills. The project area also includes the Eel River floodplain in the location of a potential directional drilling inlet/outlet (Figure 2 – Project Study Area).

Project activities include construction at the existing WWTP to provide treatment upgrades as well as construction of a new percolation system on the west side of the Eel River. An underground pipe would be directionally drilled under the Eel River to connect the two facilities and would not be visible, outside of temporary construction and staging for drill rigs.

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

The WWTP is located between Highway 101 and the Eel River. Planned treatment upgrades at the WWTP would not alter the existing visual character of the WWTP or the view within the vicinity of the project. Construction-related visual impacts related to WWTP treatment upgrades and the directionally drilled pipeline would be short-term. If vegetation mapped as ESHA is removed to develop the directional drilling pits (Contingency B only), revegetation of ESHA or re-seeding of appropriate species for erosion control best management practices (BMPs) would occur; thus visual change would be temporary until vegetation reestablishes at the Contingency B drill pit.

The percolation field is located in an upland area west of the Eel River, adjacent to privately owned farm land. The percolation field is not visible from a public road. The percolation field and associated improved and extended access road is near a single residence; the landowner is a project cooperator and would enter into a site access agreement with the City to support both construction and operational use.

Due to its elevation, the percolation field is also not visible from the Eel River or floodplain. In its existing condition, the percolation field area is scarred by off-road vehicle trails and has been largely denuded of riparian vegetation, impairing the visual character of the area. Construction would be generally limited to a two-acre footprint. Vegetation mapped as ESHA removed to accommodate construction would be replanted in accordance with requirements established by the California Coastal Commission (CCC) and the California Department of Fish and Wildlife (CDFW). Visual impacts related to construction would be temporary.

All project elements related to directional drilling and the percolation field would occur almost entirely underground and would not be visible upon completion of construction. The project does not include elements or structures with any height of significance that could impede viewsheds or scenic vistas. There would be no operational effect on a scenic vista. The impact 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 is not located within or near a state scenic highway (Caltrans 2019). The project area does not include any historic trees or rock outcroppings. The only buildings within the project area are those located at the WWTP, which are not historic. There would be no impact.

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? (Less Than Significant Impact)

The percolation field is located in a non-urbanized area but is not visible by the public or via a public roadway/vantage point. The percolation field is located in a visually impacted area, scarred by off-road vehicle trails. Significant portions of riparian vegetation have been degraded and removed as a result of off road vehicle use.

Site access to the eastern project area is consistent with the Eel River Area Local Coastal Plan (Section 3.41 (B) (1) (b)), which requires permitted landform alteration for access roads and public utilities to be minimized along natural corridors (Humboldt County 2014). Development of the percolation field and associated site access would be both minimal and consistent with existing site topography and visual character.

Any visual impacts related to construction would be temporary. Vegetation removed during construction would be replanted. Site access would be accomplished via an existing access road that would remain unpaved, and be extended slightly along an existing fence line in an area that is not visible to the public. Once complete, the project is likely to improve the visual character of the percolation field, which would largely include only underground infrastructure. Off-road-vehicle trails would be removed and vegetative cover surrounding the construction footprint is likely to improve as a result of planned revegetation efforts. The impact would be less than significant.

d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area? (No Impact)

The project does not include any temporary or permanent sources of light. There would be no impact.

3.2 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 § 12220(g)), timberland (as defined by Public Resources Code § 4526), or timberland zoned Timberland Production (as defined by Government Code § 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?			✓	

Western project areas at the location of the percolation field, including associated access and staging areas, are zoned AE. The location of the potential contingency floodplain mid-point directional drilling inlet/outlet pit is also zoned AE/NR (Humboldt County 2019). The WWTP is zoned Public Facilities (PF) and does not include agricultural or forest resources.

a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance)? (Less than Significant Impact)

Appendix G to the CEQA Guidelines suggests a finding of significance if a project would convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps for the Farmland Mapping and Monitoring Program (FMMP) by the California Natural Resources Agency (California Department of Conservation [DOC]), to non-agricultural uses. The project area does not contain Unique Farmland or Farmland of State Importance as shown on the maps prepared pursuant to the FMMP of the DOC, as soil data in Humboldt County has not been compiled into the FMMP (DOC 2019). However, the project area does include soils mapped as 132 – Udifluvents, which have been categorized as prime farmland if irrigated or drained (NRCS 2019). As such, this analysis assumes prime farmland present in some western project areas (see Figure 3 – Prime Agricultural Soils).

Eel River Area Local Coastal Plan

The Eel River Area Local Coastal Plan (Humboldt County 2014) includes the following applicable policies regarding agricultural lands:

- 3.34 (f): By assuring that public service and facility expansions and nonagricultural development do not impair agricultural viability, either through increased assessment costs or degraded air and water quality.
- 3.34 F: Public acquisition of lands designated Agriculture Exclusive shall be from willing sellers only.

Humboldt County

The Humboldt County General Plan (2017) includes the following applicable policies regarding agricultural lands:

AG-G2. Preservation of Agricultural Lands

Agricultural land preserved to the maximum extent possible for continued agricultural use in parcel sizes that support economically feasible agricultural operations.

AG-P5. Conservation of Agricultural Lands

Agricultural lands shall be conserved and conflicts minimized between agricultural and non-agricultural uses through all of the following:

- A. By establishing stable zoning boundaries and buffer areas that separate urban and rural areas to minimize land use conflicts.
- B. By establishing stable Urban Development, Urban Expansion and Community Planning Areas and promoting residential in-filling of Urban Development Areas, with phased urban expansion within Community Planning Areas.
- C. By developing lands within Urban Development, Urban Expansion and Community Planning Areas prior to the conversion of agricultural resource production lands (AE, AG) within Urban Expansion Areas.
- D. By not allowing the conversion of agricultural resource production lands (AE, AG) to other land use designations outside of Urban Expansion Areas.
- E. By assuring that public service facility expansions and non-agricultural development do not inhibit agricultural viability, either through increased assessment costs, degradation of the environment, land fragmentation or conflicts in use.
- F. By increasing the effectiveness of the Williamson Act Program.
- G. By allowing historical structures and/or sensitive habitats to be split off from productive agricultural lands where it acts to conserve working lands and structures.
- H. By allowing lot-line adjustments for agriculturally designated lands only where planned densities are met and there is no resulting increase in the number of building sites.

AG-P6. Agricultural Land Conversion – No Net Loss

Lands planned for agriculture (AE, AG) shall not be converted to non-agricultural uses unless the Planning Commission makes the following findings:

- A. There are no feasible alternatives that would prevent or minimize conversion;

- B. The facts support an overriding public interest in the conversion; and
- C. For lands outside of designated Urban Development Boundaries, sufficient off-setting mitigation has been provided to prevent a net reduction in the agricultural land base and agricultural production. This requirement shall be known as the “No Net Loss” agricultural lands policy. “No Net Loss” mitigation is limited to one or more of the following:
 - 1. Re-planning of vacant agricultural lands from a non-agricultural land use designation to an agricultural plan designation along with the recordation of a permanent conservation easement on this land for continued agricultural use; or
 - 2. The retirement of non-agricultural uses on lands planned for agriculture and recordation of a permanent conservation easement on this land for continued agricultural use; or
 - 3. Financial contribution to an agricultural land fund in an amount sufficient to fully offset the agricultural land conversion for those uses enumerated in subsections a and b. The operational details of the land fund, including the process for setting the amount of the financial contribution, shall be established by ordinance.

AG-P16. Protect Productive Agricultural Soils

Development on lands planned for agriculture (AE, AG) shall be designed to the maximum extent feasible to minimize the placement of buildings, impermeable surfaces or nonagricultural uses on land as defined in Government Code Section 51201(c) 1- 5 as prime agricultural lands.

AG-S7. Prime Agricultural Land.

Prime Agricultural land per California Government Code Section 51201(c) means:

- A. All land which qualifies for rating as Class I or Class II in the Soil Conservation Service land use capability classifications.
- B. Land which qualifies for rating 80 through 100 in the Storie Index Rating.
- C. Land which supports livestock used for the production of food and fiber and which has an annual carrying capacity equivalent to at least one animal unit per acre as defined by the U.S.D.A.
- D. Land planted with fruit or nut bearing trees, vines, bushes or crops which have a non- bearing period of less than five years and which would normally return during the commercial bearing period on an annual basis from the production of unprocessed agricultural plant production not less than \$200.00 per acre. Humboldt County General Plan Adopted October 23, 2017 Part 2, Chapter 4. Land Use Element 4-32
- E. Land which has returned from the production of unprocessed agricultural plant products on an annual gross value of not less than \$200.00 per acre for three of the five previous years.

Prime agricultural soils are located west in some portions of the project areas near the percolation field (Humboldt County 2019, see Figure 3). Approximately 510 feet of the access road extension (shown as “new road” in Figure 3) would overlap with prime agricultural soils and convert approximately 7,650 square feet (< 0.2 acres) of pasture into an unpaved roadway. The existing farm road, approximately 2,530 feet in length, is also located on prime agricultural soils. The existing farm road spans two privately owned parcels, both zoned AE: APN 106-091-008-000 and 106-091-009-000 and totaling 329.99 acres. The access road extension is equivalent to 0.05% of the total area of the two combined parcels. The existing farm road is presently used to support

agricultural uses of the property. The footprint of the road extension is relatively small and would also support agricultural uses of the property, consistent with the use of the existing longer farm road (Figure 2).

While zoned for agricultural uses and designated, in part, as prime agricultural land, the infiltration area is currently not used to support agriculture; use of the area is currently dominated by off-road vehicles. During construction, the infiltration area would be graded to remove existing off-road vehicle trails and jumps, and fencing around the area may be installed. This would support future use of the infiltration area for agricultural purposes that would be compatible with operation of the percolation system (e.g. grazing). Restoring the large infiltration area to agricultural purposes would greatly increase the portion of the project area available for agricultural uses, resulting in a net benefit to agricultural and prime agriculture property and uses.

Because agricultural use of the property would continue undiminished and unimpeded and would benefit from the extended access road and agricultural use could be expanded into the infiltration area (Figure 2), the associated impact to prime agricultural soils would be less than significant.

The project is consistent with Section 3.34 (f) of the Eel River Local Coastal Plan, as the proposed access road extension would not interfere with the viability of surrounding agricultural uses and would instead enhance the viability of agricultural uses. Furthermore, under Humboldt County General Plan Policy AG-P6, the extension of the existing farm road to provide site access to the percolation field is consistent with an overriding public interest in development of a treated effluent disposal site (percolation field) for the public of the City of Fortuna, maintaining an essential public utility service. The project is further in the public interest in that it helps to ensure that water quality in the Eel River would be unimpacted by existing disposal methods via the percolation ponds currently in service at the WWTP.

A portion of the pipe staging area (approximately 2,370 linear feet) would overlap prime agriculture soils in the pasture. This area would be used solely to layout and feed the pipe into the directionally drilled inlet under the Eel River. Any impact would be temporary. Soil and vegetation disturbance is expected to be minimal. If vegetation is removed, the area would be reseeded with appropriate pasture species in coordination with the landowner. The impact associated with the temporary pipe staging to prime agricultural soils would be less than significant.

b) Conflict with Agricultural Zoning or Williamson Act Contract? (Less than Significant Impact)

The project would not be located on lands under a Williamson Act contract (Humboldt County 2019). The WWTP is zoned Public Facilities (PF), which does not include zoning for agricultural or use. All project areas outside of the WWTP include AE zoning but are not enrolled in the Williamson Act (Humboldt County 2019). The two-acre planned percolation field area is not presently used for agricultural uses. Current use supports off-road vehicle recreation. Because the percolation infrastructure would be underground, future agricultural use of the facility would not be precluded. Therefore, the project would not conflict with the agricultural zoning. The potential impact would be less than significant.

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

There are no forest lands, timberland or timberland zoned Timberland Production in the project area; therefore, no forest land or timberland would be converted to non-forest or non-timberland use. No impact would result.

e) Convert Farmland or Forest? (Less than Significant Impact)

The potential contingency directionally drilled mid-point inlet/outlet located on the Eel River floodplain is also zoned AE with a NR combining overlay, reflective of Eel River channel migration through time. This potential drilling location is near the low water margin of the Eel River and comprised entirely of floodplain (non-agrarian) habitat. Activity in this area would be temporary and farmland and/or natural resource uses would not be converted to any other conflicting use. There are no other changes in the existing environment related to the project that would impact Farmland or forest land in or adjacent to the study area. The potential impact will be less than significant.

3.3 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?			✓	

The project is located within the North Coast Air Basin (Air Basin) which is managed by the North Coast Unified Air Quality Management District (NCUAQMD). The NCUAQMD monitors air quality; enforces local, State, and federal air quality regulations for counties within its jurisdiction; inventories and assesses the health risks of Toxic Air Contaminants (TACs); and adopts rules that limit pollution.

For construction emissions, the NCUAQMD has indicated that emissions are not considered regionally significant for projects whose construction would be relatively short in duration, lasting less than one year. For project construction lasting more than one year or that involves above average construction intensity in volume of equipment or area disturbed, construction emissions may be compared to the stationary source thresholds (NCUAQMD 2019). Construction is anticipated to last for approximately eight months. Although construction is anticipated to last less than one year, as a conservative approach to the analysis, emissions related to construction were calculated using the California Emissions Estimator Model (CalEEMod) version 2016.3.2 and are disclosed below. See Appendix A – Air Quality Modeling Results.

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

The U.S. Environmental Protection Agency (EPA) sets the National Ambient Air Quality Standards

for the following six criteria air pollutants: ozone, particulate matter (PM₁₀ and PM_{2.5}), nitrogen dioxide, carbon monoxide, lead, and sulfur dioxide. The California Air Resources Board (CARB) administers the California Ambient Air Quality Standards, which include the six criteria pollutants listed above as well as visibility-reducing particulates, hydrogen sulfide, sulfates, and vinyl chloride.

The NCUAQMD is listed as "attainment" or "unclassified" for all the federal and state ambient air quality standards with the exception of the state 24-hour particulate (PM₁₀) standard in Humboldt County only. Primary sources of particulate matter in Humboldt County are on-road vehicles (engine exhaust and dust from paved and unpaved roads), open burning of vegetation (both residential and commercial), residential wood stoves, and stationary industrial sources (factories).

For the project, PM₁₀ is of concern during construction because of the potential to emit fugitive dust during earth-disturbing activities. Operation of the project would not contribute PM₁₀ of note. To address non-attainment for PM₁₀, the NCUAQMD adopted a Particulate Matter Attainment Plan in 1995. This plan presents available information about the nature and causes of PM₁₀ standard exceedances and identifies cost-effective control measures to reduce PM₁₀ emissions to levels necessary to meet California Ambient Air Quality Standards. The control strategies relate to transportation control, land use, and open burning measures. The strategies are either implemented at the State or Air District level, or apply to land use projects. The project would not obstruct implementation of this plan. In addition, the NCUAQMD states that the plan, "should be used cautiously as it is not a document that is required in order for the District to come into attainment for the state standard" (NCUAQMD 2018).

Construction activities in the project area are subject to the NCUAQMD's Rule 104 (Prohibitions) Section D (Fugitive Dust Emissions). Pursuant to Section D, the handling, transporting, or open storage of materials in such a manner, which allows or may allow unnecessary amounts of particulate matter to become airborne, shall not be permitted. Reasonable precautions shall be taken to prevent particulate matter from becoming airborne, including, but not limited to: 1) covering open bodied trucks when used for transporting materials likely to give rise to airborne dust; and 2) the use of water during the grading of roads or the clearing of land.

Improvement of the western access road as well as the new percolation field may result in fugitive dust emissions, which, if not handled correctly, could violate Rule 104. The impact to PM₁₀ from project construction activities would therefore result in a significant impact.

Implementation of Mitigation Measure AIR-1 enhances compliance with Rule 104 by incorporating qualitative best management practices during construction. With implementation of Mitigation Measure AIR-1, the project would comply with applicable rules, and would not conflict with or obstruct implementation of the applicable air quality plan.

Mitigation

Mitigation Measure AIR-1: Dust Control

The City, at all times during construction, shall comply with Air Quality Regulation 1, Rule 104 (D) to the satisfaction of the NCUAQMD. This would require, but may not be limited to:

- Water all active construction areas regularly to limit dust; control erosion and prevent water runoff containing silt and debris from entering the storm drain system;
- Cover trucks hauling soil, sand, and other loose material;
- Pave, water, or apply non-toxic soil stabilizers on unpaved access roads and parking areas; and

- Sweep paved streets, access roads and parking areas daily if visible material is carried onto adjacent public streets.

Implementation of the following Mitigation Measure AIR-1 would reduce the impacts related to fugitive dust to less-than-significant.

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)

Construction activities would temporarily create emissions of equipment exhaust and other air contaminants during the eight-month construction period. As stated above, the NCUAQMD considers construction activities that last for less than one year to have a less-than-significant impact. Because construction would only last for eight months, the project's impact from construction emissions would be less than significant.

For the purposes of disclosure, Table 3.3-1 summarizes construction-related emissions and compares them to the NCUAQMD's stationary sources emission thresholds. Construction-related emissions were modeled to be well below NCUAQMD stationary source thresholds. The potential impact would be less than significant.

Table 3.3-1 Construction Regional Pollutant Emissions

Parameter	Emissions (tons)			
	ROG	NO _x	CO	PM ₁₀
Project Construction	0.03	0.21	0.23	6.47
NCUAQMD Stationary Source Thresholds	40	40	100	15

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

Sensitive receptors include school-aged children (schools, daycare, playgrounds), the elderly (retirement community, nursing homes), the infirm (medical facilities and offices), and those who exercise outdoors regularly (public and private exercise facilities, parks). The nearest residence to the project site is approximately 1,600 feet to the east, across US Highway 101. Other potential sensitive receptors occurring near the project site include the Fortuna Middle School, approximately 2,000 feet to the north, and South Fortuna Elementary School, approximately 4,000 feet to the east. Construction of the project would be short in duration and would vary in location, thus not resulting in concentrated pollutants in any one area. Because of the distance to potential sensitive receptors, limited construction period, and geographical distribution of construction activities, exposure of sensitive receptors to substantial pollutant concentrations 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)

Minor odors from the use of equipment during construction activities would be intermittent and temporary and would dissipate rapidly from the source with an increase in distance. This impact would be less than significant.

3.4 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?				✓

Analysis in this section is based on the project's Biological Resources Report (GHD 2019a), included as Attachment B.

- 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 with Mitigation)**

Special-status Plant Species and Sensitive Natural Communities

Special status plant species under State jurisdiction include those listed as endangered, threatened, or as candidate species by the California Department of Fish and Wildlife (CDFW) under the California Endangered Species Act (CESA). Plant species on CNPS California Rare Plant Ranking (CRPR) Lists 1A, 1B and 2A and 2B are considered eligible for state listing as endangered or threatened pursuant to the California Fish and Game Code and CDFW has oversight of these special status plant species as a trustee agency. As part of the CEQA process, such species should be considered as they meet the definition of Threatened or Endangered under Sections 2062 and 2067 of the California Fish and Game Code. There are occasions where CRPR List 3 or 4 species might be considered of special concern particularly for the type locality of a plant, for populations at the periphery of a species range, or in areas where the taxon is especially uncommon or has sustained heavy losses, or from populations exhibiting unusual morphology.

One sensitive natural community was identified within the project area. Black cottonwood (*Populus trichocarpa*) forest occurs within the proposed effluent disposal area, and borders the proposed effluent percolation field on the south and east sides. This community type also occurs within the proposed project location for the directional drilling inlet on the east side of the Eel River. Black cottonwood forest alliance has a state rank of S3 and is considered Sensitive by CDFW, and it is assumed that the areas mapped as black cottonwood forest alliance would be considered an Environmentally Sensitive Habitat Area under the Eel River Area Local Coastal Plan and the Coastal Act.

No seasonally appropriate surveys for special status plants have been performed within the project area. Based on database searches, historical records, and an overview of the primary literature, only two special status species have a moderate or high potential of occurring in the project area. Wolf's evening primrose (*Oenothera wolfii*) has a CRPR of 1B.1 and has a moderate likelihood of occurring within the project area. Maple leaved checkerbloom (*Sidalcea malachroides*) has a CRPR of 4.2 and also has moderate likelihood of occurring within the project area. Five additional special status species are thought to have a low likelihood of occurring within the project area (GHD 2019a). Given that required protocol plant surveys are still underway, and because of the proximity of the project area to known populations of special-status plants, the impact on special-status plants is considered potentially significant.

Mitigation

Mitigation Measure BIO-1 would reduce the potential impact of the project on special-status plants to a less-than-significant level by requiring pre-construction surveys and measures to avoid take of species and compensation for loss of any habitat.

Mitigation Measure BIO-1: Protect Special Status Plants

Mitigation measures for special status plant species are addressed collectively for all species. Significant impacts to special-status plant species present or likely to be present onsite shall be minimized, avoided, and (if necessary) compensated by complying with the following:

- Pre-construction surveys: Seasonally appropriate pre-construction surveys for special status plant species shall occur prior to construction within the planned area of disturbance for the project, during the appropriate blooming time (spring or summer) for the target species. Survey methods shall comply with CDFW rare plant survey protocols, and shall be performed by a qualified field botanist. Surveys shall be modified to include detection of juvenile (pre-flowering) colonies of

perennial species when necessary. Any populations of special status plant species that are detected shall be mapped. Populations shall be flagged if avoidance is feasible and if populations are located adjacent to construction areas.

- The locations of any special status plant populations to be avoided shall be clearly identified in the contract documents (plans and specifications).
- If special status plant populations are detected where construction would have unavoidable impacts, a compensatory conservation plan shall be prepared and implemented in coordination with CDFW. Such plans may include salvage, propagation, on-site reintroduction in restored habitats, and monitoring.

With the implementation of Mitigation Measure BIO-1, potential impacts to special status plants would be less than significant.

Special-status Wildlife Species

The only special status wildlife species with the potential to occur in the project area is the North American Porcupine (*Erethizon dorsatum*), which is a State Special Status Species (GHD 2019a). North American Porcupines are primarily nocturnal, but can sometimes be seen during the day. They are approximately 27 inches in length with yellowish quills on the head, rump, and upper surfaces of the tail. Their range extends across mainland Canada, Alaska, and the western and northeastern United States. They use a wide variety of habitats, but are most common in montane conifer, Douglas fir, and alpine dwarf-shrub. There are numerous occurrence records (both historical and recent) from the larger project vicinity, especially the Eel River estuary, and suitable habitat for the species is present on site (GHD 2019a). Although there are records of North American Porcupines from the general project vicinity and they have a moderate potential to occur onsite, no impacts are expected to occur to this species. The species is highly mobile and, if present, is expected to leave the project area once construction activity commences. Although some foraging habitat (riparian forest) would be removed in association with this project, substantial foraging habitat suitable for this species is present in the surrounding area (riparian forest along the Eel River). As no impacts to this species are expected, the potential impact would be less than significant.

Special-status Fish Species

Federally threatened salmonids (Coho Salmon (*Oncorhynchus kisutch*), federally threatened Northern California Steelhead (*Oncorhynchus mykiss irideus*), and Chinook Salmon (*Oncorhynchus tshawytscha*) are known to occur nearby in the Eel River and could potentially be impacted by project construction. Additional species which could be nearby and potentially impacted include Green Sturgeon (*Acipenser medirostris*), which is listed as federally threatened, Pacific Lamprey (*Entosphenus tridentatus*), which is a State Species of Special Concern, and Coastal Cutthroat Trout (*Oncorhynchus clarkia clarkia*), also a State Species of Special Concern. The Eel River is designated Critical Habitat for Coho Salmon, Northern California Steelhead, and Chinook Salmon. Essential Fish Habitat also occurs in the Eel River between the two primary project areas.

Special-status fish species were evaluated in the Biological Resources Report (GHD 2019a). With the exception of Green Sturgeon, all other above-noted special status fish species have the potential to be present at or near the project site during construction. Due to the nature of the project, there is potential for adverse effects to these species and their habitats from construction activities occurring adjacent to the river (e.g. possibility for sediment discharge), and beneath the river (e.g. possibility for directional drilling to erroneously puncture the river bottom or cause a frac-out). However, the project, at its closest location to the Eel River, is located approximately 100 feet

from the banks of the Eel River at the WWTP at the drill pit. The horizontal directional drilling would be completed by trained professionals at approximately 20 feet to 40 feet below the Eel River and 10 feet to 20 feet below Strongs Creek, which would not disturb in-stream habitat because no physical activity would take place within the river and stream channels. The potential impact on special-status fish species would be potentially significant.

Mitigation Measures HWQ-1 and HWQ-2 (see Section 3.10 (a)) would serve to protect water quality during construction and require development of a Frac-Out Contingency Plan. Mitigation Measure BIO-6 (see Section 3.4 (c) below) establishes avoidance and minimization measures to protect waters from sediment-related impacts. With the implementation of Mitigation Measures HWQ-1, HWQ-2, and BIO-6, the impact to special status fish would be less than significant.

Special-status Amphibian Species

Northern Red-legged Frogs (*Rana aurora*) are a State Species of Concern and occur along the west coast of North America from British Columbia to California and were evaluated in the Biological Resources Report (GHD 2019a). The geographic range split between the Northern and California Red-legged Frog species occurs just south of Elk Creek in Mendocino County where both species overlap. Northern Red-legged Frogs are typically found near freshwater sources (e.g., wetlands, ponds, streams, etc.). However, they can range widely and inhabit damp places far from water. Northern Red-legged Frogs reproduce in water from December to February in Humboldt County, with some breeding occurring as late as March. Preferred egg laying locations are in “vegetated shallows with little water flow in permanent wetlands and temporary pools.” Northern Red-legged Frogs are relatively common in and near coastal portions of Humboldt County and recent records have documented the species near the project area. This being the case, Northern Red-legged Frogs have a moderate chance of occurring within the project area. Northern Red-legged Frogs have also been documented at the WWTP on previous site visits. Therefore, the potential impact on Northern Red-legged frogs is considered significant.

Western Pond Turtles (pond turtles) (*Emys marmorata*) are a State Species of Concern and occur in a variety of permanent and semi-permanent freshwater aquatic habitats including lakes, rivers, ponds, creeks, and marshes and were also assessed in the Biological Resources Report (GHD 2019a). Pond turtles are known to be present in the general vicinity and may occur along the river bank not far from the project area. Breeding can occur on loose soils on south or west facing slopes so a few pond turtles may venture away from the river into the project area. The species is frequently observed basking on exposed banks, logs, and rocks. Winter activity is possible but limited to unusually warm, sunny days; normally pond turtles are dormant during winter months on the north coast; dormancy typically involves burrowing into loose substrate above the high water mark. Pond turtles have been documented nesting up to 0.5 kilometers from water. Thus, Western Pond Turtles have a moderate chance of occurring within the project area although presence would likely be occasional, seasonal, and temporary. The potential impact to individual Western Pond Turtle is considered significant.

Mitigation

Mitigation Measure BIO-2 would reduce the impact of the project on special status amphibians and reptiles to less-than-significant levels by requiring pre-construction surveys by qualified biologists prior to work in applicable habitats, and measures to avoid take of species.

Mitigation Measure BIO-2: Protect Special Status Amphibians and Reptiles

No more than one week prior to commencement of ground disturbance within 50 feet of suitable Northern Red-legged Frog or Western Pond Turtle habitat, a qualified biologist shall perform a pre-construction survey and shall relocate any individuals of Northern Red-legged Frog or Western Pond Turtle or egg masses of Northern Red-legged Frog that occur within the work -impact zone to nearby suitable habitat.

In the event that a Northern Red-legged Frog or Western Pond Turtle is observed in an active construction zone, the contractor shall halt construction activities in the area where observed and the frogs or turtles shall be moved to a safe location in similar habitat outside of the construction zone. The same measures above shall apply to Foothill Yellow-legged Frogs which are State Species of Concern and are no longer a CESA candidate.

With the implementation of Mitigation Measure BIO-2, potential impacts to special status amphibians and reptiles will be less than significant.

Passerines and Raptors

In support of the Biological Resources Report (GHD 2019a), reconnaissance-level bird surveys occurred at the project area. During this survey, special-status species observed included Cooper's Hawk (*Accipiter cooperi*), Sharp-shinned Hawk (*Accipiter striatus*), Great Egret (*Ardea alba*), White-tailed Kite (*Elanus leucurus*), and American Peregrine Falcon (*Falco peregrinus anatum*). Additional special status species were documented as having potential to occur at the project area, including Snowy Egret (*Egretta thula*), Black-crowned Night Heron (*Nycticorax nycticorax*), and Osprey (*Pandion haliaetus*). In addition, native migratory birds may also be present at the project area. If nesting passerines or raptors were present in trees in the project area, construction noise and/or tree removals would have the potential to impact the species. The impact is considered significant.

Mitigation

Mitigation Measure BIO-3 would reduce the impact of the project on nesting passerines or raptors to less-than-significant levels by requiring pre-construction surveys by qualified biologists prior to work in applicable habitats, and measures to avoid take of species.

Mitigation Measure BIO-3: Protect Special Status, Migratory, and Nesting Birds

Ground disturbance and vegetation clearing shall be conducted, if possible, during the fall and/or winter months and outside of the avian nesting season (March 15 – August 15) to avoid any direct effects to special status and protected birds. If ground disturbance cannot be confined to work outside of the nesting season, a qualified ornithologist shall conduct pre-construction surveys within the vicinity of the project area, to check for nesting activity of native birds and to evaluate the site for presence of raptors and special status bird species. The ornithologist shall conduct at minimum a one day pre-construction survey within the 7-day period prior to vegetation removal and ground-disturbing activities. If ground disturbance and vegetation removal work lapses for seven days or longer during the breeding season, a qualified ornithologist 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 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 survey, the qualified ornithologist 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 ornithologist, 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 ornithologist shall immediately implement adaptive measures to reduce disturbance. These measures may include, but are not limited to, increasing buffer size, halting disruptive construction activities in the vicinity of the nest until fledging is confirmed or nesting activity has ceased, placement of visual screens or sound dampening structures between the nest and construction activity, reducing speed limits, replacing and updating noisy equipment, queuing trucks to distribute idling noise, locating vehicle access points and loading and shipping facilities away from noise-sensitive receptors, reducing the number of noisy construction activities occurring simultaneously, and/or reorienting and/or relocating construction equipment to minimize noise at noise-sensitive receptors.

With the implementation of Mitigation Measure BIO-3, potential impacts to special status, migratory, and nesting birds would be less than significant.

Bats

Several special status bat species have the potential to be present at or near the project area, including the Pallid Bat (*Antrozous pallidus*), Townsend's Big-eared Bat (*Corynorhinus townsendii*), Hoary Bat (*Lasiurus cinereus*), and Yuma myotis (*Myotis yumanensis*).

Habitat for bats (tree cavities, loose bark, riparian forest, etc.) is present in the project area (based on reconnaissance level surveys). Vegetation and structures in the project area likely provide habitat to a variety of bat species. Construction of the project may adversely impact special-status bat species through the removal or modification of vegetation or structures and due to ground disturbance. The impact is considered significant. Mitigation Measure BIO-4 has been incorporated into the project to ensure potential impacts to special status bats would be less than significant.

Mitigation

Mitigation Measure BIO-4 would reduce the impact of the project on special status bats to less-than-significant levels by requiring pre-construction surveys by qualified biologists prior to work in applicable habitats, and measures to avoid take of species.

Mitigation Measure BIO-4: Protect Special Status Bats

A qualified bat biologist shall conduct habitat surveys for special-status bats. Survey methodology should include visual examination of suitable habitat areas for signs of bat use and may utilize ultrasonic detectors to determine if special status bat species utilize the vicinity. Trees within 300 feet of construction activities should be examined. If habitat exists, species presence and site use patterns should be documented, including roost

sites. Bat presence in the project may vary seasonally and annually. Surveys should be conducted in a manner to detect the presence of hibernating or torpid bats, reproductive colonies and/or migratory stop-over roosts. If no bat utilization or roosts are found, then no further study or action is required. If bats are found to utilize the project vicinity, or presence is assumed, a bat specialist should be engaged to advise the best method to prevent impact. This may include, but would not be limited to:

- Consultation with the California Department of Fish and Wildlife to determine appropriate measures for protecting bats with young if present, and for implementing measures to exclude non-breeding bat colonies during construction process.
- Phased removal of trees where selected limbs and branches not containing cavities are removed on the first day, with the remainder of the tree removed on the second day.

The implementation of Mitigation Measures BIO-4 would protect against potential project impacts to special status bats, sufficiently reducing the potential effect to be 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, including wetlands? (Less Than Significant with Mitigation)

Mapping of sensitive natural communities occurred on November 6 and November 12, 2019. Components of the project were visited and surveyed for vegetation communities; additional developed project components (e.g. existing stockpile areas near the WWTP) were analyzed via aerial imagery (GHD 2019a). One sensitive natural community was identified within the project area. Black cottonwood (*Populus trichocarpa*) forest occurs within the percolation field area. The black cottonwood community borders the percolation field area on the south and east sides. The riparian vegetation occurring within the proposed project location for the drill pit on the east side of the Eel River, at the existing WWTP, was also identified and mapped as black cottonwood forest. Black cottonwood forest alliance has a state ranking of S3 and is considered Sensitive by CDFW. The vegetation mapped as black cottonwood forest alliance is riparian vegetation which would also be regulated by the California Department of Fish and Wildlife through the Lake and Streambed Alteration permit process (California Department of Fish and Game Code Section 1602).

As no impacts to the riparian forest surrounding the future percolation field are anticipated, alliance level mapping was not performed for these specific riparian areas. However, black cottonwood was observed in the overstory canopy of the adjacent riparian forest adjacent to both the access route and also adjacent to the potential staging area for the pipe and it is likely this forest would also fit the black cottonwood forest alliance.

Actual limits of construction have yet to be finalized. Mapped sensitive natural communities would be avoided to the greatest extent practicable; however, the project may potentially require vegetation and tree removal that would impact the black cottonwood habitat. Therefore, the impact on black cottonwood forest is considered potentially significant.

The project may also potentially require temporary disturbance and/or permanent fill of seasonal wetlands within the construction area. Potential impacts to seasonal wetland and other jurisdictional waters would be significant.

Mitigation

Mitigation Measures BIO-5 through BIO-7 require avoidance and minimization of permanent

impacts and temporary impacts to sensitive natural communities and wetlands during construction, restoration of pre-project conditions at the conclusion of construction, and compensation of regulated wetlands and sensitive natural communities, thereby reducing potential impacts to natural communities and wetlands to a less-than-significant level.

Mitigation Measure BIO-5: Compensatory Mitigation for Sensitive Natural Communities

Construction within mapped sensitive natural communities (black cottonwood) shall be avoided to the greatest extent practicable. If impacts are unavoidable and black cottonwood trees mapped as ESHA are removed or detrimentally impacted, mitigation would occur. A Mitigation and Monitoring Plan shall be prepared in coordination with State resource agencies.

The Plan shall be acceptable to State agencies with jurisdiction and include the following elements: proposed mitigation ratios; description and size of the restoration or compensatory area; site preparation and design; plant species; planting design and techniques; maintenance activities; plant storage; irrigation requirements; success criteria; monitoring schedule; and remedial measures. The ratio and conditions of mitigation would be negotiated in consultation with the City and State resource agencies with jurisdiction over sensitive natural communities. The Plan shall be implemented by the City.

Mitigation Measure BIO-6: Avoidance and Minimization Measures to Protect Juxtaposed Wetlands

One – and three-parameter wetland delineation will occur within the project footprint and will include identification of adjacent wetlands (juxtaposed). The City shall implement the following avoidance and protection measures for juxtaposed Waters of the United States and Waters of the State that would not be impacted (filled or excavated) during project construction:

1. The City shall attempt to avoid or minimize impacts to wetlands/waters to the greatest extent feasible in the final design plans.
2. Juxtaposed wetlands shall be clearly identified in the construction documents and reviewed by the City prior to issuing for bid to ensure they are clearly marked as equipment exclusion zones during construction.
3. Suitable perimeter control BMPs, such as silt fences, or straw wattles shall be placed below all construction activities at the edge of surface water features to intercept sediment before it reaches the waterway. These BMPs shall be installed prior to any clearing or grading activities.

Mitigation Measure BIO-7: Compensate for Loss of Wetlands and Waters

One – and three-parameter wetland delineation will occur within the project footprint. The City shall conduct a seasonally appropriate pre-construction wetland delineation in areas to be impacted by project construction that may include wetlands (both temporary and permanent impacts). The City shall avoid fill of seasonal wetlands and waters, to the extent feasible. If fill cannot be avoided, the City shall compensate for the loss of seasonal wetland habitat so that there is no net loss in wetlands. The City shall compensate for impacts to identified wetlands through restoration, rehabilitation, and/or creation of wetland at a ratio

of no less than 1:1. A Mitigation and Monitoring Plan shall be prepared in coordination with the NCRWQB, the USACE and the CCC. Compensation for wetlands shall occur so there is no net loss of wetland habitat at ratios to be determined in consultation with the NCRWQCB. The Plan shall be acceptable to the regulatory agencies with jurisdiction over wetlands and waters and include the following elements: proposed mitigation ratios; description and size of the restoration or compensatory area; site preparation and design; plant species; planting design and techniques; maintenance activities; plant storage; irrigation requirements; success criteria; monitoring schedule; and remedial measures. The Plan shall be implemented by the City.

The City shall also compensate for impacts to other waters by obtaining required permits from the U.S. Army Corp of Engineers, the North Coast Regional Water Quality Control Board, and the California Department of Fish and Game shall be received prior to the start of any on-site construction activity. The City shall ensure any additional measures outlined in the permits are implemented.

Implementation of Mitigation Measures BIO-5 through BIO-7 will reduce potential impacts to wetlands to a less-than-significant level.

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 with Mitigation)

Project construction and operations do not include in-water work or any other activity that might impede fish migration. Terrestrial project construction and operations do not include construction of any barriers to wildlife migration (e.g. fencing, highly developed roadway, or large structures). Deterrence of migratory and nesting birds associated with noise is addressed in Section 3.4 (a) with Mitigation Measure BIO-3 to ensure the potential impact to migratory and nesting birds would be less than significant.

e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance? (Less Than Significant)

Tree removal may occur to support construction of the two-acre percolation field, which is in the jurisdiction of Humboldt County. Utilization of drill pit Contingency B may also necessitate tree removal and is located within the jurisdiction of the City.

City of Fortuna

The WWTP and other eastern project areas are within the jurisdiction of the City of Fortuna. The City of Fortuna General Plan's Resource Management and Conservation Element establishes policies to protect biological resources within City limits including protected streams and wetlands (City of Fortuna 2010). Applicable policies include:

- NCR-2.1 Riparian Corridor Protection
- NCR-2.10 Wetland Identification and Protection
- NCR-2.12 Permitted Activities with ESHAs
- NC-2.13 Watercourse, Wetland and Riparian Buffers

Section 17.06.171 (B) (Removal of natural materials) of the City's Zoning Code address tree removal and states that the removal of trees shall occur in accordance with applicable sections of the California Forest Practices Act. If the Forest Practices Act is applicable, a Use Permit must be

obtained from the planning commission prior to any removal of trees. The project area does not include forest resources; thus the Forest Practices Act is not applicable.

Eel River Area Local Coastal Plan

The Eel River Area Local Coastal Plan (Humboldt County 2014) identifies land uses and standards by which development would be evaluated within the Coastal Zone. Applicable policies include:

- 3.41: Protection of Environmentally Sensitive Habitat Areas
 - 3.41 B: Wetland Identification and Development Policies
 - 3.41 F-4: Development and Uses within the Riparian Corridor
 - 3.41 F-5: Development and Uses within the Riparian Forest (located outside of the riparian corridor)
 - 3.41 F-6: Other Riparian Protection Measures

Humboldt County

The Open Space and Conservation Element of the Humboldt County General Plan (2017) summarizes policies germane to the protection of biological resources. Applicable policies include:

- BR-P1: Wetland Identification,
- BR-S10: Development Standards for Wetlands, and
- BR-S11: Wetlands Defined.

Policy BR-S10 established that development standards for wetlands shall be consistent with the standards for Streamside Management Areas (SMA). The SMA width applied to wetlands is designated as 50 feet for seasonal wetlands and 150 feet for perennial wetlands. The setback begins at the edge of the delineated wetland.

Humboldt County does regulate tree removal for trees larger than 12 inches in diameter that are in residential zones through a Special Permit. As all potential tree removal associated with the project would occur outside a residential zone, Humboldt County's tree removal policy does not apply.

As the project would obtain a Use Permit from Humboldt County for construction and operations to occur in eastern project areas, the project would be required to be consistent with all applicable provisions of both the Eel River Area Local Coastal Plan and the Humboldt County General Plan as a condition of the permit.

The project would obtain any necessary resource agency permits and would avoid and/or compensate for any impacts to wetlands and waters to ensure that no net loss occurs, ensuring adherence to City of Fortuna policies NCR-2.1, NCR-2.10, NCR-2.12, and NCR-2.13. No conflicts with policies or ordinances protecting biological resources have been identified. Therefore, the impact would be less than significant.

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? (No Impact)

There are no adopted Habitat Conservation, Community Conservation, or approval local, regional, or state habitat conservation plans that apply to the project area. No impact would result.

3.5 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?		✓		

a-c) Cause a substantial adverse change in the significance of a historical resource pursuant to §15064.5? Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5? Disturb any human remains, including those interred outside of formal cemeteries? (Less Than Significant with Mitigation Incorporated)

An archeological survey and Historic Property Identification Report (HPIR) was completed during December 2019 and provided to the City. (DZC 2019). As part of the HPIR, project notification letters, separate from AB 52 notification letters, were sent to area tribes on December 4, 2019. Follow up correspondence between the cultural resource investigator DZC Archaeology & Cultural Resource Management and tribal representatives directly informed mitigation measures included below (DZC 2019).

One previously recorded historical resource, as defined in § 15064.5, is reported as located within or immediately adjacent to the project APE. The historical resource is the ethnographic Wiyot village of kwigërgoyok. This resource is eligible for listing on the California Register of Historic Resources (DZC 2019). Although the area is subject to periodic river flooding and surficial remains of the resource were not located, there is a potential for discovery of the site during project activities and a subsequent potential to cause a substantial adverse change in the significance of a historical resource pursuant to § 15064.5. The impact is considered significant.

In conjunction with the archeological survey and report, the local Tribal Historic Preservation Officers (THPOs) and NAHC were consulted. No Sacred Lands were identified within the APE, and no human remains are known to exist within the project site. However, there is potential for earthwork and grading to result in the disturbance of previously undiscovered archaeological resources or previously unrecorded human remains, if present. Therefore, the impact is considered potentially significant.

No other listed historical resources are present within the project area, and the existing WWTP would not meet any of the context types required for establishment of historic significance.

Mitigation

Implementation of Mitigation Measures CUL-1 and CUL-2 would reduce the potential impact to archaeological resources or human remains by requiring construction worker training, construction monitoring, and procedures that shall be taken in the event of inadvertent discovery.

Mitigation Measure (CUL-1): Protect Archaeological or Tribal Cultural Resources during Construction

Prior to the ground-disturbing construction activities (on the first day of work), construction personnel shall receive Cultural Resources Awareness Training to ensure that construction activities are conducted in a manner that is protective of known and unknown cultural resources. The training shall include information on the location and lateral extent of potential nearby cultural resources sites, avoidance of those areas, laws protecting such resources, and procedures for responding to inadvertent discovery situations. Avoidance of known cultural resources sites shall be determined by a professional archaeologist or Native American monitor and include establishing a no-disturbance buffer zone around known resources.

Initial ground-disturbing activities near the previously recorded on-site historical resource shall be monitored by a professional archaeologist. If archaeological remains or potential tribal cultural resources are encountered during initial-ground disturbing activities, all work shall halt within a 50-foot radius of a discovery. Construction personnel shall not collect cultural materials. A qualified professional archaeologist shall be retained to evaluate the find, and the appropriate tribal representative(s) shall be notified. If the find qualifies as a historical resource or unique archaeological resource as defined by CEQA, the archaeologist shall develop appropriate measures to protect the integrity of the resource in coordination with appropriate tribal representatives and ensure that no additional resources are affected. If the find qualifies as a tribal cultural resource as defined by CEQA, the City shall ensure that appropriate actions to protect the resource are taken and that no additional resources are affected.

Mitigation Measure (CUL-2): Minimize Impacts to Unknown Archaeological Resources or Human Remains if Encountered

In the event that any subsurface archaeological features or deposits, including locally darkened midden soil, are discovered during construction-related earth-moving activities, all ground-disturbing activity in the vicinity of the resource shall be halted, a qualified professional archaeologist shall be retained to evaluate the find, and the appropriate tribal representative(s) shall be notified. If the find qualifies as a historical resource or unique archaeological resource as defined by CEQA, the archaeologist shall develop appropriate measures to protect the integrity of the resource and ensure that no additional resources are affected, in coordination with appropriate tribal representatives.

If human remains, associated grave goods, or items of cultural patrimony are encountered during construction, work shall halt in the vicinity of the find and the County Coroner shall be notified immediately. The following procedures shall be followed as required by Public Resources Code § 5097.9 and Health and Safety Code § 7050.5. If the human remains are determined to be of Native American origin, the Coroner shall notify the Native American Heritage Commission within 24 hours of the determination. The Native American Heritage Commission shall then notify the Most Likely Descendant (MLD), who has 48 hours to make recommendations to the landowner for the disposition of the remains. A qualified archaeologist, the City and the MLD shall make all reasonable efforts to develop an agreement for the treatment, with appropriate dignity, of any human remains and associated or unassociated funerary objects. The agreement would take into consideration the appropriate excavation, removal, recordation, analysis, custodianship,

and final disposition of the human remains and associated or unassociated funerary objects.

Implementation of Mitigation Measures CUL-1 and CUL-2 would reduce potential impacts related to inadvertent discovery of cultural resources to be less than significant.

3.6 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?				✓

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)

Temporary energy use in connection with project construction would entail consumption of diesel fuel and gasoline by construction equipment and by the transportation of earth moving equipment, construction materials, supplies, and construction personnel. Given the short construction period and implementation of State regulations regarding vehicle emission and fuels standards, such as the Low Carbon Fuel Standard and anti-idling regulations, energy use related to construction would not be wasteful or inefficient.

Operationally, pumping would be required to convey treated effluent from the WWTP to the subsurface percolation field area generally spring through fall. Pumping energy demands would be approximately 185,000 kWh per year. The pumps would be high efficiency variable speed pumps, with the pump output adjusted to meet the system requirements. The pump would only be in use when needed; thus no energy would be wasted running the pumps when not needed. The pumps have a design point overall efficiency of approximately 77%. In addition, certain existing WWTP facilities would be taken off-line when the new pump station is used resulting in nominal reduction in energy use for these related facilities. There also would be a small amount of fuel used for maintenance worker trips to the percolation field site. Neither the pumping nor the worker trips would be conducted in a manner that would result in wasteful, inefficient, or unnecessary consumption of energy. Impacts related to energy use during construction and operation of the project would therefore be less than significant.

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

State of California 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.

Senate Bill 1389

Senate Bill (SB) 1389, the California Integrated Energy Policy, was adopted in August 2002 and requires the CEC to prepare an Integrated Energy Policy Report (IEPR) for electricity, natural gas, and transportation fuels. The IEPR contains an analysis of the policies and actions that are necessary to ensure that the state has adequate energy resources—including a range of alternative energy resources—to meet its needs. The IEPR also includes recommendations to reduce energy demand and to improve the state's energy infrastructure.

City of Fortuna

There are no applicable renewable energy or energy efficiency plans in the City of Fortuna related to infrastructure projects.

Eel River Area Local Coastal Plan

The Eel River Local Coastal Plan does not include applicable policies related to renewable energy or energy efficiency plans.

Humboldt County

The Humboldt County General Plan (Humboldt County 2017) Energy Element includes policies to address energy needs, use, and conservation. The policies do not include anything applicable to the percolation field site and related project areas west of the Eel River.

These plans contain broad policy and regulatory initiatives, which are not always applicable at the project level, particularly with infrastructure projects. They require action at the State and County level. Implementation of the project would not conflict with or obstruct the implementation of any of the policies and actions described above. The project would not conflict with or obstruct a State or local plan for renewable energy or energy efficiency. There would be no impact.

3.7 Geology and 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?				✓
a) Result in substantial soil erosion or the loss of topsoil?			✓	
b) 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?			✓	
c) 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?				✓
d) 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?				✓
e) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?		✓		

The project is located on generally flat and gently sloping Eel River valley. Soils at the WWTP have been previously disturbed and compacted during initial WWTP construction and subsequent improvements. Soils in project areas west of the Eel River have experienced less disturbance and development.

The overall site for the new percolation field is comprised of 60 acres that are generally located along the Eel River. Soils within the proposed site are primarily classified as Water and Fluvents, which is reflective of the historical movement of the Eel River in the area. Slopes range from 0 to 2

percent. The western and southern portions of the site are classified as Udifluvents

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 site is not located within an active Alquist-Priolo fault mapped by the California Geological Survey (DOC 2019b). 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 zone is the Hydesville Fault Zone, including the Little Salmon fault, approximately 2 miles east of the project (DOC 2019b). Additionally, the project does not include structures designed for human occupancy. No impact related to fault rupture would result.

a, ii) Strong seismic ground shaking? (Less Than Significant)

The project is situated within a seismically active area close to several seismic sources capable of generating moderate to strong ground motions. Because the project is located within a seismically active area, the probability that strong ground shaking associated with large magnitude earthquakes would occur during the design life of the underground pipeline is high. Thus, the pipeline would be designed to resist moderate to very strong levels of seismic ground shaking without experiencing structure damage, consistent with recommendation from the geotechnical investigation (see Environmental Protection Action 1).

Project implementation would not increase risk of strong seismic ground shaking or exposure to strong seismic ground shaking above existing conditions. If strong seismic ground shaking were to damage the proposed facilities, it is unlikely that human lives would be put at risk because the project does not involve the construction of habitable structures. The project would be constructed to the seismic standards of the most recent California Building Code, as applicable. Therefore, the impact to people and structures from strong seismic ground shaking would be less than significant.

a.iii, a.iv, c) Liquefaction, landslides, or otherwise unstable soils? (No Impact)

The project is located in a mapped liquefaction hazard zone (Humboldt PBD 2015). 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. 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.

The potential for liquefaction-related settlement exists at the project site. Earthquake-related liquefaction could result in sand boils and minor differential settlement on the site; however, lateral spreading due to liquefaction is not anticipated to affect the project site given that there are no free facies of significance nearby. Project implementation would not increase risk of liquefaction or exposure to liquefaction above existing conditions and no impact would occur.

The project area is generally flat and gently sloping, located in the Eel River valley. Steep slopes and hillslopes are not present within the project area. Thus, landslides within or near the project are unlikely to occur, and the potential for landslide occurrence is not increased by the project.

In addition, the City shall implement Environmental Protection Action 1 – Implement Geotechnical Design Recommendations, which would further address the seismic and foundation design criteria and determine the appropriate method of directional drilling under the Eel River. No impact would result.

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

Construction activities, including cut, fill, removal of vegetation, directional drilling, and operation of heavy machinery will disturb soil and, therefore, have the potential to cause erosion. Erosion and sediment control provisions prescribed in the Fortuna Municipal Code, Humboldt County Code, NCRWQCB regulations, and the California Building Code (CBC) would be required as part of the project. BMPs may include: silt fences, straw wattles, soil stabilization controls, site watering for controlling dust, and sediment detention basins. Environmental Protection Action 2 requires development and implementation of a SWPPP in accordance with the State General Construction Permit. These mandatory ordinance requirements and permits are designed to maintain potential water quality impacts at a less than significant level during and post construction. Therefore, the potential soil erosion impact would be less than significant.

d) 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)

The purpose of the project is to develop an alternative wastewater disposal system for the City. The percolation field was identified during feasibility investigations as a desirable location for effluent disposal based on the presence of soils suitable for infiltration and soil digestion of wastewater (GHD 2019b). The project does not include the use of septic tanks or other alternative wastewater disposal systems. No impact would result.

e) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature? (Less Than Significant with Mitigation)

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 § 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 § 30244).

It is unlikely that project construction will impact potentially significant paleontological resources because most of the project occurs in relatively newly deposited alluvium. However, the possibility of encountering a paleontological resource during construction cannot be completely discounted, therefore, the impact related to the potential disturbance or damage of previously undiscovered paleontological resources, if present, is considered potentially significant.

Mitigation

Mitigation Measure GEO-1 would reduce the impact of construction activities on potentially unknown paleontological resources to a less-than-significant level by addressing discovery of unanticipated buried resources and preserving and/or recording those resources consistent with appropriate laws and requirements.

Mitigation Measure GEO-1: Inadvertent Discovery of Paleontological Resources

In the event that fossils are encountered during construction (i.e., bones, teeth, or unusually abundant and well-preserved invertebrates or plants), construction activities shall be diverted away from the discovery within 50 feet of the find, and a professional

palaeontologist shall be notified to document the discovery as needed, to evaluate the potential resource, and to assess the nature and importance of the find. Based on the scientific value or uniqueness of the find, the palaeontologist may record the find and allow work to continue, or recommend salvage and recovery of the material, if it is determined that the find cannot be avoided. The palaeontologist shall make recommendations for any necessary treatment that is consistent with currently accepted scientific practices. Any fossils collected from the area shall then be deposited in an accredited and permanent scientific institution where they will be properly curated and preserved.

Implementation of Mitigation Measure GEO-1 would reduce this impact to a less-than-significant level for both construction and operation because a plan to address discovery of unanticipated paleontological resources and to preserve and/or record those resources consistent with appropriate laws and requirements would be implemented.

3.8 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?			✓	

The NCUAQMD has not adopted regulations regarding the evaluation of greenhouse gas (GHG) emissions in a CEQA document, and has not established CEQA significance criteria to determine the significance of impacts with regard to GHGs. The NCUAQMD recommends considering the GHG emission CEQA standards from the Bay Area Air Quality Management District (BAAQMD). Pacific Gas & Electric provides energy to the WWTP.

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

As provided by the BAAQMD's CEQA Air Quality Guidelines, if a project meets the screening criteria for a Land Use Type, and the analysis is consistent with the methodology used to develop the screening criteria, then a project's operational greenhouse gas impact for that Land Use Type may be considered less than significant. However, there is no Land Use Type applicable to a wastewater treatment facility, and Land Use Types related to industrial facilities assume large buildings would be constructed. Therefore, the following analysis quantifies greenhouse gas emissions from operation and compares it to the 1,100 MTCO₂e per year threshold established by the BAAQMD.

For project construction, BAAQMD does not have quantitative GHG emission thresholds (BAAQMD 2017). Rather, the BAAQMD states that a lead agency should disclose GHG emission information and make a determination on the significance in relation to meeting AB 32 GHG reduction goals.

Project operation would result in greenhouse gas emissions from operation of the new pump station and one vehicle maintenance trip per week. The new pump station would require approximately 185,000 kWh of electricity each year, resulting in approximately 44 MTCO₂e per year. Note, however, certain existing facilities would be taken off-line after construction of the new pump station. This would result in a smaller increase in greenhouse gas emissions, over existing conditions, than shown in Appendix A. As 44 MTCO₂e is below the 1,100 MTCO₂e threshold, the operational impact to greenhouse gas emissions from project operation would be less than significant.

Project construction activities would result in a temporary increase in greenhouse gas emissions, including exhaust emissions from on-road haul trucks, worker commute vehicles, and off-road heavy-duty equipment. Construction emissions were estimated using CalEEMod version 2016 (Appendix A). 3.2, and are estimated to be approximately 41.22 MTCO₂e from all construction activities over the 8-month construction period. The project's construction emissions equal 1.37 MTCO₂e per year when annualized over the assumed 30-year lifespan of the project.

Emissions during construction would not be a considerable contribution to the cumulative greenhouse gas impact, given that construction would be temporary, of short duration, and would not require a large fleet of earthmoving equipment and soil-off hauling beyond the normal equipment and activities related to such utility or infrastructure projects. Therefore, the project's construction-related emissions would be less than significant.

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

In 2008, the California Air Resources Board adopted the Climate Scoping Plan, which outlined measures to attain emissions standards pursuant to AB 32. The most recent update to the Scoping Plan was completed in December 2017. Although the Scoping Plan identifies strategies to meet statewide emissions reductions targets, it does not contain recommended reduction levels or percentages for local government's municipal operations.

On a local level, Humboldt County's 2012 Draft Climate Action Plan, which has yet to be adopted, also outlines targets consistent with AB 32. In addition, the NCUAQMD has not developed CEQA guidelines or significance thresholds for use in GHG analyses. Therefore, for the purpose of this analysis, the 2017 Scoping Plan was used as the evaluation criteria. If the project were to conflict with the 2017 Scoping Plan, then the project would have a significant impact.

The recommended measures in the 2017 Scoping Plan are broad policy and regulatory initiatives that would be implemented at the State level and do not relate to the construction and operation of individual infrastructure projects, such as the Wastewater Treatment and disposal System Upgrade Project. Although project construction may benefit (have a reduced generation of GHG) from implementation of some of the State-level regulations and policies related to fuel and vehicle efficiencies, the project would not impede the State in meeting the AB 32 greenhouse gas reduction goals. Therefore, impacts from the project's construction and operational emissions would be less than significant.

3.9 Hazards and Hazardous Materials

	Potentially Significant Impact	Less-than-Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the project:				
f) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?			✓	
g) 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?			✓	
h) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?			✓	
i) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code § 65962.5 and, as a result, would it create a significant hazard to the public or the environment?			✓	
j) 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?				✓
k) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?				✓
l) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?			✓	

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

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)

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, paints, 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.

Caltrans and the California Highway Patrol (CHP) regulate the transportation of hazardous materials and wastes, including container types and packaging requirements, as well as licensing and training for truck operators, chemical handlers, and hazardous waste haulers. The California Division of Occupational Safety and Health (Cal-OSHA) also enforces hazard communication program regulations which contain worker safety training and hazard information requirements, such as procedures for identifying and labeling hazardous substances, communicating hazard information related to hazardous substances and their handling, and preparation of health and safety plans to protect workers and employees.

Project construction 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. No operational impact would occur.

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)

The project would utilize heavy machinery to perform some construction-related tasks including grading, drilling, excavation, 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. Equipment would not be refueled near the Eel River or any perennial wetland. If equipment must be washed, it would be washed off-site. The potential impact would be less than significant.

c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school? (Less Than Significant Impact)

The southern edge of the Fortuna Middle School track facility is located approximately 0.2 miles north of the WWTP parking lot. Construction activities are assumed to include the use of hazardous materials such as fuels, lubricants, degreasers, paints, and solvents. These materials are commonly used during construction, are not acutely hazardous, and would be used in small quantities. Numerous laws and regulations ensure the safe transportation, use, storage, and disposal of hazardous materials (see Impact discussion in Section 3.9 (a) and (b) above). Although construction activities could result in the inadvertent release of small quantities of hazardous substances, a spill or release at a construction area is not expected to endanger individuals at nearby schools given the nature of the materials, the small quantities that would be used, and the distance of the schools from the project area. Therefore, because the City and its contractors would

be required to comply with existing and future hazardous materials laws and regulations covering the transport, use, and disposal of hazardous materials, and because of the nature and quantity of the hazardous materials to be potentially used by the project, the impact related to the use of hazardous materials during construction adjacent to the school would be less than significant. Project operations would have no impact on Fortuna Middle School or any other school.

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

The project is not located on or near a cleanup site listed in the California Department of Toxic Substances Control EnviroStor database (DTSC 2019). The project is not located on a cleanup site, as mapped in the GeoTracker database (State Water Resources Control Board 2019). A closed Leaking Underground Storage Tank (LUST) clean up site (Mercer Fraser Yard, T0602300101) is located adjacent to the WWTP at 81 Sandie Prairie Road. A second closed LUST clean up site is located due north of the WWTP (City of Fortuna Corporation Yard, T0602300177) at 190 Dinsmore Drive. Off-site construction activities are not planned, and impacts related to these two off-site closed clean up sites would not occur. The WWTP at 180 Dinsmore Drive, Fortuna, CA is listed on the Cortese List. The description of the violation requests repair or schedule of a new chlorine contact chamber. The chlorine contact chamber was replaced several years ago; thus it is believed this listing is outdated and no hazard remains as a result. The potential impact associated with hazardous materials sites would be less than significant.

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 nearest airport is the Rohnerville Airport, which is located more than two miles from the project area. There would be no impact.

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. However, the City does have hazardous material response plans associated with the regulatory requirements for their wastewater treatment, water treatment plant facilities and operations, and an emergency response plan that establishes chain-of-command and response procedures between the emergency services, public works, City staff and board, and other essential departments and outside organizations. The proposed project does not conflict with these plans.

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. Additionally, the project would not increase public use, significantly increase risk of hazard occurrence, or construct facilities that may post a hazard to people or the environment. 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 primarily located in a local responsibility area (LRA) meaning an area where local governments have financial responsibility for wildland fire protection (Humboldt County 2019). Project areas located east of the Eel River are within the Fortuna Fire Protection District. Project areas located west of the Eel River are within the Ferndale Fire Protection District.

The project and surrounding vicinity is located in a moderate hazard severity zone, which is the lowest risk of all mapped categories (Humboldt County 2019). It is possible fire ignition could occur during construction (e.g. related to heavy machinery usage). The project would not otherwise increase exposure to wildlife fire above existing conditions. The impact would be less than significant.

3.10 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?				✓

The project is near Strongs Creek and the Eel River. In-water work would not occur; however, directional drilling would occur beneath the Eel River and Strongs Creek.

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

If potential impacts to Waters or wetlands would occur, the project would be required to obtain and comply with necessary permits requirements required by Section 401 and Section 404 of the Clean Water Act and administered by NCRWQCB and USACE, respectively, acting to prevent or

essentially reduce the potential for the project and operations to violate any water quality standards or waste discharge requirements.

The greatest potential project impacts to water quality would result from sediment mobilization during construction and operations or a frac-out during horizontal drilling. 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 wetlands and/or waterways near the site, degrade water quality, and potentially violate water quality standards for specific chemicals, dissolved oxygen, suspended sediment, or nutrients. This impact would be potentially significant. Directional drilling has the potential to release drilling fluids into the surface environment through frac-outs. A frac-out is a condition where drilling mud is released through fractured soils and bedrock into the surrounding rock and sand, which travels to the surface. This impact would also be potentially significant.

SWRCB Order No. 2009-0009 applies to public and private construction projects that include one or more acres of soil disturbance. Because the proposed project is anticipated to disturb over one (1) acre of land, compliance with Order No. 2009-0009 would be required. Therefore, if construction and operation activities associated with the project are not properly managed, applicable water quality standards and waste discharge requirements could be violated.

As described in Environmental Protection Action 2, the project and operations would obtain coverage under State Water Resources Control Board Order No. 2009-0009-DWQ, Waste Discharge Requirements for Discharges of Storm Water Runoff Associated with Construction and Land Disturbance Activities, as amended by Order No. 2012-0006. In compliance with the NPDES requirements, a Notice of Intent (NOI) 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 water erosion control, sediment control, off-site tracking control, wind erosion control, non-stormwater management control, and waste management and materials pollution control. A sampling and monitoring program 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 SWPPP, including visual inspections, sampling and analysis, and ensuring overall compliance.

Additionally, water sourced from dewatering activities would be pumped into Baker tanks (or similar) or dewatering bags and used for dust control purposes, consistent with Mitigation Measure AIR-1. Water sourced from dewatering would not be illegally discharged to wetlands or cause polluted runoff.

Mitigation

The potential impact to water quality standards would be less than significant with the incorporation of Mitigation Measure HWQ-1 and HWQ-2 protecting against water quality impacts related to sedimentation, erosion, hazardous materials, or a frac-out.

Mitigation Measure HWQ-1: Implement Best Management Practices to Protect Water Quality

The following representative Best Management Practices will be implemented to protect water quality during construction to avoid impacts to water quality:

- All contractors that would be performing demolition, construction, grading, operations or other work that could cause increased water pollution conditions at the site (e.g., dispersal of soils) shall receive training regarding the environmental sensitivity of the site and need to minimize impacts. Contractors also shall be trained in implementation of stormwater BMPs for protection of water quality.
- The Contractor will implement BMPs during construction including the following BMPs from the current California Stormwater BMP Handbook for Construction: EC-1: Scheduling; EC-2: Preservation of Existing Vegetation; NS-2: Dewatering Operations; NS-9: Vehicle Equipment and Fueling; NS-10: Vehicle & Equipment Maintenance; WM-2: Material Use; and WM-4: Spill Prevention and Control;
- Contractors will be responsible for minimizing erosion and preventing the transport of sediment to sensitive areas;
- Sufficient erosion control supplies will be maintained on site at all times, available for prompt use in areas susceptible to erosion during rain events;
- Disturbance of existing vegetation will be minimized to only that necessary to complete the work;
- The contractor will make adequate preparations, including training and providing equipment, to contain oil and/or other hazardous materials spills;
- Dewatering operations will be conducted where needed from the work location and stored or disposed of appropriately;
- Vehicle and equipment maintenance should be performed off-site whenever practical;
- Contractor shall ensure that the site is prepared with BMPs prior to the onset of any storm predicted to receive 0.5 inches or more of rain over 24 hours; and
- All erosion and sediment control measures shall be maintained in accordance to their respective BMP fact sheet until disturbed areas are stabilized;

Mitigation Measure HWQ-2: Development of a Horizontal Directional Drilling Hydrofracture Contingency Plan

To avoid potential impacts related to a frac-out, a Horizontal Directional Drilling Hydrofracture Contingency Plan for horizontal directional drilling pipeline under the Eel River and Strongs Creek shall be in place prior to construction. The Plan shall include an anticipated drilling mud design that provides engineering properties and the anticipated fluid pressure required as the pilot hole is incrementally advanced in approximately 10-meter (30-foot) increments. The contractor shall be required to monitor and record the Driller's Mud composition, drill fluid pressure and volumes, and have an inadvertent return contingency plan and associated equipment to minimize impacts. The Driller's Mud, spoils, water, and all other waste materials are to be legally disposed with weight or volume tickets confirming legal disposal. The Plan shall include: visual monitoring, monitoring pressures and volumes, observation during drilling, standards and specification for a four-hour shutdown minimum if frac-out occurs to allow ground to heal, cleanup plan, frac-out tank or vac truck (placed in strategic locations), and roles and responsibilities in the event of a frac-out event.

Implementation of Mitigation Measure HWQ-1 and HWQ-2 would mitigate potential impacts related to water quality standards and waste discharge requirements to a less-than-significant level by appropriately managing construction dewatering and implementing erosion control measures near streams and other wetted waters of the U.S. or State and developing a contingency plan to avoid environmental impacts resulting from a frac-out during direction drilling.

b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin? (Less Than Significant)

The project would not increase impervious surface to limit recharge and would not pump or utilize groundwater resources. Similarly, the project would not decrease groundwater supplies or interfere with groundwater management. During construction, isolated and short-duration groundwater dewatering may occur as needed. Dewatering would be small in scale and limited to shallow groundwater only. The impact would be less than significant.

c, i) 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? (Less Than Significant Impact)

The drainage pattern of the eastern project area at the WWTP is limited to unpaved gravel stockpiling areas and the developed WWTP facility. Project elements would not result in significant alteration of the existing drainage pattern of the site, and the WWTP does not include a stream or watercourse. Cessation of use of the percolation ponds during low flow periods would serve to hydrological disconnect WWTP operations from the Eel River, reducing the associated risk to water quality, unrelated to erosion and siltation. The potential impact at the WWTP facility would be less than significant.

Potential development of a contingency mid-point drill pit would not alter the drainage pattern of the Eel River, even locally. Project construction to occur at the western percolation field would also not alter the drainage pattern of the project area, including areas of temporary staging and permanent access. Planned grading would not significantly alter slope or drainage and would be entirely pervious. Implementation of Mitigation Measure HWQ-1 and Mitigation Measure HWQ-2 would further serve to avoid potential water quality impacts associated with erosion or siltation during construction. The potential impact would be less than significant.

c, ii) Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site? (No Impact)

The project would not increase impervious surfaces or substantially alter topography, slope, or drainage to or near the Eel River, Strongs Creek, or any other tributary. Both on-site and off-site flooding would remain unaffected. No impact would result.

c, 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? (Less Than Significant)

The project does not involve paving and would not increase the area of impervious surface. The project also does not include elements that would increase stormwater drainage or necessitate significant design features to accommodate stormwater management. Additionally, in compliance with Environmental Protection Action 2, the project would develop a SWPPP to be approved by the NCRWCB, and the project would be designed to meet NCRQWB storm water requirements. The

project would not cause on- or off-site flooding. The impact would be less than significant

c, iv) Impede or redirect flood flows? (Less Than Significant)

The project is located entirely within the FEMA 100-year flood zone of the Eel River and Strongs Creek (Humboldt County 2019). However, all project elements located in the western percolation field would be located at or below grade and would not impede or redirect flood flows. Existing topography would not be significantly altered in such a manner as to redirect flood flows. Similarly, the underground pipe connecting the WWTP to the percolation field on the opposite bank of the Eel River would also not impede or redirect flood flows because it would be below ground surface.

Treatment upgrades at the WWTP would not increase the footprint or structure height (e.g. facility buildings) of the overall WWTP facility and associated infrastructure beyond existing conditions. The potential impact would be less than significant.

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

The project site is not located near a larger isolated body of water that may be affected by a seiche. A portion of the WWTP nearest the Eel River is located within a Tsunami Evacuation Area. The entire project is also located within the FEMA 100-year flood zone.

If a tsunami occurred during construction, pollutants from heavy machinery (e.g. diesel) could be released into the environment. In the event of tsunami that was severe enough to extend to the eastern edge of the Tsunami Evacuation Area, the cumulative environmental and human impact would be catastrophic and the impact directly attributable to the proposed project would be insubstantial by comparison. Project construction would not occur during winter months when floods are known to occur. The impact associated with project construction would be less than significant.

Operationally, chemicals or other hazardous materials would not be present or in use at the western percolation facility. Aside from the optional use of aluminum-based metal coagulants to support potential UV disinfection and supplemental carbon for the nitrification reaction, no new chemicals will be used as a result of the project. In the event of a very significant flood that might inundate or wash away WWTP infrastructure, these constituents and wastewater effluent could be released into the Eel River. The flood magnitude associated with such an event would be both uncommon and significant. Inadvertent release of any constituents present at the WWTP would quickly dilute within the Eel River floodwaters. The potential impact of pollutants to water quality due to project inundation 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 shall obtain coverage under State Water Resources Control Board Order No. 2009-0009-DWQ, Waste Discharge Requirements for Discharges of Storm Water Runoff Associated with Construction and Land Disturbance Activities, which would include a SWPPP. If impacts to Waters or wetlands would occur, the project shall also obtain a NCRWCB Clean Water Act Section 401 Water Quality Certification. These regulatory requirements and associated requisite monitoring would ensure a conflict with the Basin Plan does not occur. Additionally, by removing the hydrologic interaction between the existing percolation ponds at the WWTP, the Eel River, and groundwater table, the project would benefit management of groundwater as described in the Basin Plan, resulting in an improvement. No impact would result.

3.11 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?				✓

This section evaluates the potential impacts related to land use, as it applies to construction and operation of the project.

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

The project would not physically divide a community. The WWTP project area is occupied by an existing facility whose project related improvements would be constructed entirely within the existing boundaries of the WWTP. The surrounding land uses are commercial or industrial in nature, with no residential uses present. Access to the site and surrounding properties is provided exclusively by Dinsmore Drive, a frontage road along Highway 101. There are no multi-use trails in the immediate project facility, though the northernmost extent of the River Walk Trail lies approximately 1,000 feet south of the project. Because the project does not result in modification of roadway or trail configuration, it does not create a physical barrier to the movement of people or motor vehicles.

The western project area at and near the percolation field consists of open space surrounded by forest and agricultural uses. There are no residential or commercial uses in the vicinity. The project would result in a minor extension and improvement of the existing farm road. No roads or formally designated trails would be closed or realigned as a result of this project. Existing off-road vehicle tracks appear unplanned and unmaintained. There are no formally designated multi-use trails in the vicinity of the western project area. For the reasons stated above, the proposed project would not divide an established community. There would be 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 is consistent with the City of Fortuna and Humboldt County land use and zoning designations. The eastern project area (Fortuna jurisdiction) is zoned Public Facilities (PF) and has a land use designation of Public (PUB). "Sewage treatment plant" is a conditionally permitted use in the Public Facilities (PF) zone district. The Public Facilities (PF) zone district is consistent with and implements the Public (PUB) land use designation, as sourced from the Fortuna General Plan.

The western project area that would contain the leach field (County of Humboldt jurisdiction) is zoned Agriculture Exclusive, Archeological Resource Area, Streams and Riparian Corridors Protection, Transitional Agricultural Lands (AE-60/A, F, R, T) with a land use designation of AE (Agriculture Exclusive). "Solid Waste Disposal" is a conditionally permitted use in the Agriculture Exclusive zone district. The Agriculture Exclusive zone district is consistent with and implements the Agriculture Exclusive land use designation, as source from the County of Humboldt General

Plan.

The contingency directional mid drilling point located on the Eel River floodplain (County of Humboldt jurisdiction) is zoned Natural Resources, Streams and Riparian Corridors protection (NR/R) with a land use designation of NR. "Civic Use Types" such as oil and gas pipelines are a conditionally permitted use in the Natural Resource zone. While not specifically listed, the proposed project is sufficiently similar and compatible to the uses permitted in the Natural Resource zone. The Natural Resource zone district is consistent with and implements the Natural Resource land use designation, as sourced from the County of Humboldt General Plan. For the reasons stated above, the proposed project would not conflict with any land use plan, policy, or regulation.

3.12 Mineral Resources

	Potentially Significant Impact	Less-than-Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the project:				
f) 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?				✓
g) 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?				✓

This section evaluates the potential impacts related to mineral resources associated with the project. Aside from the gravel located on the Eel River floodplain, there are no additional mineral resources in the project area.

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)

Construction of the proposed project would not result in the loss of mineral resources. Aside from the floodplain gravel, there are no mineral resources found within the project area. Floodplain gravel would not be harvested, removed, or permanently disturbed as a result of project actions. The project does not require a substantial amount of any mineral resource for construction, although some mineral resources (primarily aggregate and rock) would be needed for construction. Therefore, no impact would occur.

3.13 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?				✓

Current noise conditions on the eastern project area consist of noise associated with the operation of the Fortuna WWTP e.g. mechanical equipment, motors and truck traffic. Background noise is generated by vehicles on Highway 101, Dinsmore Drive, emergency response sirens related to the nearby fire station, and the industrial facilities (aggregate production) located to the north and south of the project area. Current conditions on the western edge of the project are typical of forest and agricultural land, which typically experience minimal noise except that created by agricultural vehicles such as tractors on nearby fields.

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)

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 Fortuna General Plan Noise Element Policy HS-6 limits construction activity to the hours between 7 a.m. and 8 p.m. Monday through Saturday, except for emergencies or other permitted circumstances.

There are no sensitive noise receptors, such as housing or schools that are located adjacent to the project area. The nearest noise receptor include: 1) the Fortuna Middle School track facility, which is located approximately 0.2 miles north of the WWTP parking lot and 2) residential housing,

located approximately 0.1 miles north and west of the WWTP parking lot. Both Fortuna Middle School and residential housing are located on the opposite side of Highway 101, which also produces large amounts of highway-related noise. Existing stationary noise sources located near the WWTP, as documented in the City's General Plan, include: Mercer-Fraser Gravel Operations and the Eel River Disposal Transfer Station. The project would generate temporary noise during construction. Noise levels would be consistent with the reference noise levels in Table 3.13-1 below.

Table 3.13-1: Construction Equipment Reference Noise Levels as Measured at 50'

Equipment	Noise Level (dB ¹)	Equipment	Noise Level (dB)
Drill rig truck	84	Jackhammer	85
Horizontal Boring Hydraulic Jack	80	Large Generator	82
Front end loader or Backhoe	80	Paver or Roller	85
Excavator	85	Dump truck	84

Source: Federal Highway Administration, 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 dB Leq as measured at 50 feet from the noise source would attenuate to 78 dB Leq at 100 feet from the source and to 72 dB Leq at 200 feet from the source to the receptor. Based on the reference noise levels in Table 3.13-1, the noise levels generated by construction equipment at the project site may reach a maximum of approximately 85 dB Leq at 50 feet during site excavation and construction.

The project is not expected to result in a substantial increase in ambient noise levels on the eastern project area because new pumps would be installed within the existing concrete wet well structure. The project is not expected to increase ambient noise levels at the western project area (effluent percolation field) because this project component is limited to buried pipes with no associated mechanical equipment. The impact would therefore be less than significant.

Noise Ordinance Compatibility

City Fortuna

The City of Fortuna General Plan designates a daytime exterior maximum noise threshold of 85 dBA L_{max} in industrial zoning districts. The project would be fully permitted and would comply with terms of approved permits, including those that specifically address noise limitations. The project would not conflict with the City's noise policies.

Humboldt County

The Humboldt County's Noise Compatibility Standards set a construction noise range from a maximum of 65 dB – 85 dB, depending on the land use. However, exceptions include the use of heavy machinery and tools used during construction of permitted structures when conforming to the terms of the approved Use Permit (Humboldt County 2017d). The project would obtain a Use Permit and would comply with terms of the approved permit, including those that specifically address noise limitations. The project would not conflict with Humboldt County's Noise Element or Noise Compatibility Standards.

¹ "dB" is a weighted decibel measurement for assessing hearing risk and, therefore, is used by most regulatory compliance.

Noise and Land Use Compatibility

Construction

The project area consists of two separate sites. The eastern portion consists of the existing WWTP and the western portion consists of the new effluent percolation fields. Both sites would experience temporary increases in noise due to construction activities. However, these would occur during daytime hours only and within the established regulatory limits discussed above, including daytime exterior maximum noise threshold of 85 dBA L_{max} for construction at and near the WWTP. Construction in western project areas (jurisdiction of Humboldt County) are exempt from noise thresholds during construction under the project's Use Permit. The potential impact would be less than significant.

Operation

After construction, increased operational noise generated by the project on the eastern side of the project area is expected to be minimal to non-existent due the indoor installation of the new pumps and other associated upgrades (converting the aeration basins to Modified Ludzack Ettinger (MLE) process as well as modifying the WAS and EQ basins.) There would be no increase in ambient noise resulting from the new effluent percolation fields because no equipment is being installed that is capable of creating noise. The potential impact would be less than significant.

b) Result in generation of excessive groundborne vibration or noise levels? (Less Than Significant Impact)

Earth moving and earth compacting activities using heavy machinery would create groundborne vibrations and noise that may be noticeable on a temporary basis during construction activities at nearby commercial and industrial uses. Noticeable groundborne vibrations and noise would be limited to normal daytime hours. The proposed project would comply with Fortuna General Plan Policy HS-6 and Humboldt County General Plan policy N-IM6, which requires limiting construction activity to specified daytime hours and regulate vibration sources. Additional groundborne vibrations beyond baseline conditions are not anticipated as a result of operational activities, and the potential impact would be less than significant.

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 an airport land use plan, or within two miles of a public airport. There would be no impact.

3.14 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?				✓

- 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 developments. The key element of the project is the effluent percolation field, which is being constructed to provide an alternative to the current system of discharging effluent into two WWTP percolation ponds. This alternative is necessary due to regulatory conditions imposed by the NCRWQCB. As such, the project does not increase sewer capacity for the City of Fortuna in such a manner as to induce population growth.

The project would result in a minor farm road extension and gravel road resurfacing in the vicinity of the effluent percolation fields. These access-related improvements do not appreciably change the nature of the roads (e.g. dirt road to paved residential street) and therefore would not encourage or induce population growth in the project area. There would be no impact.

- b) Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere? (No Impact)**

The proposed project would not displace people or housing or otherwise effect housing because there is no housing located in the immediate vicinity of the project area and the project does not include modification or construction of housing. There would be no impact.

3.15 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?				✓

The project would result in an overall benefit to public services by improving the WWTP and ensuring compliance with related regulations and regulatory guidance from the NCRWQCB directing the City of Fortuna to identify and implement alternative means of effluent disposal during Eel River low flow periods to protect water quality.

- 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)**

While the project would alter the WWTP and expand the footprint of treatment facilities to the western side of the Eel River, such actions would not increase the intensity of the activity in the project area to the point that additional public services are needed. The eastern project area currently receives fire protection services consistent with the rest of Fortuna. The project improvements at the WWTP would not result in the need to increase staffing, create new hazardous conditions, or result in a modification to the road system that would restrict access for emergency services. The project improvements located on the effluent percolation fields are non-flammable and unstaffed.

Additional police protection is not required because the project would not result in increases to facility staffing at the WWTP. The unstaffed effluent percolation field consists largely of buried infrastructure unlikely to be the target of theft or vandalism.

The project would not affect schools because it would not induce population growth in school-age children. Further, there are no schools in the vicinity of the project area that may be physically impacted. The Fortuna dog park is located near the Fortuna WWTP and would not be affected by the project. For the reasons stated above, the project would not result in an impact to public services.

3.16 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?				✓

One park is located near the project area. The Fortuna dog park is located on Dinsmore Drive south of the Fortuna WWTP. The site of the future effluent percolation field has historically been used by off-road vehicles, though it is not clear that these activities have been done legally and/or with permission from the landowner.

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 proposed project would not increase the use of or impact existing neighborhood parks or recreational facilities. Fortuna dog park is an established park located near the northern terminus of the River Walk Trail and south of the WWTP. Because the project would not increase staffing at the WWTP, nor increase residential uses in the vicinity of the WWTP, the Fortuna dog park would not experience an increase in usage as a result of the project.

Informal and illegal use by off-road vehicle users at the effluent percolation field site would likely decrease during the construction phase of the project because the site would be graded, thereby destroying the existing tracks and jumps. The infiltration area may also be fenced to support future agricultural uses or environmental enhancement compatible with the percolation system. The agricultural fence would help to limit future undesired use by off-road vehicles. Following construction, the City would restrict illegal off-road vehicle use to prevent impacts to operational use of the facility, including establishing vegetation planted for erosion control purposes or to comply with required compensatory mitigation of any impacted wetlands or ESHA (see Mitigation Measure BIO-5 and BIO-7). 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 construction or expansion of recreational facilities would not be required by the project or included in the project. There would be no impact.

3.17 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 § 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?			✓	

The project consists of improvements to the WWTP, the drilling of a conveyance pipe under the Eel River, and the installation of an effluent percolation field on the west side of the river. The project involves very minor modifications to the road network. Modifications to the road network are the minimum necessary for operations and maintenance.

a) Conflict with a program plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities? (No Impact)

City of Fortuna

The project would not involve any modification to existing roads in the vicinity of the WWTP. The WWTP is accessed solely by Dinsmore Drive and would remain so during all construction activities and operationally post-project. Because no streets would be modified, there is no conflict with a circulation-related program plan, ordinance, or policy of the City of Fortuna.

Humboldt County

Renner Lane, a gravel road, currently terminates at a privately owned farm. From this point, access would be provided via what is currently a privately-owned farm road. This farm road terminates at the edge of the field approximately 800 feet from the project site. The existing farm road would be improved by adding aggregate base and grading. The farm road would be extended from its terminus at the field's edge to the percolation field. The new farm road section would be constructed to match the specifications of the existing portion. The City of Fortuna would procure an easement or other legal right through the private property to create legal access.

These activities do not conflict with any of the goals or policies contained in the Humboldt County General Plan Circulation Element. Renner Lane is currently a dead end road that serves a small number of parcels. The proposed road extension would not constitute an extension of the County of Humboldt roadway network; rather it would be a privately owned and maintained maintenance access road.

Construction

The anticipated access route to the new waste water disposal area utilizes Highway 211 near Ferndale, California. Local roads then connect Waddington Road to Pleasant Point Road. The access road along existing farm roads would connect to Pleasant Point Road and Renner Lane and provide access to the site. Construction-related traffic would be limited to equipment mobilization at the new subsurface effluent percolation field area and daily personnel travel. Due to the rural nature of the area, existing low levels of traffic, and anticipated low levels of construction-related traffic, there would not be a need for formal traffic control.

Secondary access is also available along multiple existing unimproved gravel roads near the Eel River floodplain departing from East Ferry Road. Floodplain access may be utilized to support the mid-point directional drilling location depending on the contractor's means and methods.

Construction traffic would be limited to earthwork and directional drilling equipment and related support vehicles. Due to the minimal construction traffic anticipated at the WWTP, traffic control would not be necessary. Approximately 40 daily haul trips are anticipated on a peak day. Up to four work-weeks of peak days may occur.

b) Conflict or be inconsistent with CEQA Guidelines § 15064.3, subdivision (b)? (Less Than Significant Impact)

The provisions included in § 15034.3 are not applicable statewide until July 1, 2020. The following discussion is included prospectively. § 15064.3, subdivision (b), of the CEQA Guidelines lists the criteria for analyzing transportation impacts from proposed projects. The criteria are broken up into four categories, including land use projects, transportation projects, qualitative analysis, and methodology. Transportation projects that reduce, or have no impact on, vehicle miles traveled should be presumed to cause a less than significant transportation impact. For roadway capacity projects, agencies have discretion to determine the appropriate measure of transportation impact consistent with CEQA and other applicable requirements. Because the proposed project's effects on roadways is limited to minor grading and an extension of a gravel maintenance access road, there would be no impact on vehicle miles travels as a result of construction. Operationally, City staff would visit the percolation field weekly (one vehicle only), which would result in a slight increase in vehicle miles traveled over the life of the project. In the project area, thresholds have not yet been established for vehicle miles traveled; however, slight increases in construction-related or operational-related vehicle miles traveled would not impact or reduce the Level of Service of associated roadways. The impact would be less than significant.

c) Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)? (No Impact)

The road-related improvements and extension are limited in nature and would result in a narrow, low speed, gravel access road on a private roadway to access western project areas (percolation field). Because of the design of the road and the limited number of vehicles (farm-related and/or percolation field-related), uses would not prove to be incompatible. Further, there is minimal tall vegetation along the access road that would block visibility, nor does the road have sharp turns. Construction on or near public roadways would not occur. For these reasons, there would be no hazards due to a geometric design feature or incompatible use would not occur. There would be no impact.

d) Result in inadequate emergency access? (Less Than Significant)

Construction activities would primarily occur primarily outside of the public right-of-way. During construction, Dinsmore Drive and Renner Lane/Pleasant Point Road/Waddington Road would experience limited construction-related traffic. Construction related traffic would consist of earthwork and directional drilling equipment and support vehicles. Construction-related road or lane closures are not expected, and emergency access would not be limited. The potential impact would be less than significant.

3.18 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 § 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 § 5024.1? In applying the criteria set forth in subdivision (c) of the Public Resources Code § 5024.1, the lead agency shall consider the significance of the resource to a California Native American Tribe.		✓		

a, b) Cause a substantial adverse change in the significance of a tribal cultural resource? (Less Than Significant with Mitigation)

CEQA requires lead agencies to determine if a proposed project would have a significant effect on tribal cultural resources. The CEQA Guidelines define tribal cultural resources as: (1) a site, feature, place, cultural landscape, sacred place, or object with cultural value to a California Native American Tribe that is listed or eligible for listing on the California Register of Historical Resources, or on a local register of historical resources as defined in Public Resources Code Section 5020.1(k); or (2) a resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant according to the historical register criteria in Public Resources Code Section 5024.1(c), and considering the significance of the resource to a California Native American tribe.

An archeological survey and Historic Property Identification Report (HPIR) was completed during December 2019 (DZC 2019). In conjunction with the archeological survey and report, the local Tribal Historic Preservation Officers (THPOs) and NAHC were consulted. No Sacred Lands were identified within the APE. However, one previously recorded historical resource, as defined in § 15064.5, is reported as located within or immediately adjacent to the project APE. The historical resource is the ethnographic Wiyot village of kwigërgoyok. This resource is eligible for listing on the California Register of Historic Resources (DZC 2019). Although the area is subject to periodic river flooding and surficial remains of the resource were not located during pedestrian surveys, there is a potential for discovery of the site during project activities and a subsequent potential to cause a substantial adverse change in the significance of a historical resource pursuant to § 15064.5. The impact is considered significant.

Implementation of Mitigation Measures CUL-1 and CUL-2 (see Section 3.5, Cultural Resources) would reduce the potential impact to tribal resources by requiring construction worker training,

construction monitoring, and procedures in the event of inadvertent discovery consistent with appropriate laws and requirements.

3.19 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?				✓

The project is a public utility project designed to upgrade treatment operations at the WWTP and develop a new percolation field for treated effluent disposal during summer and fall during Eel River flow periods, benefiting the City and its populous and protecting the water quality of the Eel River from potential impacts associated with existing treatment and disposal operations.

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? (No Impact)

The project would result in the creation of new wastewater treatment infrastructure. Improvements to the existing Fortuna WWTP would involve adding Biological Nutrient Removal (BNR) to the existing treatment train, which would include converting the aeration basins to Modified Ludzack Ettinger (MLE) process as well as modifying the WAS and EQ basins. This improvement would take place within the site boundaries of the existing WWTP. A conveyance pipe would be drilled under the Eel River and would connect the WWTP to the new effluent percolation field located on the west side of the river. This project does not involve the construction of water, storm water, electrical, natural gas, or telecommunications infrastructure/facilities.

The project includes upgraded wastewater treatment facilities whose potential environmental

impacts are evaluated as part of this Initial Study/Proposed Mitigated Negative Declaration. The following subjects are related to the proposed storm water drainage facilities, and are evaluated in other sections of this document:

- Potential impacts related to biological resources are evaluated in Section 3.4 (Biological Resources).
- Potential impacts related to cultural resources are evaluated in Section 3.5 (Cultural Resources).
- Potential impacts related to hydrology and water quality are evaluated in Section 3.9 (Hydrology and Water Quality).

No additional wastewater infrastructure or expansion of existing facilities beyond those identified in the project description and evaluated in this Initial Study are required. Therefore, no additional 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 or local wells could potentially be used for dust control and other activities. Construction-related water demands would be short-term and minimal in volume. Following construction, the 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.

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? (No Impact)

The project would not directly or indirectly induce population growth and would not increase the amount of wastewater generated. The project would result in improvements to the existing wastewater treatment infrastructure and would not increase wastewater treatment capacity. The WWTP would remain operational during construction; service would not be disrupted. 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. Construction wastes would include, but not be limited to, excavated soils, construction waste resulting from the treatment upgrades at the WWTP including demolition of the compost storage, cleared trees/vegetation/top soils from the percolation fields and access road. Construction waste with no practical reuse or that cannot be salvaged or recycled would be legally disposed of at a local transfer station. Active permitted in-County transfer stations include the Humboldt Waste Management Authority facilities in Eureka or Samoa, California and the Recology Eel River Transfer Station in Fortuna, California. 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. No operational impact would occur.

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. Following construction, project operation would not generate additional solid waste. Therefore, no constructional or operational impact would occur.

3.20 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?				✓

This section evaluates potential impacts related to wildfire risk; no portion of the project area is located within or near a State Responsibility Area (SRA) where Cal Fire is the primary emergency response agency responsible for fire suppression and prevention.

a-d) Substantially impair an adopted emergency response plan or emergency evacuation plan? 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? 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? 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? (No Impact)

The project site is not located in or near a SRA or lands classified as very high fire severity zones. The project is located approximately 0.75 mile from the nearest SRA (Humboldt County 2019). Therefore, the CEQA Guidelines Appendix G Checklist section for wildfire is not applicable to the project. No impact would result.

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?			✓	

- 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)**

As evaluated in this IS/MND, 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

Mitigation measures are listed herein to reduce impacts related to Air Quality, Biological resources, Cultural Resources, Geology, Hydrology, and Transportation, and Tribal Cultural Resources. With implementation of the required mitigation measures, impacts 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)?
(No 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 § 15355). Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time. Efforts to identify cumulative projects included contact with the City of Fortuna and review of appropriate local agency project lists and capital improvement plans. Based on such efforts, no additional projects were identified that would need to be considered for cumulative impacts. Therefore, no cumulative impact would result.

c) Does the project have environmental effects which would cause substantial adverse effects on human beings, either directly or indirectly? (Less Than Significant)

The project has been planned and designed to avoid significant environmental impacts. As discussed in the analysis throughout Section 3 of this IS/MND, the project would not have environmental effects that would cause substantial adverse direct or indirect effects on human beings. The impact would be less than significant.

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5. Report Preparers

5.1 City of Fortuna

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Brendan Byrd, Deputy City Engineer

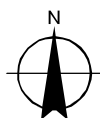
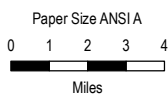
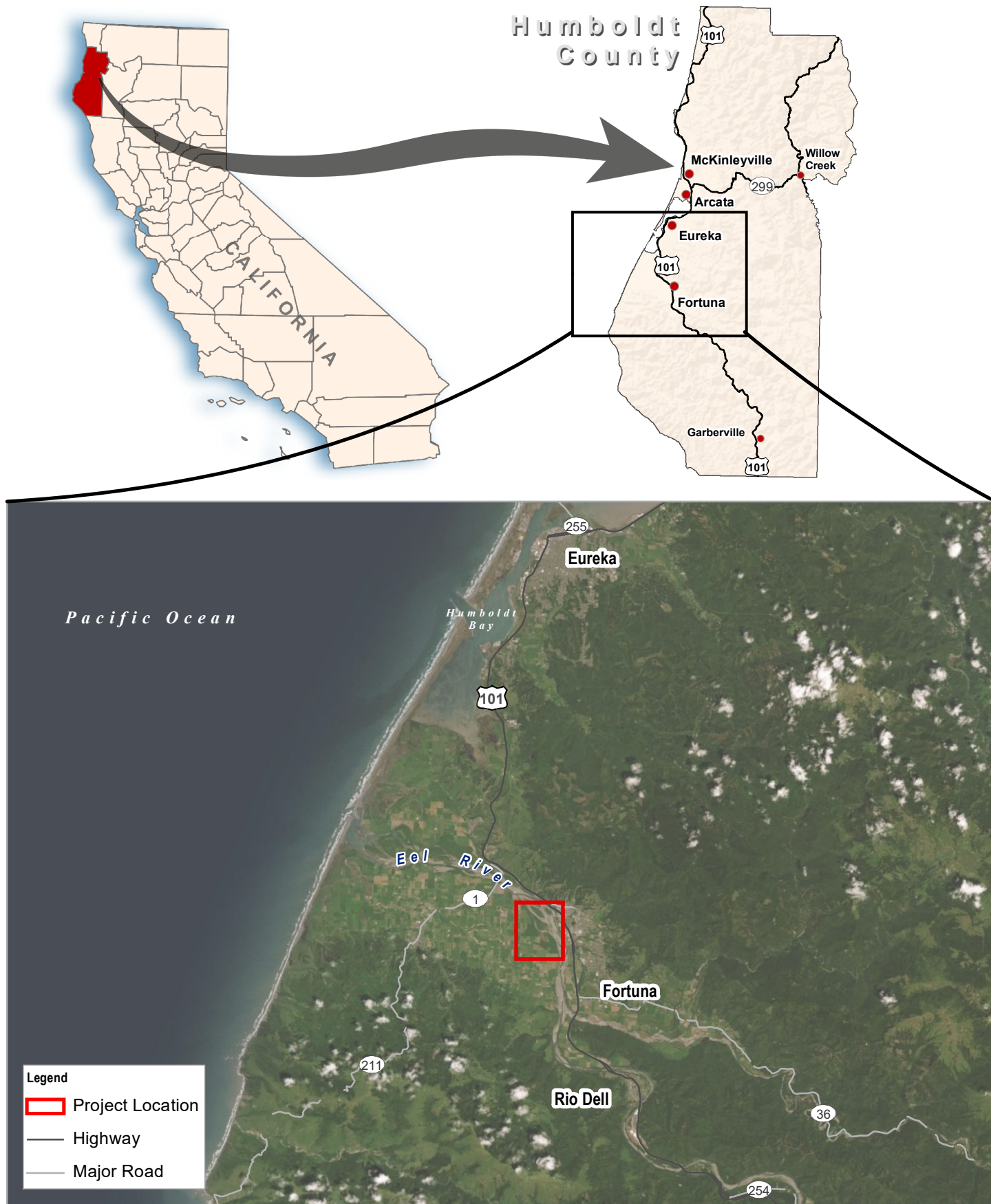
5.2 GHD

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Brian Heaton, Environmental Planner
Kristine Gaspar, Senior Environmental Planner
Marlys Jeane, Environmental Planner
Misha Schwarz, Senior Scientist
Elizabeth Meisman, Wildlife Biologist

5.3 Sub-consultants

DZC Archaeology & Cultural Resource Management

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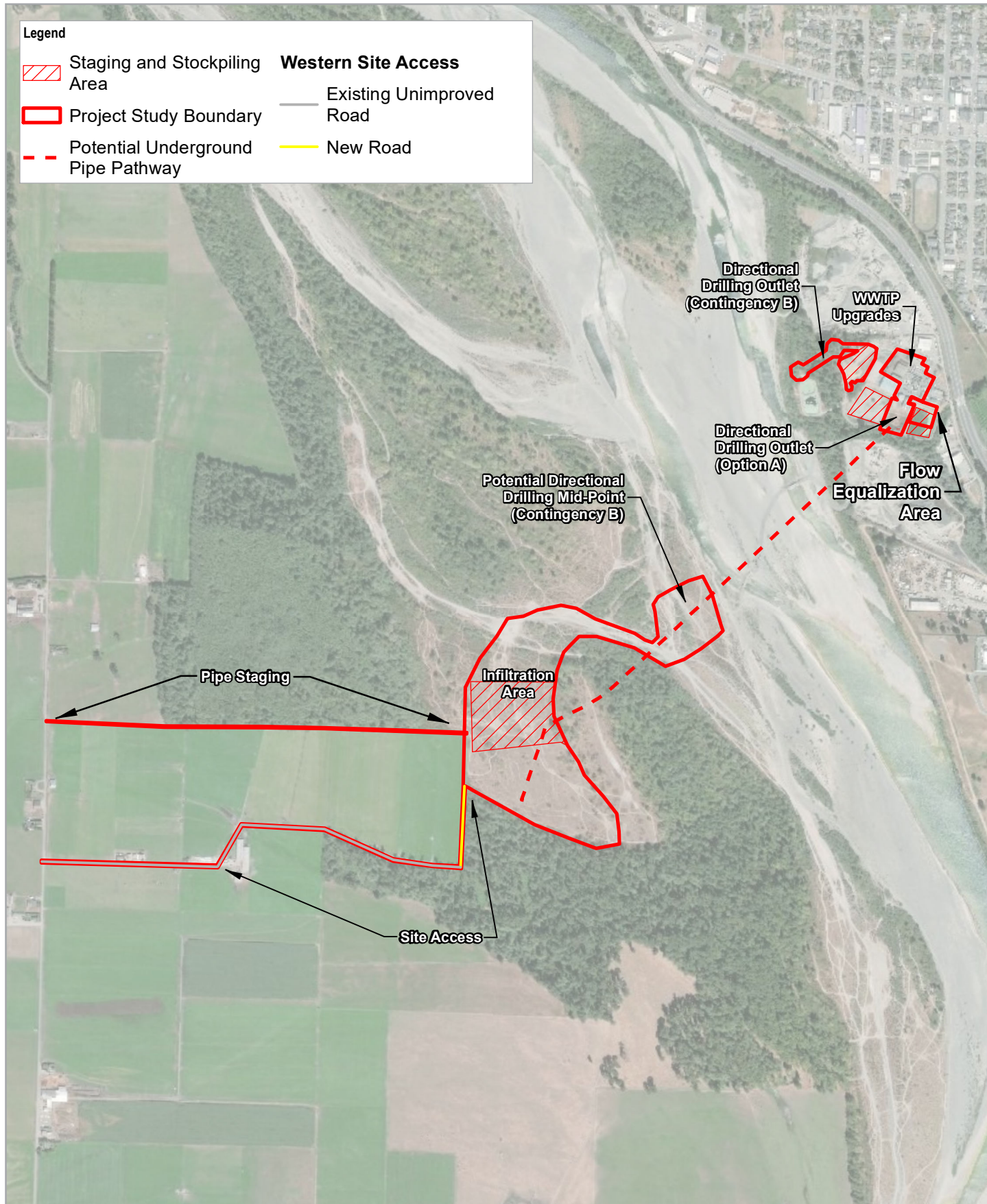


City of Fortuna
Wastewater Treatment and Effluent
Percolation System Upgrade Project

Project No. 11146364
 Revision No. -
 Date Nov 2019

Vicinity Map

FIGURE 1



Legend

Staging and Stockpiling Area

Project Study Boundary

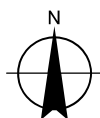
Potential Underground Pipe Pathway

Western Site Access

Existing Unimproved Road

New Road

Paper Size ANSI A
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Feet



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

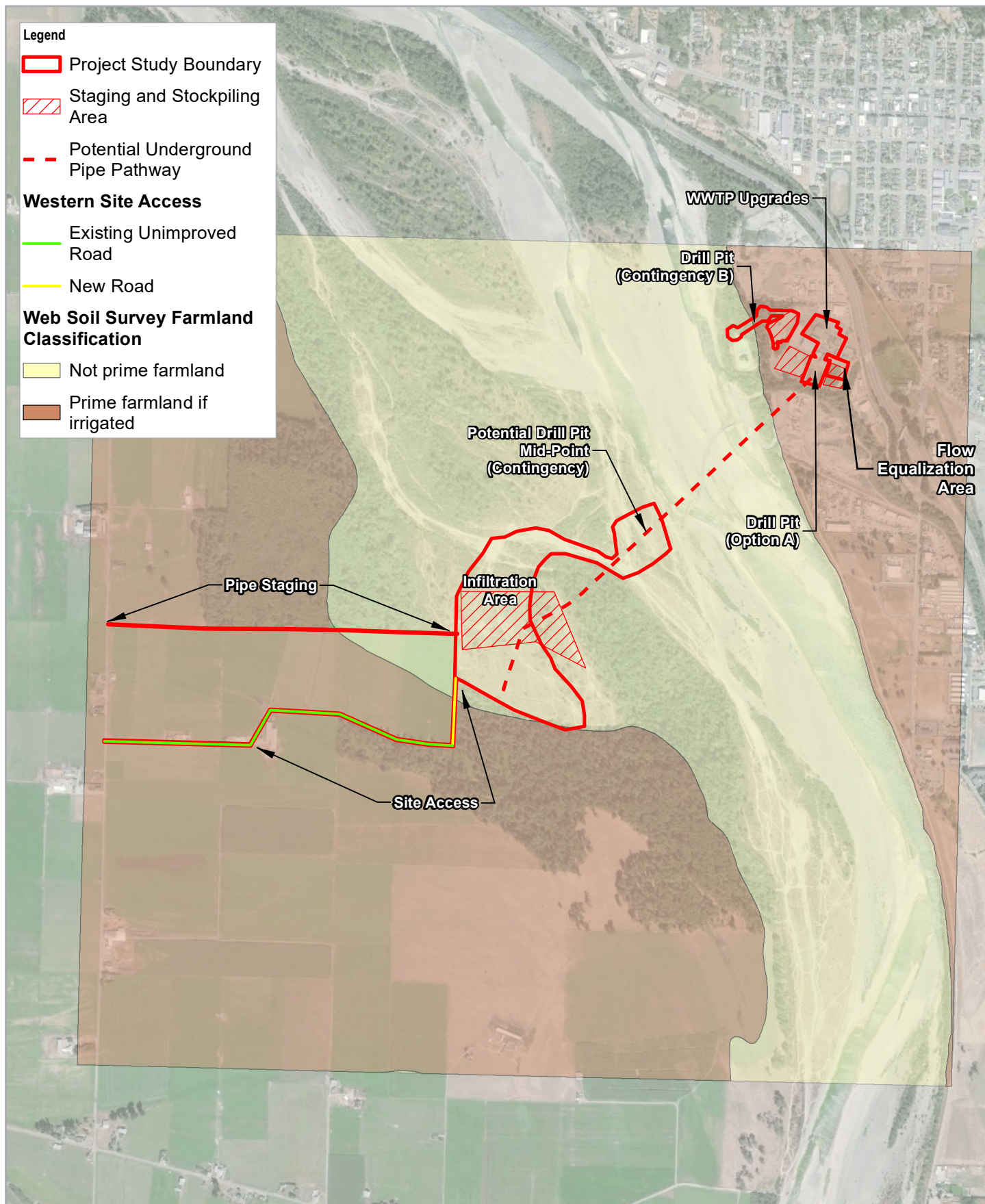


City of Fortuna
Wastewater Treatment and Effluent
Percolation System Upgrade Project

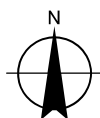
Project No. 11146364
Revision No. -
Date April 2020

Project Study Area

FIGURE 2



Paper Size ANSI A
0 370 740 1,110 1,480
Feet



City of Fortuna
Wastewater Treatment and Effluent
Percolation System Upgrade Project

Project No. 11146364
Revision No. -
Date April 2020

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

Prime Agricultural Soils

FIGURE 3

Appendices

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Appendix A

Air Quality Modeling Results

Fortuna Waste Water Project - Construction - North Coast Air Basin, Annual

Fortuna Waste Water Project - Construction

North Coast Air Basin, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Light Industry	220.00	1000sqft	5.05	220,000.00	0

1.2 Other Project Characteristics

Urbanization	Rural	Wind Speed (m/s)	2.2	Precipitation Freq (Days)	93
Climate Zone	1			Operational Year	2025
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MW hr)	641.35	CH4 Intensity (lb/MW hr)	0.029	N2O Intensity (lb/MW hr)	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Construction only run

Land Use - User defined as waste water treatment plant; units in acres; 400 sq ft of that is buildings

Construction Phase - Project-specific durations

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	20.00	6.00
tblConstructionPhase	NumDays	10.00	14.00
tblConstructionPhase	NumDays	20.00	15.00
tblConstructionPhase	NumDays	230.00	9.00
tblConstructionPhase	PhaseEndDate	6/28/2024	6/10/2024

tblConstructionPhase	PhaseEndDate	7/12/2024	6/28/2024
tblConstructionPhase	PhaseEndDate	8/9/2024	7/19/2024
tblConstructionPhase	PhaseEndDate	6/27/2025	9/5/2024
tblConstructionPhase	PhaseStartDate	6/29/2024	6/11/2024
tblConstructionPhase	PhaseStartDate	7/13/2024	7/1/2024
tblConstructionPhase	PhaseStartDate	8/10/2024	8/26/2024
tblGrading	AcresOfGrading	1.88	10.00
tblOffRoadEquipment	LoadFactor	0.37	0.37
tblOffRoadEquipment	LoadFactor	0.38	0.38
tblOffRoadEquipment	LoadFactor	0.42	0.42
tblOffRoadEquipment	LoadFactor	0.40	0.40
tblOffRoadEquipment	OffRoadEquipmentType		Tractors/Loaders/Backhoes
tblOffRoadEquipment	OffRoadEquipmentType		Excavators
tblOffRoadEquipment	OffRoadEquipmentType		Dumpers/Tenders
tblOffRoadEquipment	OffRoadEquipmentType		Other Construction Equipment
tblOffRoadEquipment	OffRoadEquipmentType		Rubber Tired Dozers
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
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tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	1.00
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tblOffRoadEquipment	UsageHours	8.00	3.00
tblOffRoadEquipment	UsageHours	8.00	4.00
tblOffRoadEquipment	UsageHours	8.00	2.00
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tblOffRoadEquipment	UsageHours	8.00	2.00
tblOffRoadEquipment	UsageHours	8.00	3.00

tblOffRoadEquipment	UsageHours	8.00	4.00
tblOffRoadEquipment	UsageHours	8.00	4.00
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural

2.0 Emissions Summary

2.1 Overall Construction
Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2024	0.0278	0.2127	0.2274	4.6000e-004	6.4568	8.8200e-003	6.4656	0.6576	8.1900e-003	0.6658	0.0000	40.9968	40.9968	9.0900e-003	0.0000	41.2241
Maximum	0.0278	0.2127	0.2274	4.6000e-004	6.4568	8.8200e-003	6.4656	0.6576	8.1900e-003	0.6658	0.0000	40.9968	40.9968	9.0900e-003	0.0000	41.2241

2.2 Overall Operational
Not Applicable

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	6/3/2024	6/10/2024	5	6	
2	Site Preparation	Site Preparation	6/11/2024	6/28/2024	5	14	
3	Grading	Grading	7/1/2024	7/19/2024	5	15	
4	Building Construction	Building Construction	8/26/2024	9/5/2024	5	9	
5	Trenching	Trenching	7/22/2024	8/23/2024	5	25	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 10

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0

OffRoad Equipment

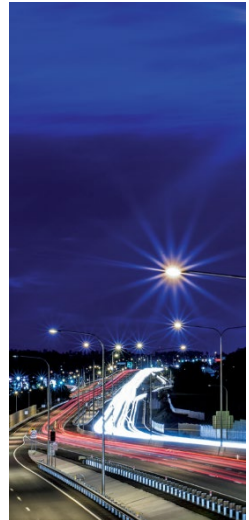
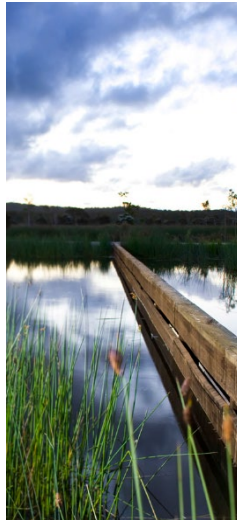
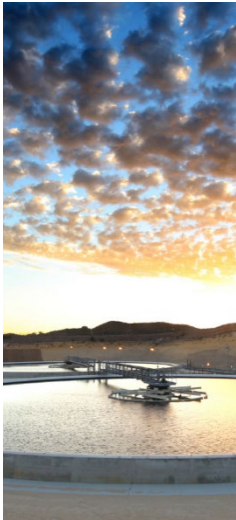
Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	2.00	81	0.73
Demolition	Excavators	1	3.00	158	0.38
Demolition	Rubber Tired Dozers	1	3.00	247	0.40
Site Preparation	Rubber Tired Dozers	1	3.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	1	4.00	97	0.37
Grading	Excavators	1	4.00	158	0.38
Grading	Graders	1	2.00	187	0.41
Grading	Rubber Tired Dozers	1	2.00	247	0.40
Grading	Tractors/Loaders/Backhoes	1	4.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	1	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Trenching	Tractors/Loaders/Backhoes	1	4.00	97	0.37
Trenching	Excavators	1	4.00	158	0.38
Trenching	Dumpers/Tenders	1	5.00	16	0.38
Trenching	Other Construction Equipment	1	4.00	172	0.42
Trenching	Rubber Tired Dozers	1	4.00	247	0.40

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	3	8.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	2	5.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Grading	4	10.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	5	92.00	36.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Trenching	5	13.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT

Appendix B

Biological Resources Report



Biological Resources Report

Prepared for the City of Fortuna

Wastewater Treatment and Effluent Percolation System Upgrade Project

GHD | 718 Third Street, Eureka, CA, 95511

11146364 | 03 | Biological Resources Report | January 2020



Table of Contents

1.	Introduction.....	1
2.	Regulatory Background.....	1
2.1	Federal Jurisdiction.....	1
2.1.1	Endangered Species Act (ESA)	1
2.1.2	Clean Water Act (CWA).....	2
2.1.3	Executive Order 11990, Protection of Wetlands	3
2.1.4	Executive Order 13112, Invasive Species.....	3
2.1.5	Magnuson-Stevens Fishery Conservation and Management Act (MSA).....	3
2.1.6	Sustainable Fisheries Act of 1996	4
2.1.7	Migratory Bird Treaty Act (MBTA)	4
2.1.8	Bald and Golden Eagle Protection Act (BGEPA)	5
2.2	State Jurisdiction.....	5
2.2.1	California Environmental Quality Act (CEQA)	5
2.2.2	Porter-Cologne Water Quality Act	6
2.2.3	California Endangered Species Act (CESA)	6
2.2.4	California Fish and Game Code (FGC)	6
2.2.5	Species of Special Concern	7
2.2.6	Sensitive Plant Communities	8
2.2.7	California Coastal Act	8
2.3	Local Jurisdiction	9
2.3.1	Humboldt County Grading Permit.....	9
2.3.2	Humboldt County Conditional Use Permit	9
2.3.3	Humboldt County Local Coastal Program	10
3.	Environmental Setting	10
3.1	Baseline Conditions	10
3.1.1	General Information	10
3.1.2	Habitat Elements	10
3.1.3	Hydrology and Water Quality	11
3.1.4	Topography and Soils.....	11
4.	Methods.....	11
4.1	Preliminary Investigations.....	11
4.1.1	Database Searches (IPaC, CNDDb, CNPS).....	11
4.1.2	National Wetlands Inventory.....	12
4.1.3	Methods – Sensitive Natural Communities and Environmentally Sensitive Habitat Area Survey	12
4.1.4	Methods – Wildlife Survey	13
5.	Results	14
5.1	Sensitive Natural Communities/ Environmentally Sensitive Habitat Area Mapping Results	14
5.2	Wildlife Survey Results	16
5.2.1	Pipe Outlets at WWTP.....	16
5.2.1.1	Equalization Pond (Option A, Appendix B, Figure 2)	16



5.2.1.2	Vegetated Area to the North of Percolation Pond (Directional Drilling Outlet) (Option B, Appendix A, Figure 2).....	16
5.2.2	Contingency Pipe Outlet/Outlet at Eel River Gravel Bar (Mid Point, Appendix A, Figure 2)	17
5.2.3	Proposed Effluent Disposal Area (Infiltration Area, Appendix A, Figure 2)....	17
5.2.4	Pipe Staging Location (On Pasture Edge)	17
5.3	Summary of Sensitive Biological Resources	19
5.3.1	Plants	19
5.3.2	Wildlife	19
5.4	Listed or Candidate Species (Under ESA and/or CESA)	20
5.5	Special Status Species (CDFW FP, CDFW SSC, CDFW Special Animals List, or CRPR Ranked)	22
5.5.1	Plants	23
5.5.2	Wildlife	23
5.6	Critical Habitat.....	35
5.7	Essential Fish Habitat	36
6.	Summary of Potential Impacts and Conservation Measures	36
6.1	Proposed Conservation Measures	37
6.2	Porcupines	37
6.3	Bats	37
6.3.1	Migratory Birds.....	37
6.3.2	Special-status Amphibians and Reptiles	38
6.3.3	Avoid Impacts to Special Status Fish	38
6.3.4	Avoid Special Status Plants.....	39
7.	Literature Cited	39
	Appendix A - CNDDDB, IPaC, CNPS, NMFS, Combined Report Table	46
	Appendix B – Figures	47
	Appendix C – Photos	48
	Appendix D – Rapid Assessment Forms	54

Table Index

Table 3.1	NatureServe Conservation Status Ranks.....	8
Table 6.1	Avian Species Observed Within the Project Area	17
Table 6.2	Other Wildlife Species Observed Within the Project Area	19



1. Introduction

The City of Fortuna (City) is located in coastal Humboldt County, California (see Appendix B, Figure 1). The City operates the Tom Cooke Memorial Wastewater Treatment Plant (WWTP) located on the eastern bank of the Eel River. The goal of the Wastewater Treatment and Disposal System Upgrade Project is to address compliance issues related to the disposal of treated effluent and construction of a new disposal system to replace the existing use of percolation ponds at the existing WWTP. The project includes new wastewater treatment upgrades and a new disposal facility on the opposite (western) bank of the Eel River (see Figure 2), as well as treatment upgrades at the WWTP itself. Horizontal directional drilling would be initiated from the new wastewater treatment and disposal facility, traversing east across the Eel River to the existing WWTP. A project description, describing all project components will be included in the project's CEQA document.

2. Regulatory Background

This project is subject to the requirements of the California Environmental Quality Act (CEQA), a suite of federal and state environmental acts, and rules. Following is an overview of agencies that have potential oversight of the proposed project related to biological resources as well as relevant laws. The regulatory setting is divided into sections on federal, state, and local jurisdiction.

2.1 Federal Jurisdiction

2.1.1 Endangered Species Act (ESA)

The ESA of 1973 (16 USC 1531 et seq.) establishes a national policy that all federal departments and agencies provide for the conservation of threatened and endangered species and their ecosystems. The Secretary of the Interior and the Secretary of Commerce are designated in the ESA as responsible for: (1) maintaining a list of species likely to become endangered within the foreseeable future throughout all or a significant portion of its range (threatened) and that are currently in danger of extinction throughout all or a significant portion of its range (endangered); (2) carrying out programs for the conservation of these species; and (3) rendering opinions regarding the impact of proposed federal actions on listed species. The ESA also outlines what constitutes unlawful taking, importation, sale, and possession of listed species and specifies civil and criminal penalties for unlawful activities.

Pursuant to the requirements of the ESA, an agency reviewing a proposed project within its jurisdiction must determine whether any federally listed or proposed species may be present in the project region, and whether the proposed project would result in a "take" of such species. The ESA prohibits "take" of a single threatened and endangered species except under certain circumstances and only with authorization from the U.S. Fish and Wildlife Service (USFWS) or the National Oceanic and Atmospheric Administration (NOAA) Fisheries through a permit under Section 7 (for federal entities or federal actions) or 10(a) (for non-federal entities) of the Act. "Take" under the ESA includes activities such as "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect,



or to attempt to engage in any such conduct." USFWS regulations define harm to include "significant habitat modification or degradation." On June 29, 1995, a U.S. Supreme Court ruling further defined harm to include habitat modification "...where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering."

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

2.1.2 Clean Water Act (CWA)

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

Discharge of fill material into "waters of the U.S.," including wetlands, is regulated by the U.S. Army Corps of Engineers (USACE) under Section 404 of the CWA (33 USC 1251-1376). USACE regulations implementing Section 404 define "waters of the U.S." to include intrastate waters (such as, lakes, rivers, streams, wetlands, and natural ponds) that the use, degradation, or destruction of could affect interstate or foreign commerce. Wetlands are defined for regulatory purposes as "areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions" (33 CFR 328.3; 40 CFR 230.3). The placement of structures in "navigable waters of the U.S." is also regulated by the USACE under Section 10 of the Federal Rivers and Harbors Act (33 USC 401 et seq.). Projects are approved by USACE under standard (i.e., individual) or general (i.e., nationwide, programmatic, or regional) permits. The type of permit is determined by the USACE and based on project parameters.

The USACE and the EPA announced the release of the Clean Water Rule on May 27, 2015 (80 FR 124: 37054-37127). The Rule is intended to ensure waters protected under the CWA are more precisely defined, more predictable, easier to understand, and consistent with the latest science. The intent is to: 1) clearly define and protect tributaries that impact the quality of downstream waters; 2) provide certainty in how far safeguards extend to nearby waters; 3) protect unique regional waters; 4) focus on streams instead of ditches; 5) maintain the status of waters associated with infrastructure (i.e., sewer systems); and 6) reduce the need for case specific analysis of all waters. The U.S. Court of Appeals for the Sixth Circuit stayed implementation of the Clean Water Rule pending further action of the court in October 2015. In response, the USACE and EPA resumed case-by-case analysis of waters of the U.S. determinations. Implementation of the Clean Water Rule was pending litigation prior to February 2017. An Executive Order (Restoring the Rule of Law, Federalism, and Economic Growth by Reviewing the "Waters of the United States" Rule) was signed on February 28, 2017, directing the USACE and EPA to review The Rule and publish for notice and comment a proposed rule rescinding or revising The Rule. The USACE and EPA



subsequently published a Notice of Intention to Review and Rescind or Revise the Clean Water Rule in the Federal Register on March 6, 2017. The definition of “navigable waters” under the CWA along with The Rule was published in the Federal Register on February 14, 2019 and the sixty day public comment period closed on April 15, 2019.

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

Section 401 of the CWA requires any applicant for a federal license or permit, which involves an activity that may result in a discharge of a pollutant into waters of the U.S., obtain a certification that the discharge will comply with applicable effluent limitations and water quality standards. CWA 401 certifications are issued by Regional Water Quality Control Boards (RWQCBs) under the California Environmental Protection Agency.

2.1.3 Executive Order 11990, Protection of Wetlands

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

2.1.4 Executive Order 13112, Invasive Species

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

2.1.5 Magnuson-Stevens Fishery Conservation and Management Act (MSA)

The Magnuson-Stevens Fishery Conservation and Management Act (MSFCMA) (16 U.S.C. 1801 et seq.) provides the federal government with the authority to manage fisheries in the U.S. Exclusive Economic Zone (EEZ) (from state waters which end three nautical miles offshore to a distance of 200 nautical miles). In addition, the Act mandates inter-agency cooperation in achieving protection, conservation, and enhancement of Essential Fish Habitat (EFH). The Act defines EFH as “Those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity. For the purpose of interpreting the definition of EFH: ‘waters’ include aquatic areas and their associated physical, chemical, and biological properties that are used by fish and may include aquatic areas



historically used by fish where appropriate; 'substrate' includes sediment, hard bottom, structures underlying the waters, and associated biological communities; 'necessary' means the habitat required to support a sustainable fishery and the managed species' contribution to a healthy ecosystem; and "spawning, breeding, feeding, or growth to maturity" covers a species' full life cycle" (50 CFR 600.10).

EFH guidelines also address Habitat Areas of Particular Concern (HAPCs) that should be evaluated within EFH. HAPCs may include both designated areas and designated habitat types. HAPCs are designated by the Fishery Management Council based on:

- "The importance of the ecological function provided by the habitat;
- The extent to which the habitat is sensitive to human-induced environmental degradation;
- Whether, and to what extent, development activities are or will be stressing the habitat type; and
- The rarity of the habitat type"(Pacific Fishery Management Council 2016).

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

2.1.6 Sustainable Fisheries Act of 1996

The Sustainable Fisheries Act (SFA) (Public Law 104-107) serves as an amendment to the MSFCMA to "authorize appropriations, to provide for sustainable fisheries, and for other purposes." The SFA includes requirements for describing EFH in Fishery Management Plans (FMP) and also mandates the protection EFH. According to the SFA, "[o]ne of the greatest long-term threats to the viability of commercial and recreational fisheries is the continuing loss of marine, estuarine, and other aquatic habitats. Habitat considerations should receive increased attention for the conservation and management of fishery resources of the United States." This act also mandates the delineation of EFH for all managed species.

2.1.7 Migratory Bird Treaty Act (MBTA)

The MBTA of 1918 (16 USC 703-711) as amended established federal responsibilities for the protection of nearly all species of birds, their eggs, and nests. A migratory bird is defined as any species or family of birds that live, reproduce, or migrate within or across international borders at



some point during their annual life cycle. The MBTA prohibits the take, possession, buying, selling, purchasing, or bartering of any migratory bird listed in 50 CFR Part 10, including feathers or other parts, nests, eggs, or products, except as allowed by implementing regulations (50 CFR 21). Only exotic species such as Rock Pigeons (*Columba livia*), House Sparrows (*Passer domesticus*), and European Starlings (*Sturnus vulgaris*) are exempt from protection.

In 2001, President Clinton defined “take” in Executive Order 13186 to include both “intentional” and “unintentional.” However, in 2017, the Department of the Interior’s (DOI) Office of Solicitor argued via Opinion M-37050 that incidental take was not prohibited under the Migratory Bird Treaty Act. Opinion M-37050 is currently the subject of a lawsuit between eight U.S. states and the U.S. DOI.

2.1.8 Bald and Golden Eagle Protection Act (BGEPA)

The Bald Eagle Protection Act was originally enacted in 1940 in order to protect the national emblem of the United States, the Bald Eagle. At this time, the Bald Eagle was experiencing significant population pressures from hunting, egg collection, and habitat loss (Buehler 2000). This act was expanded upon in 1962 to include protections for the Golden Eagle (*Aquila chrysaetos*). Similarly, the Golden Eagle was also experiencing precipitous population declines due to habitat loss, hunting, and electrocution from power lines (Kochert et al. 2002).

The current federal statute as amended (16 U.S.C. 668-668d) includes criminal penalties for anyone, including individuals, associations, partnerships, and corporations who “take, possess, sell, purchase, barter, offer to sell, purchase or barter, transport, export or import, at any time or in any manner any bald eagle commonly known as the American eagle or any golden eagle, alive or dead, or any part, nest, or egg thereof” without a permit (16 U.S.C. § 668a).

In the case of development projects, a permit may be required if the project activity is near an active or inactive eagle nest, roosting site, or foraging site. This is particularly true if the project is near breeding habitat (as opposed to wintering habitat or migratory stop-over sites). The act applies to all activities that may impact eagles, including projects without a federal nexus. If there is a possibility that the project could “non-purposefully take” eagles (unavoidable take associated with, but not the purpose of an activity) the USFWS may issue a programmatic take permit. In this case, the permit is subject to conditions or mitigation measures to minimize impacts. Post-construction monitoring and annual reports may also be required (50 CFR 22.26).

2.2 State Jurisdiction

2.2.1 California Environmental Quality Act (CEQA)

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



2.2.2 Porter-Cologne Water Quality Act

The Porter-Cologne Act provides for statewide coordination of water quality regulations by establishing the California State Water Resources Control Board. The State Board is the statewide authority that oversees nine separate RWQCBs that collectively oversee water quality at regional and local levels. California RWQCBs issue CWA Section 401 Water Quality Certifications for possible pollutant discharges into waters of the U.S. or state. On April 2, 2019 the California State Water Resources Control Board adopted new definitions and procedures for discharges of dredged or fill material to Waters of the State.

2.2.3 California Endangered Species Act (CESA)

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

Species of special concern are broadly defined as species that are of concern to the CDFW, because of population declines, restricted distributions, and/or they are associated with habitats that are declining in California. Impacts to special status plants and animals may be considered significant under CEQA.

2.2.4 California Fish and Game Code (FGC)

Lake and Streambed Alteration Agreement

Streams, lakes, and riparian vegetation as habitat for fish and other wildlife species, are subject to jurisdiction by the CDFW under Sections 1600-1616 of the CFGC. Activity that will do one or more of the following, generally require a Section 1602 Lake and Streambed Alteration Agreement: 1) substantially obstruct or divert the natural flow of a river, stream, or lake; 2) substantially change or use any material from the bed, channel, or bank of a river, stream, or lake; or 3) deposit or dispose of debris, waste, or other material containing crumbled, flaked, or ground pavement where it can pass into a river, stream, or lake. The term “stream,” which includes creeks and rivers, is defined in the CCR as follows: “a body of water that flows at least periodically or intermittently through a bed or channel having banks and supports fish or other aquatic life. This includes watercourses having a surface or subsurface flow that supports or has supported riparian vegetation” (14 CCR 1.72). In addition, the term stream can include ephemeral streams, dry washes, watercourses with subsurface flows, canals, aqueducts, irrigation ditches, and other means of water conveyance if they support aquatic life, riparian vegetation, or stream-dependent terrestrial wildlife. Riparian is defined as, “on, or pertaining to, the banks of a stream.” Therefore, riparian vegetation is defined as, “vegetation which occurs in and/or adjacent to a stream and is dependent on, and occurs because of, the stream itself.” Removal of riparian vegetation also requires a Section 1602 Lake



and Streambed Alteration Agreement from the CDFW. Areas to the outer drip line of riparian vegetation are typically within CDFW jurisdiction under section 1602.

Native Plant Protection Act

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

Birds of Prey and Native Nesting Birds

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

Fully Protected Species

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

2.2.5 Species of Special Concern

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

State Species of Special Concern include those plants and wildlife species that have not been formally listed, yet are proposed or may qualify as endangered or threatened, or are candidates for such listing under the California Endangered Species Act (CESA). This affords protection to both listed species and species proposed for listing. In addition, CDFW Species of Special Concern, which are species that face extirpation in California if current population and habitat trends continue, USFWS Birds of Conservation Concern, and CDFW special-status invertebrates are considered special-status species by CDFW.



2.2.6 Sensitive Plant Communities

CDFW provides oversight of habitats (i.e. plant communities) listed as Sensitive in the California Natural Diversity Database (CNDDDB) and on the California Sensitive Natural Communities List, based on global and state rarity rankings. The natural communities are broken down to alliance level for vegetation types affiliated with ecological sections in California. The list and alliances coincide with A Manual of California Vegetation (Sawyer et al. 2009). CDFW considers alliances and associations with a S1 to S3 rank to be Sensitive (CDFW 2019a). The application of ranking for determination of Sensitive Communities is summarized as follows in Table 1 (NatureServe 2019).

Table 3.1 NatureServe Conservation Status Ranks

Name	Calculated Status Rank	Status Description
Score \leq 1.5	G1, N1, S1	Critically Imperiled
$1.5 \leq$ Score \leq 2.5	G2, N2, S2	Imperiled
$2.5 \leq$ Score \leq 3.5	G3, N3, S3	Vulnerable
$3.5 \leq$ Score \leq 4.5	G4, N4, S4	Apparently Secure
Score $>$ 4.5	G5, N5, S5	Secure

2.2.7 California Coastal Act

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

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

The project is located within the Coastal Zone, predominantly within the state's jurisdiction. All new development proposed on tide and submerged lands, and other public trust lands must receive a permit from the Commission (PRC 30519(b), and 30416(d)).

The Coastal Act defines an "environmentally sensitive habitat area" (ESHA) as an "area in which plant or animal life or their habitats are either rare or especially valuable because of their special nature or role in an ecosystem and which could be easily disturbed or degraded by human activities and developments" (Section 30107.5). Three important elements define an ESHA:

- 1) A geographic area can be designated ESHA because of the presence of individual species of plants or animals or because of the presence of a particular habitat;



- 2) In order for an area to be designated as ESHA, the species or habitat must be either rare or it must be especially valuable; and
- 3) The area must be easily disturbed or degraded by human activities.

Coastal Act Section 30240 states in part that:

- a) ESHA shall be protected against significant disruption of habitat values, and only uses dependent on such resources shall be allowed within such areas.
- b) Development in areas adjacent to ESHA and parks and recreation areas shall be sited and designed to prevent impacts which would significantly degrade those areas, and shall be compatible with the continuance of those habitat and recreation areas.

While there is not a specific list of habitats considered to be ESHA for the state or county, the Commission through the Coastal Act and counties or municipalities through the Local Coastal Program (LCP) are the jurisdictional agencies that exert authority in identifying and protecting ESHA in the course of project activities. In order for the Commission to determine if areas are to be classified as ESHA's, they often refer to CDFW's list of statewide natural communities, *Hierarchical List of Natural Communities*. CDFW does not use the term ESHA, but it has been inferred that CDFW terminology of "sensitive habitat" might be somewhat synonymous to Commission ESHA terminology. The Commission relies on this list to determine if habitats are considered a sensitive plant community and thus potentially ESHA. The global and state rarity ranking can be used to identify areas that may be considered ESHA and subject to protection by the Commission.

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

2.3 Local Jurisdiction

2.3.1 Humboldt County Grading Permit

The project is anticipated to include earthwork and grading of over 50 cubic yards of earthen material, therefore a grading permit from Humboldt County will be required. The City will work with Humboldt County to provide the necessary information to receive a grading permit, including cut and fill areas, and an erosion control plan.

2.3.2 Humboldt County Conditional Use Permit

The project will be reviewed for proposed uses, in order to determine if the uses have the potential to adversely affect other land uses, air or water quality, transportation systems, or public services or facilities. The project will need to comply with Humboldt County zoning designations assigned to the parcels included in the project area. A conditional use permit (CUP) will be required.



2.3.3 Humboldt County Local Coastal Program

The western portion of the project area is within and regulated by the Eel River Area Plan (ERAP) of the Humboldt County Local Coastal Program (LCP), of which Humboldt County has the primary permitting authority. Because the project area includes both state and local jurisdiction within the Coastal Zone, the project will pursue a consolidated Coastal Development Permit application from the California Coastal Commission.

3. Environmental Setting

3.1 Baseline Conditions

3.1.1 General Information

The western portion of the project is located within the riparian corridor of the Eel River in coastal Humboldt County, California; however riparian habitat within the proposed effluent disposal area has been highly impacted and largely deforested except as noted in the results below. The climate is characterized by high rainfall and summer fog supporting mesic north coast coniferous forest which is northeast of the project area, outside of the developed footprint of Fortuna. Historically, the lands west of the Eel River in the vicinity of the project were a part of the Eel River estuary and consisted of wetlands, meandering stream channels and interconnected floodplain. Currently, the lands west of the proposed facility are utilized for agricultural productivity. Lands immediately surrounding the proposed effluent disposal site are riparian forest, and agricultural pasture, and lands surrounding the WWTP are commercially developed with patches of riparian forest (adjacent to the Eel River).

The eastern portion of the project includes the WWTP, east of Eel River and west of Highway 101. Rohner Creek borders the property to the west, where it confluences with Strongs Creek in the southwestern part of the property. Strongs Creek then borders the site to the south and west with remnant, fragmented riparian habitat occurring in the northern portion of the facility.

3.1.2 Habitat Elements

The project includes various habitats elements at four distinct locations. At the Fortuna WWTP, potential project areas are limited to two sites (potential pipe outlet locations, only one of which will ultimately be developed): an existing, developed wastewater equilization pond (surrounded by patches of Himalayan blackberry (*Rubus armeniacus*)), and an area of black cottonwood (*Populus trichocarpa*) forest to the north of the percolation ponds. Both pipe outlet locations likely provide seasonal habitat for nesting birds and dispersal (and possibly breeding) habitat for frogs. Areas around the percolation pond include other retention ponds and developed (concrete) areas. The black cottonwood forest habitat is adjacent to gravel access roads, developed areas at the WWTP, and the Eel River (approximately 300 feet or greater from the river at the closer point).

Habitat on the west side of the river at effluent disposal site includes extensive black cottonwood forest, arroyo willow (*Salix lasiolepis*), and coyote bush (*Baccharis pilularis*). The west side of the parcel is dominated by coyote bush and poison oak (*Toxicodendron diversilobum*). The northeast



side of the parcel contains some intact black cottonwood forest. This area is heavily impacted by ATV/off-roading trails (and evidence of target shooting was observed during the November site visit). Habitat along the edges of the parcel (cottonwood/willow forest) is intact and provides suitable nesting and wintering habitat for numerous wildlife species.

The mid-point contingency pipe outlet/outlet location on the Eel River floodplain is approximately 100 feet from the Eel River channel. Primary habitat elements include gravel bar (although vegetated) and scrub vegetation (coyote brush, willow and a cottonwood). The western project area is along the edge of pastureland/riparian forest off Renner Lane in Ferndale. The edge habitat may support common wildlife species and serve as a movement corridor for small mesocarnivores.

3.1.3 Hydrology and Water Quality

The project sites are located adjacent to the Eel River, which is designated as a Wild and Scenic River. The Eel River provides habitat for numerous special status fish species across multiple life stages. Water quality conditions vary seasonally in response to winter rains, seasonal flooding, summer drought conditions, and agricultural run-off into the river. Blue green algae is common during the late summer along the mainstem. It is the third largest watershed entirely in California and drains approximately 3,684 square miles. The project is located in the lower portion of the watershed, approximately 9.25 miles upstream from the Pacific Ocean. On the west side of the river, the majority of the project sites fall within the regulatory floodway off the Eel River (FEMA 2016).

3.1.4 Topography and Soils

Topography within the project area includes flat ground or gentle slopes characteristic of floodplains. Soils within the proposed project areas are primarily classified as Water and Fluvents, 0 to 2 percent slopes, which is reflective of the historical movement of the Eel River in the area. The soil classifications were taken from the most current USDA Natural Resources Conservation Service Web Soil Survey for Humboldt County.

4. Methods

4.1 Preliminary Investigations

4.1.1 Database Searches (IPaC, CNDDDB, CNPS)

Prior to field surveys, a database search of the CNDDDB (CDFW 2019b), USFWS IPaC (Information for Planning and Conservation), NOAA Fisheries West Coast Region California Species List Tools, and CNPS (California Native Plant Society) *Inventory of Rare and Endangered Vascular Plants* was conducted by GHD on October 24, 2019. The CNDDDB database and CNPS Inventory were queried for all CRPR List species including CRPR 3 and 4 plant species, for informational purposes while conducting field surveys. Only CRPR 3 and 4 plant species with potential to occur in the project area are not presented on the database table included in Appendix A. In addition, citizen science databases such as eBird and iNaturalist were reviewed for additional local wildlife information. The search encompassed nine USGS quadrangles (quads) centered on the project area quad (Fortuna)



and the surrounding eight quads (Cannibal Island, Fields Landing, McWhinney Creek, Ferndale, Fortuna, Hydesville, Capetown, Taylor Peak, and Scotia).

Based on these database results, habitat assessments made during vegetation community mapping, results from the avian survey, and professional expertise regarding the habitat and conditions surrounding the project area, a scoping table was compiled (Appendix A). Results summarize special status state or federal plant and wildlife species that could be present in the project area as well as special status plant communities. The table also presents information such as the likelihood of each species or community to occur in the project area. Figure 3 in Appendix B shows all special status species tracked by CNDDB that are known to occur within a five mile radius of the project area.

4.1.2 National Wetlands Inventory

A search of the NWI was conducted on October 25, 2019 for the immediate project vicinity. Appendix B, Figure 4 shows the National Wetlands Inventory Map for the project location. The proposed facility will be located in an area which predominantly contains Freshwater Emergent Wetland (PEM1C), and to a lesser degree contains Freshwater Emergent Wetland (PEM1B) and Freshwater Forested/Shrub Wetland (PFO1A). An overflow channel appears north of the northern boundary of the proposed facility which is classified as Riverine habitat (R3USC). It should be noted that NWI mapping is often very coarse, and may not reflect actual on-the-ground conditions or wetland extent. The proposed access road would originate in an area of non-wetland habitat along Pleasant Point Road and traverse east through potential wetland habitat to the proposed facility. A field-based wetland delineation is planned to determine the presence of wetlands mapped on NWI, as well as observations made during the vegetation community mapping.

4.1.3 Methods – Sensitive Natural Communities and Environmentally Sensitive Habitat Area Survey

Mapping of vegetation communities within the project area occurred on November 6 and November 12, 2019. After vegetation community mapping field work occurred, an alternate access route was added to the project area by the City of Fortuna. The alternate access route is shown in Figure 2. This additional area has not been surveyed for sensitive vegetation communities and should be surveyed prior to project work, in order to understand potential project impacts.

Per Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities by the California Natural Resource Agency (CDFW 2018), sensitive vegetation communities were mapped following the technical approach and classification system described in *A Manual of California Vegetation* (Sawyer et al. 2009) and documented using the Combined Vegetation Rapid Assessment and Relevé Field Form (CDFW 2018). Vegetation communities were identified to the alliance level. Following the approach used in the *Manual of California Vegetation*, a plant species dominance or importance in the stratum (tree, shrub/subshrub, or non-woody herbaceous stratum) with the greatest amount of cover, typically determines the alliance level classification.

Vegetation mapping was performed by walking the project area and assessing vegetation cover to identify and delineate vegetation alliances per the *Manual of California Vegetation* (Sawyer et al.



2009). The Combined Vegetation Rapid Assessment and Relevè Field Form (CDFW 2018) was used to document vegetation in representative stands. Field data was collected on an iPad connected to a Global Navigation Satellite System (GNSS) receiver. The boundaries of vegetation communities were also drawn onto field maps with aerial imagery. Boundaries of vegetation communities were digitized by GHD into ArcGIS. The natural communities identified within the project area were checked against CDFW's most up to date California Natural Communities List dated November 8, 2019 (CDFW 2019a).

4.1.4 Methods – Wildlife Survey

A reconnaissance-level survey was conducted to assess the potential for special status terrestrial wildlife and habitat at the project site. The wildlife species evaluations were not protocol level and were intended to document known sensitive species presence and identify additional potential species and habitat that could be present at the project site during project implementation as described in GHD's scope of work. The results of these field efforts will provide a basis to avoid, minimize, and/or mitigate potential impacts associated with project activities, guide future management goals and decisions, and inform the necessary environmental documents needed for this project. The results will also provide input for environmental review and permit applications. In some cases, additional pre-construction surveys may be recommended prior to ground disturbance. Emphasis of the non-protocol site surveys was on amphibians, reptiles, and birds, with a lesser focus on mammals.

The survey was conducted by Genevieve Rozhon (GHD Wildlife Biologist) on November 6, 2019. The surveyor had previously surveyed the parcel and adjacent properties in the spring/summer of 2015 and 2017 and was very familiar with wildlife species likely to occur at the project site. The survey area included the project area and accessible areas within 500 feet of the project's disturbance area. To the degree feasible, inaccessible areas within 500 feet of the project's disturbance area were surveyed with binoculars. Weather on the survey day was partly cloudy, without any precipitation, high winds, or other conditions that could negatively impact bird or other wildlife activities. The wildlife survey occurred prior to the scheduled start of work.

The survey methods were intended to identify confirmed or probable wildlife activity. Where the habitat allowed the surveyor to walk wildlife habitat and surrounding vegetation, the survey included a physical search of the area. This included inspecting the ground, shrubs, and trees for the presence of nest/den structures (existing nests from the previous breeding season and possible wildlife nest/den cavities). Additionally, the bark of vegetation and the ground layer under vegetation were inspected for evidence of wildlife species, such as feathers, pellets, scat, or whitewash. Where the habitat was dense or otherwise impenetrable/inaccessible, observations were made from fixed locations. The foliage was viewed with binoculars and behavioral observations of adult birds were made to infer the locations of nests. A list of all wildlife species heard or observed on site was completed after the survey (provided in Section 6).



5. Results

5.1 Sensitive Natural Communities/ Environmentally Sensitive Habitat Area Mapping Results

Mapping of sensitive natural communities occurred on November 6 and November 12, 2019. All components of the project were visited and surveyed for vegetation communities (Figure 5). One sensitive natural community was identified within the project area. Black cottonwood (*Populus trichocarpa*) forest occurs within the proposed effluent disposal area, and this community type borders the proposed effluent disposal area on the south and east sides (Figure 6). The riparian vegetation occurring within the proposed project location for the directional drilling outlet on the east side of the Eel River, at the existing Wastewater Treatment Plant property, was also identified and mapped as black cottonwood forest (Figure 7). Black cottonwood forest alliance has a state ranking of S3 and is considered Sensitive by CDFW (CDFW 2019a).

As the black cottonwood forest alliance is considered Sensitive by CDFW, it is assumed that the areas mapped as black cottonwood forest alliance would be considered Environmentally Sensitive Habitat Areas (ESHA) under the Local Coastal Plan and the Coastal Act. No wetland delineation has been performed at the site to date, thus potential wetland extent remains unknown. As some of the project area falls under jurisdiction of the California Coastal Commission, a wetland delineation of this project would include the identification and mapping of both one and three parameter wetlands.

The vegetation mapped as black cottonwood forest alliance is riparian vegetation which would also be regulated by the California Department of Fish and Wildlife through the Lake and Streambed Alteration permit process (California Department of Fish and Game Code Section 1602). The CDFW Vegetation Rapid Assessment Field Forms were used to document this vegetation community. One Rapid Assessment was performed within the proposed area of the Option B drilling outlet at the existing Wastewater Treatment Plant property. Two Rapid Assessments (labeled Rapid Assessment 2 and 3) were performed within the proposed effluent disposal area. The location of the plots at the effluent disposal area are shown on Figure 6, and Rapid Assessment field forms are included in Appendix D.

The black cottonwood forest alliance is defined by The California Manual of Vegetation as having black cottonwood as the dominant or co-dominant species in the tree canopy. Membership rules for this alliance follow: "Black cottonwood conspicuous with > 5% absolute cover and > 30% relative cover in the tree canopy" (Sawyer et al. 2009). Within the areas mapped as black cottonwood forest, black cottonwood was the dominant overstory tree species occurring with red alder (*Alnus rubra*) and arroyo willow (*Salix lasiolepis*). The shrub stratum was typically dense. Dominant shrub species varied by location. At the proposed Option B outlet location on the east side of the Eel River, thimbleberry (*Rubus parviflorus*) and California blackberry (*Rubus ursinus*) were the dominant shrub species. At the proposed effluent disposal area, poison oak (*Toxicodendron diversilobum*) and coyote brush (*Baccharis pilularis*) were the most abundant shrub species.

The areas shown on Figure 6 mapped as "Black cottonwood forest alliance" contained a few large individual grand fir (*Abies grandis*) trees near the northeastern boundary of the unit, and a large



Sitka spruce (*Picea sitchensis*) near the location marked on Figure 6 for Rapid Assessment #2. One large Douglas-fir (*Pseudotsuga menziesii* var. *menziesii*) tree occurred within the area shown on Figure 6 mapped as "Black cottonwood forest alliance-intermittent." These individual trees are included in the vegetation alliance mapped as black cottonwood forest.

The California Manual of Vegetation defines forests and woodland alliances as having "Trees evenly distributed and conspicuous throughout the stand. In areas where vegetation cover is greater than about 20 percent, tree canopy may be as low as 10 percent over denser layers of shrubs and herbaceous species." In the portion of the effluent disposal area mapped as "black cottonwood forest alliance – intermittent", tree canopy is less continuous than in the area mapped as "black cottonwood forest alliance." In the area mapped as "black cottonwood forest alliance – intermittent" tree canopy is greater than approximately 10%, which classifies this area as black cottonwood forest alliance. In this area, cottonwoods and arroyo willow occur in a lower density among patches of poison oak and coyote brush. Throughout the proposed effluent disposal area, the herbaceous layer is dense and consists primarily of non-native grasses with some forb species.

The majority of the effluent disposal site is mapped as "mixed coyote brush scrub alliance/poison oak scrub." A Rapid Assessment plot was performed in the northwestern section of the disposal site (Figure 6), where coyote brush is the dominant species. Coyote brush scrub is a S5 community and is not considered Sensitive by CDFW and not considered ESHA. Coyote brush is especially prevalent on the north side of the proposed effluent disposal area. Other portions of the effluent disposal site (particularly towards the south) might key to the poison oak scrub alliance, a community with state rank of S4. As neither of these communities are considered Sensitive by CDFW and are not considered ESHA, their boundaries were not delineated and they were mapped together on Figure 6. Within the area mapped as "mixed coyote brush scrub alliance/poison oak scrub," there are a few scattered willow (*Salix* spp.) patches and a few scattered individual black cottonwood trees. Individual occurrences do not constitute a community, so these individuals were not mapped separately but are included in the "mixed coyote brush scrub alliance/poison oak scrub" community.

The effluent disposal area is within the historic floodplain of the Eel River. Based on observations of patchy wetland vegetation made during site visits, as well as a review of the National Wetland Inventory mapping, it is probable the site contains some wetlands. GHD certified professional wetland scientist Misha Schwarz has estimated that approximately 5-15% of the site may contain wetlands. Arroyo willow and black cottonwood have wetland indicator status of FACW and FAC respectively, and this vegetation would be included in the mapping of wetlands during a wetland delineation using a one parameter approach. The effluent disposal area has been substantially disturbed by recreational off-road vehicle use, and roads traverse much of the project area. Herbaceous wetland vegetation was observed on the site within tire ruts.

The directional drilling outlet on the west side (Option A) of the Eel River is shown on Figure 8. A few willows and one multi-stemmed cottonwood occur within the proposed area for the outlet. The vegetation alliance for this location keys to the coyote brush scrub alliance however. The coyote brush scrub alliance is not considered Sensitive. The individual willows and the multi-stemmed cottonwood will likely be mapped as one-parameter wetland during the wetland delineation.



Additional vegetation that may be impacted by this project includes pastureland that is adjacent to the riparian forest along both the access route from Renner Lane to the effluent disposal area, and also along the potential staging area for the pipe (the east-west) study boundary that is north of Renner Lane (Figure 5). As no impacts to the riparian forest are anticipated, alliance level mapping was not performed for these riparian communities. However, black cottonwood was observed in the overstory canopy of the adjacent riparian forest adjacent to both the access route and also adjacent to the potential staging area for the pipe and it is likely this forest would also fit the black cottonwood forest alliance.

An equalization pond, located at the existing Wastewater Treatment Plant may be utilized as a drilling outlet (Figure 5). No vegetation alliance was mapped for this in-use percolation pond, which is surrounded by patches of Himalayan blackberry and appeared to be composed primarily of non-native vegetation. The staging and stockpiling locations on either side of the percolation pond were added to the design after the survey of the percolation pond; however, as noted in the field, these areas are already developed and maintained and will not result in habitat impacts.

5.2 Wildlife Survey Results

The majority of wildlife species observed during the reconnaissance-level survey were common species with no special status/protection. A total of forty-six avian species were observed in or flying over the project area (Table 6.1). Other incidental wildlife sightings that occurred during the survey are also provided in Table 6.2.

5.2.1 Pipe Outlets at WWTP

5.2.1.1 Equalization Pond (Option A, Appendix B, Figure 2)

The equalization pond (Appendix C, Photograph 1) was dry during the November 19th survey and overgrown with vegetation. Habitat features such as (*Rubus armeniacus*) are present in the equalization pond. Based on previous site visits during the breeding season, the pond likely provides breeding and foraging habitat for several common wildlife species such as Marsh Wrens (*Cistothorus palustris*), Song Sparrows (*Melospiza melodia*), and Pacific Chorus Frogs (*Pseudacris sp.*) (do not have any special federal or state regulatory status). The special-status Northern Red-legged Frog (*Rana aurora*) is known to occur onsite and may use the equalization pond during various life stages.

5.2.1.2 Vegetated Area to the North of Percolation Pond (Directional Drilling Outlet) (Option B, Appendix A, Figure 2)

Wildlife habitat at this location (Appendix A, Photograph 2) is comprised of black cottonwood (*Populus trichocarpa*) forest. Several tree cavities (woodpecker holes) were observed during the survey and, based on previous site visits, Tree Swallows (*Tachycineta bicolor*), Violet-green Swallows (*Tachycineta thalassina*), chickadees, and woodpeckers are known to use these resources and nest onsite. Black-capped Chickadees (*Poecile atricapillus*), a California Watch List species were observed on site during the November 19th survey and previously during spring/summer site visits. This species is likely to nest onsite.



5.2.2 Contingency Pipe Outlet/Outlet at Eel River Gravel Bar (Mid Point, Appendix A, Figure 2)

This parcel (vegetated gravel bank adjacent to the river) is dominated by coyote bush (*Baccharis pilularis*) (Appendix A, Photos 5). The site is close enough to the Eel River that special-status frogs such as the state candidate Foothill-Yellow Legged Frog (*Rana boylei*) could be seasonally present (most likely as dispersers). This species is known to breed in large numbers along the Eel River and suitable gravel bar habitat exists directly adjacent to this location. Western Snowy Plovers (*Charadrius nivosus nivosus*) also have been known to breed on Eel River gravel bars, although nesting attempts have not been documented in several years (since 2011) (Feucht et al. 2018).

5.2.3 Proposed Effluent Disposal Area (Infiltration Area, Appendix A, Figure 2)

Black cottonwood forest, arroyo willow (*Salix lasiolepis*), and coyote bush provide considerable nesting and foraging substrate for birds at this location (Appendix A, Photos 3 and 4). Wintering sparrows and warblers were observed foraging and roosting in these vegetation types. In addition, several mature conifers are present and the surveyor observed over five species of raptors (White-tailed Kite, Red-shouldered Hawk, Red-tailed Hawk, Cooper's Hawk, and Sharp-shinned Hawk) perching within them. The site appeared to be a popular foraging location for wintering raptors.

The presence of riparian forest could also provide nesting habitat for species such as the state endangered Little Willow Flycatcher (*Empidonax traillii brewsteri*). Based on habitat composition, bats (including special status species) are also likely to use this site as foraging and potentially roosting habitat. In terms of mammals, Black-tailed Deer (*Odocoileus hemionus columbianus*), brush rabbits (*Sylvilagus bachmani*), and a Coyote (*Canis latrans*) were also observed at this location.

5.2.4 Pipe Staging Location (On Pasture Edge)

The horizontal directional drill pipe is expected to be placed along the edge of a pasture/riparian forest interface on Renner Road. Both the pasture and riparian forest may provide nesting habitat for common avian species such as Killdeer (*Charadrius vociferus*) and Wrentits (*Chamaea fasciata*).

Table 6.1 Avian Species Observed Within the Project Area

AOU Code	Common Name	Scientific Name	Special Status
WTKI	White-tailed Kite	<i>Elanus leucurus</i>	CDFW FP
STJA	Steller's Jay	<i>Cyanocitta stelleri</i>	MBTA Protected
RTHA	Red-tailed Hawk	<i>Buteo jamaicensis</i>	MBTA Protected
COHA	Cooper's Hawk	<i>Accipiter cooperii</i>	CDFW WL (nesting)
RCKI	Ruby-crowned Kinglet	<i>Regulus calendula</i>	MBTA Protected
AUWA	Audubon's Warbler	<i>Setophaga coronata</i>	MBTA Protected
PEFA	Peregrine Falcon	<i>Falco peregrinus</i>	CDFW FP, USFWS BCC
MALL	Mallard	<i>Anas platyrhynchos</i>	MBTA Protected
GRYE	Greater Yellowlegs	<i>Tringa melanoleuca</i>	MBTA Protected
BLPH	Black Phoebe	<i>Sayornis nigricans</i>	MBTA Protected
WCSP	White-crowned Sparrow	<i>Zonotrichia leucophrys</i>	MBTA Protected



Table 6.1 Avian Species Observed Within the Project Area

AOU Code	Common Name	Scientific Name	Special Status
SOSP	Song Sparrow	<i>Melospiza melodia</i>	MBTA Protected
GCSP	Golden-crowned Sparrow	<i>Zonotrichia atricapilla</i>	MBTA Protected
BCCH	Black-capped Chickadee	<i>Poecile atricapillus</i>	CDFW WL
CBCH	Chestnut-backed Chickadee	<i>Poecile rufescens</i>	MBTA Protected
BUSH	Bushtit	<i>Psaltiriparus minimus</i>	MBTA Protected
NOHA	Northern Harrier	<i>Circus hudsonius</i>	MBTA Protected
MAKE	American Kestrel	<i>Falco sparverius</i>	MBTA Protected
MERL	Merlin	<i>Falco columbarius</i>	CDFW WL
SPTO	Spotted Towhee	<i>Pipilo maculatus</i>	MBTA Protected
GREG	Great Egret	<i>Ardea alba</i>	MBTA Protected
SSHA	Sharp-shinned Hawk	<i>Accipiter striatus</i>	CDFW WL (nesting)
KILL	Killdeer	<i>Charadrius vociferus</i>	MBTA Protected
CEDW	Cedar Waxwing	<i>Bombycilla cedrorum</i>	MBTA Protected
HOSP	House Sparrow	<i>Passer domesticus</i>	Non-native, None
AMCR	American Crow	<i>Corvus brachyrhynchos</i>	MBTA Protected
NOFL	Northern Flicker	<i>Colaptes auratus</i>	MBTA Protected
CORA	Common Raven	<i>Corvus corax</i>	MBTA Protected
EUST	European Starling	<i>Sturnus vulgaris</i>	Non-native, None
WREN	Wrentit	<i>Chamaea fasciata</i>	MBTA Protected
BEKI	Belted Kingfisher	<i>Megaceryle alcyon</i>	MBTA Protected
TUVU	Turkey Vulture	<i>Cathartes aura</i>	MBTA Protected
DCCO	Double-crested Cormorant	<i>Phalacrocorax auritus</i>	CDFW WL
RSHA	Red-shouldered Hawk	<i>Buteo lineatus</i>	MBTA Protected
ANHU	Anna's Hummingbird	<i>Calypte anna</i>	MBTA Protected
CAQU	California Quail	<i>Callipepla californica</i>	MBTA Protected
RBSA	Red-breasted Sapsucker	<i>Sphyrapicus ruber</i>	CDFW Special Animals List
AMRO	American Robin	<i>Turdus migratorius</i>	MBTA Protected
DEJU	Dark-eyed Junco	<i>Junco hyemalis</i>	MBTA Protected
HOFI	House Finch	<i>Haemorhous mexicanus</i>	MBTA Protected
EUCD	Eurasian Collared-Dove	<i>Streptopelia decaocto</i>	Non-native, None
GBHE	Great Blue Heron	<i>Ardea herodias</i>	MBTA Protected
FOSP	Fox Sparrow	<i>Passerella iliaca</i>	MBTA Protected
NSHO	Northern Shoveler	<i>Spatula clypeata</i>	MBTA Protected
HOWR	Marsh Wren	<i>Cistothorus palustris</i>	MBTA Protected
AMWI	American Wigeon	<i>Mareca americana</i>	MBTA Protected

MBTA Protected: Protected under the federal Migratory Bird Treaty Act

CDFW Special Animals List: "Special Animals" is a broad term used to refer to all the animal taxa tracked by the Department of Fish and Wildlife's California Natural Diversity Database (CNDDDB), regardless of their legal or protection status.

CDFW FP (California Department of Fish and Wildlife Fully Protected): This classification was the State of California's initial effort to identify and provide additional protection to those animals that were rare or faced possible extinction. Lists were created for fish, amphibians and reptiles, birds and mammals. Most of the species on these lists have subsequently been listed under the state and/or federal endangered species acts.

**Table 6.1 Avian Species Observed Within the Project Area**

AOU Code	Common Name	Scientific Name	Special Status
<p>CDFW WL (California Department of Fish and Wildlife Watch List): The CDFW maintains a list consisting of taxa that were previously designated as "Species of Special Concern" but no longer merit that status, or which do not yet meet SSC criteria, but for which there is concern and a need for additional information to clarify status.</p> <p>USFWS BCC (U.S. Fish and Wildlife Service Birds of Conservation Concern): The goal of the Birds of Conservation Concern 2008 report is to accurately identify the migratory and non-migratory bird species (beyond those already designated as Federally Threatened or Endangered) that represent our highest conservation priorities and draw attention to species in need of conservation action. This report is available at: http://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php.</p>			

Table 6.2 Other Wildlife Species Observed Within the Project Area

Common Name	Latin Name	Special Status
Pacific Chorus Frog	<i>Pseudacris sp.</i>	None
Brush Rabbit	<i>Sylvilagus bachmani</i>	None
Columbian Black-tailed Deer	<i>Odocoileus hemionus columbianus</i>	None
Coyote	<i>Canis latrans</i>	None

5.3 Summary of Sensitive Biological Resources

5.3.1 Plants

One sensitive natural community was identified within the project area. Black cottonwood (*Populus trichocarpa*) forest occurs within the proposed effluent disposal area, and borders the proposed effluent disposal area on the south and east sides (Figure 6). This community type also occurs within the proposed project location for the directional drilling outlet on the east side of the Eel River. Black cottonwood forest alliance has a state rank of S3 and is considered Sensitive by CDFW (CDFW 2019a), and it is assumed that the areas mapped as black cottonwood forest alliance would be considered an Environmentally Sensitive Habitat Area.

A seasonally appropriate survey for special status plant species has not been performed within the project area. Based on an assessment of habitats present within the project area, only two California State Special Status Species are thought to have a moderate likelihood of occurring within the project area, and no special status species are thought to have a high likelihood. Species with moderate likelihood are discussed in Section 6.2.7.

5.3.2 Wildlife

The project area may serve as nesting and foraging habitat for many common avian species protected under the Migratory Bird Treaty Act. In addition, several California state special status avian, bat, amphibian species, and one reptile species have moderate to high potential to occur in or directly adjacent to the project area or have potential to disperse through the project area. Special status fish or aquatic invertebrate species have no potential to occur in the project area as there is no aquatic habitat (streams or drainage ditches) present. No protocol-level wildlife surveys



were conducted and this assessment is based on database searches, historical records, a review of the primary literature, and an on-site wildlife survey and habitat evaluation.

5.4 Listed or Candidate Species (Under ESA and/or CESA)

Based on database searches, historical records, and a review of the primary literature, there are three state listed or candidate wildlife species that have a moderate potential of occurring in the project area. These species are the Bald Eagle (CESA Endangered, *Haliaeetus leucocephalus*), Bank Swallow (CESA Threatened, *Riparia riparia*), and Foothill Yellow-legged Frog (CESA Candidate, *Rana boylei*). All species are known to occur in the project vicinity and may be present within the project area. Impacts to potential habitat for these species is anticipated to be nil with implementation of proposed mitigation measures. Several federally listed fish species including the Green Sturgeon (Southern Distinct Population Segment (DPS)), Coho Salmon (Southern Oregon/Northern California Coast Evolutionarily Significant Unit (ESU)), Steelhead (Northern California DPS), and Chinook Salmon (California Coast ESU) are known to occur in the Eel River, which is directly adjacent to the potential mid-point directional drilling outlet/outlet. Additionally, a project component includes tunneling under the river. These species could potentially be impacted by direct (frack-out during drilling, vibration during nearby construction) or indirect (sediment, water quality) project impacts.

Bald Eagle (Haliaeetus leucocephalus), California State Endangered, California Fully Protected Species, High Potential

The Bald Eagle is the second largest bird of prey in North America with a wingspan surpassed only by that of the California Condor (Palmer et al. 1988). Bald Eagles are found throughout North America, with year-round residents along both coasts and near large bodies of water such as rivers, lakes, and reservoirs. Seasonal breeding populations occur throughout most of Canada and Alaska, with these populations wintering through the U.S. and Central America. In California, Bald Eagle breeding is restricted primarily to the northern portion of the state, with a few breeding populations along the coast south of San Luis Obispo and on the Channel Islands (Buehler 2000, NatureServe 2019).

Bald Eagles nest in large trees, on cliffs, or on the ground in treeless regions adjacent to lakes, rivers, estuaries, and dams. Platform nests are constructed out of large sticks and lined with grass, moss, down feathers, and other soft vegetation. Bald Eagles are opportunistic feeders, taking fish, waterfowl, mammals, and even carrion during the winter (Buehler 2000).

Bald Eagles received significant attention during the middle of the 20th century due to precipitous population declines. These population crashes have been attributed to the sub-lethal effects of the organochlorine pesticide DDT (Weimeyer et al. 1993). Human persecution is also thought to have historically contributed to population declines through trapping, poisoning, and egg-collecting (Buehler 2000). There are numerous records of this species from the project vicinity, and foraging and nesting habitat is available along the Eel River (eBird 2019).

Bank Swallow (Riparia riparia), State Threatened, Moderate Potential

Bank Swallows breed in most of North America at low elevations in suitable habitat. Breeding ranges extend from Alaska to Texas, although most breeding occurs north of 37°. Wintering



grounds occur along the western coast of Central America. In California, Bank Swallows are found in Siskiyou, Shasta, Yolo, and Lassen Counties. Bank Swallows favor open habitat associated with water features such as coastlines, streams, rivers, lake banks, wetlands, agricultural areas, prairies, and riparian woodlands. Bank Swallows generally nest colonially along stream/river banks in burrows excavated perpendicular to the bank. These burrows are lined with grasses, straw, leaves, feathers, and other organic material. Bank Swallows capture insects on the wing but will also consume aquatic insects and larvae. (Garrison 1999). There are numerous records of this species from the immediate project vicinity, and foraging and nesting habitat is present at along the Eel River (eBird 2019).

Foothill Yellow-legged Frog (Rana boylei), California CESA Candidate, State Species of Special Concern, Moderate Potential

Foothill Yellow-legged Frogs are small (snout-vent length 3.7-7.2 centimeters (cm)) brown, gray, reddish, or olive covered frogs. Their skin is grainy rather than smooth and can be spotted or mottled (Nafis 2016). The underside of the hind legs and abdomen of adults is yellow. The species lacks defined dorsolateral folds and a dark facial mask (NatureServe 2019).

Foothill Yellow-legged Frogs occur from sea level to elevations of 2,130 meters. They range from the Willamette River in Oregon south to the Upper San Gabriel River in California, including the Coast Ranges and Sierra Nevada Foothills (Stebbins 2003, NatureServe 2019). The species prefers partially shaded, perennial streams with rocky substrate, often near riffles. These rivers and streams are typically bordered by chaparral, riparian habitat, mixed conifer forest, or wet meadows. Streams are usually small to mid-size with shallow pools and slow-moving water (CBD 2012). They are also found at river edges, in calm pools and vegetated backwaters (CBD 2012, NatureServe 2019). Rocky, cobble substrate (7.5 cm or larger) are preferred, particularly for egg laying sites (CBD 2012).

Breeding activity typically occurs from March through May with some regional variation (breeding in Northern California is reported to occur from April through June) (USFS 1997). Breeding coincides with a decrease in stream and river flows during the spring, following periods of winter storms and runoff (NatureServe 2019). Adult frogs congregate on river and stream gravel bars during this time, with oviposition occurring in stream and river margins (USFS 1997). Eggs are laid in masses (may include up to 3,000 eggs per mass) and attached to gravel or rocks (NatureServe 2019, USFS 2016, Nafis 2016). Eggs may be covered with a layer of silt, potentially to hide them from predators. Hatching time occurs in 5 to 27 days and is dependent on water temperature (Nafis 2016). Tadpoles are not known to overwinter, and larvae undergo metamorphosis during the summer to early fall (NatureServe 2019, USFS 2016). Fidelity to breeding sites has been reported in this species (USFS 2016). Tadpoles are herbivores and graze on algae and detritus stuck on the surface of rocks and vegetation (Nafis 2016). Tadpoles prefer a diet rich in diatoms to lower quality algae (USFS 2016). Adult frogs feed on terrestrial and aquatic invertebrates including ants, snails, water striders, flies, and beetles (USFS 1997).

Foothill Yellow-legged Frog populations were historically abundant in Oregon and California, but they have declined or disappeared in more southern and inland portions of their range, with notable population extirpations in southern California (CBD 2012, USFS 2016). Major threats to the species include habitat loss or degradation, introduced predators, aerial pesticide applications, disease, and



altered river and stream flow regimes (CBD 2012, NatureServe 2019). Altered stream and flow regimes, related to dam construction and management, can cause high flow releases during the spring and summer. This results in scouring, which washes away eggs and tadpoles from streams and rivers and forces adult frogs on to land, making them more vulnerable to predators (USFS 1997, NatureServe 2019, Nafis 2016). Smaller releases may result in egg stranding and desiccation (CBD 2012). In addition, controlled flows allow for the encroachment of riparian vegetation along river and stream banks, reducing gravel bar habitat for frogs (NatureServe 2019). Foothill Yellow-legged Frogs have also lost significant amounts of habitat to dam construction, intense grazing and logging practices (which causes erosion and increased sediment in stream beds), and urbanization. Climate change may also be contributing to habitat loss (USFS 1997, CBD 2012, USFS 2016). On top of this, introduced predatory fish species and bullfrogs have impacted frog populations (USFS 1997, NatureServe 2019). There is also evidence that air-borne pesticides may be negatively impacting Foothill Yellow-legged Frog populations (NatureServe 2019). Chytrid fungus has been detected in this species and is known to reduce growth in metamorphosed frogs (USFS 1997, NatureServe 2019).

Foothill Yellow-legged Frogs are known to be present in the Eel River and likely occur along the river bank not far from the project area. They are present not far upstream but have not been observed at Fernbridge, downstream of the site. This species seldom wanders more than a few meters from water especially during the dry season, and it is not expected to be present within the portions of project areawhere there is no suitable habitat (Bourque 2008). CDFW has recommended that the north coast clade not be CESA-listed with a Fish and Game Commission expected in late 2019 or early 2020; if not listed, local populations would retain SSC status.

5.5 Special Status Species (CDFW FP, CDFW SSC, CDFW Special Animals List, or CRPR Ranked)

The CDFW maintains a list of species and habitats of special concern. These are broadly defined as species that are of concern to the CDFW because of population declines and restricted distributions, and/or they are associated with habitats that are declining in California.

State Species of Special Concern include those plants and wildlife species that have not been formally listed, yet are proposed or may qualify as endangered or threatened, or are candidates for such listing under the California Endangered Species Act. This affords protection to both listed species and species proposed for listing. In addition, U.S. Fish and Wildlife Service Birds of Conservation Concern and CDFW special-status invertebrates are considered special status species by CDFW.

Special status plant species under State jurisdiction include those listed as endangered, threatened, or as candidate species by the California Department of Fish and Wildlife (CDFW) under the California Endangered Species Act (CESA). Plant species on CNPS California Rare Plant Ranking (CRPR) Lists 1A, 1B and 2A and 2B are considered eligible for state listing as endangered or threatened pursuant to the California Fish and Game Code and CDFW has oversight of these special status plant species as a trustee agency. As part of the CEQA process, such species should be considered as they meet the definition of Threatened or Endangered under Sections 2062 and 2067 of the California Fish and Game Code. There are occasions where CRPR List 3 or 4 species might



be considered of special concern particularly for the type locality of a plant, for populations at the periphery of a species range, or in areas where the taxon is especially uncommon or has sustained heavy losses, or from populations exhibiting unusual morphology. CDFW publishes and periodically updates lists of special status species which include, for the most part, the above categories. Additionally, there are 64 plant species designated as “rare” which is a special designation created before plants were rolled into CESA in the 1980s (CDFW 2019c). Also under the jurisdiction of CDFW and considered Sensitive are Natural Communities with a State (“S”) ranking of S1 through S3 on the California Sensitive Natural Communities List (CDFW 2019a).

5.5.1 Plants

No seasonally appropriate surveys for special status plants have been performed within the project area. Based on database searches, historical records, and an overview of the primary literature, only two special status species have a moderate or high potential of occurring in the project area. Wolf’s evening primrose, (*Oenothera wolfii*), has a CRPR of 1B.1 and has a moderate likelihood of occurring within the project area. Maple leaved checkerbloom (*Sidalcea malachroides*) has a CRPR of 4.2 and also has moderate likelihood of occurring within the project area. Five additional special status species are thought to have a low likelihood of occurring within the project area. A scoping table presenting these species is provided in Appendix A.

5.5.2 Wildlife

Mammals

North American Porcupine (Erethizon dorsatum), California State Special Status Species, Moderate Potential

North American Porcupines are primarily nocturnal, but can sometimes be seen during the day. They are approximately 27 inches in length with yellowish quills on the head, rump, and upper surfaces of the tail (Reid 2006). Their range extends across mainland Canada, Alaska, and the western and northeastern United States (Reid 2006). They use a wide variety of habitats, but are most common in montane conifer, Douglas fir, alpine dwarf-shrub (Sweitzer 2013). A nearby population, centered in Tolowa Dunes State Park, is especially known to concentrate in riparian areas. Porcupines are herbivores and feed on a variety of plant materials depending on the season (Appel et al. 2017, SNZ and CBI 2019). They feed on berries, seeds, grasses, leaves, roots and stems during the spring and summer (SNZ and CBI 2019). In contrast, they primarily feed on evergreen needles and tree bark. They often feed heavily on single trees which can result in the death of the tree. This attribute has resulted in historic persecution of the species by proponents of the timber industry. Their populations have been in decline across California. In northwestern California, this may be caused by the regeneration of forests to an age that no longer provides food resources (Appel et al. 2017). They have also been heavily extirpated through targeted control efforts such as poisoning and shooting (Appel et al. 2017). There are numerous occurrence records (both historical and recent) from the larger project vicinity, especially the Eel River estuary, and suitable habitat for the species is present on site (CDFW 2019).



Pallid Bat (Antrozous pallidus), CDFW SSC, Western Bat Working Group High Priority, Moderate Potential

The Pallid Bat is found throughout most of the western U.S., from sea level up to elevations of 6,700 feet. In California, the species is found throughout the state with the exception of the high Sierras. Pallid Bats are commonly associated with habitats such as grassland, scrub, woodland, mixed conifer, and redwood forest (Erickson et al. 2002). They utilize day and night roosts in a variety of habitat types including bridges, mines, barns, rock piles, rocky outcroppings, dead tree snags, live old-growth tree basal hollows, and buildings (Baker et al. 2008). In general, this species roosts in places that protect them from temperature extremes. During the day, the species uses these sites to go into a shallow state of inactivity, or torpor. Optimal day roost temperatures are around 86 degrees Fahrenheit (in terms of maintaining low metabolic rates) (Trune and Slobodchikof 1976). Day roosts may include up to 200 individuals (in some cases, roosts may include other bat species) (Hermanson and O'Shea 1983).

Foraging habitats include agricultural areas, riparian woodland, open pine forests, oak savannah, and talus slopes (Williams et al. 2006). Pallid Bats forage close to the ground surface and glean prey from the ground or off exposed vegetation. They rely primarily on passive hearing to locate prey moving on the ground (Fuzessery et al. 1993). Preferred prey items include moths, Jerusalem crickets, beetles, grasshoppers, and scorpions (Hermanson and O'Shea 1983, Erickson et al. 2002).

The species breeds in the fall and winter (October through as late as February in coastal locations). Females store the sperm over the winter and ovulation occurs the following spring. Maternity colonies are typically formed in April and may consist of up to 100 individuals (Erickson 2002). Females typically give birth to twin pups in May or June (Hermanson and O'Shea 1983). The species hibernates during the winter, but may arouse to forage and drink water (Erickson et al. 2002). As a colonial roosting species, Pallid Bats are very sensitive to roost site disturbance. This is particularly true in the case of maternity colonies.

Ground foraging bats, as opposed to the aerial "hawking" species, are typically light averse. While hawking species are drawn to lights due to the increased insects, slower, less agile, ground foragers are found to avoid these areas; perhaps because they are more vulnerable to terrestrial predators that could see them in the light (Rowse et al. 2016).

There are no records of the species from the project vicinity. It is unknown whether the species may roost on the structures in the project vicinity and would require surveys to confirm. Requisite roosting and foraging habitat could be present in the project area.

Townsend's Big-eared Bat (Corynorhinus townsendii), California State Species of Special Concern, Moderate Potential

Townsend's Big-eared Bats are medium-sized bats, distinguished from other co-occurring bat species by their large ears and a two-pronged horseshoe-shaped lump on the muzzle. The species occurs throughout the western U.S. and Canada. In California, the species is found throughout the state with the exception of the high elevations in the Sierra Nevada Mountain Range (CDFW 2016). Townsends' Big-eared Bats are typically associated with coastal Redwood forests, foothill oak woodlands, inland deserts, pinyon-juniper and pine forests, and mixed coniferous-deciduous forests



(Erickson et al. 2002, CDFW 2016). The species roosts colonially in a variety of structures including hollow trees, buildings (barns), mines, and lava tubes. Roost site fidelity is high. Maternity colonies (of females) occur between March and June (CDFW 2016). Males roost singly (Erickson et al. 2002). Females give birth to a single pup per year between May and July. The species winters in mixed sex groups in caves and lava tubes. Townsend's Big-eared Bats feed primarily on moths (Erickson et al. 2002, CDFW 2016).

There are no records of the species from the immediate project vicinity. The closest known record is from 2014 at Lanphere Dunes (CBI 2019). It is unknown whether the species may roost on the structures in the project vicinity and would require surveys to confirm. Foraging habitat for the species could be present in the project area. The species may forage in the project vicinity if outside residential or industrial lights attract suitable prey (moths).

Hoary Bat (Lasiurus cinereus), Western Bat Working Group Medium Priority, Moderate Potential

The Hoary Bat is a relatively large bat, brown to rufous with a white "frosting" on the tips of fur (SBDWG 2004). They are found throughout North, Central and South America but not usually in great densities (SBDWG 2004, NatureServe 2019). The species is found throughout California with the exception of xeric desert habitats in the southeast. The species breeds in inland forest habitat and winters along the coast and in the southern portion of the state. The species engages in seasonal movements which results in sexual segregation during the warmer months (males are found in greater numbers in western portions of the state while the females are more common in the northeast) Hoary Bats migrate between the summer and winter ranges from September through November. Mating occurs during migration or on the wintering grounds. Females give birth to one to four pups in May through July of the following year (Harris et al. 2008a).

Preferred habitat includes a mosaic of forested habitat for roosting and open/edge habitat for foraging. Hoary Bats are insectivorous and feed primarily on moths (usually over water or over the forest canopy). The species roosts solitarily in dense tree foliage typically near water (species requires water for drinking) (SBDWG 2004, Harris et al. 2008a). Threats to the species include deforestation, wind energy developments (common source of mortality for the species), and reduced prey from over application of pesticides (NatureServe 2019).

There are no records of the species from the immediate project vicinity. The closest known record is from 2014 in Bayside (CBI 2019). It is unknown whether the species may roost on the structures in the project vicinity and would require surveys to confirm. Requisite roosting and foraging habitat could be present in the project area. The species may forage in the project vicinity.

Yuma myotis (Myotis yumanensis), Western Bat Working Group Low/Medium Priority, Moderate Potential

The Yuma Myotis is a medium-sized bat with light to dark brown fur and a paler underbelly (NorCalBats 2017). The species is widespread and common throughout western North America from southern British Columbia to southern Mexico (NatureServe 2019). In California, the species is widespread throughout the state except for the desert regions. The species is thought to engage in seasonal and possibly elevational migratory movements (Harris et al. 2008b). The species feeds on moths and insects over water and other open habitat types (NatureServe 2019).



Roosts include bridges, swallow nests, rock crevices, tunnels, tree cavities, and buildings (NatureServe 2019). The species mates during the fall. Females form maternity roosts in April and give birth to one pup between May through July (NatureServe 2019). Maternity roots may include several thousand individuals and are most common in mines and caves (Harris et al. 2008b). Threats to the species include roost disturbance, roosting habitat loss, and reduced prey from over application of pesticides (NatureServe 2019).

There are no records of the species from the immediate project vicinity. The closest known record is from 2018 in Bayside (CBI 2019). It is unknown whether the species may roost on the structures in the project vicinity and would require surveys to confirm. Requisite roosting and foraging habitat could be present in the project area.

Birds

Cooper's Hawk (Accipiter cooperi), California State Watch List, High Potential

Cooper's Hawks are year-round residents across most temperate areas in North America. In California, migrants from more northern climes (southern Canada) pass through the state during the fall months (August-November). Some of these northern populations of Cooper's Hawks likely winter in the state. Cooper's Hawks may be found in a variety of forested habitats included deciduous, mixed, or evergreen forests in urban, suburban, or rural areas. Cooper's Hawk populations have increased over the past few decades in urban and suburban areas, likely as a result of readily available prey populations in these habitats (e.g., European Starling and Rock Pigeon flocks). Cooper's Hawks build their nests in any number of tree species including pines, oaks, firs, eucalyptus, etc. Nest site selection is most likely related to dense prey availability in the surrounding area as well as canopy cover and the adjacent habitat structure. Their nests are constructed out of sticks and bark and may be built on top of existing squirrel or other raptor nests. Cooper's Hawks prey on a variety of small bird and mammal species including European Starlings, Mourning Doves (*Zenaida macroura*), Rock Pigeons, Deer Mice (*Peromyscus maniculatus*), squirrels, and hares. (Curtis et al. 2006).

Cooper's Hawks may occur in and adjacent to the project area due to the presence of suitable trees for nesting habitat. Based on available data, the presence of any established breeders near the site is currently unknown and would require surveys to confirm. However, based on historical records and available habitat, the species has a high potential to be present and forage around the project area. The species was detected on the proposed effluent disposal area during the November 19th reconnaissance-survey.

Sharp-shinned Hawk (Accipiter striatus), California State Watch List, High Potential

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



prey on small forest birds and mammals. In more urban/developed areas, Sharp-shinned Hawks hunt at bird feeders. (Bildstein and Meyer 2000).

Sharp-shinned Hawks may occur in and adjacent to the project area due to the presence of suitable trees for nesting habitat. Based on available data, the presence of any established breeders near the site is currently unknown and would require surveys to confirm. However, based on historical records and available habitat, the species has a high potential to be present and forage around the project area. The species was detected on the proposed effluent disposal area during the November 19th reconnaissance-survey.

Great Egret (Ardea alba), California State Special Status Species, High Potential

Great Egrets are year-round residents in western California, with breeders concentrated in the Klamath and Warner basin in Siskiyou and Modoc Counties, along the coast in Humboldt County, the San Francisco Bay area, Monterey County, the Salton Sea, and the Central Valley. In term of habitat, they favor wetlands, estuaries, lakes, rivers, ponds, swamps, streams, marshes, and tidal flats. Great Egrets utilize a variety of substrates for nesting including trees, woody vegetation, or artificial nest platforms. Nests platforms are typically constructed of locally available sticks and greenery. Great Egrets nest communally with conspecifics or in mixed-species colonies. They are opportunistic foragers, wading in shallow water to feed on fish, amphibians, and invertebrates. They also hunt on shore for reptiles, birds, and small mammals. (Mccrimmon Jr. et al. 2011).

Great Egrets may occur in and adjacent to the project area due to the presence of suitable foraging and nesting habitat along the nearby Eel River. Based on available data, the presence of any established breeders near the site is currently unknown and would require surveys to confirm. However, based on historical records and available habitat, the species has a high potential to be present and forage around the project area. The species was detected on the pipe outlet/outlet at the Eel River Gravel Bar during the November 19th reconnaissance-survey.

Great Blue Heron (Ardea herodias), California State Special Status Species, High Potential

Great Blue Herons are year-round residents in the majority of coastal and central California. Notable exceptions include the Sierras and the very southeastern desert regions of the state. Great Blue Herons are extremely adaptable to a variety of habitats including most saltwater and freshwater bodies, agricultural land, swamps, wetlands, as well as commercial and residential areas such as golf courses. Nesting habitat includes trees, bushes, or artificial structures. Nests platforms are typically constructed out of locally available sticks and lined with material such as grass, moss, and reeds. Great Blue Herons are colonial nesters. They are opportunistic foragers, wading in shallow water to feed on fish, amphibians, and invertebrates. They also hunt on shore for reptiles, birds, and small mammals. Additionally, they are known to scavenge carrion. (Vennesland and Butler 2011).

Great Blue Herons may occur in and adjacent to the project area due to the presence of suitable foraging and nesting habitat along the nearby Eel River. Based on available data, the presence of any established breeders near the site is currently unknown and would require surveys to confirm. However, based on historical records and available habitat, the species has a high potential to be present and forage around the project area. The species was detected on the pipe outlet/outlet at the Eel River Gravel Bar during the November 19th reconnaissance-survey.



Snowy Egret (Egretta thula), California State Special Status Species, Moderate Potential

Snowy Egrets were hunted to the brink of extinction by the plume trade at the end of the 19th and beginning of the 20th century. However, many populations rebounded after the Migratory Bird Treaty Act was passed in 1918. Year-round populations of Snowy Egrets are found around Humboldt Bay, the San Francisco Bay area, the Central Valley, and the Salton Sea. Wintering populations are also present along much of the rest of the California coast. Snowy Egrets prefer riparian and estuarine areas, marshes, wet meadows, inland lakes, and river courses. Snowy Egrets construct stick nest platforms in a variety of tree and shrub species including: willows, holly, birch, and wax myrtle. Nests are lined with reeds, grasses, and moss. Snowy Egrets are colonial nesters, with colonies comprised of both conspecifics and allospecifics. Snowy Egrets hunt in shallow water and on shore, frequently making use of their distinctly yellow feet to attract and capture prey items. Prey includes fish, amphibians, snakes, lizards, crustaceans, insects, and worms. (Parsons and Master 2000).

Snowy Egrets may occur in and adjacent to the project area due to the presence of suitable foraging and nesting habitat along the nearby Eel River. Based on available data, the presence of any established breeders near the site is currently unknown and would require surveys to confirm. However, based on historical records and available habitat, the species has a moderate potential to be present and forage around the project area.

White-tailed Kite (Elanus leucurus), California Fully Protected Species, Present

White-tailed Kites are year-round residents in most of California west of the Sierras including the majority of the coastal foothills, Central Valley, and some arid regions such as Kern and Inyo Counties. White-tailed Kites prefer open landscapes at low elevations including marshes, grasslands, oak-woodlands, savannahs, and agricultural land. Nests are typically constructed on habitat edges in the upper third portion of a tree or bush. Nests consist of small sticks, grass, hay, and leaves placed in a variety of tree or shrub species including coast redwoods (*Sequoia sempervirens*), Sitka spruce (*Picea sitchensis*), or brooms. White-tailed Kites feed almost exclusively on small mammals captured via hover hunting. (Dunk 1995).

White-tailed Kites may occur in and adjacent to the project area due to the presence of suitable habitat in the project vicinity. Based on available data, the presence of any established breeders near the site is currently unknown and would require surveys to confirm. However, based on historical records and available habitat, the species has a moderate potential to be present and forage around the project area. The species was detected on the proposed effluent disposal area during the November 19th reconnaissance-survey.

Black-crowned Night Heron (Nycticorax nycticorax), California State Special Status Species, Moderate Potential

Black-crowned Night Herons are year-round residents in much of California, with notable exceptions in the Sierras, Central Valley, and the arid southeast portion of the state. These herons can be found in a wide variety of habitats adjacent to water bodies including urban, wetland, partially forested, and agricultural landscapes. Black-crowned Night Herons are colonial nesters, building platform stick nests in trees, reeds, cattails, bushes, or on the ground. As opportunistic feeders,



Black-crowned Night Herons eat fish, insects, mammals, birds, carrion, trash, clams, crayfish, turtles, and many other food items. (Hothem et al. 2010).

Black-crowned Night Herons may occur in and adjacent to the project area due to the presence of suitable foraging and nesting habitat along the nearby Eel River. Based on available data, the presence of any established breeders near the site is currently unknown and would require surveys to confirm. However, based on historical records and available habitat, the species has a moderate potential to be present and forage around the project area.

Osprey (Pandion haliaetus), California State Watch List, High Potential

Ospreys have a nearly cosmopolitan distribution and their breeding range throughout North America is widespread. The majority of individuals within the breeding range are migratory (except for individuals in temperate southern areas of their range, e.g. in southern Florida, the Caribbean, southern California, and the Baja Peninsula). In California, Ospreys breed throughout the state near various bodies of water including and inland near rivers and lakes as well as on the coast near bays, estuaries, and marshes. Specific nest location preferences include: proximity to shallow fish-bearing waters, and a nest site free of predators (usually highly elevated but Ospreys nest on the ground on predator-free islands). Ospreys build large stick nests on a wide variety of natural and artificial nest substrates, especially trees, but also large rocks or bluffs, as well as nest platforms, towers supporting electrical lines or cellphone relays, and channel markers). Ospreys feed almost exclusively on fish, but anecdotal observations of non-fish prey have been documented. (Bierregaard et al. 2016).

The coniferous forest habitat along the Eel River, adjacent to the project area, could serve as nesting habitat for the species. Based on available data, the presence of any established breeders near the site is currently unknown and would require surveys to confirm. However, based on historical records and available habitat, the species has a high potential to be present and forage around the project area.

American Peregrine Falcon (Falco peregrinus anatum), California Fully Protected Species, USFWS Birds of Conservation Concern, Present

The Peregrine Falcon is one of the world's most widely distributed raptor species, occurring in urban areas, wetlands, deserts, maritime islands, mountains, tundra, and the tropics. Peregrine Falcons received significant attention during the middle of the 20th century due to precipitous population declines. These population crashes have been attributed to the lethal and sub-lethal effects of the organochlorine pesticide DDT (Dichlorodiphenyltrichloroethane). After DDT was banned in 1972, the Peregrine Falcon started to rebound nationwide.

In western North America, resident populations of Peregrines are found along the coast of California and the majority of the interior of the state, excluding the Central Valley and arid regions in the southeast (White et al. 2002). In California, Peregrines generally prefer open landscapes for foraging and cliffs or buildings for breeding. Nests consist of a scrape in sand, gravel, or dirt on a cliff ledge, artificial nest boxes, or abandoned raptor or corvid nests. Occasionally they will also use coniferous forest tree tops (Wrege and Cade 1977, White et al. 2002). Peregrine Falcons feed on a variety of avian species including passerines, waterfowl, and shorebirds. They have also been known to take bats, amphibians, fish, and mammals. Prey are taken in flight, off the surface of



water, or on land (Sherrod 1978). The Peregrine Falcon is the fastest member of the animal kingdom with diving (“stooping”) speeds recorded at speeds of 238 miles per hour (Franklin 1999).

Peregrine Falcons may occur in and adjacent to the project area due to the presence of suitable habitat foraging habitat in the project vicinity. Based on available data, the presence of any established breeders near the site is currently unknown and would require surveys to confirm. However, based on historical records and available habitat, the species has a moderate potential to be present and forage around the project area. This species was detected on the proposed effluent disposal area during the November 19th reconnaissance-survey.

Amphibians

Northern Red-legged Frog (Rana aurora), California State Species of Special Concern, Moderate Potential

Northern Red-legged Frogs occur along the west coast of N. America from British Columbia to California. The geographic range split between the Northern and California Red-legged Frog species occurs just south of Elk Creek in Mendocino County where both species overlap (Nafis 2016, AmphibiaWeb 2019). Northern Red-legged Frogs are typically found near freshwater sources (e.g., wetlands, ponds, streams, etc.). However, they can range widely and inhabit damp places far from water. Northern Red-legged Frogs reproduce in water from December to February in Humboldt County, with some breeding occurring as late as March. Preferred egg laying locations are in “vegetated shallows with little water flow in permanent wetlands and temporary pools” (Nafis 2016). Northern Red-legged Frogs are relatively common in and near coastal portions of Humboldt County and recent records have documented the species near the project area (iNaturalist 2019). This being the case, Northern Red-legged Frogs have a moderate chance of occurring within the project area. Northern Red-legged Frogs have also been documented at the Fortuna WWTP on previous site visits.

Reptiles

Western Pond Turtle (Emys marmorata), California State Species of Special Concern, Moderate Potential

Based on molecular analysis, Spinks et al. (2014) proposed recognizing all pond turtles north of San Francisco Bay as *Emys marmorata*; many available literature sources refer to the species as *Actinemys marmorata*. Pond turtles occur in a variety of permanent and semi-permanent freshwater aquatic habitats including lakes, rivers, ponds, creeks, and marshes. Pond turtles are known to be present in the general vicinity and may occur along the river bank not far from the project area. Breeding can occur on loose soils on south or west facing slopes so a few pond turtles may venture away from the river into the project area. The species is frequently observed basking on exposed banks, logs, and rocks. Winter activity is possible but limited to unusually warm, sunny days; normally pond turtles are dormant during winter months on the north coast; dormancy typically involved burrowing into loose substrate above the high water mark (Thompson et al. 2016). Pond turtles have been documented nesting up to 0.5 kilometers from water (CDFW 2019b). Thus,



Western Pond Turtles have a moderate chance of occurring within the project area although presence would likely be occasional, seasonal, and temporary.

Fish

Salmonids (Coho, Steelhead, Chinook), Green Sturgeon, and Pacific Lamprey are known to occur nearby in the Eel River and could potentially be impacted by direct (frack-out during drilling, vibration during nearby construction) or indirect (sediment, water quality) activities associated with the project.

Green Sturgeon, Southern DPS (*Acipenser medirostris*), Federally Threatened, Moderate Potential

The Green Sturgeon is an anadromous fish with an olive to dark green back, yellow belly, shovel-shaped snout, cartilaginous skeleton, and ossified bony scutes along its back and sides. They are long-lived fish (70+ years) that can reach lengths of up to two meters (Moyle 2002, NatureServe 2019). The full range of the species extends along the Pacific Coast from the Gulf of Alaska to Ensenada, Mexico (Moyle 2002). The southern DPS was listed as federally threatened effective June 6, 2006. The northern DPS of the species is considered a NMFS species of special concern (71 FR 17757). NMFS originally divided the species into DPSs based on genetic analysis and spawning site fidelity (74 FR 52300). The southern DPS includes all breeding populations south of the Eel River (i.e., the upper Sacramento River and more recently the Feather River) (74 FR 52300, NMFS 2015). The northern DPS includes all breeding populations north of and including the Eel River. The Southern DPS is known to breed only in the upper Sacramento River and Feather River.

During the non-breeding season, the sturgeons migrate north along the continental shelf and are found in bays and estuaries as far north as Washington and Alaska (Lindley et al. 2011, NMFS 2015). The Green Sturgeon is a benthic feeder that mostly eats small fish and invertebrates including ghost shrimp, mud shrimp, and clams. It is found in estuaries, the lower reaches of large rivers, and salt or brackish waters off river mouths. It is a demersal species that primarily occurs in the marine environment and only enters freshwater to spawn (70 FR 17386, Moyle 2002). Spawning occurs from March to July with a peak from April to June (Moyle 2002). Eggs are broadcast-spawned and externally fertilized in relatively fast flowing water. Spawning occurs in waters with depths greater than 3 m and usually in deep pools (Emmett et al. 1991). Preferred spawning substrate includes large cobble, clean sand, or bedrock (Moyle 2002). Female Green Sturgeon produce 60,000-140,000 eggs (Emmett et al. 1991). Larvae grow quickly, reaching a length of 74 millimeters (mm) within 45 days after hatching, 300 mm by one year, and 600 mm by two years (Nakamoto et al. 1995, Deng 2000). Juveniles under 300 mm are not tolerant of salinity, and are thought to spend one to three years in freshwater before entering the ocean where they disperse widely. At maturity (13-20 years), Green Sturgeon return to freshwater spawning grounds. Spawning is thought to occur every three to five years (Nakamoto et al. 1995).

A number of threats have been identified for the Green Sturgeon Southern DPS including impassable barriers (dams), adult migration barriers, insufficient water flow, increased water temperatures, juvenile entrainment, exotic species, pesticides, land use practices resulting in increased sedimentation, and local harvesting. Green Sturgeon are thought to occasionally enter the lower Eel River and thus have a moderate likelihood to occur near the project site (Stillwater Sciences and Wiyot Tribe 2017). However the southern DPS does not spawn in north coast rivers



and is unlikely to be present in the Eel during the warm, shallow conditions typical of construction season.

Pacific Lamprey (Entosphenus tridentatus), State Species of Special Concern, Moderate Potential

The Pacific Lamprey, *Entosphenus tridentatus* formerly *Lampetra tridentate*, is a primitive fish lacking true fins and jaws of true fishes (Streif 2007, Stillwater Sciences 2010). They appear eel-like and have a sucker-like mouth, no scales, and breathing holes instead of gills (Streif 2007). Pacific Lamprey range from the Japan to the Bering Sea in Alaska and along the west coast of North America to central Baja, California (Stillwater Sciences 2010).

Pacific Lamprey are anadromous with typical spawning from March through July (Stillwater Sciences et al. 2016). Both sexes build redds (nests) where eggs are deposited by moving stones with their mouths, typically in riffles of gravel-bottomed streams and upstream of quality ammocoete (larval lamprey) habitat. Females may lay 30 to 240 thousand eggs (Stillwater Sciences et al. 2016). Adults then die within a few days to a month of spawning (Streif 2007). Ammocoetes hatch within approximately 19 days depending on water temperature (Streif 2007). Upon hatching, ammocoetes move downstream where they settle into silty sandy substrates (Streif 2007). They remain in these areas, often in colonies, for two to seven years filter feeding primarily on algae until they metamorphose into macrophthmia (juveniles; Streif 2007). During this metamorphosis, they develop eyes, a suckoral disc, sharp teeth, and more-defined fins allowing them to be free swimming (Streif 2007, Stillwater Sciences et al. 2016). As macrophthmia, they emigrate downstream to the ocean (Streif 2007). They mature into adults where they are parasitic on a variety of fishes. Adults return to their natal streams following one to three years in the marine environment (Streif 2007). There may be two major life strategies in which some adults spawn immediately upon returning to freshwater and other adults may overwinter in freshwater before spawning (Streif 2007, Stillwater Sciences et al. 2016).

This species is of particular cultural value to many native indigenous tribes, including the Weott Tribe in the larger Fortuna area, and was historically a major fisheries in the Eel River basin. Threats to their populations are similar to those experienced by salmonid species (Stillwater Sciences and Wiyot Tribe 2017). These threats include limits to passage (e.g. dams), diversions, urban development, mining, pollution, estuary modification, stream and floodplain degradation, declines in prey abundance predation by non-native species, and overharvest (Streif 2007, Stillwater Sciences and Wiyot Tribe 2017). Pacific Lamprey are common in the Eel River year-round and ammocoetes have recently been documented at Fernbridge (GHD staff pers. obs.) thus are presumed to be present near the project site.

Coast Cutthroat Trout (Oncorhynchus clarkia clarkia), Species of Special Concern. Moderate Potential

The Coastal Cutthroat Trout ranges from the Eel River to Prince Williams Sound in Alaska. Unlike most salmon, this species may spawn more than once. Adults commonly enter streams during the fall and feed on the eggs from other salmon's spawn. Spawning can occur from December through May. Young cutthroat may spend up to two weeks in the gravel before emerging and from one to nine years in freshwater before migrating to estuaries and ocean in the spring. Coastal Cutthroat Trout usually spend less than one year in saltwater before returning to spawn. Juveniles and adults are carnivorous, feeding mostly on insects, crustaceans, and other fish throughout their lives. In



freshwater, adult cutthroat typically reside in large pools while the young reside in riffles, most commonly in upper tributaries of small rivers. Coastal Cutthroat Trout utilize a wide variety of habitat types during their complex life cycle. They spawn in small tributary streams, and utilize slow flowing backwater areas, low velocity pools, and side channels for rearing of young. Good forest canopy cover, in-stream woody debris, and abundant supplies of insects are crucial for the survival of young cutthroat. During the estuarine or ocean phase of life, the Coastal Cutthroat Trout utilizes tidal sloughs, marshes, and swamps as holding areas and feeding grounds. Coastal Cutthroat Trout are known to spawn in the Eel River and thus have a moderate likelihood to occur near the project site (Native Fish Society 2019).

*Coho Salmon, Southern Oregon/Northern California Coasts ESU (*Oncorhynchus kisutch*), Federally Threatened, Moderate Potential*

The southern Oregon/northern California coast Coho Salmon Evolutionary Significant Unit (ESU) was federally listed as a threatened species by NOAA (National Oceanic and Atmospheric Administration) Fisheries in 1997 (62 FR 33038). This ESU is defined as all Coho Salmon naturally produced in streams between Punta Gorda in northern California, Humboldt County and Cape Blanco in southern Oregon. This listing was reaffirmed on June 28, 2005 (70 FR 37160).

Adult Coho Salmon enter rivers from late summer to mid-winter with most spawning occurring in early-to mid-winter. Eggs incubate for one to one and a half months during winter. Fry emerge and occupy shallow areas with vegetative cover. Juvenile Coho Salmon rear in freshwater for over a year (some for two years) before migrating to the ocean in spring (Weitkamp et al. 1995). Juveniles and yearlings spend various amounts of time in freshwater/estuary transition zones. Length of stay by an individual averages about one to two months, with spring being the heaviest time of use. Adults typically spend the next two years in the ocean before returning to their home streams to spawn (Wallace 2010).

Marine invertebrates, such as copepods, euphausiids, amphipods, and crab larvae, are the primary food sources for Coho Salmon when they first enter saltwater. Fish represent an increasing proportion of the diet as Coho Salmon grow and mature (Moyle 2002). Freshwater habitat requirements for juvenile Coho Salmon include cool water temperatures (12-14 °C is optimal), clear water, riparian vegetation that provides shade, clean silt-free gravel for spawning, in-stream large woody debris, availability of food (invertebrates), and overwintering habitat consisting of large off-channel pools with complex cover or small spring-fed tributary streams (Moyle 2002). Coho Salmon from Humboldt Bay tributaries that rear in the estuary grow larger than their cohorts that reared farther upstream, which suggests that a stream/estuary ecotone is an important overwintering and rearing habitat for juvenile Coho Salmon (Wallace and Allen 2009).

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



road crossings (NOAA Fisheries 2011). With BMPs, no adverse impacts are expected. Coho Salmon are known to spawn in the Eel River and thus have a moderate likelihood to occur near the project site (Native Fish Society 2019).

Steelhead, Northern California DPS (Oncorhynchus mykiss irideus), Federally Threatened, Moderate Potential

The Northern California Steelhead (northern California DPS) is listed as a threatened species (65 FR 36074; August 7, 2000). This coastal Steelhead DPS occupies river basins from Redwood Creek in Humboldt County to the Gualala River (near the Mendocino/Sonoma County line).

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

Juvenile steelhead use a variety of in-stream habitats depending on age and size. Smaller fish inhabit shallow, slow moving margins of streams or other open water. Larger juveniles move to deeper water with more cover and vegetation. For upstream migration, steelhead require a minimum depth of at least seven inches and a maximum stream velocity of 8 feet/second (ft/s). Spawning requires a minimum of 1-3 ft/s velocity, clean substrate, and temperatures of 39 - 49° F (Smith 1973).

In the Northern California DPS, the decline of Steelhead has been attributed to factors such as watershed disturbances, including logging on steep slopes, grazing, road building, water diversions, and severe habitat degradation caused by timber harvest and intensive agricultural practices. These factors have resulted in decreased flows, loss of riparian habitat, channel widening, and increased siltation and water temperatures. Despite this decline, north coast rivers and streams have the greatest amount of Steelhead habitat in California. The most abundant populations of Steelhead are in the Klamath/Trinity River system (Barnhart 1991, Stillwater Sciences 2006). Steelhead are known to spawn in the Eel River and thus have a moderate likelihood to occur near the project site (Native Fish Society 2019).



*Chinook Salmon – California Coastal ESU (*Oncorhynchus tshawytscha*), Federally Threatened, Moderate Potential*

The Chinook Salmon (California Coastal ESU) was listed by the Federal Government as a threatened species on September 16, 1999 (64 FR 50394) and reaffirmed on June 28, 2005 (70 FR 37160). California Coast Chinook Salmon are a distinct population of Chinook Salmon that range from Redwood Creek in Humboldt County, south to the Russian River in Sonoma County.

California Coast Chinook Salmon spawn and rear in coastal and interior rivers in northern California. Ocean-type Chinook (fall run) rear for less than one year in freshwater, while stream-type Chinook (spring run) remain in freshwater for one year or more before emigrating to forage in coastal and marine zones of California for two to five years (Healey 1991). The ideal temperature range for rearing, smolting, and migrating (seaward) Chinook Salmon appears to be 50° to 55° F (Rich 1997). Currently, only fall-run Chinook appear to be extant in the DPS. These Chinook Salmon typically migrate to the ocean within their first year from April through July, but have also been observed in Humboldt Bay in the fall (NOAA Fisheries 2007).

The destruction and modification of historic spawning habitat, fish passage barriers, over-harvesting, decreased floodplain connectivity and function, as well as reduced stream flow and predation are considered moderate to very high threats to this ESU. Land use activities (logging, road construction, streambank alterations, etc.), water diversions and overutilization of rivers and streams for recreational purposes are also have contributed to the decline of the ESU. The main factors limiting this Chinook Salmon ESU are low abundance, low distribution, and negative population trends. Predation by pikeminnow in the Eel River and genetic integrity are considered significant threats to the population (NOAA Fisheries 2007). Coho Salmon are known to spawn in the Eel River and thus have a moderate likelihood to occur near the project site (Native Fish Society 2019).

Insects

*Obscure Bumble Bee (*Bombus caliginosus*), California State Special Status Species, Moderate Potential*

The project area falls within the current documented range of the Obscure Bumble Bee and includes fog-belt coastal habitat preferred by the species (Hatfield et al. 2014). Preferred plants for foraging (such as *Grindelia* sp, *Baccharis* sp., and *Lupinus* sp.) may be present adjacent to the project area. California Department of Fish and Wildlife records have documented the species in Humboldt County (CDFW 2019b). In addition, the species was recorded during *Bombus* surveys on the North Spit of Humboldt Bay and Lanphere Dunes in 2010 (Julian 2012). Based on the location of the project area, the possible presence of host plants in the area, and recent documented presence of the species in Humboldt County, the Obscure Bumble Bees has a moderate likelihood of occurring within the project area.

5.6 Critical Habitat

The Eel River is designated Critical Habitat for Coho, Steelhead, and Chinook Salmon.



5.7 Essential Fish Habitat

The Magnuson-Stevens Fishery Conservation and Management Act (MSA), as amended by the 1996 Sustainable Fisheries Act (Public Law 104-297), mandates inter-agency cooperation in achieving protection, conservation, and enhancement of Essential Fish Habitat (EFH). The Act defines EFH as "those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity." EFH designations serve to highlight the importance of habitat conservation for sustainable fisheries and sustaining valuable fish populations. EFH relates directly to the physical fish habitat and indirectly to factors that contribute to degradation of this habitat. Important features of EFH that deserve attention are adequate water quality, temperature, food source, water depth, and cover/vegetation.

Essential fish habitat is designated for species managed in Fisheries Management Plans under the Magnuson-Stevens Fishery Conservation and Management Act. EFH applies to species within the project area for the proposed project. Under the Magnuson-Stevens Fishery Conservation and Management Act, the South Fork Eel River is designated as Essential Fish Habitat within the Coastal Pelagic Fishery Management Plan (CPS FMP), the Pacific Groundfish Fishery Management Plan (PG FMP), and the Pacific Coast Salmon Fisheries Management Plan (PCS FMP).

Due to the nature of the project, there is potential for adverse effects to these species and their habitats from construction activities occurring adjacent to the river (e.g. possibility for sediment discharge), and beneath the river (e.g. possibility for directional drilling to erroneously puncture the river bottom). However, the project is located approximately 100 feet at its closest point from the banks of the Eel River at the WWTP where the horizontal directional drilling would take place. The horizontal directional drilling will be completed by trained professionals at approximately 20 feet to 40 feet below the Eel River and 10 feet to 20 feet below Strongs Creek, which will not disturb in-stream habitat because no physical activity would take place within the stream channel itself. Additionally mitigation and conservation measures (BMPs) will be implemented to ensure that the project avoids and/or minimizes any adverse effects. The proposed project will have no effect on EFH.

6. Summary of Potential Impacts and Conservation Measures

Potential impacts will be addressed in detail in environmental review documents (CEQA) and associated permit applications. In general, impacts are expected to be minimal and, if necessary, easily mitigated below the level of significance to sensitive wildlife or plant species or sensitive natural communities. To the extent practical, impacts will be avoided or minimized as described below.



6.1 Proposed Conservation Measures

6.2 Porcupines

Although there are records of Porcupines from the general project vicinity and they have a moderate potential to occur onsite, no impacts are expected to occur to this species. The species is highly mobile and, if present, is expected to leave the project area once construction activity commences. Although some foraging habitat (riparian forest) will be removed in association with this project, substantial foraging habitat suitable for this species is present in the surrounding area (riparian forest along the Eel River). As no impacts to this species are expected, no conservation measures are proposed at this time.

6.3 Bats

Habitat for bats (tree cavities, loose bark, riparian forest, etc.) is present in the project area (based on reconnaissance level surveys). Vegetation and structures on the project site likely provide habitat to a variety of bat species. Construction of the project may adversely impact special-status bat species through the removal or modification of vegetation or structures and due to ground disturbance.

A qualified bat biologist shall conduct habitat surveys for special-status bats. Survey methodology should include visual examination of suitable habitat areas for signs of bat use and may utilize ultrasonic detectors to determine if special status bat species utilize the vicinity. Trees within 300 feet of construction activities should be examined. If habitat exists, species presence and site use patterns should be documented, including roost sites. Bat presence in the project may vary seasonally and annually. Surveys should be conducted in a manner to detect the presence of hibernating or torpid bats, reproductive colonies and/or migratory stop-over roosts. If no bat utilization or roosts are found, then no further study or action is required. If bats are found to utilize the project, or presence is assumed, a bat specialist should be engaged to advise the best method to prevent impact.

6.3.1 Migratory Birds

Ground disturbance and vegetation clearing shall be conducted, if possible, during the fall and/or winter months and outside of the avian nesting season (March 15 – August 15) to avoid any direct effects to special status and protected birds. If ground disturbance cannot be confined to work outside of the nesting season, a qualified ornithologist shall conduct pre-construction surveys within the vicinity of the project area, to check for nesting activity of native birds and to evaluate the site for presence of raptors and special status bird species. The ornithologist shall conduct at minimum a one day pre-construction survey within the 7-day period prior to vegetation removal and ground-disturbing activities. If ground disturbance and vegetation removal work lapses for seven days or longer during the breeding season, a qualified ornithologist 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 construction buffer, nest buffers will be implemented as needed. In general, the buffer size for common species would be determined on a case-by-case basis in consultation with CDFW. Buffer sizes will take into account factors such as (1) noise and human disturbance levels at the construction site at the time of the survey and the noise and disturbance expected during the construction activity; (2) distance and amount of vegetation or other screening between the construction site and the nest; and (3) sensitivity of individual nesting species and behaviors of the nesting birds.

If active nests are detected during the survey, the qualified ornithologist 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 ornithologist, 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 ornithologist shall immediately implement adaptive measures to reduce disturbance. These measures may include, but are not limited to, increasing buffer size, halting disruptive construction activities in the vicinity of the nest until fledging is confirmed or nesting activity has ceased, placement of visual screens or sound dampening structures between the nest and construction activity, reducing speed limits, replacing and updating noisy equipment, queuing trucks to distribute idling noise, locating vehicle access points and loading and shipping facilities away from noise-sensitive receptors, reducing the number of noisy construction activities occurring simultaneously, and/or reorienting and/or relocating construction equipment to minimize noise at noise-sensitive receptors.

6.3.2 Special-status Amphibians and Reptiles

No more than one week prior to commencement of ground disturbance within 50 feet of suitable Northern Red-legged Frog or Western Pond Turtle habitat, a qualified biologist shall perform a pre-construction survey and shall relocate any individuals of NRLF or WPT or egg masses of NRLF that occur within the work -impact zone to nearby suitable habitat.

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

The same measures above shall apply to Foothill Yellow-legged Frogs which are SSC and are no longer a CESA candidate.

6.3.3 Avoid Impacts to Special Status Fish

Because no in-water work is planned, impacts to special status fish in the Eel River are considered extremely unlikely. To further reduce risk of impacts to fish and other aquatic organisms, standard erosion control BMPs will be implemented. A frac-out contingency plan will be in place for directional drilling under the Eel River and will include an immediate halt to drilling activity in the event of a possible frac-out.



6.3.4 Avoid Special Status Plants

Conservation measures for special status plant species are addressed collectively for all species. Significant impacts to special-status plant species present or likely to be present onsite shall be minimized, avoided, and (if necessary) compensated by complying with the following:

- Pre-construction surveys: Seasonally appropriate pre-construction surveys for special status plant species shall occur prior to construction within the planned area of disturbance for the project, during the appropriate blooming time (spring or summer) for the target species. Survey methods shall comply with CDFW rare plant survey protocols, and shall be performed by a qualified field botanist. Surveys shall be modified to include detection of juvenile (pre-flowering) colonies of perennial species when necessary. Any populations of special status plant species that are detected shall be mapped. Populations shall be flagged if avoidance is feasible and if populations are located adjacent to construction areas.
- The locations of any special status plant populations to be avoided shall be clearly identified in the contract documents (plans and specifications).
- If special-status plant populations are detected where construction would have unavoidable impacts, a compensatory conservation plan shall be prepared and implemented in coordination with CDFW. Such plans may include salvage, propagation, on-site reintroduction in restored habitats, and monitoring.

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Appendix A - CNDDDB, IPaC, CNPS, NMFS, Combined Report Table

Table 1. Fortuna Wastewater Management Regulatory Support - 9-Quad Database Search of USFWS IPaC, CDFW CNDDb, CNPS Rare Plant Inventory, and NMFS Database inventory searches of 9 USGS 7.5 Minute Quadrangles centered on project quad (Fortuna) on 10.24.2019. Quads included Cannibal Island, Fields Landing, McWhinney Creek, Ferndale, Fortuna, Hydesville, Capetown, Taylor Peak, Scotia.

SciName	ComName	FedList	CalList	GRank	SRank	RPlantRa	OthrStatus	Habitats	GenHab	MicroHab	Potential to Occur*
Mammals											
<i>Antrozous pallidus</i>	Pallid Bat	N	N	G5	S3		BLM_S-Sensitive CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern USFS_S-Sensitive WBWG_H-High Priority	Chaparral Coastal scrub Desert wash Great Basin grassland Great Basin scrub Mojavean desert scrub Riparian woodland Sonoran desert scrub Upper montane coniferous forest Valley & foothill grassland	Deserts, grasslands, shrublands, woodlands and forests. Most common in open, dry habitats with rocky areas for roosting.	Roosts must protect bats from high temperatures. Very sensitive to disturbance of roosting sites.	Moderate Potential. This species will roost in caves, crevices, mines, hollow trees, porches, and buildings (Harris et al. 2008). Requisite roosting and foraging habitat is present in the project vicinity.
<i>Aplodontia rufa humboldtiana</i>	Humboldt Mountain Beaver	N	N	G5TNR	SNR			Coastal scrub Redwood Riparian forest	Coast Range in southwestern Del Norte County and northwestern Humboldt County.	Variety of coastal habitats, including coastal scrub, riparian forests, typically with open canopy and thickly vegetated understory.	Moderate Potential. Commonly occur in the project vicinity (CDFW 2019). Requisite riparian forest habitat exists within project site.
<i>Arborimus pomo</i>	Sonoma Tree Vole	N	N	G3	S3		CDFW_SSC-Species of Special Concern IUCN_NT-Near Threatened	North coast coniferous forest Oldgrowth Redwood	North coast fog belt from Oregon border to Sonoma County. In Douglas-fir, redwood & montane hardwood-conifer forests.	Feeds almost exclusively on Douglas-fir needles. Will occasionally take needles of grand fir, hemlock or spruce.	No Potential. No suitable habitat for this species (e.g. no fir trees) is present within the project site.

<i>SciName</i>	<i>ComName</i>	<i>FedList</i>	<i>CalList</i>	<i>GRank</i>	<i>SRank</i>	<i>RPlantRa</i>	<i>OthrStatus</i>	<i>Habitats</i>	<i>GenHab</i>	<i>MicroHab</i>	<i>Potential to Occur*</i>
<i>Corynorhinus townsendii</i>	Townsend's Big-eared Bat	N	N	G3G4	S2		BLM_S-Sensitive CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern USFS_S-Sensitive WBWG_H-High Priority	Broadleaved upland forest Chaparral Chenopod scrub Great Basin grassland Great Basin scrub Joshua tree woodland Lower montane coniferous forest Meadow & seep Mojavean desert scrub Riparian forest Riparian woodland Sonoran desert scrub Sonoran thorn woodland Upper montane coniferous forest Valley & foothill grassland	Throughout California in a wide variety of habitats. Most common in mesic sites.	Roosts in the open, hanging from walls and ceilings. Roosting sites limiting. Extremely sensitive to human disturbance.	Moderate Potential. The species will roost in man-made structures as well as tree cavities (Erickson et al. 2002). Coniferous/hardwood forest near the project site may serve as hibernacula for this species and requisite roosting and foraging habitat is present in the project vicinity.
<i>Erethizon dorsatum</i>	North American Porcupine	N	N	G5	S3		IUCN_LC-Least Concern	Broadleaved upland forest Cismontane woodland Closed-cone coniferous forest Lower montane coniferous forest North coast coniferous forest Upper montane coniferous forest	Forested habitats in the Sierra Nevada, Cascade, and Coast ranges, with scattered observations from forested areas in the Transverse Ranges.	Wide variety of coniferous and mixed woodland habitat.	Moderate Potential. Numerous occurrence records (both historical and recent) from the larger project vicinity (CDFW 2019).
<i>Lasiurus cinereus</i>	Hoary Bat	N	N	G5	S4		IUCN_LC-Least Concern WBWG_M-Medium Priority	Broadleaved upland forest Cismontane woodland Lower montane coniferous forest North coast coniferous forest	Prefers open habitats or habitat mosaics, with access to trees for cover and open areas or habitat edges for feeding.	Roosts in dense foliage of medium to large trees. Feeds primarily on moths. Requires water.	Moderate Potential. This species generally roosts in tree foliage (Erickson et al. 2002). Requisite roosting and foraging habitat is present in the project vicinity.

<i>SciName</i>	<i>ComName</i>	<i>FedList</i>	<i>CalList</i>	<i>GRank</i>	<i>SRank</i>	<i>RPlantRa</i>	<i>OthrStatus</i>	<i>Habitats</i>	<i>GenHab</i>	<i>MicroHab</i>	<i>Potential to Occur*</i>
<i>Martes caurina humboldtensis</i>	Humboldt Marten	N	SE	G5T1	S1		CDFW_SSC-Species of Special Concern USFS_S-Sensitive	North coast coniferous forest Oldgrowth Redwood	Occurs only in the coastal redwood zone from the Oregon border south to Sonoma County.	Associated with late-successional coniferous forests, prefer forests with low, overhead cover.	No Potential. No suitable habitat exists within the project site. There are no recent records of this species south of the Klamath River. Current populations are only known from coastal redwood forests in Del Norte and northern Humboldt County (CDFW 2018). Only historic records from the project vicinity (1913 and 1927; CDFW 2019).
<i>Myotis yumanensis</i>	Yuma Myotis	N	N	G5	S4		BLM_S-Sensitive IUCN_LC-Least Concern WBWG_LM-Low-Medium Priority	Lower montane coniferous forest Riparian forest Riparian woodland Upper montane coniferous forest	Optimal habitats are open forests and woodlands with sources of water over which to feed.	Distribution is closely tied to bodies of water. Maternity colonies in caves, mines, buildings or crevices.	Moderate Potential. Foraging habitat for this species is present at the project site and the species is locally common in similar habitat types in northwestern California (Pierson and Rainey 2007).
<i>Pekania pennanti</i>	Fisher - West Coast DPS	N	ST	G5T2 T3Q	S2S3		BLM_S-Sensitive CDFW_SSC-Species of Special Concern USFS_S-Sensitive	North coast coniferous forest Oldgrowth Riparian forest	Intermediate to large-tree stages of coniferous forests and deciduous-riparian areas with high percent canopy closure.	Uses cavities, snags, logs and rocky areas for cover and denning. Needs large areas of mature, dense forest.	Low Potential. No mature forest within project site. Closest recent record was within the Headwaters Forest Reserve, a large tract of highly suitable habitat east of the city of Fortuna and is separated from the project area by urban area and several miles (CDFW 2019).

SciName	ComName	FedList	CalList	GRank	SRank	RPlantRa	OthrStatus	Habitats	GenHab	MicroHab	Potential to Occur*
Birds											
<i>Accipiter cooperii</i>	Cooper's Hawk	N	N	G5	S4		CDFW_WL-Watch List IUCN_LC-Least Concern	Cismontane woodland Riparian forest Riparian woodland Upper montane coniferous forest	Woodland, chiefly of open, interrupted or marginal type.	Nest sites mainly in riparian growths of deciduous trees, as in canyon bottoms on river flood-plains; also, live oaks.	High Potential. There are recent records from the project vicinity (eBird 2019). Common species known to nest and forage in urban areas.
<i>Accipiter striatus</i>	Sharp-shinned Hawk	N	N	G5	S4		CDFW_WL-Watch List IUCN_LC-Least Concern	Cismontane woodland Lower montane coniferous forest Riparian forest Riparian woodland	Ponderosa pine, black oak, riparian deciduous, mixed conifer, and Jeffrey pine habitats. Prefers riparian areas.	North-facing slopes with plucking perches are critical requirements. Nests usually within 275 ft of water.	High Potential. There are recent records from the project vicinity (eBird 2019). Common species known to nest and forage in urban areas.
<i>Agelaius tricolor</i>	Tricolored Blackbird	N	ST	G2G3	S1S2		BLM_S-Sensitive CDFW_SSC-Species of Special Concern IUCN_EN-Endangered NABCI_RWL-Red Watch List USFWS_BCC-Birds of Conservation Concern	Freshwater marsh Marsh & swamp Swamp Wetland	Highly colonial species, most numerous in Central Valley & vicinity. Largely endemic to California.	Requires open water, protected nesting substrate, and foraging area with insect prey within a few km of the colony.	Low Potential. There is a historical colony location in the project vicinity (Fortuna) but it has not been occupied since 1997 and is considered extirpated by CDFW (2019). There are recent (rare) sightings of Tricolored Blackbirds from the project vicinity as close as the Ferndale Bottoms in 2018 (eBird 2019).

<i>SciName</i>	<i>ComName</i>	<i>FedList</i>	<i>CalList</i>	<i>GRank</i>	<i>SRank</i>	<i>RPlantRa</i>	<i>OthrStatus</i>	<i>Habitats</i>	<i>GenHab</i>	<i>MicroHab</i>	<i>Potential to Occur*</i>
<i>Ammodramus savannarum</i>	Grasshopper Sparrow	N	N	G5	S3		CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern	Valley & foothill grassland	Dense grasslands on rolling hills, lowland plains, in valleys and on hillsides on lower mountain slopes.	Favors native grasslands with a mix of grasses, forbs and scattered shrubs. Loosely colonial when nesting.	Low Potential. There are numerous records of this species from the larger project vicinity, but this species is locally rare (eBird 2019). Requisite habitat is present in the project vicinity.
<i>Aquila chrysaetos</i>	Golden Eagle	N	N	G5	S3		BLM_S-Sensitive CDF_S-Sensitive CDFW_FP-Fully Protected CDFW_WL-Watch List IUCN_LC-Least Concern USFWS_BCC-Birds of Conservation Concern	Broadleaved upland forest Cismontane woodland Coastal prairie Great Basin grassland Great Basin scrub Lower montane coniferous forest Pinon & juniper woodlands Upper montane coniferous forest Valley & foothill grassland	Rolling foothills, mountain areas, sage-juniper flats, and desert.	Cliff-walled canyons provide nesting habitat in most parts of range; also, large trees in open areas.	Low Potential. There are numerous records of this species from the larger project vicinity, but no suitable habitat for this species is present at the project site (eBird 2019).
<i>Ardea alba</i>	Great Egret	N	N	G5	S4		CDF_S-Sensitive IUCN_LC-Least Concern	Brackish marsh Estuary Freshwater marsh Marsh & swamp Riparian forest Wetland	Colonial nester in large trees.	Rookery sites located near marshes, tide-flats, irrigated pastures, and margins of rivers and lakes.	High Potential. There are numerous records of this species from the larger project vicinity, and foraging and nesting habitat is available along the Eel River (eBird 2019).
<i>Ardea herodias</i>	Great Blue Heron	N	N	G5	S4		CDF_S-Sensitive IUCN_LC-Least Concern	Brackish marsh Estuary Freshwater marsh Marsh & swamp Riparian forest Wetland	Colonial nester in tall trees, cliffsides, and sequestered spots on marshes.	Rookery sites in close proximity to foraging areas: marshes, lake margins, tide-flats, rivers and streams, wet meadows.	High Potential. There are numerous records of this species from the larger project vicinity, and foraging and nesting habitat is available along the Eel River (eBird 2019).

<i>SciName</i>	<i>ComName</i>	<i>FedList</i>	<i>CalList</i>	<i>GRank</i>	<i>SRank</i>	<i>RPlantRa</i>	<i>OthrStatus</i>	<i>Habitats</i>	<i>GenHab</i>	<i>MicroHab</i>	<i>Potential to Occur*</i>
<i>Brachyramphus marmoratus</i>	Marbled Murrelet	FT	SE	G3G4	S1		CDF_S-Sensitive IUCN_EN-Endangered NABCI_RWL-Red Watch List	Lower montane coniferous forest Oldgrowth Redwood	Feeds near-shore; nests inland along coast from Eureka to Oregon border and from Half Moon Bay to Santa Cruz.	Nests in old-growth redwood-dominated forests, up to six miles inland, often in Douglas-fir.	No Potential. Although there are numerous occurrence records from the project vicinity, there is no suitable old growth coniferous forest habitat (for nesting) present on or within 0.25 mile of the project site (CDFW 2019).
<i>Charadrius alexandrinus nivosus</i>	Western Snowy Plover	FT	N	G3T3	S2S3		CDFW_SSC-Species of Special Concern NABCI_RWL-Red Watch List USFWS_BCC-Birds of Conservation Concern	Great Basin standing waters Sand shore Wetland	Sandy beaches, salt pond levees & shores of large alkali lakes.	Needs sandy, gravelly or friable soils for nesting.	Low Potential. Requisite habitat exists in close proximity to the project site (e.g. large gravel bars on the Eel River; Page et al. 2009).
<i>Charadrius montanus</i>	Mountain Plover	N	N	G3	S2S3		BLM_S-Sensitive CDFW_SSC-Species of Special Concern IUCN_NT-Near Threatened NABCI_RWL-Red Watch List USFWS_BCC-Birds of Conservation Concern	Chenopod scrub Valley & foothill grassland	Short grasslands, freshly plowed fields, newly sprouting grain fields, & sometimes sod farms.	Short vegetation, bare ground, and flat topography. Prefers grazed areas and areas with burrowing rodents.	Low Potential. Some marginal habitat for this species is present in the cattle pastures adjacent to the project site. The closest known records (rare) are from Crab Park in 2015 (eBird 2019).

<i>SciName</i>	<i>ComName</i>	<i>FedList</i>	<i>CalList</i>	<i>GRank</i>	<i>SRank</i>	<i>RPlantRa</i>	<i>OthrStatus</i>	<i>Habitats</i>	<i>GenHab</i>	<i>MicroHab</i>	<i>Potential to Occur*</i>
<i>Coccyzus americanus occidentalis</i>	Western Yellow-billed Cuckoo	FT	SE	G5T2T3	S1		BLM_S-Sensitive NABCI_RWL-Red Watch List USFS_S-Sensitive USFWS_BCC-Birds of Conservation Concern	Riparian forest	Riparian forest nester, along the broad, lower flood-bottoms of larger river systems.	Nests in riparian jungles of willow, often mixed with cottonwoods, with lower story of blackberry, nettles, or wild grape.	Low Potential. Requisite habitat for this species is present at the project site. There are numerous historical records of this species from the project vicinity, but the species is locally rare. The closest known record is from 2005 on Sandy Prairie (within 0.25 miles of the project site; eBird 2019).
<i>Coturnicops noveboracensis</i>	Yellow Rail	N	N	G4	S1S2		CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern NABCI_RWL-Red Watch List USFS_S-Sensitive USFWS_BCC-Birds of Conservation Concern	Freshwater marsh Meadow & seep	Summer resident in eastern Sierra Nevada in Mono County.	Freshwater marshlands.	No Potential. No habitat for this species in the project area. Most recent record (rare incidental) was from a cat-caught individual near the Blue Ox in Eureka (eBird 2019).
<i>Egretta thula</i>	Snowy Egret	N	N	G5	S4		IUCN_LC-Least Concern	Marsh & swamp Meadow & seep Riparian forest Riparian woodland Wetland	Colonial nester, with nest sites situated in protected beds of dense tules.	Rookery sites situated close to foraging areas: marshes, tidal-flats, streams, wet meadows, and borders of lakes.	Moderate Potential. There are numerous records of this species from the larger project vicinity, , and foraging habitat is available along the Eel River(eBird 2019).

<i>SciName</i>	<i>ComName</i>	<i>FedList</i>	<i>CalList</i>	<i>GRank</i>	<i>SRank</i>	<i>RPlantRa</i>	<i>OthrStatus</i>	<i>Habitats</i>	<i>GenHab</i>	<i>MicroHab</i>	<i>Potential to Occur*</i>
<i>Haliaeetus leucocephalus</i>	Bald Eagle	FD	SE	G5	S3		BLM_S-Sensitive CDF_S-Sensitive CDFW_FP-Fully Protected IUCN_LC-Least Concern USFS_S-Sensitive USFWS_BCC-Birds of Conservation Concern	Lower montane coniferous forest Oldgrowth	Ocean shore, lake margins, and rivers for both nesting and wintering. Most nests within 1 mile of water.	Nests in large, old-growth, or dominant live tree with open branches, especially ponderosa pine. Roosts communally in winter.	High Potential. There are numerous records of this species from the project vicinity, and foraging and nesting habitat is available along the Eel River (eBird 2019).
<i>Nycticorax nycticorax</i>	Black-crowned Night Heron	N	N	G5	S4		IUCN_LC-Least Concern	Marsh & swamp Riparian forest Riparian woodland Wetland	Colonial nester, usually in trees, occasionally in tule patches.	Rookery sites located adjacent to foraging areas: lake margins, mud-bordered bays, marshy spots.	Moderate Potential. There are numerous records of this species from the larger project vicinity, foraging and nesting habitat is present along the nearby Eel River (eBird 2019).
<i>Pandion haliaetus</i>	Osprey	N	N	G5	S4		CDF_S-Sensitive CDFW_WL-Watch List IUCN_LC-Least Concern	Riparian forest	Ocean shore, bays, freshwater lakes, and larger streams.	Large nests built in tree-tops within 15 miles of a good fish-producing body of water.	High Potential. There are numerous records of this species from the project vicinity, and foraging and nesting habitat is available along the Eel River (eBird 2019).
<i>Phoebastria albatrus</i>	Short-tailed Albatross	FE	N	G1	S1		CDFW_SSC-Species of Special Concern IUCN_VU-Vulnerable NABCI_RWL-Red Watch List	Offshore Japanese Islands Northern Pacific Ocean Sea of Okhotsk	Islands with bare ground/grass surrounded by cliffs	Nests consist of large scoops lined with grass in open, grassy areas. Forages at upwellings in the ocean.	No Potential. Species is extremely rare along the west coast of the U.S. (non-breeding season only). Only breeds on offshore islands in Japan and recently Midway atoll (BirdLife International 2019).

<i>SciName</i>	ComName	FedList	CalList	GRank	SRank	RPlantRa	OthrStatus	Habitats	GenHab	MicroHab	Potential to Occur*
<i>Riparia riparia</i>	Bank Swallow	N	ST	G5	S2		BLM_S-Sensitive IUCN_LC-Least Concern	Riparian scrub Riparian woodland	Colonial nester; nests primarily in riparian and other lowland habitats west of the desert.	Requires vertical banks/cliffs with fine-textured/sandy soils near streams, rivers, lakes, ocean to dig nesting hole.	Moderate Potential. There are numerous records of this species from the immediate project vicinity, and foraging and nesting habitat is present at along the Eel River (eBird 2019).
<i>Strix occidentalis caurina</i>	Northern Spotted Owl	FT	ST	G3T3	S2S3		CDF_S-Sensitive IUCN_NT-Near Threatened NABCI_YWL-Yellow Watch List	North coast coniferous forest Oldgrowth Redwood	Old-growth forests or mixed stands of old-growth and mature trees. Occasionally in younger forests with patches of big trees.	High, multistory canopy dominated by big trees, many trees with cavities or broken tops, woody debris, and space under canopy.	Low Potential. Although there are numerous records of this species from the larger project vicinity including evidence of historical nesting, no nesting, roosting, or foraging habitat for this species is present at project site (CDFW 2019).
Reptiles											
<i>Chelonia mydas</i>	Green Sea Turtle aka East Pacific Green Sea Turtle	FT	N	G3	S1		IUCN_EN-Endangered	Marine bay	Marine.	Completely herbivorous; needs adequate supply of seagrasses and algae.	No Potential. No marine habitat is present within the project site.
<i>Dermochelys coriacea</i>	Leatherback Sea Turtle	FE	N					Marine	Marine	Open ocean. Also seas, gulfs, bays, and estuaries. Seldom approaches land except for nesting.	No Potential. No marine habitat is present within the project site.

<i>SciName</i>	<i>ComName</i>	<i>FedList</i>	<i>CalList</i>	<i>GRank</i>	<i>SRank</i>	<i>RPlantRa</i>	<i>OthrStatus</i>	<i>Habitats</i>	<i>GenHab</i>	<i>MicroHab</i>	<i>Potential to Occur*</i>
<i>Emys marmorata</i>	Western Pond Turtle	N	N	G3G4	S3		BLM_S-Sensitive CDFW_SSC-Species of Special Concern IUCN_VU-Vulnerable USFS_S-Sensitive	Aquatic Artificial flowing waters Klamath/North coast flowing waters Klamath/North coast standing waters Marsh & swamp Sacramento/San Joaquin flowing waters Sacramento/San Joaquin standing waters South coast flowing waters South coast standing waters Wetland	A thoroughly aquatic turtle of ponds, marshes, rivers, streams and irrigation ditches, usually with aquatic vegetation, below 6000 ft elevation.	Needs basking sites and suitable (sandy banks or grassy open fields) upland habitat up to 0.5 km from water for egg-laying.	High Potential. This species is present throughout the Eel River watershed and suitable upland habitat is present within the project site (CDFW 2019).
<i>Lepidochelys olivacea</i>	Olive Ridley Sea Turtle	SE	N					Marine	Marine	Tropical and subtropical waters including protected, shallow, marine and estuarine waters, bays and lagoons, to offshore areas. Nesting occurs on upper beaches.	No Potential. No marine habitat is present within the project site.
Amphibians											
<i>Ascaphus truei</i>	Pacific Tailed Frog	N	N	G4	S3S4		CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern	Aquatic Klamath/North coast flowing waters Lower montane coniferous forest North coast coniferous forest Redwood Riparian forest	Occurs in montane hardwood-conifer, redwood, Douglas-fir & ponderosa pine habitats.	Restricted to perennial montane streams. Tadpoles require water below 15 degrees C.	No Potential. Species requires substantially higher gradient streams and higher velocity waters than are present within/adjacent to project site.

<i>SciName</i>	<i>ComName</i>	<i>FedList</i>	<i>CalList</i>	<i>GRank</i>	<i>SRank</i>	<i>RPlantRa</i>	<i>OthrStatus</i>	<i>Habitats</i>	<i>GenHab</i>	<i>MicroHab</i>	<i>Potential to Occur*</i>
<i>Rana aurora</i>	Northern Red-legged Frog	N	N	G4	S3		CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern USFS_S-Sensitive	Klamath/North coast flowing waters Riparian forest Riparian woodland	Humid forests, woodlands, grasslands, and streamsides in northwestern California, usually near dense riparian cover.	Generally near permanent water, but can be found far from water, in damp woods and meadows, during non-breeding season.	Moderate Potential. There are multiple records of this species from the project vicinity and suitable habitat exists adjacent to the project site (CDFW 2019, iNaturalist 2019).
<i>Rana boylei</i>	Foothill Yellow-legged Frog	N	SCT	G3	S3		BLM_S-Sensitive CDFW_SSC-Species of Special Concern IUCN_NT-Near Threatened USFS_S-Sensitive	Aquatic Chaparral Cismontane woodland Coastal scrub Klamath/North coast flowing waters Lower montane coniferous forest Meadow & seep Riparian forest Riparian woodland Sacramento/San Joaquin flowing waters	Partly-shaded, shallow streams and riffles with a rocky substrate in a variety of habitats.	Needs at least some cobble-sized substrate for egg-laying. Needs at least 15 weeks to attain metamorphosis.	Moderate Potential. There are records of this species from the project vicinity (iNaturalist 2019). This species is present throughout the Eel River watershed and suitable habitat exists adjacent to the project site at the Eel River.
<i>Rhyacotriton variegatus</i>	Southern Torrent Salamander	N	N	G3G4	S2S3		CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern USFS_S-Sensitive	Lower montane coniferous forest Oldgrowth Redwood Riparian forest	Coastal redwood, Douglas-fir, mixed conifer, montane riparian, and montane hardwood-conifer habitats. Old growth forest.	Cold, well-shaded, permanent streams and seepages, or within splash zone or on moss-covered rocks within trickling water.	No Potential. Species requires substantially higher gradient streams and higher velocity waters than are present within/adjacent to project site.
Fish											
<i>Acipenser medirostris</i>	Green Sturgeon	FT	N	G3	S1S2		AFS_VU-Vulnerable CDFW_SSC-Species of Special Concern IUCN_NT-Near Threatened NMFS_SC-Species of Concern	Aquatic Klamath/North coast flowing waters Sacramento/San Joaquin flowing waters	These are the most marine species of sturgeon. Abundance increases northward of Point Conception. Spawns in the Sacramento, Klamath, & Trinity Rivers.	Spawns at temps between 8-14 C. Preferred spawning substrate is large cobble, but can range from clean sand to bedrock.	Moderate Potential. Known to spawn in the Eel River in the spring (Stillwater Sciences and Wiyot Tribe 2017).

<i>SciName</i>	<i>ComName</i>	<i>FedList</i>	<i>CalList</i>	<i>GRank</i>	<i>SRank</i>	<i>RPlantRa</i>	<i>OthrStatus</i>	<i>Habitats</i>	<i>GenHab</i>	<i>MicroHab</i>	<i>Potential to Occur*</i>
<i>Entosphenus tridentatus</i>	Pacific Lamprey	N	N	G4	S4		AFS_VU-Vulnerable BLM_S-Sensitive CDFW_SSC-Species of Special Concern USFS_S-Sensitive	Aquatic Klamath/North coast flowing waters Sacramento/San Joaquin flowing waters South coast flowing waters	Found in Pacific Coast streams north of San Luis Obispo County, however regular runs in Santa Clara River. Size of runs is declining.	Swift-current gravel-bottomed areas for spawning with water temps between 12-18 C. Ammocoetes need soft sand or mud.	Moderate Potential. Known to spawn in the Eel River basin primarily April through mid-July (Streif 2007, Stillwater 2010, Limm and Power 2011).
<i>Eucyclogobius newberryi</i>	Tidewater Goby	FE	N	G3	S3		AFS_EN-Endangered CDFW_SSC-Species of Special Concern IUCN_VU-Vulnerable	Aquatic Klamath/North coast flowing waters Sacramento/San Joaquin flowing waters South coast flowing waters	Brackish water habitats along the California coast from Agua Hedionda Lagoon, San Diego County to the mouth of the Smith River.	Found in shallow lagoons and lower stream reaches, they need fairly still but not stagnant water and high oxygen levels.	No Potential. No brackish water is present within the project site.
<i>Oncorhynchus clarkii clarkii</i>	Coast Cutthroat Trout	N	N	G4T4	S3		AFS_VU-Vulnerable CDFW_SSC-Species of Special Concern USFS_S-Sensitive	Aquatic Klamath/North coast flowing waters	Small coastal streams from the Eel River to the Oregon border.	Small, low gradient coastal streams and estuaries. Needs shaded streams with water temperatures <18C, and small gravel for spawning.	Moderate Potential. Known to spawn in the Eel River and its tributaries with peak spawning in December in large streams (CDFW 2019, Native Fish Society 2019).
<i>Oncorhynchus kisutch pop. 2</i>	Coho Salmon - southern Oregon / northern California ESU	FT	ST	G4T2Q	S2?		AFS_TH-Threatened	Aquatic Klamath/North coast flowing waters Sacramento/San Joaquin flowing waters	Federal listing refers to populations between Cape Blanco, Oregon and Punta Gorda, Humboldt County, California.	State listing refers to populations between the Oregon border and Punta Gorda, California.	Moderate Potential. Known to spawn in the Eel River and its tributaries primarily in November and December (CDFW 2019, Native Fish Society 2019).
<i>Oncorhynchus mykiss irideus pop. 16</i>	Steelhead - northern California DPS	FT	N	G5T2T3Q	S2S3		AFS_TH-Threatened	Aquatic Sacramento/San Joaquin flowing waters	Coastal basins from Redwood Creek south to the Gualala River, inclusive. Does not include summer-run steelhead.		Moderate Potential. Known to spawn in the Eel River and its tributaries from December through April (CalFish 2018, Native Fish Society 2019).

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<i>SciName</i>	<i>ComName</i>	<i>FedList</i>	<i>CalList</i>	<i>GRank</i>	<i>SRank</i>	<i>RPlantRa</i>	<i>OthrStatus</i>	<i>Habitats</i>	<i>GenHab</i>	<i>MicroHab</i>	<i>Potential to Occur*</i>
<i>Bombus caliginosus</i>	Obscure Bumble Bee	N	N	G4?	S1S2		IUCN_VU-Vulnerable		Coastal areas from Santa Barabara county to north to Washington state.	Food plant genera include Baccharis, Cirsium, Lupinus, Lotus, Grindelia and Phacelia.	Moderate Potential. Project site falls within the species current range (Hatfield et al. 2014). In addition, the project site is within the coastal fog belt and may include several of the species' food plants.
<i>Bombus occidentalis</i>	Western Bumble Bee	N	SCE	G2G3	S1		USFS_S-Sensitive XERCES_IM-Imperiled		Once common & widespread, species has declined precipitously from central CA to southern B.C., perhaps from disease.		Low Potential. Although the project site falls within the species pre-2002 range (according to ICUN Redlist), the range has contracted significantly in the last decade and now only includes the intermountain west and cascade regions of the US (Hatfield et al. 2014).
Bryophytes											
<i>Fissidens pauperculus</i>	minute pocket moss	N	N	G3?	S2	1B.2	USFS_S-Sensitive	North coast coniferous forest Redwood	North coast coniferous forest.	Moss growing on damp soil along the coast. In dry streambeds and on stream banks. 10-1024 m.	No Potential. North coast coniferous forest is not present.
Dicots											
<i>Abronia umbellata</i> var. <i>breviflora</i>	pink sand-verbena	N	N	G4G5T2	S2	1B.1	BLM_S-Sensitive SB_RSABG-Rancho Santa Ana Botanic Garden	Coastal dunes	Coastal dunes and coastal strand.	Foredunes and interdunes with sparse cover. A. umbellata var. breviflora is usually the plant closest to the ocean. 0-75 m.	No Potential. Coastal dunes are not present.

<i>SciName</i>	<i>ComName</i>	<i>FedLi</i> <i>st</i>	<i>CalLi</i> <i>st</i>	<i>GRank</i>	<i>SRank</i>	<i>RPlantRa</i>	<i>OthrStatus</i>	<i>Habitats</i>	<i>GenHab</i>	<i>MicroHab</i>	<i>Potential to Occur*</i>
<i>Astragalus pycnostachyus</i> var. <i>pycnostachyus</i>	coastal marsh milk-vetch	N	N	G2T2	S2	1B.2	BLM_S-Sensitive SB_RSABG-Rancho Santa Ana Botanic Garden SB_SBBG-Santa Barbara Botanic Garden SB_UCBBG-UC Berkeley Botanical Garden	Coastal dunes Coastal scrub Marsh & swamp Wetland	Coastal dunes, marshes and swamps, coastal scrub.	Mesic sites in dunes or along streams or coastal salt marshes. 0-155 m.	No Potential. Neither coastal dunes nor coastal scrub near salt marsh occur.
<i>Cardamine angulata</i>	seaside bittercress	N	N	G4G5	S3	2B.1		Lower montane coniferous forest North coast coniferous forest Wetland	North coast coniferous forest, lower montane coniferous forest.	Wet areas, streambanks. 5-515 m.	No Potential. Neither lower montane coniferous forest nor north coast coniferous forest are present.
<i>Castilleja ambigua</i> var. <i>humboldtensis</i>	Humboldt Bay owl's-clover	N	N	G4T2	S2	1B.2	BLM_S-Sensitive	Marsh & swamp Salt marsh Wetland	Marshes and swamps.	In coastal saltmarsh with Spartina, Distichlis, Salicornia, Jaumea. 0-20 m.	No Potential. No salt marsh habitat nor marsh or swamp habitat is present.
<i>Castilleja litoralis</i>	Oregon coast paintbrush	N	N	G3	S3	2B.2		Coastal bluff scrub Coastal dunes Coastal scrub	Coastal bluff scrub, coastal dunes, coastal scrub.	Sandy sites. 5-255 m.	Low Potential. No coastal bluff scrub or coastal dune habitat is present. Scrub-shrub vegetation is present with sandy substrates but project location is probably too far inland for this species.
<i>Chloropyron maritimum</i> ssp. <i>palustre</i>	Point Reyes salty bird's-beak	N	N	G4?T2	S2	1B.2	BLM_S-Sensitive	Marsh & swamp Salt marsh Wetland	Coastal salt marsh.	Usually in coastal salt marsh with Salicornia, Distichlis, Jaumea, Spartina, etc. 0-115 m.	No Potential. No coastal salt marsh habitat is present.

<i>SciName</i>	<i>ComName</i>	<i>FedLi</i> <i>st</i>	<i>CalLi</i> <i>st</i>	<i>G</i> <i>Ran</i> <i>k</i>	<i>S</i> <i>Ran</i> <i>k</i>	<i>R</i> <i>Pla</i> <i>ntRa</i>	<i>OthrStatus</i>	<i>Habitats</i>	<i>GenHab</i>	<i>MicroHab</i>	<i>Potential to Occur*</i>
<i>Clarkia amoena</i> <i>ssp. whitneyi</i>	Whitney's farewell-to- spring	N	N	G5T1	S1	1B.1	SB_RSABG-Rancho Santa Ana Botanic Garden SB_UCBBG-UC Berkeley Botanical Garden	Coastal bluff scrub Coastal scrub	Coastal bluff scrub, coastal scrub.	5-125 m.	Low Potential. No coastal bluff scrub is present. Scrub-shrub vegetation is present. There is a 1955 CNDDB occurrence mapped 1.5 miles west of Fortuna.
<i>Downingia</i> <i>willamettensis</i>	Cascade downingia	N	N	G4	S2	2B.2		Cismontane woodland Valley & foothill grassland Vernal pool	Cismontane woodland, Clarkia amoena ssp. whitneyi	Lake margins. 15-1110 m.	Low Potential. No cismontane woodland, valley or foothill grassland or vernal pool habitat is present.
<i>Erysimum</i> <i>menziesii</i>	Menzies' wallflower	FE	SE	G1	S1	1B.1	SB_RSABG-Rancho Santa Ana Botanic Garden SB_UCBBG-UC Berkeley Botanical Garden	Coastal dunes	Coastal dunes.	Localized on dunes and coastal strand. 1-25 m.	No Potential. Coastal dunes are not present.
<i>Gilia capitata</i> <i>ssp. pacifica</i>	Pacific gilia	N	N	G5T3	S2	1B.2		Chaparral Coastal bluff scrub Coastal prairie Valley & foothill grassland	Coastal bluff scrub, chaparral, coastal prairie, valley and foothill grassland.	5-1345 m.	No Potential. No chaparral, coastal bluff scrub, coastal prairie,n or valley or foothill grassland is present.
<i>Gilia millefoliata</i>	dark-eyed gilia	N	N	G2	S2	1B.2	BLM_S-Sensitive	Coastal dunes	Coastal dunes.	1-60 m.	No Potential. Coastal dunes are not present.
<i>Hesperervax</i> <i>sparsiflora</i> var. <i>brevifolia</i>	short-leaved evax	N	N	G4T3	S2	1B.2	BLM_S-Sensitive	Coastal bluff scrub Coastal dunes Coastal prairie	Coastal bluff scrub, coastal dunes, coastal prairie.	Sandy bluffs and flats. 0- 640 m.	No Potential. Coastal dunes, coastal bluff scrub, coastal prairie, valley and foothill grassland are not present.
<i>Hesperolinon</i> <i>adenophyllum</i>	glandular western flax	N	N	G2G3	S2S3	1B.2		Chaparral, Cismontane woodland, Valley and foothill grassland		usually serpentinite 150- 1315 m.	No Potential. No Chaparral, Cismontane woodland, Valley or foothill grassland occurs.

<i>SciName</i>	<i>ComName</i>	<i>FedLi</i> <i>st</i>	<i>CalLi</i> <i>st</i>	<i>G</i> <i>Ran</i> <i>k</i>	<i>S</i> <i>Ran</i> <i>k</i>	<i>R</i> <i>Pla</i> <i>ntRa</i>	<i>OthrStatus</i>	<i>Habitats</i>	<i>GenHab</i>	<i>MicroHab</i>	<i>Potential to Occur*</i>
<i>Layia carnosa</i>	beach layia	FE	SE	G2	S2	1B.1	SB_RSABG-Rancho Santa Ana Botanic Garden SB_SBBG-Santa Barbara Botanic Garden	Coastal dunes Coastal scrub	Coastal dunes, coastal scrub.	On sparsely vegetated, semi-stabilized dunes, usually behind foredunes. 3-30 m.	No Potential. No coastal dunes are present.
<i>Montia howellii</i>	Howell's montia	N	N	G3G4	S2	2B.2		Meadow & seep North coast coniferous forest Vernal pool Wetland	Meadows and seeps, north coast coniferous forest, vernal pools.	Vernally wet sites; often on compacted soil. 10-1215 m.	Low Potential. North coast coniferous forest is not present. Vernally wet sites with compacted soils are present.
<i>Noccaea fendleri</i> <i>ssp. californica</i>	Kneeland prairie pennycress	FE	N	G5?T1	S1	1B.1		Coastal prairie (serpentine)		Known from one occurrence at Kneeland Prairie.	No Potential. Specific habitat requirements, (coastl prairie, serpentine), for this very rare species are not present.
<i>Oenothera wolfii</i>	Wolf's evening-primrose	N	N	G2	S1	1B.1	BLM_S-Sensitive SB_BerrySB-Berry Seed Bank	Coastal bluff scrub Coastal dunes Coastal prairie	Coastal bluff scrub, coastal dunes, coastal prairie, lower montane coniferous forest.	Sandy substrates; usually mesic sites. 0-125 m.	Moderate Potential. Coastal bluff scrub, coastal dunes, and coastal prairie are not present. Sandy substrates are present. Scrub shrub vegetation is present, this species distribution is not limited entirely to the coast (CNDDDB 2019).
<i>Packera bolanderi</i> var. <i>bolanderi</i>	seacoast ragwort	N	N	G4T4	S2S3	2B.2		Coastal scrub North coast coniferous forest	Coastal scrub, north coast coniferous forest.	Sometimes along roadsides. 30-915 m.	No Potential. North coast coniferous forest does not occur. Scrub-shrub habitat occurs but not coastal scrub.

<i>SciName</i>	<i>ComName</i>	<i>FedLi</i> <i>st</i>	<i>CalLi</i> <i>st</i>	<i>GRan</i> <i>k</i>	<i>SRan</i> <i>k</i>	<i>RPla</i> <i>ntRa</i>	<i>OthrStatus</i>	<i>Habitats</i>	<i>GenHab</i>	<i>MicroHab</i>	<i>Potential to Occur*</i>
<i>Polemonium carneum</i>	Oregon polemonium	N	N	G3G4	S2	2B.2		Coastal prairie Coastal scrub Lower montane coniferous forest	Coastal prairie, coastal scrub, lower montane coniferous forest.	0-1830 m.	Low Potential. Coastal prairie, coastal scrub, and lower montane coniferous forest are not present. An old (1935) CNDDDB occurrence documents a location where this species occurred with coyote brush, blackberry, and thimble berry all of which are present in project area. However, this species is very rare, and known primarily from old occurrence data.
<i>Sidalcea malachroides</i>	maple-leaved checkerbloom	N	N	G3	S3	4.2		Broadleaved upland forest Coastal prairie Coastal scrub North coast coniferous forest Riparian forest	Broadleaved upland forest, coastal prairie, coastal scrub, north coast coniferous forest, riparian forest.	Woodlands and clearings near coast; often in disturbed areas. 4-765 m.	Moderate Potential. Riparian forest, scrub-shrub vegetation and disturbed areas are present.
<i>Sidalcea malviflora ssp. patula</i>	Siskiyou checkerbloom	N	N	G5T2	S2	1B.2	BLM_S-Sensitive	Coastal bluff scrub Coastal prairie North coast coniferous forest	Coastal bluff scrub, coastal prairie, north coast coniferous forest.	Open coastal forest; roadcuts. 5-1255 m.	No Potential. Coastal bluff scrub, coastal prairie, and north coast coniferous forest are not present.
<i>Sidalcea oregana ssp. eximia</i>	coast checkerbloom	N	N	G5T1	S1	1B.2	BLM_S-Sensitive	Lower montane coniferous forest Meadow & seep North coast coniferous forest Wetland	Meadows and seeps, north coast coniferous forest, lower montane coniferous forest.	Near meadows, in gravelly soil. 5-1805 m.	No Potential. Specific habitats for this species are not present at project location, including meadows and north coast coniferous forest.

<i>SciName</i>	<i>ComName</i>	<i>FedList</i>	<i>CalList</i>	<i>GRank</i>	<i>SRank</i>	<i>RPlantRa</i>	<i>OthrStatus</i>	<i>Habitats</i>	<i>GenHab</i>	<i>MicroHab</i>	<i>Potential to Occur*</i>
<i>Spergularia canadensis</i> var. <i>occidentalis</i>	western sand-spurrey	N	N	G5T4	S1	2B.1		Marsh & swamp Wetland	Marshes and swamps (coastal salt marshes).	0-3 m.	No Potential. No swamp or coastal salt marsh habitat is present.
Monocots											
<i>Carex leptalea</i>	bristle-stalked sedge	N	N	G5	S1	2B.2		Bog & fen Freshwater marsh Marsh & swamp Meadow & seep Wetland	Bogs and fens, meadows and seeps, marshes and swamps.	Mostly known from bogs and wet meadows. 3-1395 m.	No Potential. No bog, fen, marsh, or swamp habitat is present at project location.
<i>Carex lyngbyei</i>	Lyngbye's sedge	N	N	G5	S3	2B.2		Marsh & swamp Wetland	Marshes and swamps (brackish or freshwater).	0-200 m.	No Potential. No marsh or swamp habitat is present. No brackish water is present.
<i>Erythronium oregonum</i>	giant fawn lily	N	N	G4G5	S2	2B.2		Cismontane woodland Meadow & seep Ultramafic	Cismontane woodland, meadows and seeps.	Openings. Sometimes on serpentine; rocky sites. 300-1435 m.	No Potential. Ultramafic soil, and cismontane woodland is not present. Project elevation is too low.
<i>Erythronium revolutum</i>	coast fawn lily	N	N	G4G5	S3	2B.2		Bog & fen Broadleaved upland forest North coast coniferous forest Wetland	Bogs and fens, broadleaved upland forest, north coast coniferous forest.	Mesic sites; streambanks. 60-1405 m.	No Potential. The project area does not contain bogs or fens, broadleaved upland forest, or North coast coniferous forest directly at project area.
<i>Lilium occidentale</i>	western lily	FE	SE	G1	S1	1B.1	SB_BerrySB-Berry Seed Bank	Bog & fen Coastal bluff scrub Coastal prairie Coastal scrub Freshwater marsh Marsh & swamp North coast coniferous forest Wetland	Coastal scrub, freshwater marsh, bogs and fens, coastal bluff scrub, coastal prairie, north coast coniferous forest, marshes and swamps.	Well-drained, old beach washes overlain with wind-blown alluvium and organic topsoil; usually near margins of Sitka spruce. 3-110 m.	No Potential. Vegetation at the project location consists of scrub-shrub vegetation and black cottonwood riparian forest, but the specific habitat requirements for this species do not occur within the project area.

<i>SciName</i>	<i>ComName</i>	<i>FedLi</i> <i>st</i>	<i>CalLi</i> <i>st</i>	<i>GRank</i>	<i>SRank</i>	<i>RPlant</i> <i>Ra</i>	<i>OthrStatus</i>	<i>Habitats</i>	<i>GenHab</i>	<i>MicroHab</i>	<i>Potential to Occur*</i>
<i>Piperia candida</i>	white-flowered rein orchid	N	N	G3	S3	1B.2	BLM_S-Sensitive	Broadleaved upland forest Lower montane coniferous forest North coast coniferous forest Ultramafic	North Coast coniferous forest, lower montane coniferous forest, broadleaved upland forest.	Sometimes on serpentine. Forest duff, mossy banks, rock outcrops, and muskeg. 20-1615 m.	No Potential. Broadleaved upland forest, lower montane coniferous forest are not present at project site. North coast coniferous forest is not present directly at the project site.
<i>Puccinellia pumila</i>	dwarf alkali grass	N	N	G4?	SH	2B.2		Marsh & swamp Wetland	Marshes and swamps.	Mineral spring meadows and coastal salt marshes. 1-10 m.	No Potential. Marshes, swamps, or mineral springs are not present.
<i>Sisyrinchium hitchcockii</i>	Hitchcock's blue-eyed grass	N	N	G2	S1	1B.1		Cismontane woodland Valley & foothill grassland	Cismontane woodland, valley and foothill grassland.	Openings in woodland or in grassland. 305 m in California.	No Potential. Specific habitats for this species are not present and project elevation is too low.
Habitats											
<i>Sitka Spruce Forest</i>	Sitka Spruce Forest	N	N	G1	S1.1						Not Present. One large Sitka spruce tree occurs within the project area, but no Sitka spruce forest.
<i>Coastal Terrace Prairie</i>	Coastal Terrace Prairie	N	N	G2	S2.1			Coastal prairie			Not Present.
<i>Northern Coastal Salt Marsh</i>	Northern Coastal Salt Marsh	N	N	G3	S3.2			Marsh & swamp Wetland			Not Present.

***Potential to**

Occur:

- No Potential: Habitat on and adjacent to the site is clearly unsuitable for the species requirements (cover, substrate, elevation, hydrology, plant community, site history, disturbance regime).
- Low Potential: Few of the habitat components meeting the species requirements are present, and/or the majority of habitat on and adjacent to the site is unsuitable or of very poor quality. The species is
- Moderate Potential: Some of the habitat components meeting the species requirements are present, and/or only some of the habitat on or adjacent to the site is unsuitable. The species has a moderate probability of being found on the site.
- High Potential: All of the habitat components meeting the species requirements are present and/or most of the habitat on or adjacent to the site is highly suitable. The species has a high probability of being found on the site.

Key:

<i>SciName</i>	<i>ComName</i>	<i>FedLi</i> <i>st</i>	<i>CalLi</i> <i>st</i>	<i>GRan</i> <i>k</i>	<i>SRan</i> <i>k</i>	<i>RPla</i> <i>ntRa</i>	<i>OthrStatus</i>	<i>Habitats</i>	<i>GenHab</i>	<i>MicroHab</i>	<i>Potential to Occur*</i>
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FE = Federal Endangered

FT = Federal Threatened

FC = Federal Candidate

FD = Federal Delisted

PT = Proposed Threatened

BCC = USFWS Birds of Conservation Concern

SE = State Endangered

SD = State Delisted

SNR=State Not Ranked

ST = State Threatened

SR = State Rare

SCE = State Candidate Endangered

SCT = State Candidate Threatened

SSC = CDFG Species of Special Concern

CFP = CDFG Fully Protected Animal

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

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

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

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

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

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<i>SciName</i>	<i>ComName</i>	<i>FedLi</i> <i>st</i>	<i>CalLi</i> <i>st</i>	<i>G</i> <i>Ran</i> <i>k</i>	<i>S</i> <i>Ran</i> <i>k</i>	<i>R</i> <i>Pla</i> <i>ntRa</i>	<i>OthrStatus</i>	<i>Habitats</i>	<i>GenHab</i>	<i>MicroHab</i>	<i>Potential to Occur*</i>
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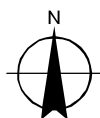
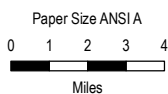
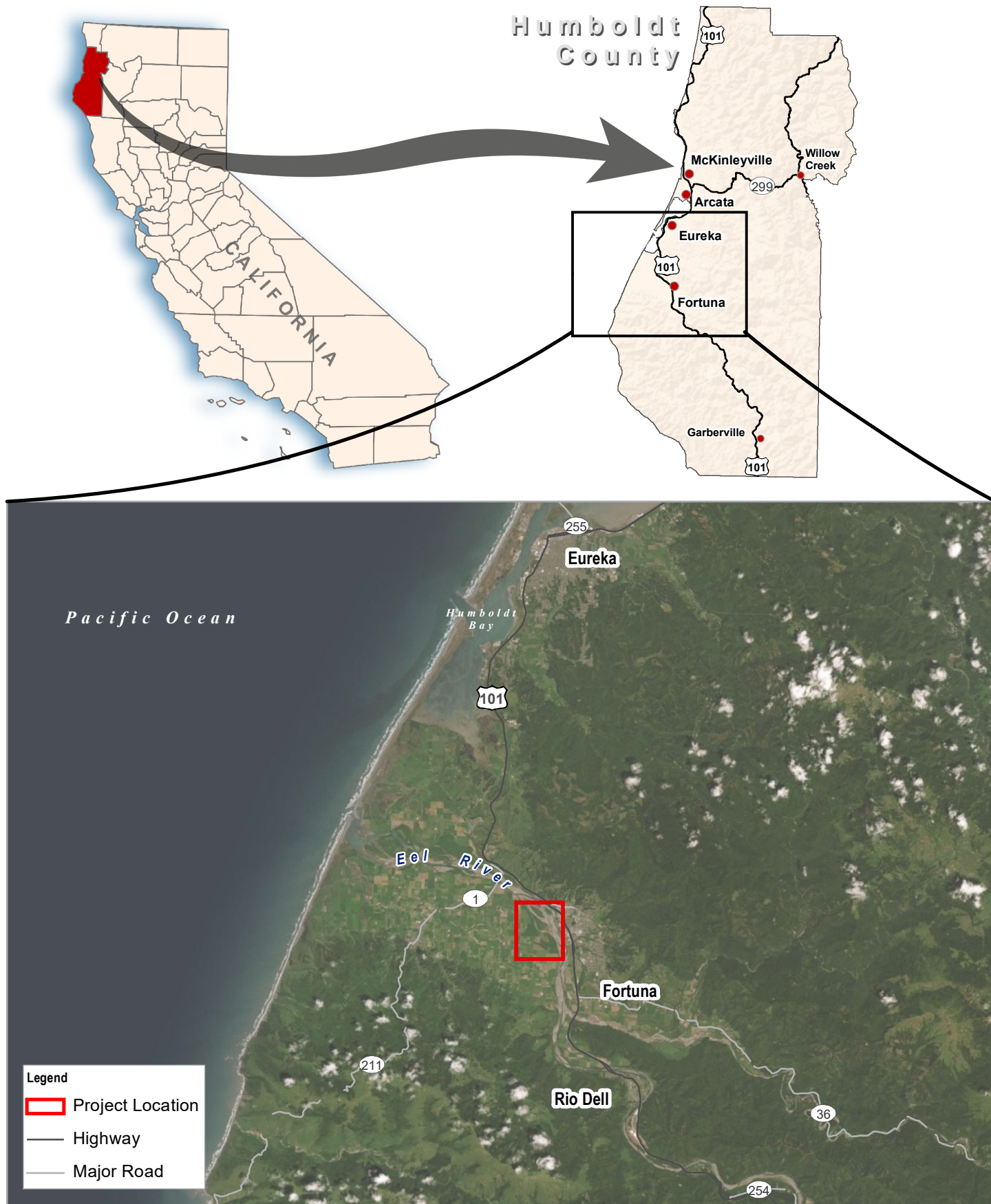
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Appendix B – Figures

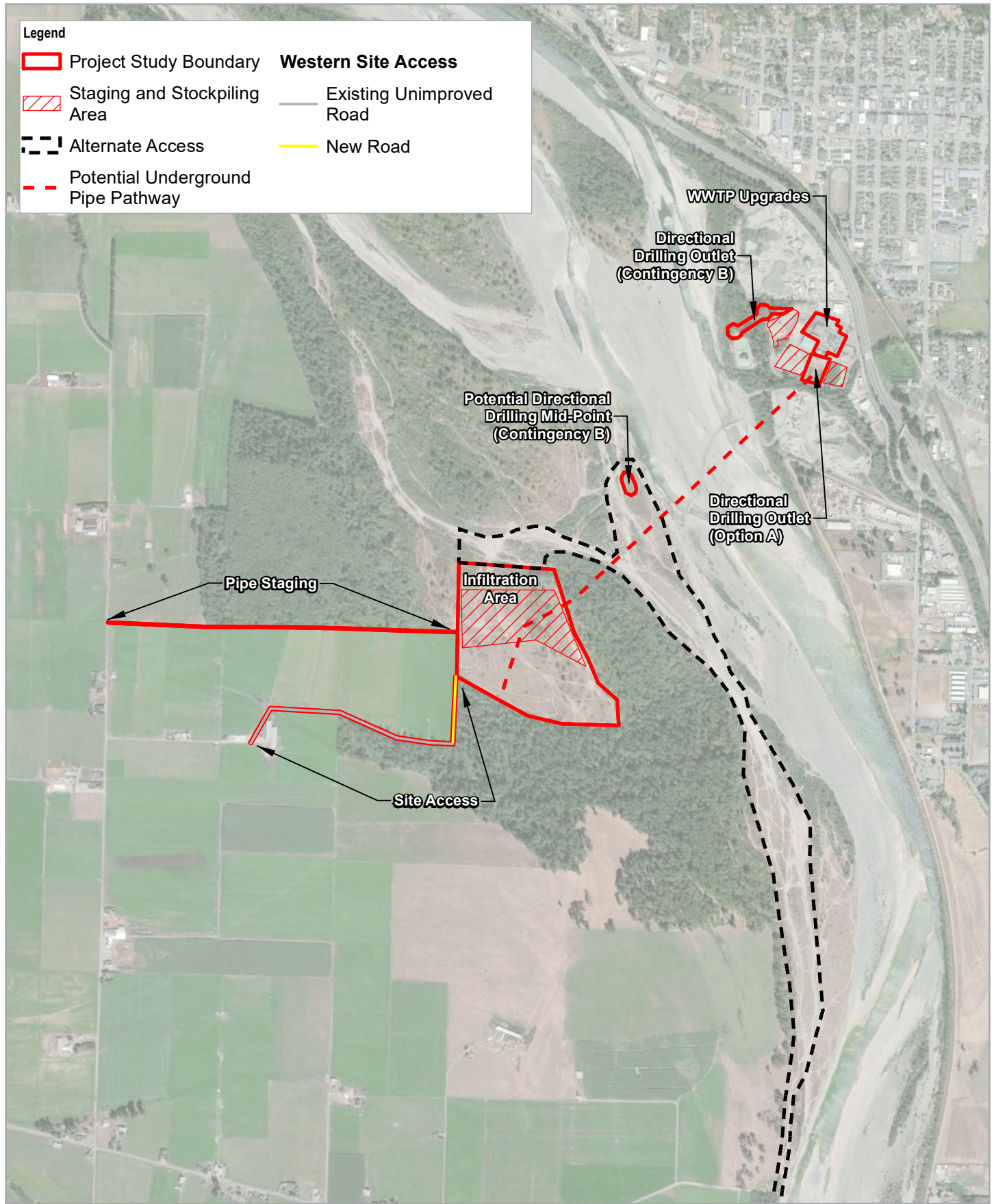


City of Fortuna
Wastewater Treatment and Effluent
Percolation System Upgrade Project

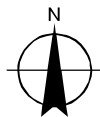
Project No. 11146364
 Revision No. -
 Date Nov 2019

Vicinity Map

FIGURE 1



Paper Size ANSI A
0 370 740 1,110 1,480
Feet



City of Fortuna
Wastewater Treatment and Effluent
Percolation System Upgrade Project

Project No. 11146364
Revision No. -
Date Dec 2019

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

Project Study Area

FIGURE 2

Data Disclaimer
Data within the CNDDDB and Spotted Owl Database require biological expertise for proper analysis, interpretation, and application. It is the user's responsibility to ensure that the data obtained from CDFW are used correctly.

Legend

- ★ Project Location
- 5 Mile Buffer (area of interest)
- Stream / River
- County Boundaries

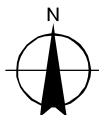
CNDDDB Occurrences within 5 miles of the project

- Plant (80m)
- ▨ Plant (specific)
- ▨ Plant (non-specific)

- Plant (circular)
- Animal (80m)
- ▨ Animal (specific)
- ▨ Animal (non-specific)
- Animal (circular)
- ▨ Multiple (non-specific)
- Multiple (circular)
- ▨ Sensitive EO's (Commercial only)

Paper Size ANSI A
0 1.5 3 4.5 6
Miles

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

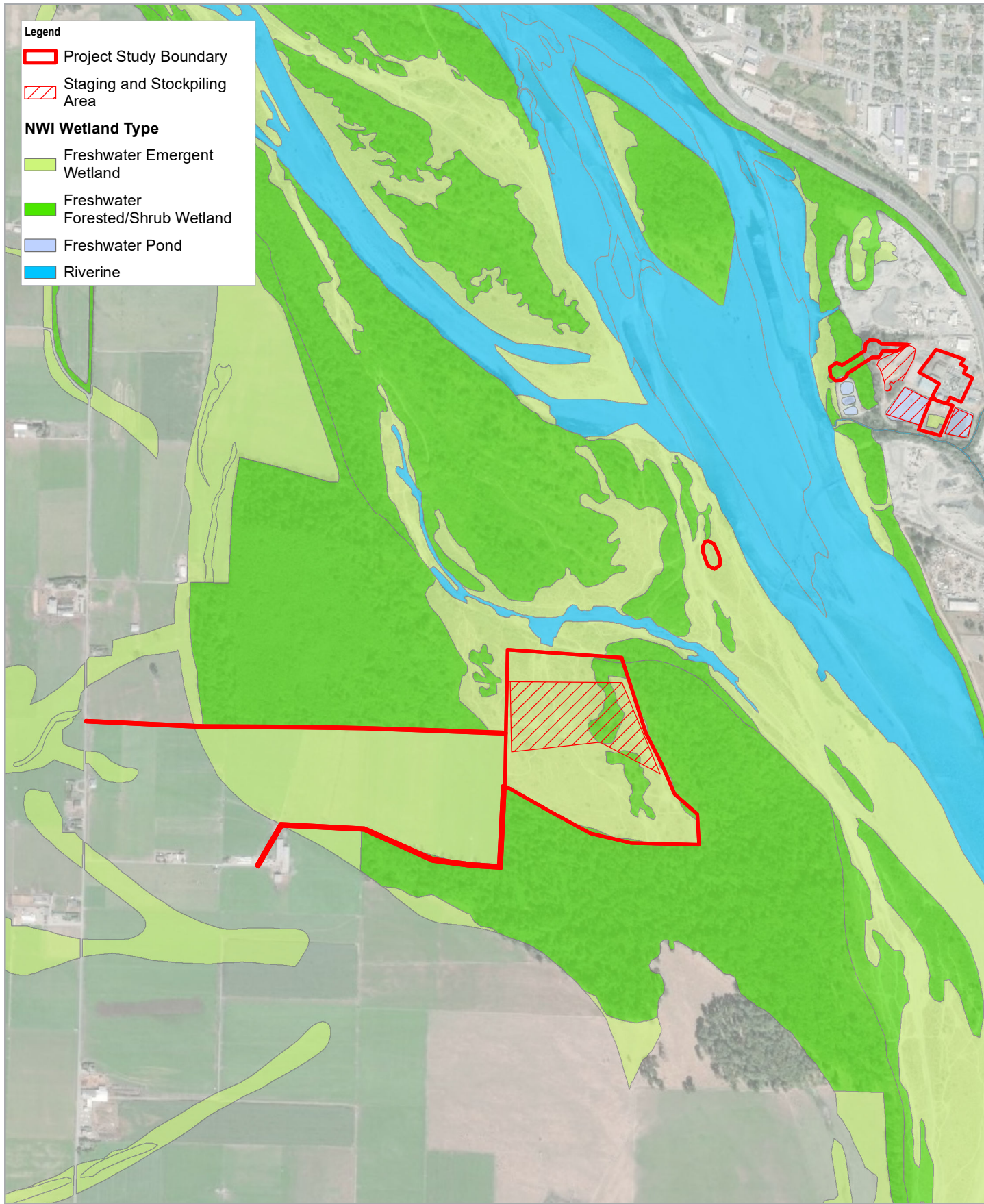


City of Fortuna
Wastewater Treatment and Effluent
Percolation System Upgrade Project

**CNDDDB Occurrences
5 mile radius**

Project No. 11146364
Revision No. -
Date Nov 2019

FIGURE 3



Legend

Project Study Boundary

Staging and Stockpiling Area

NWI Wetland Type

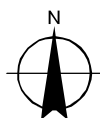
Freshwater Emergent Wetland

Freshwater Forested/Shrub Wetland

Freshwater Pond

Riverine

Paper Size ANSI A
0 280 560 840 1,120
Feet



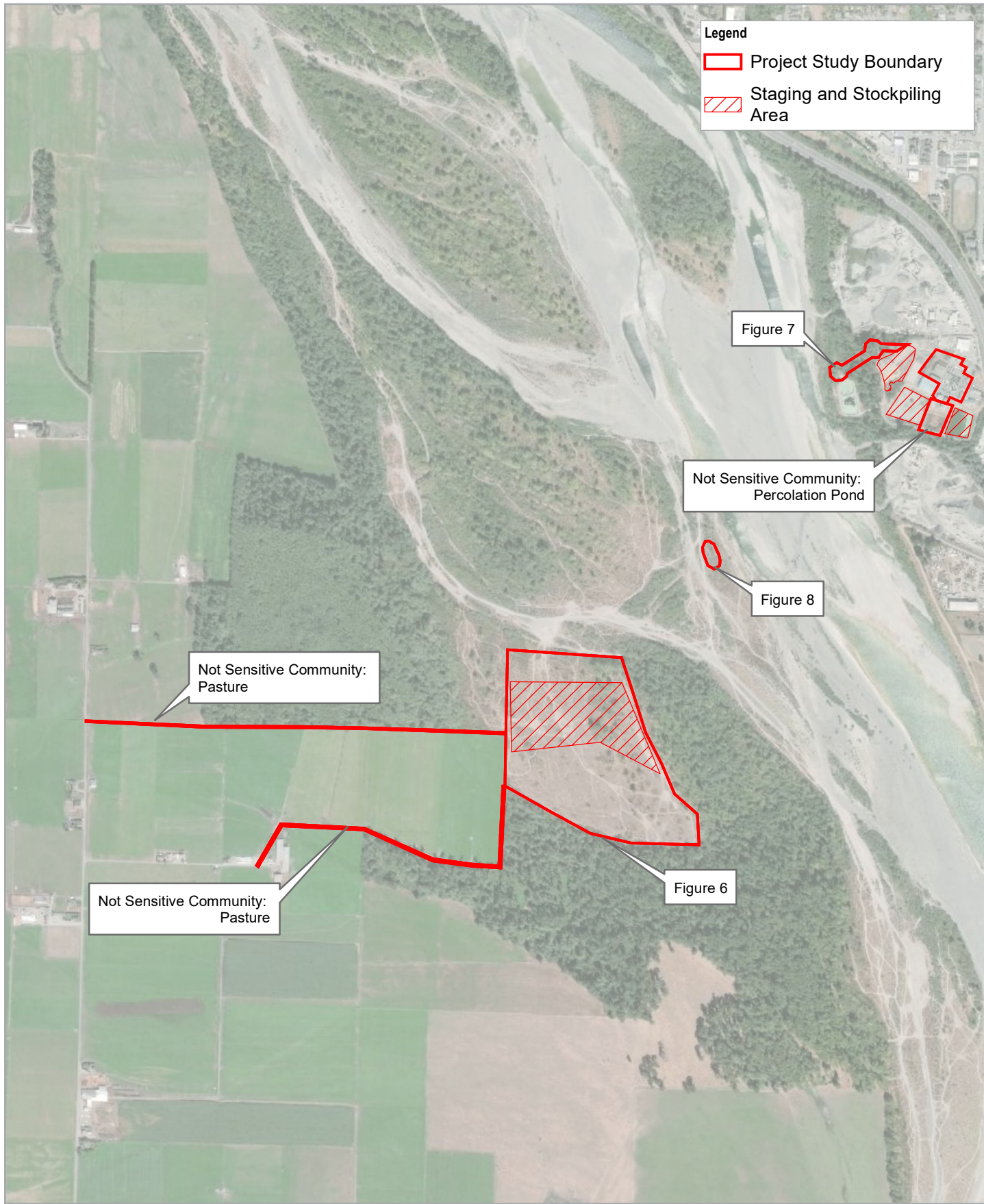
**City of Fortuna
Wastewater Treatment and Effluent
Percolation System Upgrade Project**

Project No. 11146364
Revision No. -
Date Nov 2019

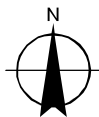
Map Projection: Lambert Conformal Conic
Horizontal Datum: North American 1983
Grid: NAD 1983 StatePlane California I FIPS 0401 Feet

National Wetlands Inventory

FIGURE 4



Paper Size ANSI A
0 300 600 900 1,200
Feet



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

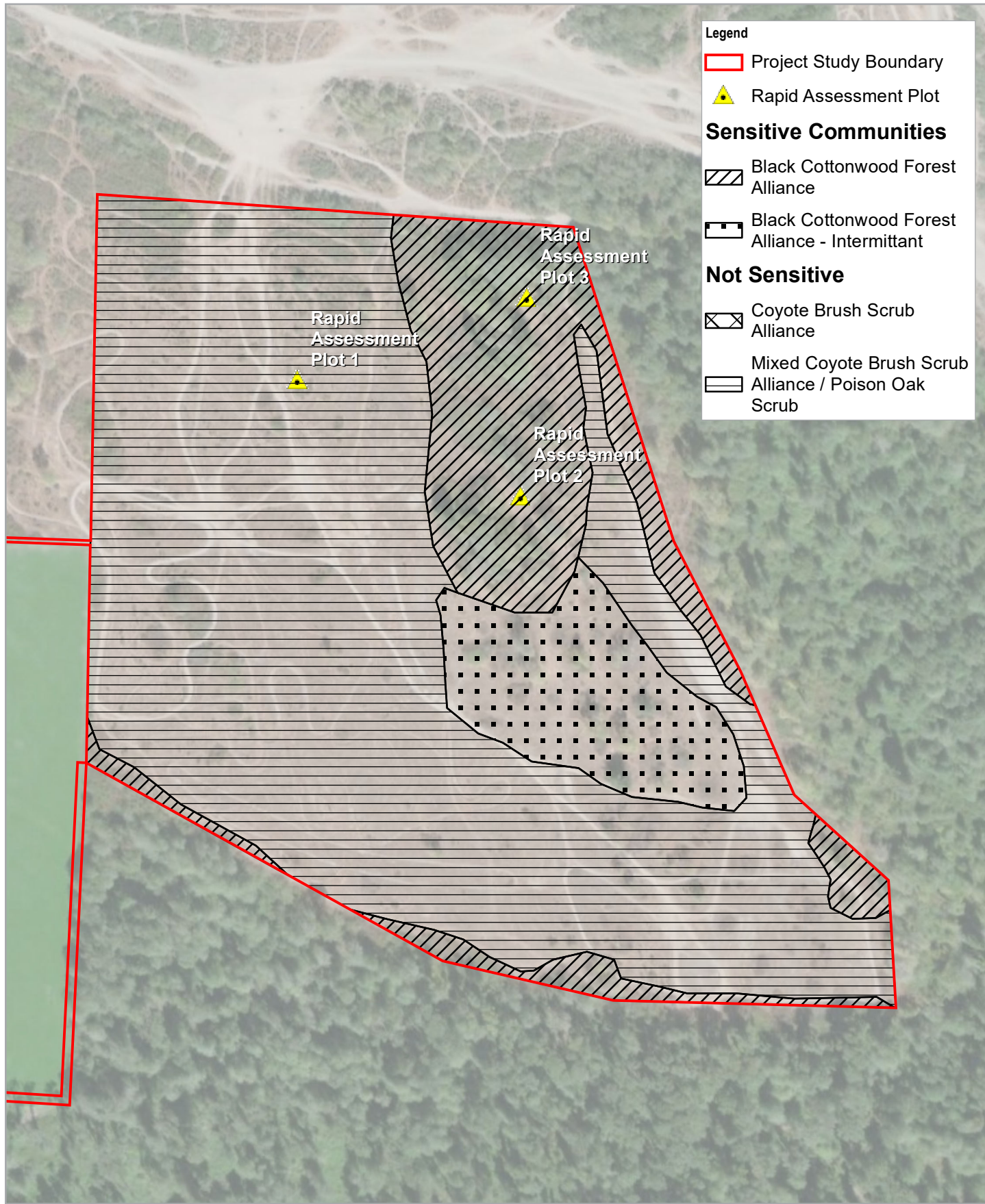


City of Fortuna
Wastewater Treatment and Effluent
Percolation System Upgrade Project

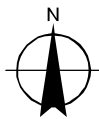
Project No. 11146364
Revision No. -
Date Nov 2019

Project Study Boundary and Overview

FIGURE 5



Paper Size ANSI A
0 60 120 180 240
Feet



City of Fortuna
Wastewater Treatment and Effluent
Percolation System Upgrade Project

Project No. 11146364
Revision No. -
Date Nov 2019

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

Vegetation Communities

FIGURE 6



Paper Size ANSI A
0 30 60 90 120
Feet



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



City of Fortuna
Wastewater Treatment and Effluent
Percolation System Upgrade Project

Project No. 11146364
Revision No. -
Date Nov 2019

Vegetation Communities

FIGURE 7



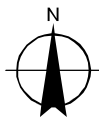
Paper Size ANSI A

0 10 20 30 40



Feet

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



City of Fortuna
Wastewater Treatment and Effluent
Percolation System Upgrade Project

Project No. 11146364
Revision No. -
Date Nov 2019

Vegetation Communities

FIGURE 8



Appendix C – Photos



Figure 1. Proposed Pipe Outlet - Abandoned Equalization Pond at Fortuna WWTP.



Figure 2. Proposed Pipe Outlet – Riparian Forest to the North of the Percolation Pond



Figure 3. Proposed Effluent Disposal Area



Figure 4. Proposed Effluent Disposal Area



Figure 5. Approximate Location of Potential Pipe Outlet/Outlet at Vegetated Eel River Gravel Bar.



Appendix D – Rapid Assessment Forms

Combined Vegetation Rapid Assessment and Relevé Field Form
(Revised March 27, 2018)

RA Wastewater
Treatment Riparian Area

For Office Use:	Final database #:	Final vegetation type:	Alliance <u>Black Cottonwood forest alliance</u> Association	
I. LOCATIONAL/ENVIRONMENTAL DESCRIPTION				circle: Relevé or <u>(RA)</u>
Database #:	Date: <u>11/6/19</u>	Name of recorder: <u>A.L.</u>		
	UID:	Other surveyors:		
		Location Name: <u>Fortuna Wastewater Treatment Property</u>		
GPS name: _____		For Relevé only: Bearing°, left axis at ID point _____ of Long / Short side		
UTME _____ UTMN _____		Zone: 11 NAD83 GPS error: ft./ m./ PDOP _____		
Decimal degrees: LAT _____		LONG _____		
GPS within stand? Yes / No If No, cite from GPS to stand: distance (m) _____ bearing ° _____ inclination ° _____				
and record: Base point ID _____ Projected UTM: UTME _____ UTMN _____				
Camera Name: _____		Cardinal photos at ID point: <u>RA encompassed entire disturbance</u>		
Other photos: _____		<u>area within riparian zone at wastewater treatment facility</u>		
Stand Size (acres): <1, 1-5, >5 Plot Area (m²): 100 / _____ Plot Dimensions _____ x _____ m RA Radius _____ m				
Exposure, Actual °: _____ NE NW SE SW Flat Variable Steepness, Actual °: _____ 0° 1-5° >5-25° >25				
Topography: Macro: top upper mid lower bottom Micro: convex flat concave undulating				
Geology code: _____ Soil Texture code: _____ Upland or Wetland/Riparian (circle one)				
% Surface cover: (Incl. outcrops) (>60cm diam) (25-60cm) (7.5-25cm) (2mm-7.5cm) (Incl sand, mud)				
H ₂ O:	BA Stems:	Litter:	Bedrock:	Boulder: Stone: Cobble: Gravel: Fines: =100%
% Current year bioturbation _____ Past bioturbation present? Yes / No % Hoof punch _____				
Fire evidence: Yes / No (circle one) If yes, describe in Site history section, including date of fire, if known.				
Site history, stand age, comments: <u>This Rapid Assessment was performed within the proposed inlet location within riparian zone of lower Eel River bordering the Fortuna sewage treatment facility. Cottonwood dominant in overstory with red alder and some willow. Shrubs dense in some areas. Herbaceous layer contains California blackberry vines, hedge nettle, stinging nettle and horsetail. Some downed cottonwoods on ground. A few cottonwood (larger than T4 category) grow on edges of project study boundary</u>				
Disturbance code / Intensity (L,M,H): _____ / _____ / _____ / _____ / _____ "Other" _____ / _____				
II. HABITAT DESCRIPTION				
Tree DBH: <u>T1</u> (<1" dbh), <u>T2</u> (1-6" dbh), <u>T3</u> (6-11" dbh), <u>T4</u> (11-24" dbh), <u>T5</u> (>24" dbh), <u>T6</u> multi-layered (T3 or T4 layer under T5, >60% cover)				
Shrub: <u>S1</u> seedling (<3 yr. old), <u>S2</u> young (<1% dead), <u>S3</u> mature (1-25% dead), <u>S4</u> decadent (>25% dead)				
Herbaceous: <u>H1</u> (<12" plant ht.), <u>H2</u> (>12" ht.)				
Desert Riparian Tree/Shrub: 1 (<2ft. stem ht.), 2 (2-10ft. ht.), 3 (10-20ft. ht.), 4 (>20ft. ht.)				
Desert Palm/Joshua Tree: 1 (<1.5" base diameter), 2 (1.5-6" diam.), 3 (>6" diam.)				
III. INTERPRETATION OF STAND				
Field-assessed vegetation Alliance name: <u>Black cottonwood forest alliance</u>				
Field-assessed Association name (optional): _____				
Adjacent Alliances/direction: _____ / _____ / _____				
Confidence in Alliance identification: L M H Explain: _____				
Phenology (E,P,L): Herb Shrub Tree Other identification or mapping information: _____				

SPECIES SHEET

Unusual species: _____

Combined Vegetation Rapid Assessment and Relevé Field Form
(Revised March 27, 2018)

Rapid Assessment
Plot # 1

For Office Use:		Final database #:		Final vegetation type:		Alliance Association	
I. LOCATIONAL/ENVIRONMENTAL DESCRIPTION							
Database #:		Date:		Name of recorder:		circle: Relevé or (RA)	
		11/12/19		A.L.			
		UID:		Other surveyors:			
				Location Name:		Main Site	
GPS name: iPad				For Relevé only: Bearing° , left axis at ID point ____ of Long / Short side			
UTME _____		UTMN _____		Zone: 11 NAD83		GPS error: ft./ m./ PDOP _____	
Decimal degrees: LAT _____				LONG _____			
GPS within stand? (Yes) No If No, cite from GPS to stand: distance (m) ____ bearing ° ____ inclination ° ____							
and record: Base point ID _____				Projected UTM's: UTME _____ UTMN _____			
Camera Name:				Cardinal photos at ID point:			
Other photos: phone							
Stand Size (acres): <1, 1-5, >5 Plot Area (m²): 100 / ____ Plot Dimensions ____ x ____ m RA Radius 25 m							
Exposure, Actual °: ____ NE NW SE SW (Flat) Variable Steepness, Actual °: ____ 0° 1-5° > 5-25° > 25							
Topography: Macro: top upper mid (lower) bottom Micro: convex flat concave (undulating)							
Geology code: _____ Soil Texture code: _____ Upland or Wetland/Riparian (circle one)							
% Surface cover: (Incl. outcrops) (>60cm diam) (25-60cm) (7.5-25cm) (2mm-7.5cm) (Incl sand, mud)							
H2O: 0 BA Stems: 1 Litter: Bedrock: Boulder: Stone: Cobble: Gravel: Fines: 99 =100%							
% Current year bioturbation _____ Past bioturbation present? Yes / No % Hoof punch _____							
Fire evidence: Yes / No (circle one) If yes, describe in Site history section, including date of fire, if known.							
Site history, stand age, comments: Cottonwood forest has been cleared throughout most of the study area. Study area is a terrace above the Eel River. Large portions of the study area have little to no overstory canopy, including this RA plot. Study area is heavily disturbed from recreational off road vehicles. Coyote brush is very dense on the north end of the study area (including this RA plot). It is also well distributed throughout study area and is the most common shrub species along with poison oak.							
Disturbance code / Intensity (L,M,H): ____ / ____ / ____ / ____ / ____ / ____ "Other" ____ / ____							
II. HABITAT DESCRIPTION							
Tree DBH: T1 (<1" dbh), T2 (1-6" dbh), T3 (6-11" dbh), T4 (11-24" dbh), T5 (>24" dbh), T6 multi-layered (T3 or T4 layer under T5, >60% cover)							
Shrub: S1 seedling (<3 yr. old), S2 young (<1% dead), S3 mature (1-25% dead), S4 decadent (>25% dead)							
Herbaceous: H1 (<12" plant ht.), H2 (>12" ht.)							
Desert Riparian Tree/Shrub: 1 (<2ft. stem ht.), 2 (2-10ft. ht.), 3 (10-20ft. ht.), 4 (>20ft. ht.)							
Desert Palm/Joshua Tree: 1 (<1.5" base diameter), 2 (1.5-6" diam.), 3 (>6" diam.)							
III. INTERPRETATION OF STAND							
Field-assessed vegetation Alliance name: Coyote brush scrub (Baccharis pilularis Shrubland Alliance)							
Field-assessed Association name (optional): _____							
Adjacent Alliances/direction: _____							
Confidence in Alliance identification: L M H Explain: _____							
Phenology (E,P,L): Herb Shrub Tree Other identification or mapping information: _____							

RA Plt # 1

Database #:

IV. VEGETATION DESCRIPTION

Height Class - Conifer tree / Hardwood tree: / Regenerating Tree: Shrub: 3 Herbaceous: 1

Height classes: 1= $\leq 1/2$ m, 2= $1/2-1$ m, 3= $1-2$ m, 4= $2-5$ m, 5= $5-10$ m, 6= $10-15$ m, 7= $15-20$ m, 8= $20-35$ m, 9= $35-50$ m, 10= ≥ 50 m

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

[illegible]

Unusual species: _____

RA # 2

Combined Vegetation Rapid Assessment and Relevé Field Form
(Revised March 27, 2018)

For Office Use:	Final database #:	Final vegetation type:	Alliance <u>Black cottonwood forest alliance</u> Association	
I. LOCATIONAL/ENVIRONMENTAL DESCRIPTION				circle: Relevé or <u>RA</u>
Database #:	Date: <u>11/12/19</u>	Name of recorder: <u>A.L.</u>		
	UID:	Other surveyors:		
		Location Name: <u>Main Site</u>		
GPS name: <u>ipad</u>		For Relevé only: Bearing°, left axis at ID point ____ of <u>Long</u> / <u>Short</u> side		
UTME _____ UTMN _____		Zone: 11 NAD83 GPS error: ft./ m./ PDOP _____		
Decimal degrees: LAT _____		LONG _____		
GPS within stand? <u>Yes</u> / No If No, cite from GPS to stand: distance (m) ____ bearing ° ____ inclination ° ____				
and record: Base point ID _____ Projected UTM: UTME _____ UTMN _____				
Camera Name: _____		Cardinal photos at ID point: _____		
Other photos: <u>phone</u>				
Stand Size (acres): <1, 1-5, >5 Plot Area (m²): 100 / _____ Plot Dimensions ____ x ____ m RA Radius <u>25</u> m				
Exposure, Actual °: ____ NE NW SE SW <u>Flat</u> Variable Steepness, Actual °: ____ 0° <u>1-5°</u> > 5-25° > 25				
Topography: Macro: top upper mid <u>lower</u> bottom Micro: convex flat concave <u>undulating</u>				
Geology code: _____ Soil Texture code: _____ Upland or Wetland/Riparian (circle one)				
% Surface cover: (Incl. outcrops) (>60cm diam) (25-60cm) (7.5-25cm) (2mm-7.5cm) (Incl sand, mud)				
H ₂ O: <u>0</u> BA Stems: <u>1</u> Litter: _____ Bedrock: _____ Boulder: _____ Stone: _____ Cobble: _____ Gravel: _____ Fines: <u>99</u> =100%				
% Current year bioturbation _____ Past bioturbation present? Yes / No % Hoof punch _____				
Fire evidence: Yes / No (circle one) If yes, describe in Site history section, including date of fire, if known.				
Site history, stand age, comments: <u>Plot center is located on one of the many roads occurring in the Project Study Area. Most of the project area has been disturbed but remnant black cottonwood forest occurs in a large patch in the project area. There is a large single Sitka spruce tree just outside of RA plot. This area has denser patches of cottonwood which become less abundant in the southern part of the project area.</u>				
Disturbance code / Intensity (L,M,H): ____ / ____ / ____ "Other" ____ / ____				
II. HABITAT DESCRIPTION				
Tree DBH: <u>T1</u> (<1" dbh), <u>T2</u> (1-6" dbh), <u>T3</u> (6-11" dbh), <u>T4</u> (11-24" dbh), <u>T5</u> (>24" dbh), <u>T6</u> multi-layered (T3 or T4 layer under T5, >60% cover)				
Shrub: <u>S1</u> seedling (<3 yr. old), <u>S2</u> young (<1% dead), <u>S3</u> mature (1-25% dead), <u>S4</u> decadent (>25% dead)				
Herbaceous: <u>H1</u> (<12" plant ht.), <u>H2</u> (>12" ht.)				
Desert Riparian Tree/Shrub: 1 (<2ft. stem ht.), 2 (2-10ft. ht.), 3 (10-20ft. ht.), 4 (>20ft. ht.)				
Desert Palm/Joshua Tree: 1 (<1.5" base diameter), 2 (1.5-6" diam.), 3 (>6" diam.)				
III. INTERPRETATION OF STAND				
Field-assessed vegetation Alliance name: <u>Black cottonwood forest alliance</u>				
Field-assessed Association name (optional): _____				
Adjacent Alliances/direction: _____				
Confidence in Alliance identification: L M H Explain: _____				
Phenology (E,P,L): Herb Shrub Tree Other identification or mapping information: _____				

RA #2

SPECIES SHEET

% NonVasc cover:_____ Total % Vasc Veg cover:_____

Height classes: 1=<1/2m, 2=1/2-1m, 3=1-2m, 4=2-5m, 5=5-10m, 6=10-15m, 7=15-20m, 8=20-35m, 9=35-50m, 10=>50m

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

Unusual species: _____

RA Plot #3

Combined Vegetation Rapid Assessment and Relevé Field Form
(Revised March 27, 2018)

For Office Use:	Final database #:	Final vegetation type: Alliance <u>Black cottonwood forest alliance</u> Association	
I. LOCATIONAL/ENVIRONMENTAL DESCRIPTION			circle: Relevé or RA
Database #:	Date: <u>11/12/19</u>	Name of recorder:	
	UID:	Other surveyors: <u>A.L.</u>	
		Location Name: <u>Main Site</u>	
GPS name: <u>ipad</u>		For Relevé only: Bearing°, left axis at ID point ____ of Long / Short side	
UTME _____		UTMN _____ Zone: 11 NAD83 GPS error: ft./ m./ PDOP _____	
Decimal degrees: LAT _____		LONG _____	
GPS within stand? Yes / No If No, cite from GPS to stand: distance (m) _____ bearing ° _____ inclination ° _____			
and record: Base point ID _____ Projected UTM: UTME _____ UTMN _____			
Camera Name: <u>phone</u> Cardinal photos at ID point: _____			
Other photos: _____			
Stand Size (acres): <1, 1-5, >5 Plot Area (m²): 100 / _____ Plot Dimensions _____ x _____ m RA Radius <u>25</u> m			
Exposure, Actual °: _____ NE NW SE SW Flat Variable Steepness, Actual °: _____ 0° 1-5° >5-25° >25			
Topography: Macro: top upper mid lower bottom Micro: convex flat concave undulating			
Geology code: _____ Soil Texture code: _____ Upland or Wetland/Riparian (circle one)			
% Surface cover: (Incl. outcrops) (>60cm diam) (25-60cm) (7.5-25cm) (2mm-7.5cm) (Incl sand, mud)			
H2O:	BA Stems:	Litter:	Bedrock: Boulder: Stone: Cobble: Gravel: Fines: =100%
% Current year bioturbation _____ Past bioturbation present? Yes / No % Hoof punch _____			
Fire evidence: Yes / No (circle one) If yes, describe in Site history section, including date of fire, if known.			
Site history, stand age, comments: <u>Plot center is at the edge of dense cottonwood forest. Plot center on edge was chosen due to dense poisonoak and much of the assessment was made looking into this area that I walked through earlier.</u>			
Disturbance code / Intensity (L,M,H): _____ / _____ / _____ "Other" _____ / _____			
II. HABITAT DESCRIPTION			
Tree DBH: <u>T1</u> (<1" dbh), <u>T2</u> (1-6" dbh), <u>T3</u> (6-11" dbh), <u>T4</u> (11-24" dbh), <u>T5</u> (>24" dbh), <u>T6</u> multi-layered (T3 or T4 layer under T5, >60% cover)			
Shrub: <u>S1</u> seedling (<3 yr. old), <u>S2</u> young (<1% dead), <u>S3</u> mature (1-25% dead), <u>S4</u> decadent (>25% dead)			
Herbaceous: <u>H1</u> (<12" plant ht.), <u>H2</u> (>12" ht.)			
Desert Riparian Tree/Shrub: 1 (<2ft. stem ht.), 2 (2-10ft. ht.), 3 (10-20ft. ht.), 4 (>20ft. ht.)			
Desert Palm/Joshua Tree: 1 (<1.5" base diameter), 2 (1.5-6" diam.), 3 (>6" diam.)			
III. INTERPRETATION OF STAND			
Field-assessed vegetation Alliance name: <u>Black cottonwood forest alliance</u>			
Field-assessed Association name (optional): _____			
Adjacent Alliances/direction: _____ / _____ / _____			
Confidence in Alliance identification: L M H Explain: _____			
Phenology (E,P,L): Herb Shrub Tree Other identification or mapping information: _____			

RA # 3

SPECIES SHEET

Unusual species: _____