CEQA-Plus Initial Study/Mitigated Negative Declaration

Town of Fort Jones
Wastewater Treatment Facility
Upgrades Project

July 2026

Town of Fort Jones
11960 East St.
Fort Jones, CA 96032

Technical Assistance By

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Gateway to the Marble Mountains

PROPOSED MITIGATED NEGATIVE DECLARATION
FORT JONES WASTEWATER TREATMENT FACILITY UPGRADES PROJECT

Subject: Town of Fort Jones Wastewater Treatment Facility Upgrades Project Initial Study

Project Description: The Town of Fort Jones owns and operates a wastewater treatment facility (WWTF) located in unincorporated Siskiyou County (APN 024-040-080), as well as associated wastewater collection and conveyance infrastructure within the Town. The existing WWTF is unable to reliably meet the Town's current and future wastewater treatment needs, as treated effluent has periodically failed to comply with waste discharge requirements (WDRs) established by the North Coast Regional Water Quality Control Board (NCRWQCB) for biochemical oxygen demand (BOD), total suspended solids (TSS), and settleable solids.

To address these deficiencies, comply with applicable WDRs, and support the water quality objectives established in the NCRWQCB Water Quality Control Plan for the North Coast Region (Basin Plan), the Town proposes to decommission the existing WWTF and construct a new wastewater treatment facility approximately 1,500 feet east of the existing facility. The proposed WWTF would improve treatment performance, reduce the potential for adverse effects on surface water and groundwater quality, and ensure continued wastewater service for the Town while maintaining compliance with applicable water quality regulations and Basin Plan objectives.

The proposed project (identified as Alternative 5 in the 2026 Wastewater Facilities Plan Addendum No. 2) consists of decommissioning the existing WWTF and moving treatment to a new offsite location where a new influent lift station, headworks, and treatment ponds will treat wastewater and the effluent would be disposed of in new evaporation and percolation ponds. Project features include the decommissioning of the existing WWTF, and installing new gravity sewer main piping to the new WWTF location, constructing a new influent pump station, new headworks with influent screening, construction of new aeration, settling, and evaporation/percolation (disposal) ponds, construction of a new recirculation pump station, and construction of a new rock filter. An offsite sewer pump station that serves the commercial area south and southwest of the new WWTF site will also be rehabilitated and a new 3-inch diameter force main will be installed from the existing pump station to a new manhole structure along the new influent sewer main line east of the new WWTF.

The proposed project will require reconfiguring three existing parcels to consolidate the land capable of supporting a new wastewater treatment facility into one parcel. The new facility is proposed on APN 055-241-020 and APN 055-241-010 (7.5 acres) within the Fort Jones corporate limits and will require an approximate 10-acre portion of APN 024-030-490 located within unincorporated Siskiyou County. As APN 024-030-490 resides within the County and outside of the Town's established Sphere of Influence (SOI), the proposed project will require the approval of a SOI amendment by the Siskiyou County Local Agency Formation Commission (LAFCO) to authorize the boundary change.

The proposed project would require a general plan amendment on the 17.5-acre WWTF relocation parcel from Mobile Home (M-H) to Public Facility (PF). The Public Facility (PF) designation accommodates open space and public lands including schools, parks, and natural areas. Within this designation, other public lands that are typically not available for recreation or public open space (i.e. owned by a public entity or public utility) are considered suitable for public facilities. The Public Facility (PF) land use designation is consistent with all Town zone districts. The proposed project would also require a zone change from Manufactured Homes Park (M-H) (7.5 acres within Fort Jones) and AG-1-B-80/AG-2-B-40 (10 acres of unincorporated Siskiyou County) to the Town's Manufacturing (M) zone district.

Project Location and Setting: The project site is located at the western edge of the Town of Fort Jones, east of the confluence of Moffett Creek and the Scott River, Siskiyou County, California. The site is within the Fort Jones California USGS 7.5 minute quadrangle map in Township 43 North, Range 09 West, Sections 2 and 3 of the Mount Diablo Base and Meridian (MDBM). The following Assessor's Parcel Numbers (APN) comprise the project site: 024-040-080, 024-030-490, 055-241-010, and 055-241-020. Access to the site is provided from Serpa Lane, via Scott River Road.

The existing WWTF has been operating for over 70 years. Uses at the site include six unlined wastewater ponds (approximately 3.99 acres), facility fencing, pipelines, above ground structures, and gravel access roads. Immediately surrounding the facility on agricultural lands are developed roadways, managed alfalfa fields, above ground and overhead irrigation sprinklers lines, power lines, well heads and other appurtenances for the ongoing management of agricultural operations. The eastern portion the site, within Fort Jones, has been fully disturbed, graveled, and is currently utilized as an equipment storage area. Vegetation in the agricultural fields consists of alfalfa hay, which is a managed crop that is mowed and bailed 3-4 times per year, depending on growing conditions. Surrounding land uses include Moffett Creek and agricultural land to the north; vacant and residential uses to the east; light industrial uses to the south; and agricultural land to the west.

Findings and Determination

The Town prepared a Draft Initial Study (attached), which determined that the proposed project could have significant environmental effects. The project avoids or mitigates the potentially significant environmental effects identified, and the preparation of an environmental impact report will not be required. There is no substantial evidence, in light of the whole record before the Town, that the project may have a significant effect on the environment. The determination is based on the attached Initial Study and the following findings.

a) The project will not degrade environmental quality, substantially reduce habitat, cause a wildlife population to drop below self-sustaining levels, reduce the number or restrict the range of special-status species, or eliminate important examples of California history or prehistory.
b) The project does not have the potential to achieve short-term, to the disadvantage of long-term, environmental goals.
c) The project will not have impacts that are individually limited, but cumulatively considerable.
d) The project will not have environmental effects that will cause substantial adverse effects on human beings, either directly or indirectly.
e) No substantial evidence exists that the project will have a negative or adverse effect on the environment.
f) The project incorporates all applicable mitigation measures identified in the Initial Study.
g) This Mitigated Negative Declaration reflects the independent judgement of the lead agency.

Documentation

The attached Initial Study documents the reasons to support the above determination.

Mitigation Measures

See attached Initial Study.

Public Review Distribution

Draft copies or notice of this proposed Mitigated Negative Declaration were distributed to:

California Air Resources Control Board (CARB)
California Department of Conservation (DOC)
California Department of Fish and Wildlife (CDFW)
Governor's Office of Land Use and Climate Innovation (LCI)
Native American Heritage Commission (NAHC)
North Coast Regional Water Quality Control Board (NCRWQCB)
Siskiyou County Air Pollution Control District (SCAPCD)
Siskiyou County Clerk
Siskiyou County Local Agency Formation Commission (LAFCO)
State Office of Historic Preservation (OHP)
State Water Resources Control Board (SWRCB)

Public Review

(X) Draft document referred for comments on July 10, 2026.

_____

Joseph Hess
Fire Chief/Town Administrator
Town of Fort Jones

CEQA-Plus Initial Study/ Mitigated Negative Declaration

Town of Fort Jones
Wastewater Treatment Facility
Upgrades Project

July 2026

Funding has been provided in full or in part through an agreement with the State Water Resources Control Board using funds for Proposition 1. The contents of this document do not necessarily reflect the views and policies of the foregoing, nor does mention of trade names or commercial products constitute endorsement or recommendation for use.

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Attachment D – Biological Resources Assessment
Attachment E – Cultural Resources Inventory Report
Attachment F – Regulatory Floodway Impact Analysis Report

Environmental Checklist Form

1. Project Title: Town of Fort Jones Wastewater Treatment Facility Upgrades Project

2. Lead Agency:

Town of Fort Jones
11960 East Street
Fort Jones, CA 96032

3. Contact Person:

Joseph Hess
Town of Fort Jones
Fire Chief/Town Administrator
11960 East Street
Fort Jones, CA 96032

Phone: (530) 340-7532
Email: jhess@fortjonesca.com

4. Project Location:

The project site is located at the western edge of the Town of Fort Jones, east of the confluence of Moffett Creek and the Scott River, Siskiyou County, California. The site is within the Fort Jones California USGS 7.5 minute quadrangle map in Township 43 North, Range 09 West, Sections 2 and 3 of the Mount Diablo Base and Meridian (MDBM). The following Assessor's Parcel Numbers (APN) comprise the project site: 024-040-080, 024-030-490, 055-241-010, and 055-241-020. Access to the site is provided by Serpa Lane, via Scott River Road.

5. Applicant's Name and Address:

Town of Fort Jones
11960 East Street
Fort Jones, CA 96032

6. General Plan Designation:

Mobile Home (M-H) – Fort Jones

7. Zoning:

Manufactured Homes Park (M-H) – Fort Jones
AG-1-B-80 (prime agriculture) – Siskiyou County
AG-2-B40 (non-prime agriculture) – Siskiyou County

8. Description of Project:

The Town of Fort Jones owns and operates a wastewater treatment facility (WWTF) located in unincorporated Siskiyou County (APN 024-040-080), as well as associated wastewater collection and conveyance infrastructure within the Town. The existing WWTF is unable to reliably meet the Town's current and future wastewater treatment needs, as treated effluent has periodically failed to comply with waste discharge requirements (WDRs) established by the North Coast Regional Water Quality Control Board (NCRWQCB) for biochemical oxygen demand (BOD), total suspended solids (TSS), and settleable solids.

To address these deficiencies, comply with applicable WDRs, and support the water quality objectives established in the NCRWQCB Water Quality Control Plan for the North Coast Region (Basin Plan), the Town proposes to decommission the existing WWTF and construct a new wastewater treatment facility approximately 1,500 feet east of the existing facility. The proposed WWTF would improve treatment performance, reduce the potential for adverse effects on surface water and groundwater quality, and ensure continued wastewater service for the Town while maintaining compliance with applicable water quality regulations and Basin Plan objectives.

The proposed project (identified as Alternative 5 in the 2026 Wastewater Facilities Plan Addendum No. 2) consists of decommissioning the existing WWTF and moving treatment to a new offsite location where a new influent lift station, headworks, and treatment ponds will treat wastewater and the effluent would be disposed of in new evaporation and percolation ponds. Project features include the decommissioning of the existing WWTF, and installing new gravity sewer main piping to the new WWTF location, constructing a new influent pump station, new headworks with influent screening, construction of new aeration, settling, and evaporation/percolation (disposal) ponds, construction of a new recirculation pump station, and construction of a new rock filter. An offsite sewer pump station that serves the commercial area south and southwest of the new WWTF site will also be rehabilitated and a new 3-inch diameter force main will be installed from the existing pump station to a new manhole structure along the new influent sewer main line east of the new WWTF.

The proposed project will require reconfiguring three existing parcels to consolidate the land capable of supporting a new wastewater treatment facility into one parcel. The new facility is proposed on APN 055-241-010 and APN 055-241-020 (7.5 acres total) within the Fort Jones corporate limits and will require annexing a 10-acre portion of APN 024-030-490 located within unincorporated Siskiyou County. As APN 024-030-490 resides within the County and outside of the Town's established Sphere of Influence (SOI), the proposed project will require the approval of a SOI amendment and annexation by the Siskiyou County Local Agency Formation Commission (LAFCO) to authorize the boundary change.

The proposed project would require a general plan amendment on the 17.5-acre WWTF relocation parcel from Mobile Home (M-H) to Public Facility (PF). The Public Facility (PF) designation accommodates open space and public lands including schools, parks, and natural areas. Within this designation, other public lands that are typically not available for recreation or public open space (i.e. owned by a public entity or public utility) are considered suitable for public facilities. The Public Facility (PF) land use designation is consistent with all Town zone districts. The proposed project would also require a zone change from Manufactured Homes Park (M-H) (7.5 acres within Fort Jones) and AG-1-B-80/AG-2-B-40 (10 acres of unincorporated Siskiyou County) to the Town's Manufacturing (M) zone district.

9. Surrounding Land Uses and Setting:

The elevation of the project area ranges from 2,710 to 2,730 feet above mean sea level, with most of the site being nearly flat; steep banks are present around the sewage ponds and at some locations along Moffett Creek. The existing WWTF has been operating for over 70 years. Facility components include six unlined wastewater ponds (approximately 3.99 acres), facility fencing, pipelines, above ground structures, and gravel access roads. Immediately surrounding the facility on agricultural lands are developed roadways, managed alfalfa fields, above ground and overhead irrigation sprinklers lines, power lines, well heads and other appurtenances for the ongoing management of agricultural operations. The eastern portion the project site (7.5 acres), within Fort Jones, has been fully disturbed, graveled, and is currently utilized as an equipment storage area. Vegetation in the agricultural fields consists of alfalfa hay.

Surrounding land uses include Moffett Creek and agricultural land to the north; vacant and residential uses to the east; light industrial uses to the south; and agricultural land to the west. Surrounding zoning districts include Manufactures Homes Park (M-H) directly east across Scott River Road, Low Density Residential (R-1) southeast along Bridge Street, and Manufacturing (M) and General Commercial (C-2) immediately south of the project site along Serpa Lane. North of the site across Moffett Creek is unincorporated county land zoned Rural Residential (R-R) and Non-Prime Agricultural Land-40 acre minimum (AG-2-B-40).

10. Other public agencies whose approval is required (e.g., permits, financing approval, or participation agreement):

California Department of Fish and Wildlife (CDFW)
North Coast Regional Water Quality Control Board (NCRWQCB)
Siskiyou County Air Pollution Control District (SCAPCD)
Siskiyou County Local Agency Formation Commission (LAFCO)
State Water Resources Control Board (SWRCB)

11. Have California Native American tribes traditionally and culturally affiliated with the project area requested consultation pursuant to Public Resources Code section 21080.3.1? If so, is there a plan for consultation that includes, for example, the determination of significance of impacts to tribal cultural resources, procedures regarding confidentiality, etc.?

Consultation and correspondence with various culturally affiliated Tribal groups and agencies were conducted in accordance with Public Resources Code (PRC) Section 21080.3.1 (AB 52). On December 10, 2025, the Town initiated environmental review under the California Environmental Quality Act (CEQA) for the proposed Fort Jones Wastewater Treatment Facility Upgrades project. The Town sent project notification letters to the Karuk Tribe and Shasta Indian Nation, each a California Native American Tribe that is traditionally and culturally affiliated with the geographic area of the proposed project, on December 10, 2025, pursuant to PRC Section 21080.3.1, notifying that the project was under review and to provide the Tribes 30 days from the receipt of the letter to request consultation on the project in writing. No responses were received requesting initiation of consultation under the provisions of AB 52.

Note: *Conducting consultation early in the CEQA process allows tribal governments, lead agencies, and project proponents to discuss the level of environmental review, identify and address potential adverse impacts to tribal cultural resources, and reduce the potential for delay and conflict in the environmental review process (see PRC Section 21080.3.2.). Information may also be available from the California Native American Heritage Commission's Sacred Lands File per PRC Section 5097.96 and the California Historical Resources Information System administered by the California Office of Historic Preservation. Please also note that PRC Section 21082.3(c) contains provisions specific to confidentiality.*

Information contained in the Cultural Resources Inventory – Historic Properties Identification Report for the Town of Fort Jones Wastewater Facility Improvements (AnthropologyRx, 2026) related to the specific location of prehistoric and historic sites is confidential and exempt from the Freedom of Information Act (FOIA) and the California Public Records Act (CPRA); therefore, site specific cultural resource investigations are not attached to this Initial Study. Professionally qualified individuals, as determined by the California Office of Historic Preservation, may contact the Town of Fort Jones directly in order to inquire about its availability.

12. Purpose of this Document: This Initial Study/Mitigated Negative Declaration (IS/MND) evaluates the potential environmental effects of the proposed Fort Jones Wastewater Treatment Facility Upgrades Project and provides the basis for the findings required under Section 15070 of the State CEQA Guidelines. The analysis has been prepared to the degree of specificity appropriate to the proposed project, consistent with Section 15146 of the State CEQA Guidelines. The IS/MND evaluates the direct, indirect, short-term, and long-term environmental effects associated with project construction, operation, and maintenance.

Section 1 – Introduction and Purpose

1.1 Introduction

The Town of Fort Jones (Town), as the lead agency, has prepared this Initial Study to provide the general public and interested public agencies with information about the potential environmental impacts of the proposed Town of Fort Jones Wastewater Treatment Facility Upgrades project (proposed project). The Town has received a Wastewater Planning Grant from the State Water Resources Control Board (SWRCB), Division of Financial Assistance (DFA) (Agreement No. D1604006).

Details about the proposed project are included in Section 2, PROJECT DESCRIPTION, of this Initial Study. This Initial Study has been prepared in accordance with the California Environmental Quality Act (CEQA) of 1970 (as amended), codified in California Public Resources Code Section 21000 *et seq*., and the State CEQA Guidelines (California Code of Regulations, Title 14, Division 6, Chapter 3). Pursuant to these regulations, this Initial Study identifies potentially significant impacts and, where applicable, includes mitigation measures that would reduce all identified environmental impacts to less than significant levels. Mitigation measures have been proposed to avoid or minimize any significant impacts that were identified. This Initial Study supports a Mitigated Negative Declaration (MND) pursuant to CEQA Guidelines Section 15070.

Additionally, construction of the proposed project may be partially funded from the federal Drinking Water State Revolving Fund (SRF) program established by the federal Safe Drinking Water Act (Safe Drinking Water Act or SDWA), as amended in 1996. This program is administered, nationally, by the US Environmental Protection Agency (EPA), and in certain instances the administration has been delegated to the states. In California, administration of the SRF program has been delegated to SWRCB. In turn, the SWRCB requires that all projects being considered under the SRF program must comply with CEQA and certain federal environmental protection laws. Collectively, the SWRCB refers to these requirements as "CEQA-Plus." Analysis of alternatives are provided to meet SRF Program requirements. CEQA does not require consideration of alternatives in MNDs; therefore, the evaluation of alternatives is provided in an appendix (Attachment A, PRELIMINARY ENGINEERING REPORTS) to this document. The other CEQA-Plus requirements are fulfilled in the Initial Study analysis and associated appendices (see Section 5, COMPLIANCE WITH FEDERAL REGULATIONS, for a complete list of federal laws address in compliance with SRF Program requirements). The SWRCB, as a responsible agency for the proposed project, will consider this CEQA document prior to any SRF funding authorization.

1.2 Lead Agency

The Lead Agency is "*the public agency which has the principal responsibility for carrying out or approving a project,*" which may be subject to CEQA (PRC Section 21067). Accordingly, the Town of Fort Jones is the CEQA lead agency.

1.3 Purpose of the Initial Study

CEQA requires that public agencies document and consider the potential environmental effects of the agency's actions that meet CEQA's definition of a "project." Briefly summarized, a "project" is an action that has the potential to result in direct or indirect physical changes in the environment. A project includes the agency's direct activities as well as activities that involve public agency approvals or funding. Guidelines for an agency's implementation of CEQA are found in the "CEQA Guidelines" (Title 14, Chapter 3 of the California Code of Regulations).

Provided that a project is not exempt from CEQA, the first step in the agency's consideration of its potential environmental effects is the preparation of an Initial Study. The purpose of an Initial Study is to determine whether the project would involve "significant" environmental effects, as defined by CEQA, and to describe feasible mitigation measures that would avoid significant effects or reduce them to a level that is less than significant. If the Initial Study does not identify significant effects, then the agency prepares a Negative Declaration. If the Initial Study notes significant effects but also identifies mitigation measures that would reduce these significant effects to a level that is less than significant, then the agency prepares an MND. If a project would involve significant effects that cannot be readily mitigated, then the agency must prepare an Environmental Impact Report (EIR). The agency may also decide to proceed directly with the preparation of an EIR without an Initial Study.

The proposed project is a "project" as defined by CEQA and is not exempt from CEQA consideration. The Town has determined that the project may potentially have significant environmental effects and therefore would require preparation of an Initial Study. This Initial Study describes the proposed project and its environmental setting, discusses the potential environmental effects of the project, and identifies feasible mitigation measures that would eliminate any potentially significant environmental effects of the project or reduce them to a level that would be less than significant.

This Initial Study is a public information document that describes the proposed project, existing environmental setting at the project site, and potential environmental impacts of construction and operation of the proposed project. It is intended to inform the public and decision-makers of the proposed project's potential environmental impacts and to document the lead agency's compliance with CEQA and the State CEQA Guidelines. This Initial Study concludes that the project would have potentially significant environmental effects, all of which would be avoided or reduced to a level that would be less than significant with recommended mitigation measures. As a result, the Town has prepared a Draft MND and has issued a Notice of Intent to Adopt the Mitigated Negative Declaration for the proposed project. The time available for public comment on the Initial Study and Mitigated Negative Declaration is provided on the Notice of Intent.

1.4 Incorporation by Reference

In accordance with Section 15150 of the State CEQA Guidelines to reduce the size of the report, the following documents are hereby incorporated by reference into this Initial Study and are available for public review at the Town of Fort Jones. A brief synopsis of the scope and content of each of these documents is provided below.

Fort Jones General Plan

The Town of Fort Jones General Plan is a blueprint for future development and describes the Town's development goals and policies, It also is the foundation for land use decisions made by the Planning Commission and City Council. Although the General Plan established standards for the location and density of land uses, it does not directly regulate the land use as does zoning. The Town's General Plan was utilized throughout this Initial Study as the fundamental planning document governing the project site.

Fort Jones 6th Cycle (2023 – 2031) Housing Element

The Housing Element of the General Plan is a comprehensive statement by the Town of Fort Jones of its current and future housing needs for all income levels and proposed actions to facilitate the provision of housing to meet those needs. The policies contained in this element are an expression of the statewide housing priority to allow for the attainment of decent housing and a suitable living environment for every Californian, as well as a reflection of the unique concerns of the community. The Fort Jones 6th Cycle (2023-2031) Housing Element was prepared to guide the Town's housing development from 2023 through 2031. The Housing Element is a State-mandated eight-year policy document that is a component of the Fort Jones General Plan. The overall purpose of the Housing Element is to identify current and projected housing needs, show locations where housing can be built, and set goals, policies, and programs to meet the community's housing needs. The foundation of the Housing Element is the Regional Housing Needs Allocation (RHNA), which begins with a determination of housing need issued by the State Department of Housing and Community Development (HCD). A jurisdiction is required to demonstrate whether it has sufficient capacity to achieve its RHNA.

Fort Jones Municipal Code

The Zoning Ordinance (Title 18) of the Town of Fort Jones Code of Ordinances promotes the protection of public health, safety, peace, morals, comfort, convenience and general well fare of the Town. Specially, the zoning ordinance assists in providing a definite plan of development of the Town and to guide, control and regulate future growth of the Town through the regulation of land uses, buildings and structures. The zoning or districting plan effectuated by this title consists of the establishment of various districts, including all territory within which the use of land, buildings, the space for buildings, and the height and bulk of buildings are regulated.

Scott Valley Area Plan

The Scott Valley Area Plan reflects the future development policies guiding future growth of the Scott Valley watershed. The Scott Valley Area Plan (formerly designated as "County Area Plan I") was adopted by the Siskiyou County Board of Supervisors as an amendment to the County's Land Use Element in 1980.

Siskiyou County General Plan

The Siskiyou County General Plan is a blueprint for future development and describes the County's development goals and policies, it also is the foundation for land use decisions made by the Planning Commission and Board of Supervisors. Although the General Plan established standards for the location and density of land uses, it does not directly regulate the land use as does zoning.

Siskiyou County Hazard Mitigation Plan

The purpose of the Siskiyou County Hazard Mitigation Plan is to implement and sustain actions that reduce vulnerability and risk from hazards or reduce the severity of the effects of hazards on people and property. Mitigation actions are both short-term and long-term activities, which reduce the cause or occurrence of hazards; reduce exposure to hazards or reduce effects of hazards through various means to include preparedness, response, and recovery measures.

1.5 Project Environmental Studies

As part of the preparation of this Initial Study, the following studies were prepared or utilized to develop baseline information and project-related impact discussions. Hard copies of these studies are available for inspection at the Town of Fort Jones, 11960 East Street, Fort Jones, California, 96032, during normal business hours (8:00 a.m. to 5:00 p.m. Monday through Friday):

- *Biological Evaluation Results – Town of Fort Jones Wastewater Treatment Facilities Improvements Project*, prepared by Catalyst Environmental Solutions, Inc., June 2026.
- *Cultural Resources Inventory – Historic Properties Identification Report for the Town of Fort Jones Wastewater Facility Improvements*, prepared by AnthropologyRx, February 2026.
- *Odor Control Memo,* prepared by SHN, June 2026.
- *Regulatory Floodway Impact Analysis Report*, prepared by SHN, June 2026.
- *Wastewater Facilities Plan Addendum No. 2*, prepared by SHN, June 2026.

Information contained in the cultural resources inventory report identified above related to the specific location of prehistoric and historic sites is confidential and exempt from the Freedom of Information Act (FOIA) and the California Public Records Act (CPRA); therefore, this information is not included in as an attachment to this Initial Study. Professionally qualified individuals, as determined by the California Office of Historic Preservation, may contact the Town of Fort Jones directly to inquire about its availability.

1.6 Environmental Review Process

This Initial Study is being circulated for public and agency review as required by CEQA. Because State agencies will act as responsible or trustee agencies, the Town will circulate the Initial Study to the Governor's Office of Land Use and Climate Innovation (LCI) for distribution and a 30-day review period. During the review period, written comments may be submitted to:

Town of Fort Jones
Fire Chief/Town Administrator
11960 East Street
Fort Jones, CA 96032

Joseph Hess
Phone: (530) 340-7532
Email: jhess@fortjonesca.com

Upon completion of the 30-day public review period, written responses to all substantive environmental issues raised will be prepared and available for review prior to the public hearing before the Town of Fort Jones Planning Commission at which the adoption of the MND will be considered.

Section 2 – Project Description

2.1 Project Location and Setting

Regional Setting

Located in inland northern California, adjacent to the Oregon state line, Siskiyou County is bordered on the west by Del Norte and Humboldt counties, on the south by Trinity and Shasta counties, and on the east by Modoc County. Siskiyou County is the fifth largest county by area and 45th in population in the State. At 6,347 square miles, the County has a population density of only 7.1 people per square mile. More than 60 percent of the land in the County is currently managed by federal and State agencies. The majority of this land is in the Klamath, Shasta-Trinity, and Modoc National Forests (see Figure 2-1, REGIONAL VICINITY).

Local Setting

The Town of Fort Jones is located in central Siskiyou County at the northern end of the Scott Valley, a north-south trending trough between the Klamath Mountains to the west and the Cascade Mountains to the east, along State Highway 3, approximately 15 miles west of the Interstate 5/Highway 3 intersection in Yreka (see Figure 2-2, SITE VICINITY). The Scott River flows approximately one-quarter mile to the west of the Town.

Project Location

The project site is located at the western edge of the Town of Fort Jones, east of the confluence of Moffett Creek and the Scott River. The site is within the Fort Jones California USGS 7.5 minute quadrangle map in Township 43 North, Range 09 West, Sections 2 and 3 of the Mount Diablo Base and Meridian (MDBM). The project includes Assessor's Parcel Numbers (APN) 024-040-080, 024-030-490, 055-241-010, and 055-241-020 (see Figure 2-3, ASSESSOR'S PARCELS). Access to the site is provided from Serpa Lane, via Scott Valley Road.

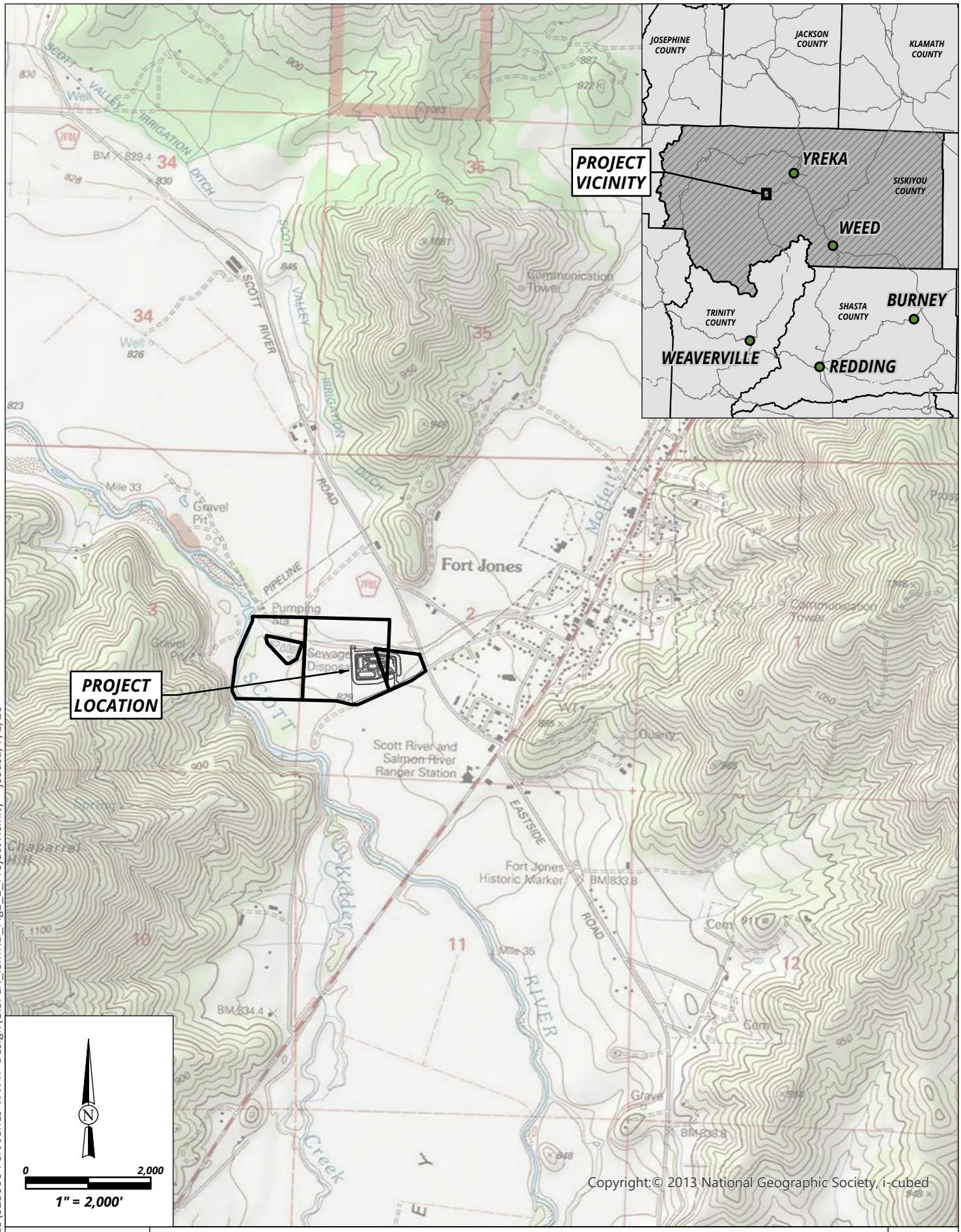
Existing Conditions

The project site is located in rural Scott Valley, an area dominated by developed agricultural land and surrounded by forest covered mountains with peaks reaching near 7,000 feet in elevation. The project site is utilized as both public facility (existing WWTF) and agricultural lands. Surrounding land uses include Moffett Creek and agricultural land to the north; vacant and residential uses to the east; light industrial uses to the south; and agricultural land to the west.

The eastern portion the proposed project site has been fully disturbed, graveled, and is currently utilized as an equipment storage area (see Figure 2-4, SITE PHOTGRAPHS). Vegetation in the agricultural fields consists of alfalfa hay, which is a managed crop that is mowed and bailed 3-4 times per year, depending on growing conditions. Along the periphery of the fields (along access roads, field fences, season, etc.) there is a limited variety of vegetation consisting of grass/forbs, brush, and trees.

Both the Scott River and Moffett Creek boarders the west and north sides of the existing WWTF. Vegetation within the channels are a mixture of upland and riparian species, as well as introduced non-natives. Vegetation at the existing WWTF is generally comprised of low-growing non-native grasses/forbs, with the remaining vegetation removed by the original development of the site. The entire WWTF site is fenced and a series of interior roads along the top of the wastewater effluent ponds; ongoing maintenance activities keeps vegetation to a minimum. The southern bank of Moffett Creek, in the northern portion of the project area, is composed of a rip-rap armored slope that tapers down to the gravel flood plain of the creek.

The existing WWTF (APN 024-040-080) has been operating for over 70 years and includes six unlined wastewater ponds (approximately 3.99 acres), facility fencing, pipelines, above ground structures, and gravel access roads. Immediately surrounding the facility on agricultural lands are developed roadways, managed alfalfa fields, above ground and overhead irrigation sprinklers lines, power lines, well heads and other appurtenances for the ongoing management of agricultural operations.



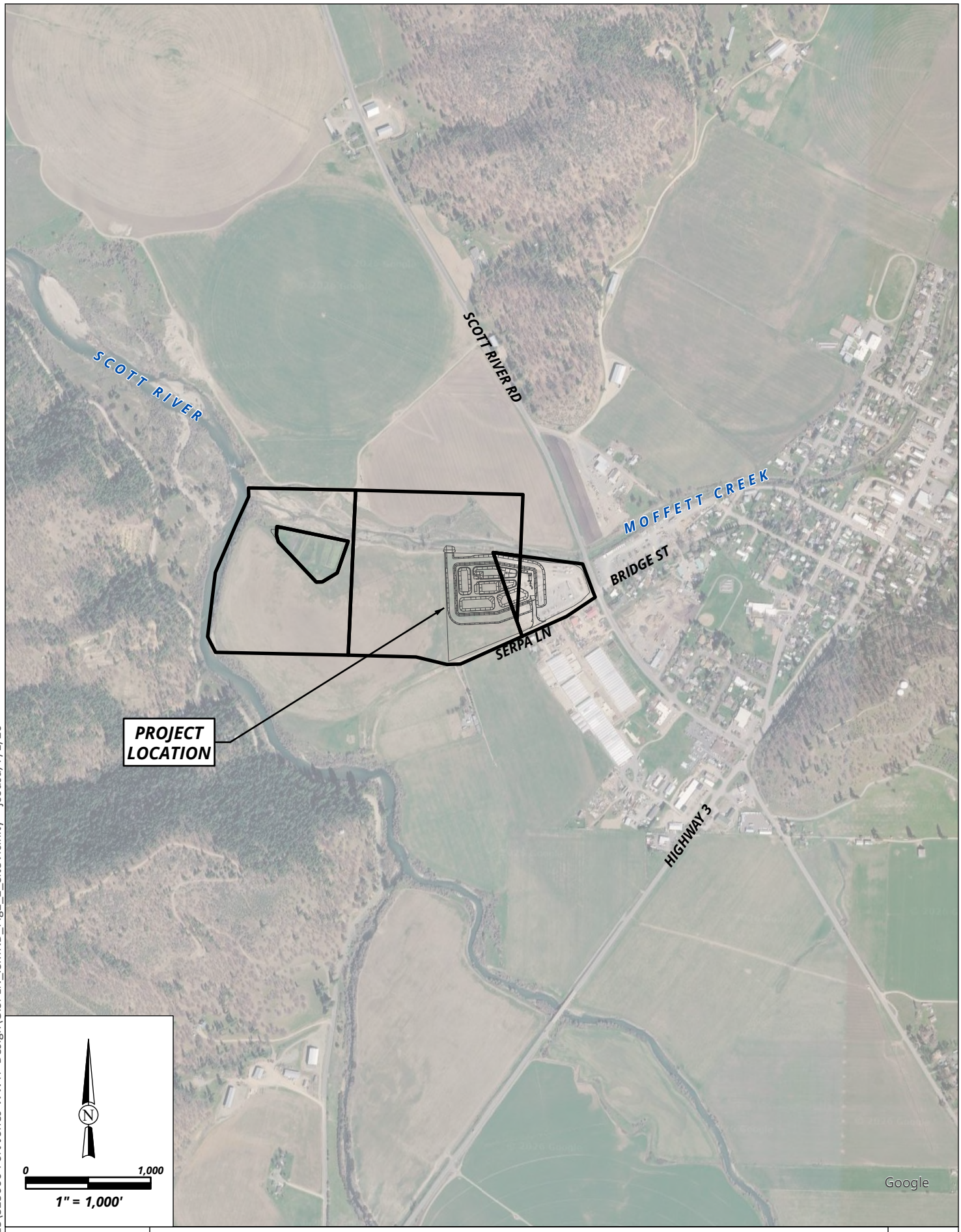
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Fort Jones Wastewater Treatment Facility Upgrades
IS/MND

Project Vicinity

July 2026

Figure 2-1



N

0 1,000

1" = 1,000'

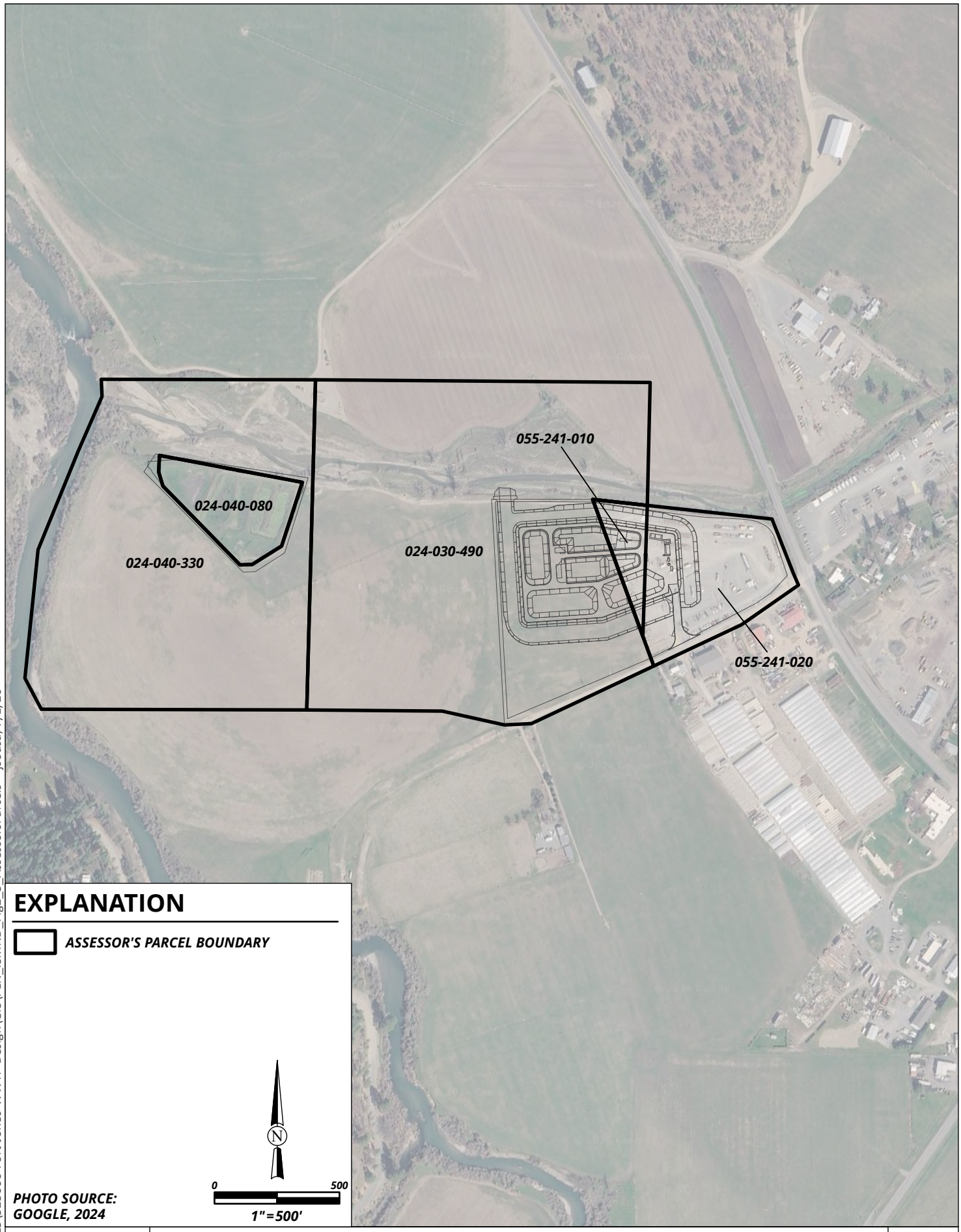
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Fort Jones Wastewater Treatment Facility Upgrades
IS/MND

Site Vicinity

July 2026

Figure 2-2



EXPLANATION

ASSESSOR'S PARCEL BOUNDARY

PHOTO SOURCE:
GOOGLE, 2024

N

0 500

1"=500'

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Fort Jones Wastewater Treatment Facility Upgrades
IS/MND

Assessor's Parcels

July 2026

Figure 2-3



VIEW LOOKING WEST FROM SCOTT RIVER RD.



VIEW OF EASTERNMOST WASTEWATER TREATMENT POND. VIEW LOOKING SOUTH.



VIEW OF THE AGRICULTURAL LAND BETWEEN THE EXISTING WWTF AND PROPOSED PROJECT.



ACCESS ROAD TO EXISTING WWTF AND GRAVELIZED PAD WITH MOFFETT CREEK TO THE FAR LEFT.



EDGE OF AGRICULTURAL FIELD ON NORTH SIDE OF MOFFETT CREEK

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The existing WWTF facility, including the proposed relocation site, are located within the mapped Federal Emergency Management Agency (FEMA) Regulatory Floodway Zone AE (see Figure 2-5, FEMA FLOOD ZONE). By definition, the Regulatory Floodway is considered the area that is needed for a river (or combination of rivers in the case of this project) to discharge the base flood without significantly increasing the water surface elevation. The Zone AE designation indicates that these areas have a 1% probability of flooding every year and is also commonly referred to as the "100-year floodplain". The project is also in an area designated by the County General Plan and Zoning as "Flood Hazard", and is located in an area designed by the Scotts Valley Area Plan (SVAP) Flood Pain Map, due to its proximity to both Moffett Creek and the Scott River and being within the 100-year floodplain.

2.2 General Plan and Zoning

Siskiyou County

The Siskiyou County General Plan does not have specific land uses based on designations (such as commercial, residential, agriculture, etc.). Rather, it is based on land classifications, such as hazards and other resource area specific topics which are overlays. Evaluation for the project site and immediately surrounding lands shows that the designated overlays for the project include Erosion Hazard, Building Foundation Limitations, Flood Hazard, Surface Hydrology, Deer Wintering Area and Wildfire Hazard.

The existing 3.99-acre WWTF (APN 024-040-080) is a public facility located in unincorporated Siskiyou County on lands owned by the Town. The existing uses at the wastewater facility pre-date the County's General Plan, and the existing wastewater facility is considered a nonconforming existing use. Therefore, while the existing use and parcel size (less than the 40 acre minimum zoning requirement) do not conform to the County's general plan and zoning, it is an existing use that pre-dates these designations and is therefore exempt from the zoning provisions of the Siskiyou County General Plan.

An approximate 10-acre portion of the proposed project site (APN 024-030-490) is located within unincorporated Siskiyou County, immediately adjacent to Fort Jones' corporate limits. This parcel is currently zoned AG-2-B-40 (non-prime agriculture) 40 acre minimum parcel size and AG-1-B-80 (prime agriculture) 80 acre minimum parcel size.

Town of Fort Jones

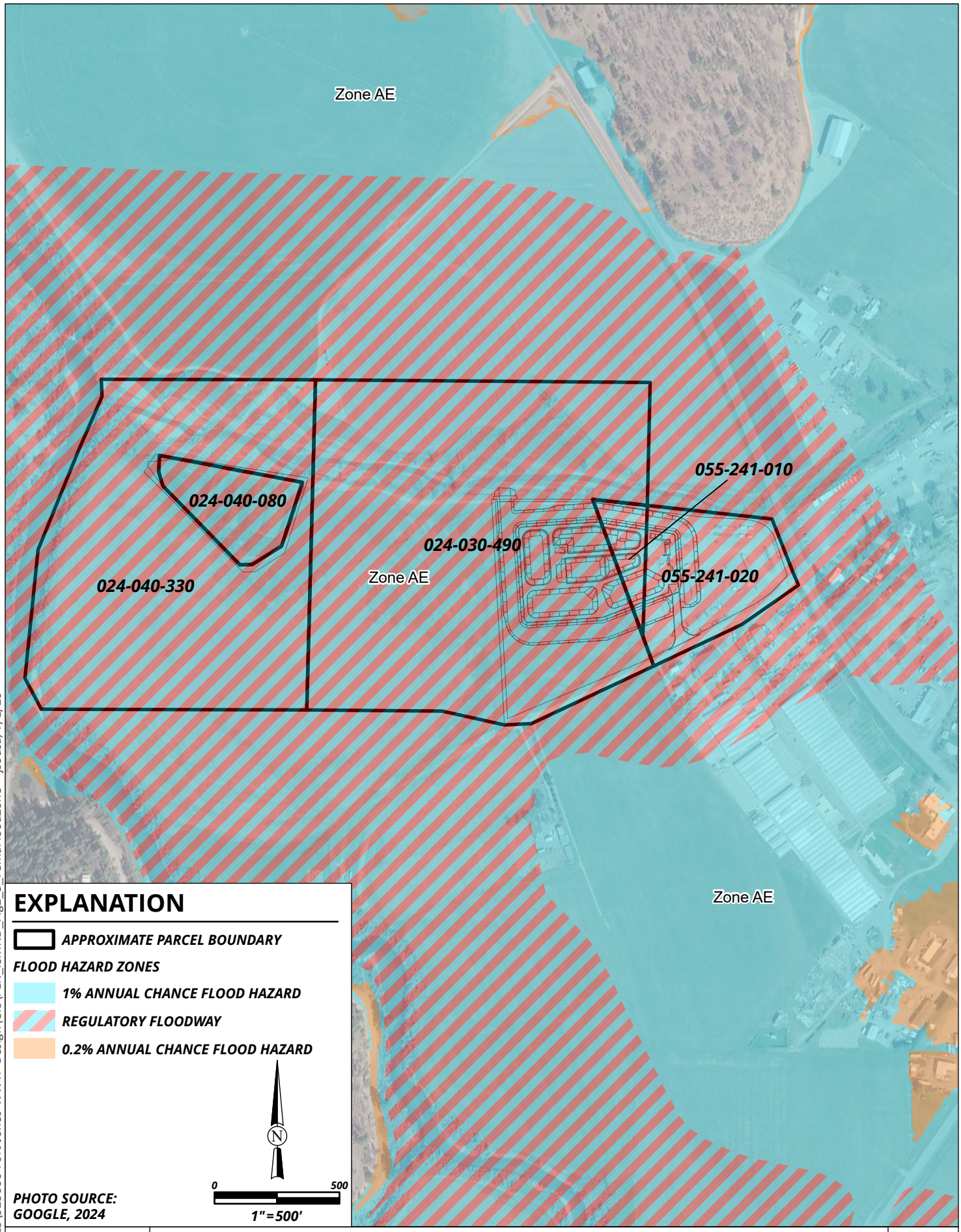
The Fort Jones General Plan designates the 7.5-acre portion of the project site located within the Town's corporate limits (APN 055-241-010 [1.7 acres] and APN 055-241-020 [5.8 acres]) as Mobile Home (M-H) and is zoned Manufactured Homes Park (M-H) (see Figure 2-6, EXISTING GENERAL PLAN AND ZONING).

2.3 Land Requirements

Cortese-Knox-Hertzberg Local Government Reorganization Act of 2000 (LAFCO) Government Code Section 56000 governs annexations of property into cities and districts. This code section outlines the process and requirements for cities to annex unincorporated areas, aiming to encourage orderly growth and address inefficiencies associated with unincorporated areas within or near city boundaries. The Siskiyou LAFCO is an independent agency responsible for the implementation of the Cortese-Knox-Hertzberg Local Government Reorganization Act of 2000. The Act, Government Code Section 56000 et seq., identifies the responsibilities of LAFCO, which include the review, approval, and/or denial of boundary changes, annexations, consolidations, special district formations, incorporations for cities and special districts, and the establishment of local Spheres of Influence (SOI) which are boundaries established for each governmental agency for future provision of services.

Sphere of Influence Amendment

The boundaries for annexation areas are identified within the SOI for an incorporate city or district. An SOI is a region or area where future services area or boundaries of the local government are anticipated to be established. SOI are established to ensure orderly growth and prevent urban sprawl while ensuring efficient delivery of public services (i.e., water, sewer, police, fire).



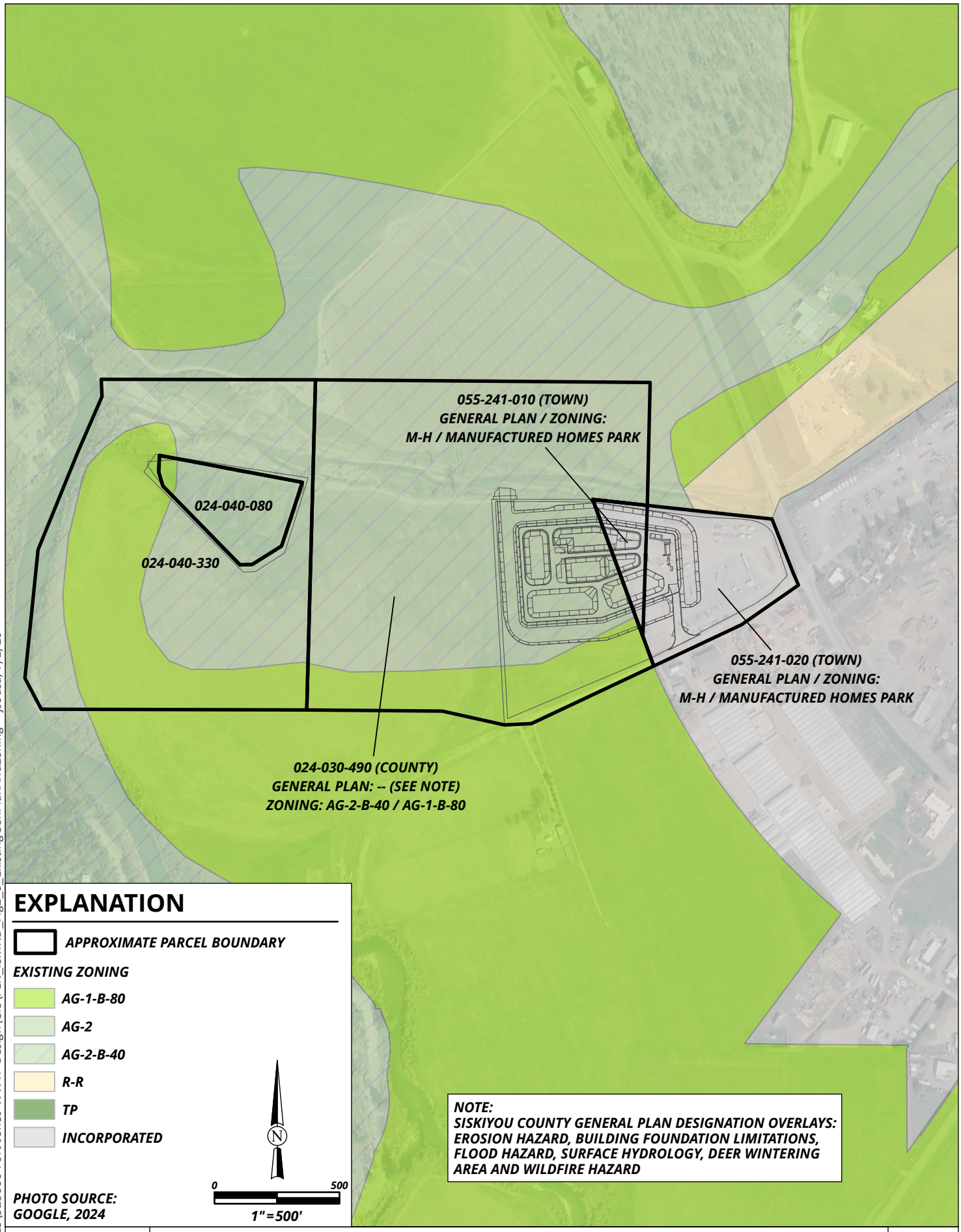
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Fort Jones Wastewater Treatment Facility Upgrades
IS/MND

FEMA Flood Zone

July 2026

Figure 2-5



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Fort Jones Wastewater Treatment Facility Upgrades
IS/MND

Existing General Plan and Zoning

July 2026

Figure 2-6

The proposed project will require reconfiguring three existing parcels to consolidate the land capable of supporting a new wastewater treatment facility into one parcel. The new facility is proposed on APN 055-241-010 and APN 055-241-020 (7.5 acres) within the Fort Jones corporate limits and will require an approximate 10-acre portion of APN 024-030-490 located within unincorporated Siskiyou County. As APN 024-030-490 resides within the County and outside of the Town's established SOI, the proposed project will require the approval of a SOI amendment by the Siskiyou County LAFCO to authorize the boundary change.

General Plan Amendment and Zone Change

In addition to the SOI amendment, implementation of the proposed project would require a general plan amendment from Mobile Home (M-H) to Public Facility (PF). The Public Facility (PF) designation accommodates open space and public lands including schools, parks, and natural areas. Within this designation, other public lands that are typically not available for recreation or public open space (i.e. owned by a public entity or public utility) are considered suitable for public facilities.

The Zoning Ordinance (Title 18) of the Town of Fort Jones Code of Ordinances does not contain a specific public facilities zone district or development regulations, although the Public Facility (PF) land use designation is consistent with all Town zone districts. Uses similar to wastewater facilities are conditionally allowed within the Manufacturing (M) zone district; therefore, a zone change from Manufactured Homes Park (M-H) to Manufacturing (M) would bring the project in alignment with both the General Plan and zoning ordinance. Table 2-1, PROPOSED GENERAL PLAN AMENDMENT AND ZONE CHANGE, illustrates the various land use approvals (see Figure 2-7, PROPOSED GENERAL PLAN AMENDMENT AND ZONE CHANGE).

Table 2-1
PROPOSED GENERAL PLAN AMENDMENT AND ZONE CHANGE

APN	Acres	Annexation Acreage	Existing General Plan		Existing Zoning		Proposed General Plan Amendment	Proposed Zone Change
			Town	County	Town	County		
055-241-010	1.7	--	M-H	See note.	M-H	--	PF	M
055-241-020	5.8	--	M-H	See note.	M-H	--	PF	M
024-030-490	38.0	10.0	--	See note.	--	AG-2-B-40 / AG-1-B-80	PF	M

Note: Siskiyou County General Plan Designation Overlays: Erosion Hazard, Building Foundation Limitations, Flood Hazard, Surface Hydrology, Deer Wintering Area and Wildfire Hazard.

Key:

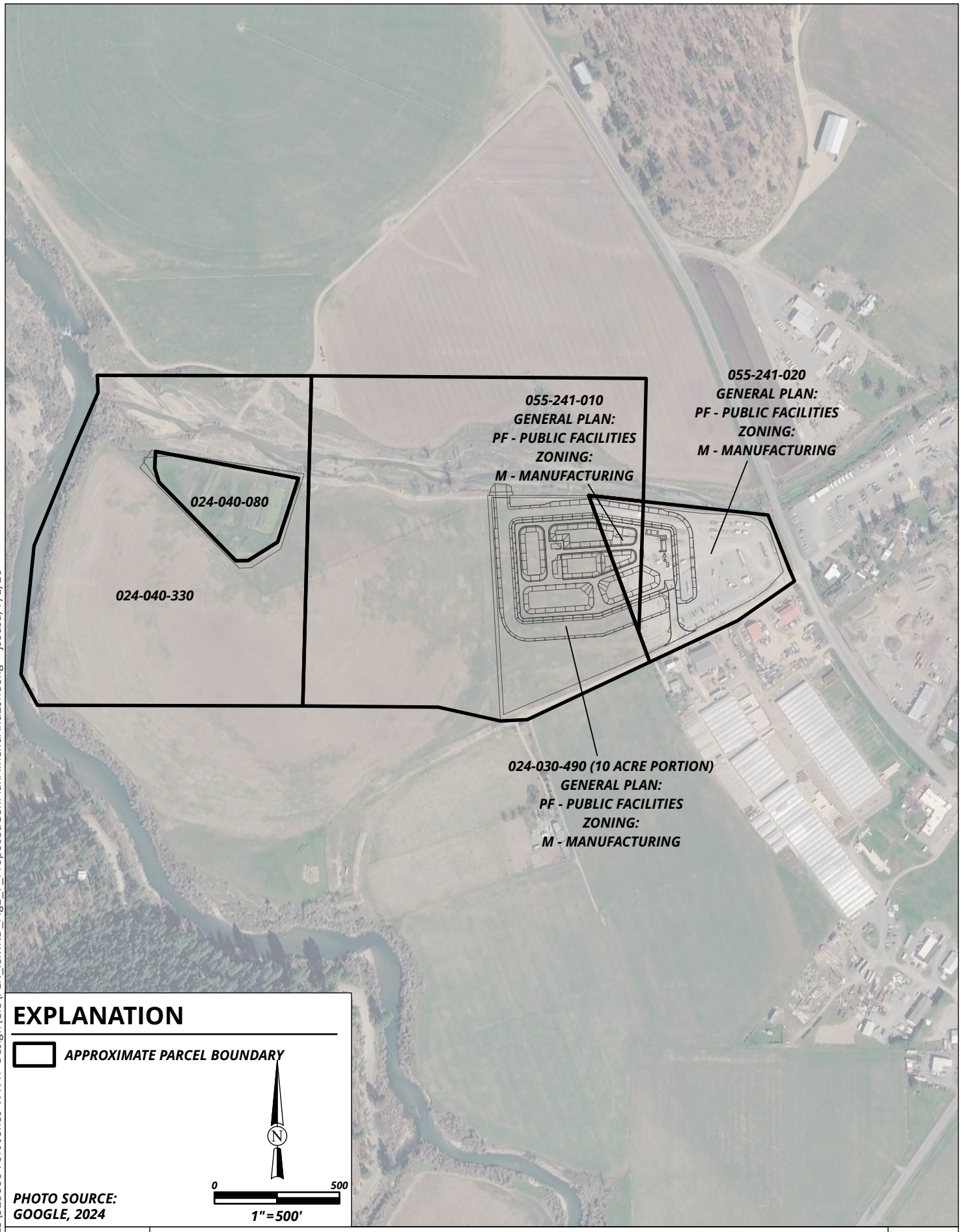
AG-1-B-80: Prime Agricultural Land-80 acre minimum (County)
AG-2-B-40: Non-Prime Agricultural Land-40 acre minimum (County)
M: Manufacturing Zone District (Town)
M-H: Mobile Home General Plan Designation/Manufactured Homes Park Zone District (Town)
PF: Public Facilities General Plan Designation (Town)

Boundary Line Adjustment

The Town will purchase APN 055-241-010 and APN 055-241-020, including a portion of APN 024-030-490 from the adjacent landowner and upon taking fee title to the property, the Town would merge the land area into the proposed WWTF parcel through a Boundary Line Adjustment (BLA) which is also known as a Parcel Line Adjustment (PLA). The boundary line adjustment would create the new approximate 17.5-acre WWTF site.

Annexation

Upon purchase of the subject parcels for the project, the Town will be required to submit an application for a SOI amendment and annexation request to Siskiyou County LAFCO. Upon receiving LAFCO approval by resolution, the Town, as a separate action, would approve the general plan amendment, zone change, SOI amendment and annexation (see Figure 2-8, PROPOSED ANNEXATION).

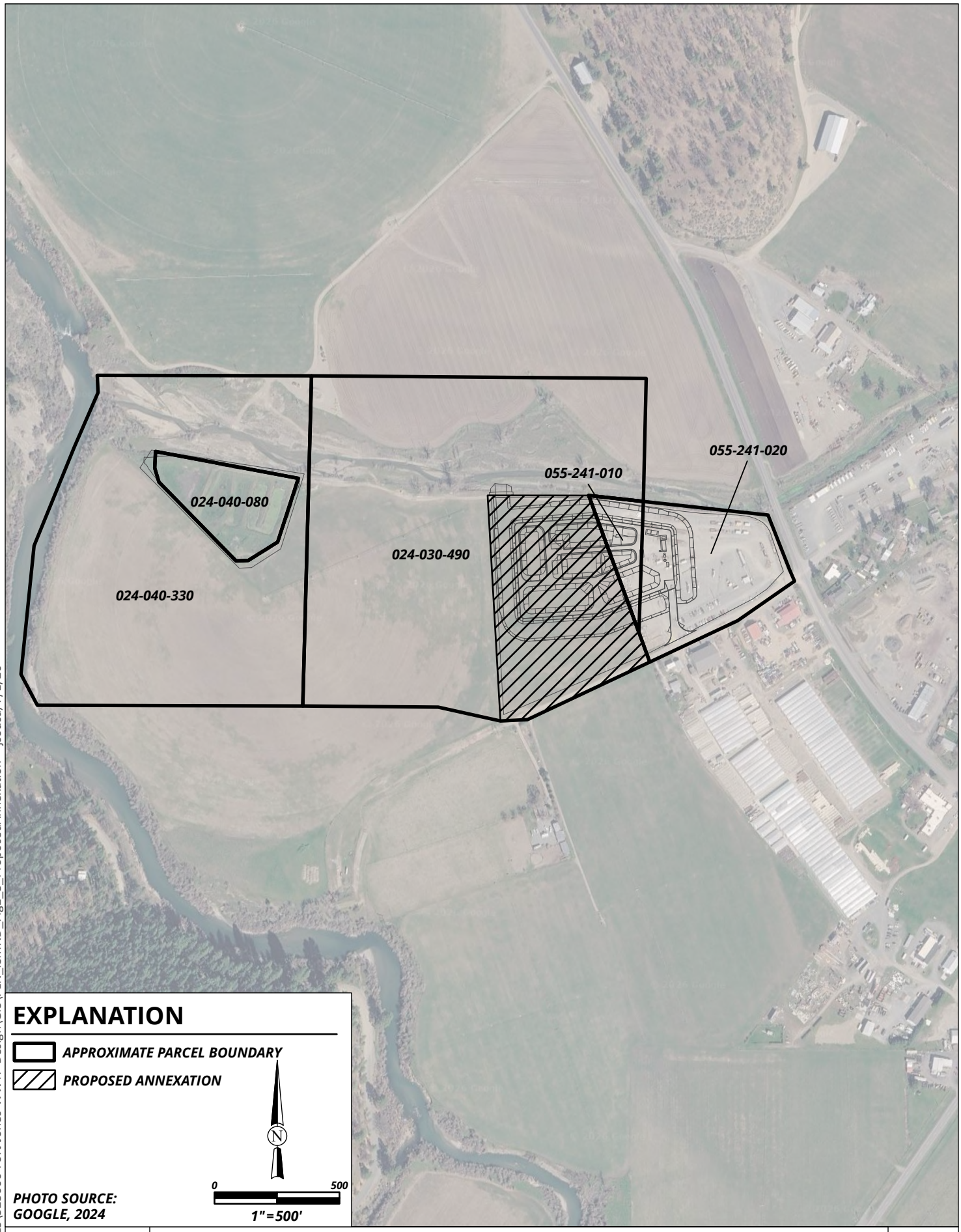


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Fort Jones Wastewater Treatment Facility Upgrades
IS/MND

Proposed General Plan Amendment and Zone Change
July 2026

Figure 2-7



EXPLANATION

APPROXIMATE PARCEL BOUNDARY

PROPOSED ANNEXATION

N

0 500

1"=500'

PHOTO SOURCE: GOOGLE, 2024

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Fort Jones Wastewater Treatment Facility Upgrades
IS/MND

Proposed Annexation

July 2026

Figure 2-8

2.4 Wastewater Treatment Deficiencies

The Town's wastewater collection system serves 366 customers, primarily residential users. Approximately 18 commercial customers account for about 5 percent of total connections. The system also provides service to two schools, a CAL FIRE station, and a US Forest Service (USFS) complex. Effluent quality from the existing wastewater treatment facility (WWTF) has frequently not met applicable waste discharge requirements (WDRs), particularly for biochemical oxygen demand (BOD), total suspended solids (TSS), and settleable solids. While exceedances of BOD are of primary concern, TSS and settleable solids are generally less critical under the facility's existing pond-based treatment configuration, which relies on settling processes and does not involve direct discharge to surface waters.

The existing WWTF has been in continuous operation for over 70 years and has received only limited upgrades during that time. As a result, the facility is considered to be beyond its intended service life and no longer provides reliable or efficient treatment consistent with current regulatory standards. Additional detail regarding system deficiencies and proposed improvements is provided in Attachment A, PRELIMINARY ENGINEERING REPORTS (SHN, 2018c; 2022; 2026), which identifies existing limitations and outlines recommended corrective actions.

2.5 Project Characteristics

Project Components

The proposed project (identified as Alternative 5 in the 2026 Wastewater Facilities Plan Addendum No. 2) consists of decommissioning the existing WWTF and moving treatment to a new offsite location where a new influent lift station, headworks, and treatment ponds will treat wastewater and the effluent would be disposed of in new evaporation and percolation ponds. Project features include the decommissioning of the existing WWTF, and installing new gravity sewer main piping to the new WWTF location, constructing a new influent pump station, new headworks with influent screening, construction of new aeration, settling, and evaporation/percolation (disposal) ponds, construction of a new recirculation pump station, and construction of a new rock filter (see Figure 2-9, WASTEWATER FACILITY UPGRADES). An offsite sewer pump station that serves the commercial area south and southwest of the new WWTF site will also be rehabilitated and a new 3-inch diameter force main will be installed from the existing pump station to a new manhole structure along the new influent sewer main line east of the new WWTF. These elements are further described below, with a summary of anticipated impacts displayed in Table 2-2, FORT JONES WASTEWATER TREATMENT FACILITY – PROJECT COMPONENTS.

INFLUENT SEWER MAIN

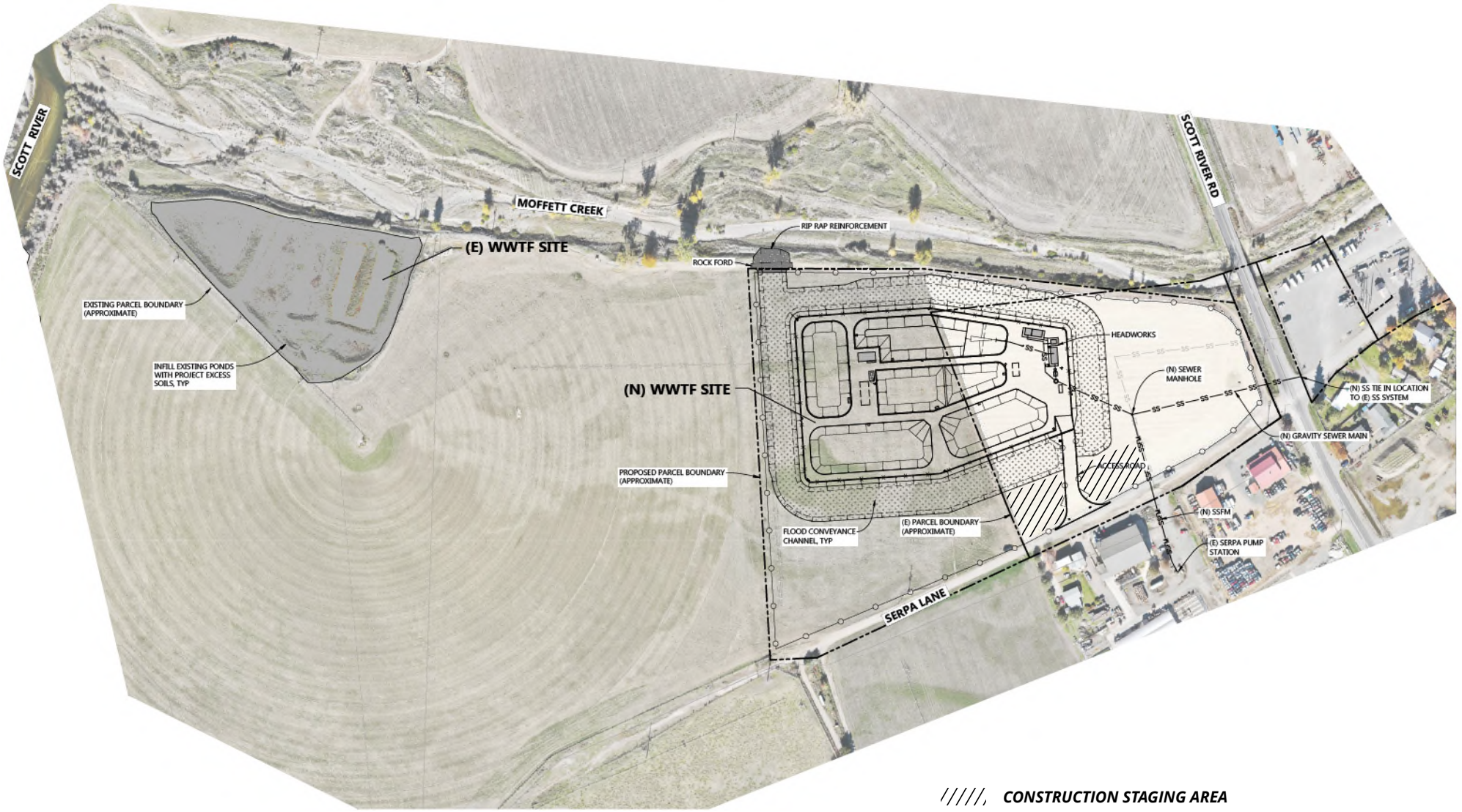
A new 12-inch diameter gravity sewer line would be run from an existing manhole at the intersection of Scott River Road and Bridge Street, continue west across Scott River Road approximately 400 feet to a new manhole structure, and then continue another approximately 190 feet to the new WWTF influent lift station. The gravity line will be placed in a new utility trench, approximately 36 inches wide and varies from 5 to 13 feet deep. The pipe will be bedded in sand or gravel and have a minimum of 3 feet of soil cover over the top of the pipe.

FACILITY STRUCTURES

Influent Lift Station

The new lift station would be located in the new facility at the end of the new gravity sewer main (see Figure 2-9). Wastewater from the gravity sewer will be pumped through an 8-inch pressure pipe through a valve vault, through an inline flow meter, and then on to the headworks. The lift station would be installed below grade to allow gravity flow of wastewater from the sewer main to the influent lift station wet well. The lift station wet well will be approximately 18 feet below existing ground. The discharge from the lift station pressure line would outlet into an open channel inside the new headworks building. The area of the lift station, valve vault, metering vault, and associated piping and control panels will be approximately 0.01 acres (840 square feet).

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SHN	Fort Jones Wastewater Treatment Facility Upgrades IS/MND	**Wastewater Facility Upgrades** July 2026	**Figure** **2-9**

Table 2-2
FORT JONES WASTEWATER TREATMENT FACILITY – PROJECT COMPONENTS

Project Component	Location	Ground Disturbing Activity	Length (feet)	Width (feet)	Depth (feet)	Height (feet)	Notes
Existing WWTF Decommissioning	Existing WWTF	Removal of tank, flow measuring flume, and flow splitter box. Filling existing ponds.	Varies	Varies	Varies	Varies	Approximate total area – 3.99 acres. Land will be restored to allow future agricultural use.
Site Grading	New WWTF	Grading new WWTP site above base flood elevation.	Varies	Varies	Varies	Varies	Approximate total area – 8.9 acres with ~22,500 CY of cut; ~15,700 CY of fill.
Influent Sewer Main	New WWTF	Install gravity sewer and new manholes.	565	3	5 to 13	-	
Influent Lift Station	New WWTF	New Lift Station	42	20	25	-	
		Trenching for Piping	40	-	-	-	
Headworks	New WWTF	New Headworks Building	40	16	7	15	
		Trenching for Piping	140	-	-	-	
New Facility Control Building	New WWTF	New Building	40	16	5	15	
Blower Building	New WWTF	New Building	35	23	5	15	
Recirculation Pump Station	New WWTF	New Pump Station	20	10	10	-	
Pond 1 Deep Facultative Zone	New WWTF	Treatment Pond Excavation	95	73	16	-	
Pond 1 Aeration Zone	New WWTF	Treatment Pond Excavation	240	100	10	-	
Pond 2 Aeration	New WWTF	Treatment Pond Excavation	220	100	10	-	
Pond 3 Polishing/Settling	New WWTF	Treatment Pond Excavation	160	100	7	-	
Rock Filter	New WWTF	Rock Filter Excavation	138	75	6	-	
Pond 4 Evaporation/Infiltration	New WWTF	Excavation of Disposal Pond	246	105	6	-	
Pond 5 Evaporation/Infiltration	New WWTF	Excavation of Disposal Pond	280	110	6	-	

Source: SHN Consulting Engineers and Geologists, Inc. May 2026.

Headworks

The new headworks would be located in the new facility near the new pump station. The new headworks will consist of a new concrete structure built with a concrete flow channel with an auger screw type screen and screenings washer compactor unit. The purpose of the screw screen is to screen out large solids, trash, and debris from the wastewater stream that cannot be treated in the ponds. Solids such as plastics, metals, rocks, and other debris will be removed by screening and washer compactor to separate the solids and liquids. The solid 'screenings' will be conveyed into a bagging system and bags will be emptied on a weekly basis and disposed of at an approved municipal landfill. Wastewater from the headworks is directed to the treatment ponds. The area of the new headworks structure will be approximately 0.01 acres (640 square feet).

Control Building

The new control building will be located within the new facility and will contain an office space, a bathroom, and an electrical/control room. The building will consist of a new concrete structure. The area of the new control building will be approximately 0.01 acres (640 square feet).

Blower Building

The new blower building will be located within the new facility and will house the air blowers for the subsurface aeration diffusers. The building will consist of a new concrete structure. The area of the new control building will be approximately 0.01 acres (805 square feet).

Recirculation Pump Station

The new recirculation pump station will be located within the new facility and will be constructed below grade. The pump station will recirculate flows from Pond 2 back to Pond 1 to enhance treatment. The area of the new pump station wet well, valve vault, and control panel will be approximately 0.01 acres (200 square feet).

TREATMENT AND DISPOSAL PONDS

Treatment Ponds

The proposed project will construct two wastewater aeration ponds, one polishing/settling pond, one rock filter pond, and two infiltration ponds. The ponds will vary in size and be over irregular shape to fit within the project footprint. Aeration of the wastewater will provide the mechanical mixing and biological breakdown of pollutants in the wastewater. Recirculation of aerated wastewater from Pond 2 back to Pond 1 will enhance pollutant removal and promote nitrogen reduction. Side slopes of Ponds 1, 2, and 3 will be 2:1 (horizontal to vertical), and these ponds will be lined with a 3-inch-thick layer of concrete to prevent burrowing pests from damaging the ponds and on top of the concrete liner will be a 60-millimeter impervious geomembrane liner.

The influent end of the first pond (Pond 1) will be approximately 14 feet deep for settling and digestion of primary solids. The deep facultative influent zone of Pond 1 will be separated from the downstream aerated zone of Pond 1 by a full-depth baffle curtain to limit mixing between the two zones. The deep zone of Pond 1 will have a single surface aerator to promote oxygenation in the upper water column to prevent foul odors. The deep zone of Pond 1 will have an operating volume of approximately 312,000 gallons and a surface area of approximately 0.13 acres. The aerated zone of Pond 1 will be approximately 8 feet deep and have four subsurface fine bubble air diffusers for mixing and aeration. The aerated zone of Pond 1 will have an operating volume of approximately 911,000 gallons and a surface area of approximately 0.91 acres.

Pond 2 will also be approximately 8 feet deep and be aerated by two subsurface fine bubble air diffusers. Pond 2 will have an operating volume of approximately 919,000 gallons and a surface area of approximately 0.92 acres.

Pond 3 will be approximately 5 feet deep to provide a quiescent polishing zone for settling of solids generated through the aeration process. Pond 3 will have an operating volume of approximately 435,000 gallons and a surface area of approximately 0.36 acres. In summer months when algae is likely to grow in the quiescent zone of Pond 3, effluent will be routed through a rock filter to kill and settle the algae prior to discharge. The rock filter will have an operating volume of approximately 189,000 gallons and a surface area of approximately 0.22 acres. In winter months when algae growth is less likely, the rock filter will be bypassed and allowed to rest, and effluent will flow directly from Pond 3 to the infiltration ponds (Ponds 4 and 5).

Disposal Ponds

The proposed project will also construct two wastewater evaporation/infiltration (disposal) ponds; these ponds would not be lined on the bottom to allow for infiltration of treated effluent to groundwater. The side banks will have 3:1 slopes and will be lined with concrete to prevent burrowing pests from damaging the slopes. Evaporation rates will vary depending on the time of year (hot/dry periods will provide more evaporation) and wastewater flow rates will also vary throughout the year such that the water depth in the disposal ponds will vary. The maximum

operating depth of the ponds will be approximately 4 feet. Infiltration rates have been estimated from field tests to be a minimum of approximately 20 feet per day at the site. These evaporation/percolation ponds are not anticipated to have a static water level, as evaporation and infiltration rates are expected to keep the pond levels below maximum levels. One disposal pond is expected to be used continuously, with the second disposal pond providing redundancy, allowing for taking the first pond off-line for servicing, and to provide additional winter storage if needed. Pond 4 will have a maximum operating volume of approximately 530,000 gallons and a surface area of approximately 0.55 acres. Pond 5 will have a maximum operating volume of approximately 693,000 gallons and a surface area of approximately 0.69 acres.

FENCING

Perimeter fencing for the new treatment facility property would consist of a 4-foot-high, three-strand barbed-wire fence supported by steel posts. Interior to the perimeter fence, an 8-foot-high security and screening fence would be installed around the wastewater treatment facility. The security fence would consist of chain-link fencing topped with barbed wire and fitted with green privacy slats to enhance visual screening of facility components from surrounding properties and public viewpoints.

ODOR CONTROL SYSTEM

The new WWTF would incorporate an active odor control system serving the influent lift station and headworks structure to minimize the potential for wastewater-related odors to migrate beyond the project site. In addition, vegetated odor attenuation buffer zones would be established along the southern and eastern perimeters of the facility within the flood conveyance swales. These landscaped areas would provide supplemental screening and aid in dispersing and filtering potential odor emissions before they reach adjacent properties. Additional information regarding the design and operation of the proposed odor control features is provided in Attachment C, ODOR CONTROL MEMO.

LANDSCAPING PLAN

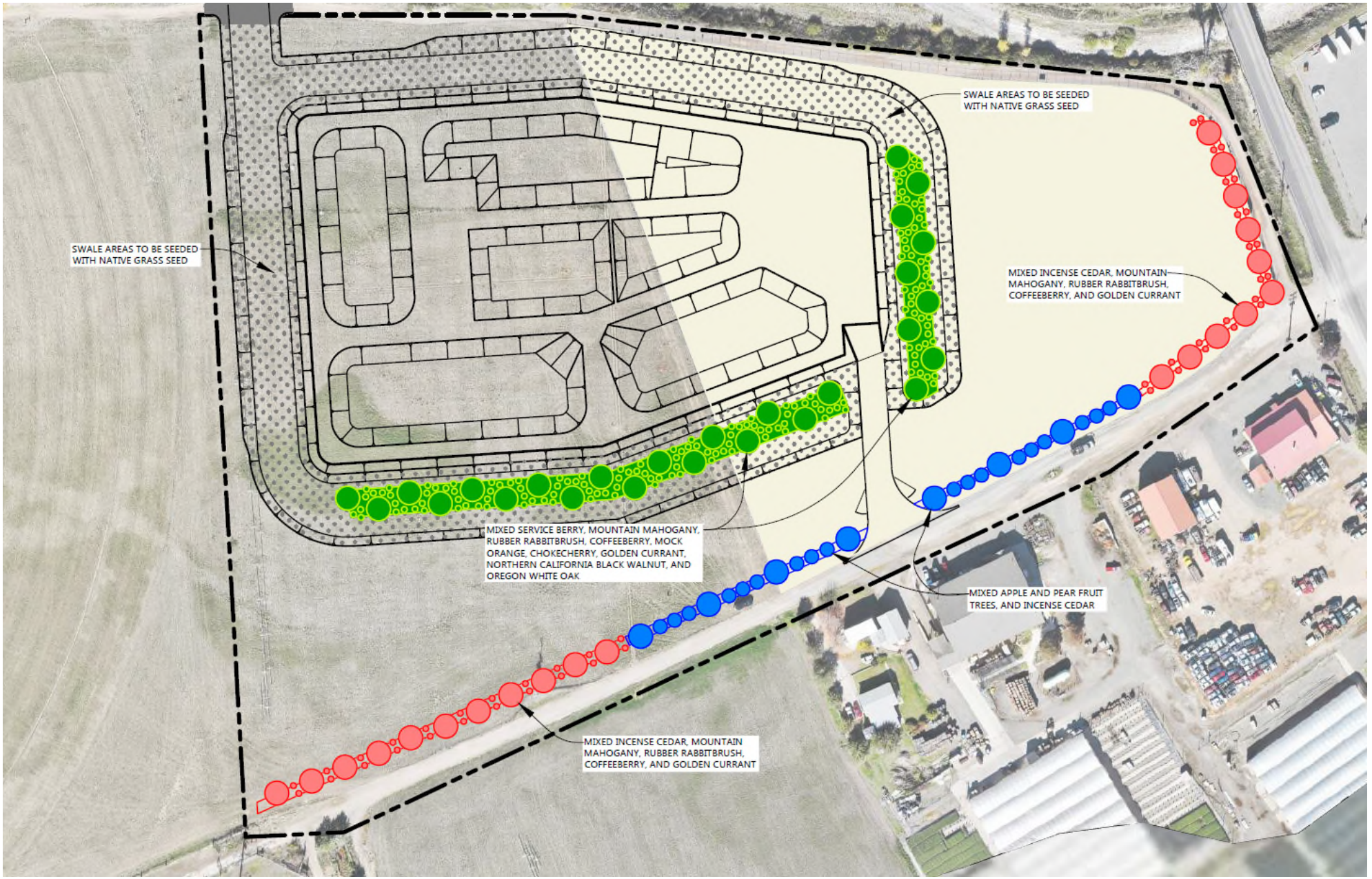
The proposed landscaping has been designed to provide visual screening, enhance site aesthetics, improve habitat values, and assist in dispersing any occasional odors associated with wastewater treatment operations (see Figure 2-10, LANDSCAPE PLAN). Plantings consist primarily of native, drought-tolerant species adapted to local climatic conditions. Following a temporary establishment period, the majority of vegetation would be maintained without permanent irrigation. Over time, the landscaping would mature into a multi-layered vegetative buffer consisting of native grasses, shrubs, hardwood trees, and conifers that would provide effective visual screening and odor control surrounding the facility.

WATER DEMAND

Project construction activities are anticipated to require up to 18 months and would use approximately 1 acre-foot of water on a temporary basis for dust suppression and other construction-related activities. Operational water demand for the new treatment facility would require approximately 2,100 gallons per day (gpd), or 2.4 acre-feet per year (AFY), for routine operations and maintenance.

Temporary irrigation would be required to establish the proposed landscaping. The planted trees and shrubs would require approximately 3.7 acre-feet of water over a temporary three-year establishment period, with irrigation frequency decreasing from three times per week during the first year to one time per week during the third year. Following establishment, irrigation would be discontinued for the native landscaping, with up to 18 fruit trees near the facility entrance receiving permanent irrigation. Based on typical irrigation requirements for fruit trees in northern California, the trees would require approximately 360 gallons per day during the irrigation season, or approximately 0.2 AFY. The proposed WWTF would require approximately 2.4 AFY for routine operations and maintenance, plus approximately 0.2 AFY for permanent irrigation of the fruit trees. Accordingly, long-term project water demand would be approximately 2.6 AFY.

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Fort Jones Wastewater Treatment Facility Upgrades
IS/MND

Wastewater Facility Upgrades

July 2026

Figure 2-10

FLOOD CONVEYANCE

The project area is located within the Scott Valley floor, a hydraulically active alluvial environment associated with the Scott River floodplain system and its tributaries, including Moffett Creek. Portions of the valley floor are mapped by FEMA as within the 100-year floodplain and regulatory floodway, reflecting the area's susceptibility to periodic inundation during high-flow events. According to FEMA Flood Insurance Rate Maps (FIRMs), the project site is located within the regulatory floodway associated with the Scott River and Moffett Creek (FEMA, 2025).

Development within the floodway is required to adhere to a "no rise" criteria which stipulates that impacts from the new development cannot cause flood waters during a 100-year return interval flood event to increase at adjacent structures above the pre-construction condition. Flood impacts are evaluated using a hydraulic model and the initial model results for the proposed new facility design meet the no-rise criteria. The new facility design includes flood conveyance swales surrounding part of the facility to prevent flood waters from rising at adjacent structures. The flood conveyance swales are approximately 50 feet wide and vary in depth from approximately 1 to 4 feet with side slopes ranging from 5 to 1 (horizontal to vertical) to 10 to 1.

Hydraulic modeling results for the proposed facility will be submitted to FEMA for review and approval prior to construction. Upon determining that the proposed floodway encroachment complies with applicable National Flood Insurance Program (NFIP) requirements, FEMA may issue a Conditional Letter of Map Revision (CLOMR) documenting the anticipated revision to the effective Flood Insurance Rate Map. Following construction, as-built record drawings and supporting documentation will be submitted to FEMA to verify that the facility was constructed consistent with the approved CLOMR analysis. If FEMA determines that the completed project conforms to the approved design and modeling assumptions, FEMA may issue a Letter of Map Revision (LOMR), thereby formally revising the effective FIRM to reflect post-project floodplain conditions.

CONSTRUCTION ACTIVITIES

Construction Equipment and Access

Equipment for construction of the project would include excavators, backhoes, loaders, drill rigs, tactors, flatbed trucks, dump trucks, personnel transport vehicles, service trucks, cement trucks, compaction equipment, and paving equipment. Construction access would be provided along Serpa Lane via Scott River Road. Staging of materials and equipment during construction will occur at the project's access along Serpa Lane.

Site Grading

The proposed design will raise the finished ground elevation of the new WWTF approximately 4 to 4.5 feet above existing ground elevation. The footprint of the new WWTF excluding the flood conveyance swales is approximately 5.4 acres. Including the flood conveyance swales, the total area included in site grading is approximately 8.9 acres. Decommissioning of the existing WWTF would include an additional 3.99 acres of grading.

Timing of Construction

The Town plans to construct the proposed project as soon as the applicable authorizations are approved. Construction activities are anticipated to occur over approximately 18 months and would be limited to the hours between 7:00 a.m. and 7:00 p.m. Monday through Saturday and prohibited during evenings, nights, federal holidays and on Sunday.

EXISTING WWTF DECOMMISSIONING

The existing WWTF will be decommissioned once the new facilities are installed and brought online. Decommissioning consists of removal of all existing flow and treatment structures (flow measurement flume, flow splitter box, Imhoff settling tank), removing the organic matter from the bottom surface of the ponds and disposing of material offsite at an approved location or re-use for topsoil finishing following final grading, and the infilling of treatment and disposal ponds. Decommissioning also includes termination of raw wastewater flows to the existing facility. Existing gravity sewer pipelines will be removed within the footprint of the new WWTF site, and grouted and abandoned in place outside of the new WWTF footprint. Four existing manhole structures will be removed that

serve the existing gravity sewer main. Area of impacts for decommissioning is anticipated to be approximately 3.99 acres, all of which has been previously disturbed by use of the existing WWTF. As part of the decommissioning process, the existing 3.99-acre WWTF will be retained by the Town and reclaimed for future agricultural use.

BEST MANAGEMENT PRACTICES, AVOIDANCE AND MINIMIZATION MEASURES

The following construction best management practices (BMPs), avoidance and minimization measures would be implemented during project construction:

- Limit ground disturbance and vegetation clearing to the minimal extent necessary to accomplish project goals.
- If rainfall is forecasted during the time construction activities are being performed, all onsite stockpiles of soil, gravel, and construction debris shall be covered and secured before the onset of precipitation.
- Stabilize exposed soils at the end of the job, using mulch or other erosion control measures.
- All trash shall be removed from the work site and disposed of on a regular basis.
- All spoils and construction debris will be hauled offsite and disposed of at an appropriately permitted upland disposal facility (landfill or recycling plant).
- All equipment used during construction shall be free of oil and fuel leaks at all times.
- All equipment fueling shall be performed more than 100 feet from Moffett Creek. BMPs for leak protection and fuel handling/storage shall be maintained.
- Hazardous materials management equipment, including oil containment booms and absorbent pads shall be available and immediately on hand at the project site. Any accidental spill shall be contained rapidly and cleaned up. In the event of a spill, the Town shall notify the appropriate regulatory agencies immediately.
- To minimize wildlife entanglement and plastic debris pollution, any temporary rolled erosion or sediment control products used (such as fiber rolls, erosion control blankets, and mulch control netting) shall either be netting-free, or shall contain plastic-free biodegradable natural-fiber netting (such as jute, sisal, or coir fiber). Degradable plastic netting is not an acceptable alternative. When no longer required, temporary erosion and sediment control products shall be promptly removed.

Documentation and References

AnthropologyRx. 2026. *Cultural Resources Inventory – Historic Properties Identification Report for the Town of Fort Jones Wastewater Facility Improvements*. May 2026.

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Fort Jones. 2006. *Town of Fort Jones General Plan*. January 2006.

SCOES (Siskiyou County Office of Emergency Services). 2018a. *Hazard Mitigation Plan Volume 1: Planning Area Wide Elements*. August 2018.

SCOES. 2018b. *Hazard Mitigation Plan Volume 2: Planning Partner Annexes*. August 2018.

SHN (SHN Consulting Engineers and Geologists). 2018a. *Draft Initial Study and Mitigated Negative Declaration – Town of Fort Jones Wastewater Improvement Project (SCH #201812018)*. January 12, 2018.

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SHN. 2018c. *Wastewater Facilities Plan*. January 2018.

SHN. 2022. *Wastewater Facilities Plan Addendum*. November 2022.

SHN. 2026. *Wastewater Facilities Plan Addendum No. 2*. June 2026.

Siskiyou (Siskiyou County). 1980. *Scott Valley Area Plan*. November 13, 1980.

Siskiyou. 1972. *Siskiyou County General Plan*. 1972, as amended.

Siskiyou. 2025. *Siskiyou County Geographic Information System*. [Online]: https://www.co.siskiyou.ca.us/gis. Accessed December 26, 2025.

Section 3 - 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 or Potentially Significant Unless Mitigation Incorporated" as indicated by the checklist on the following pages.

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

DETERMINATION: (To be completed by the Lead Agency)

On the basis of the initial evaluation:

☐ I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.

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

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

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

☐ I find that although the proposed project could have a significant effect on the environment because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR of NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.

Copies of the Initial Study and related materials and documentation may be obtained at the Town of Fort Jones offices located at 11960 East Street, Fort Jones, California, 96032, during normal business hours (8:00 a.m. to 5:00 p.m. Monday through Friday). Contact Joseph Hess, Fire Chief/Town Administrator, at (530) 340-7532.

Joseph Hess
Fire Chief/Town Administrator
Town of Fort Jones

July 10, 2026
Date

Section 4 – Evaluation of Environmental Impacts

This section provides an evaluation of the potential environmental impacts of the proposed Town of Fort Jones Wastewater Treatment Facility Upgrades Project (proposed project) as well as the California Environmental Quality Act (CEQA) Mandatory Findings of Significance. A discussion of cumulative impacts is also included at the end of this chapter. The issue areas evaluated in this Initial Study include:

- Aesthetics
- Agriculture & Forestry Resources
- Air Quality
- Biological Resources
- Cultural Resources
- Energy
- Geology & Soils
- Greenhouse Gas Emissions
- Hazards & Hazardous Materials
- Hydrology & Water Quality
- Land Use & Planning
- Mineral Resources
- Noise
- Population & Housing
- Public Services
- Recreation
- Transportation
- Tribal Cultural Resources
- Utilities & Service Systems
- Wildfire

The environmental analysis in this section is patterned after the Initial Study Checklist recommended by the State CEQA Guidelines and used by the Town of Fort Jones in its environmental review process. For the preliminary environmental assessment undertaken as part of this Initial Study's preparation, a determination that there is a potential for significant effects indicates the need to more fully analyze the proposed project's impacts and identify mitigation.

For the evaluation of potential impacts, the questions in the Initial Study Checklist are stated and an answer is provided according to the analysis undertaken as part of the Initial Study. The analysis considers the long-term, direct, indirect, and cumulative impacts of the development. To each question, there are four possible responses:

- *No Impact.* The project will not have any measurable impact on the environment.

- *Less Than Significant Impact.* The project will have the potential for impacting the environment, although this impact will be below established thresholds that are considered to be significant.

- *Potentially Significant Impact Unless Mitigation Incorporated.* The project will have the potential to generate impacts which may be considered as a significant effect on the environment, although mitigation measures or changes to the project's physical or operational characteristics can reduce these impacts to levels that are less than significant.

- *Potentially Significant Impact.* The project will have impacts which are considered significant, and additional analysis is required to identify mitigation measures that could reduce these impacts to less than significant levels.

All answers must take into account the whole action involved, including potential off and onsite, indirect, direct, construction, and operation, except as provided for under State CEQA Guidelines Section 15183 and State CEQA Statute Section 21083. The environmental setting discussion under each resource section in this chapter is followed by a discussion of impacts and applicable mitigation measures.

This Initial Study identifies several potentially significant environmental effects related to the proposed project. Some effects are mitigated by implementation of existing provisions of law and standards of practice related to environmental protection. Such provisions are considered in the environmental impact analysis, and the degree to which they would reduce potential environmental effects is discussed. Additional mitigation measures are specifically identified, when necessary, to avoid potential environmental effects or to reduce them to a level that is less than significant.

Format of the Environmental Analysis

Each topical section of this Initial Study is organized into the following subsections:

- *Environmental Setting.* The environmental settings present the existing environmental conditions, in accordance with CEQA Guidelines Section 15125. The subsection describes the baseline conditions against which the environmental impacts associated with the proposed project are assessed.

- *Regulatory Setting.* The regulatory settings describe the laws, regulations, and policies that affect the resource or the assessment of impacts on the specific resource. Where appropriate, the regulatory setting subsection establishes the regulatory framework for the analysis of each resource.

- *Impact Analysis.* The impact analysis presents thresholds of significance used and discusses potential effects of the proposed project on the existing environmental conditions (in accordance with CEQA Guidelines sections 15126.2[a] and 15143).

- *Mitigation Measures.* Mitigation measures provide measures to reduce potentially significant effects associated with the proposed project to the extent feasible (in accordance with CEQA Guidelines sections 15002[a][3], 15021[a][2], and 15091[a][l]).

- *Findings.* This subsection is presented in accordance with CEQA Guidelines Section 15091(a)(1), 15092(b)(2)(A), and 15126.2(b), which require identification of impacts capable of avoidance or mitigation, as well as those that cannot be avoided.

Section I - Aesthetics

This section of the Initial Study describes the existing visual environment in and around the project area. The analysis assesses the potential for aesthetics impacts using accepted methods of evaluating visual quality, as well as identifying the type and degree of change the proposed project would likely have on the character of the surrounding area.

Environmental Setting

The project site is located in rural Scott Valley, an area dominated by developed agricultural land and surrounded by forest covered mountains with peaks reaching near 7,000 feet in elevation. The project site is utilized as both public facility (existing WWTF) and agricultural lands. Surrounding land uses include Moffett Creek and agricultural land to the north; vacant and residential uses to the east; light industrial uses to the south; and agricultural land to the west. Onsite elevations range between 2,710 to 2,730 feet above mean sea level, with most of the site being nearly flat; steep banks are present around the existing sewage ponds and at some locations along Moffett Creek.

The eastern portion the site, approximately 7.5-acres within the Town limits, is currently disturbed and graveled and utilized as an equipment storage area. This area is fenced in with access provided by Serpa Lane. Vegetation in the agricultural fields consists of alfalfa hay. Both the Scott River and Moffett Creek boarders the west and north sides of the project, respectively. Vegetation within the channel is a mixture of upland and riparian species, as well as introduced non-natives. The southern bank of Moffett Creek, in the northern portion of the project area, is composed of a rip-rap armored slope that tapers down to the gravel flood plain of the creek.

The existing 3.99-acre WWTF has been operating for over 70 years and includes six unlined wastewater ponds, facility fencing, pipelines, above ground structures, and gravel access roads. Immediately surrounding the facility on agricultural lands are developed roadways, managed alfalfa fields, above ground and overhead irrigation sprinklers lines, power lines, well heads and other appurtenances for the ongoing management of agricultural operations.

SCENIC RESOURCES

Scenic vistas are defined as expansive views of highly-valued landscapes from publicly accessible viewpoints. Scenic vistas include views of natural features such as topography, water courses, outcrops, and natural vegetation, as well as man-made scenic structures. Neither the Town nor the County has identified or designated scenic vistas within the immediate project area in their respective General Plans. (Fort Jones, 2006; Siskiyou, 1972). Additionally, according to Caltrans' California Scenic Highway Program, the proposed project is located approximately 0.5 miles from Highway 3, a highway which has been listed as eligible for State scenic highway designation (Caltrans, 2025). Highway 3 is not designated as a National Scenic Byway or federal Scenic Highway (FHWA, 2025).

The Fort Jones General Plan acknowledges that the Town is surrounded by a picturesque valley and mountain views and while these views are not expected to change materially over the life of the General Plan the agricultural lands adjacent to the Town may eventually be converted to urban uses. Moffett Creek, running nearly the full length of the Town is also considered an important open space amenity.

Regulatory Setting

This section summarizes current federal, State, and local regulations relevant to the review of *Aesthetics* for this project. Ordinances, regulations, or standards that are applicable to the environmental review of agricultural resource impacts include the following:

TOWN OF FORT JONES GENERAL PLAN, OPEN SPACE ELEMENT

The Town of Fort Jones Open Space Element was established to preserve and enhance open space lands, maintaining the natural character of the Town while continuing to improve visual qualities within the area. The following objectives apply to the proposed project:

- Objective OS-1: Even though open space in a small community is not as critical as it may be in a larger urban area, even small open paces scattered throughout the City benefit the community, adding to its character and livability. It is the objective of Goal OS-1 to maintain open space where possible to maintain and enhance the rural community environment.

- Objective OS-2: Much of Fort Jones is an attractive community with well-maintained homes and yards, This feature is attractive to new residents and makes the community more enjoyable and pleasant for existing residents. It is the object of this goal to continue to improve the appearance of the City.

SISKIYOU COUNTY GENERAL PLAN, SCENIC HIGHWAYS ELEMENT

The Siskiyou County Scenic Highways Element was established to provide guidance for the development of county programs to protect and enhance the scenic values along designated scenic routes and in scenic areas visible from these routes. The following Objectives apply to the proposed project:

- Objective 2: To conserve, enhance and protect scenic views observable from scenic routes without unduly restricting the primary uses of the lands involved.

- Objective 4: To preserve for all travelers the outstanding characteristics of Siskiyou County, primarily clean air and magnificent scenery, so that it may remain, providing incentives for tourism, and to stabilize and increase property values and the economy of Siskiyou County.

NATIONAL SCENIC BYWAYS PROGRAM

The National Scenic Byways Program is part of the U.S. Department of Transportation, Federal Highway Administration (FHWA). Established in Title 23, Section 162 of the United States Code, the program is a grass-roots collaborative effort established to help recognize, preserve, and enhance selected roads throughout the United States. FHWA's May 18, 1995 interim policy sets forth the procedures for the designation by the U.S. Secretary of Transportation of certain roads as National Scenic Byways or All-American Roads based on their archaeological, cultural, historic, natural, recreational, and scenic qualities. There are 150 such designated byways in 46 states.

CALIFORNIA SCENIC HIGHWAY PROGRAM

California's Scenic Highway Program was created by the legislature in 1963. Its purpose is to protect and enhance the natural scenic beauty of California highways and adjacent corridors, through special conservation treatment. The State laws governing the Scenic Highway Program are found in the Streets and Highways Code, Sections 260 through 263. Caltrans has compiled a list of State highways that are designated as scenic and county highways that are eligible for designation as scenic. An eligible determination means the highway segment has outstanding scenic qualities and meets Caltrans' criterial, making it part of the system, but not officially designated until the local city/county adopts a Corridor Protection Program (CPP) with land use regulations to preserved views, including zoning, billboard control, and design guidelines, ensuring its scenic beauty is protected.

Impact Analysis

The following includes an analysis of environmental parameters related to *Aesthetics* based on Appendix G of the State CEQA Guidelines. The discussion not only includes the areas for which there is potential for environmental impacts but also provides justification for the conclusions that either no impacts, less than significant impacts, or less than significant impacts with mitigation could occur.

Would the Project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Have a substantial adverse effect on a scenic vista?			**X**	

Would the Project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a State scenic highway?			X	
c) In nonurbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? *(Public views are those that area 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?			X	
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?			X	

a) *Have a substantial adverse effect on a scenic vista?*

As noted above, neither Fort Jones nor Siskiyou County has identified designated scenic vistas in the immediate project area in their respective general plans (Fort Jones, 2006; Siskiyou County, 1972). Moffett Creek is located immediately north of the project area and represents an existing open space feature within an otherwise developed and light industrialized setting. Existing overhead utility lines are present along Serpa Lane and contribute to the existing visual character of the area.

CONSTRUCTION

Construction of the proposed project would occur on an approximately 17.5-acre site located adjacent to existing developed and disturbed areas near Fort Jones. Construction activities would involve grading, excavation, installation of wastewater treatment infrastructure, construction of treatment ponds and associated facilities, temporary stockpiling of materials, and the use of construction equipment such as excavators, loaders, cranes, and haul trucks. Construction activities are anticipated to occur over an approximately 18-month period. During this time, construction equipment, materials, temporary fencing, and stockpiles would be visible from portions of nearby roadways and surrounding properties.

Underground utilities, including the influent sewer line, would be installed below grade and would not be visible following completion of construction. Although construction activities would temporarily alter the visual character of the project site through the presence of construction equipment, exposed soils, earthmoving activities, and stockpiled materials, these changes would be short-term and would cease upon completion of construction.

Scenic vistas in the project vicinity primarily consist of broad views of Scott Valley and the surrounding mountain ranges. The project site is located on relatively flat valley floor terrain and does not occupy a ridgeline, scenic overlook, or other prominent landscape feature that serves as a focal point for public views. Construction activities would be confined to the project site and would not physically obstruct or substantially interfere with views of Scott Valley, the surrounding agricultural landscape, or distant mountain backdrops. Because scenic views in the area are expansive, temporary construction features would occupy only a small portion of the overall viewshed. Construction-related visual changes would be temporary, localized, and would not substantially block, degrade, or adversely affect a scenic vista. Therefore, impacts associated with construction of the proposed project would be less than significant.

OPERATION

The proposed project includes relocation and reconstruction of the Town's wastewater treatment facility approximately 1,500 feet east of the existing facility footprint on approximately 17.5 acres adjacent to existing light industrial and agricultural related uses. As described in Section 2, PROJECT DESCRIPTION, portions of the project site are located within the 100-year floodplain, and finished grades within the treatment area would be raised approximately 4 to 4.5 feet above existing ground elevations to accommodate flood protection requirements. The

relocated facility would include appurtenant structures such as headworks, blower, and control buildings, which would not exceed 15 feet in height. All buildings would be finished with earth-tone paint colors to reduce visual contrast and soften their appearance within the surrounding landscape. Perimeter fencing for the new treatment facility property would consist of a 4-foot-high, three-strand barbed-wire fence supported by steel posts. Interior to the perimeter fence, an 8-foot-high security and screening fence would be installed around the wastewater treatment facility. The security fence would consist of chain-link fencing topped with barbed wire and fitted with green privacy slats to further reduce visibility of facility components from adjacent properties and public viewpoints.

Operation of the proposed wastewater treatment facility would introduce new treatment ponds, buildings, fencing, and associated infrastructure into an area that is currently undeveloped. However, the project would be located adjacent to existing industrial, utility, and transportation-related features, including the existing wastewater treatment facility, overhead utility lines, roadways, and light industrial development. The approximately 4 to 4.5-foot increase in finished grade and the relatively low-profile buildings would be minor in scale when viewed within the context of the broad Scott Valley landscape and would not obstruct views of Moffett Creek, the surrounding agricultural lands, or the surrounding mountain ranges. In addition, the proposed landscaping plan would establish a multi-layered vegetative buffer consisting of native grasses, shrubs, hardwood trees, and conifers around portions of the facility. While the landscaping would require time to mature, it would progressively soften views of project infrastructure and improve visual integration with the surrounding rural landscape. Mature shrubs would provide screening at heights of approximately 4 to 15 feet, while Oregon white oak, Northern California black walnut, and incense cedar would eventually provide substantial vertical screening and visual relief. As a result, the project would not substantially alter the visual character of the area or interfere with public views of the surrounding scenic resources. Therefore, operation of the proposed project would not substantially obstruct, degrade, or adversely affect a scenic vista.

LANDCAPE PLAN

Landscaping associated with the proposed project would be installed around portions of the wastewater treatment facility to provide visual screening, enhance site aesthetics, and assist in reducing the potential for odors to be carried by prevailing winds toward nearby receptors (see Figure 2-10, LANDSCAPE PLAN). The landscaping plan includes a combination of native grasses, forbs, shrubs, hardwood trees, conifer trees, and small fruit trees selected for their adaptability to local climate, soil, and hydrologic conditions.

Vegetation would be concentrated along the southern and eastern boundaries of the facility in two rows designed to create a multi-layered visual buffer. The inner row would generally be located adjacent to the stormwater swale and would include native shrubs such as serviceberry (*Amelanchier utahensis*), mountain mahogany (*Cercocarpus betuloides*), chokecherry (*Prunus virginiana*), coffeeberry (*Frangula californica*), mock orange (*Philadelphus lewisii*), golden currant (*Ribes aureum*), and rubber rabbitbrush (*Ericameria nauseosa*). These species are anticipated to attain mature heights ranging from approximately 4 to 15 feet, providing low- to mid-level visual screening around the facility.

The inner row would also include larger native hardwood trees consisting of Northern California black walnut (*Juglans hindsii*) and Oregon white oak (*Quercus garryana*). These species are expected to attain mature heights of approximately 60 feet and up to 90 feet, respectively, creating substantial vertical screening and contributing to the long-term visual integration of the facility within the surrounding landscape.

The outer row would include incense cedar (*Calocedrus decurrens*), a long-lived conifer capable of reaching mature heights of approximately 100 to 150 feet. These trees would provide the tallest component of the visual buffer and would serve as prominent landscape features over the long term. Additional shrubs, including mountain mahogany, coffeeberry, golden currant, and rubber rabbitbrush, would be planted between the cedar trees to provide lower-level screening while the trees mature.

Near the facility entrance, permanently irrigated fruit trees consisting of domestic apple (*Malus domestica*) and pear (*Pyrus communis*) trees would be installed. These trees are expected to attain mature heights of approximately 10 feet and would provide an aesthetic focal point at the facility entrance while offering seasonal visual interest. Stormwater swales surrounding the facility would be seeded with a diverse native seed mix containing grasses and wildflowers, including California brome, blue wildrye, California meadow barley, Idaho fescue, purple needlegrass,

common yarrow, Oregon sunshine, California poppy, and native clovers. These species would generally attain mature heights ranging from approximately 1 to 3 feet and would establish a naturalized groundcover consistent with the surrounding rural landscape.

The majority of landscaping would receive temporary irrigation during a three-year establishment period, after which the vegetation would be largely sustained by natural precipitation and available soil moisture. Because the selected species are generally characterized by slow to moderate growth rates, full development of the visual screening buffer is anticipated to occur gradually over approximately 10 years. As the landscaping matures, the combination of native shrubs, hardwood trees, and conifers would soften views of the wastewater treatment facility, reduce the visual contrast between project infrastructure and the surrounding environment, and enhance the overall visual character of the site.

CONCLUSION

While the project would introduce new wastewater infrastructure into a currently undeveloped portion of the site, the relocated facility would be consistent with the existing industrial, utility, and agricultural character of the surrounding area west of Scott River Road. The project would not obstruct or degrade views of Scott Valley, Moffett Creek, the surrounding agricultural landscape, or the mountain backdrops that constitute the primary scenic resources in the project vicinity. The proposed facility would also be viewed in the context of existing development in the project area, including the existing wastewater treatment facility, overhead utility lines, roadways, and adjacent light industrial uses.

The proposed landscaping plan would further reduce long-term visual contrast by establishing a multi-layered vegetative buffer consisting of native shrubs, hardwood trees, and conifers, with mature vegetation reaching heights of approximately 4 to 15 feet for shrubs, up to approximately 60 to 90 feet for hardwood trees, and up to approximately 100 to 150 feet for incense cedar. Although full establishment of this buffer would occur gradually over time, it would ultimately enhance visual integration of the facility with the surrounding rural landscape. Therefore, implementation of the proposed project would not result in a substantial adverse effect on a scenic vista, and impacts 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?***

The proposed project is not located within a designated State Scenic Highway or officially designated scenic highway corridor. Highway 3, located approximately 0.5 miles from the project site, is identified as an Eligible State Scenic Highway but has not been officially designated as a scenic highway. Eligibility indicates that the route has the potential for future designation pending further action by Caltrans and local jurisdictions.

The project does not include the removal of trees or vegetation identified as scenic resources, nor does it involve the alteration of rock outcroppings, historic structures, or other features that contribute to scenic highway designation criteria. Views of the project site from Highway 3 and Scott River Road are partially screened by existing vegetation, topography, and intervening development, including buildings and roadside vegetation. The proposed facility would be located within an area characterized by existing industrial, wastewater, and agricultural uses and would not introduce features that would substantially degrade the visual character of views from nearby roadways.

As the proposed project site is not located along a designated scenic highway and would not substantially degrade the visual character or quality of public views from eligible scenic routes, implementation of the proposed project would not impact scenic highways or impede future scenic highway designation. Therefore, impacts would be less than significant.

c) ***In nonurbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that area 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?***

Fort Jones is a small rural community in Siskiyou County characterized by low-density development, agricultural and open space uses, and localized industrial/utility facilities, and is not located within a Census-designated urbanized area. The project site is currently partially disturbed and is used for equipment storage and utility-related activities, resulting in an existing industrial visual character as viewed from Scott River Road and portions of Bridge Street.

The proposed project would relocate the wastewater treatment facility approximately 1,500 feet east of the existing facility to an area adjacent to existing light industrial uses to the south and residential uses along Bridge Street. The project would introduce new wastewater infrastructure, including berms, treatment/infiltration ponds, and ancillary buildings. Finished grades within the treatment area would be elevated approximately 4 to 4.5 feet above existing ground surface to accommodate flood protection requirements. Facility structures, including three primary buildings, would be approximately 15 feet in height. While the relocated facility would be visible from nearby roadways such as Scott River Road, Bridge Street, and Serpa Lane, the proposed project would be consistent with the existing industrial and agricultural-related visual context of the area east of Scott River Road and would not substantially obstruct long-range views, including views toward the surrounding mountain backdrop.

Although construction activities would result in temporary visual changes associated with grading, equipment, and staging, these effects would be short-term and limited to the immediate project vicinity. Following construction, the project would not substantially degrade the existing visual character or quality of public views of the site or its surroundings. Therefore, impacts 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?***

Light pollution results from nighttime illumination that increases skyglow, glare, or light spill beyond the area intended to be illuminated. Such effects can reduce nighttime visibility of the night sky and may adversely affect nearby sensitive receptors if not properly controlled. Existing nighttime lighting in the project vicinity is limited and includes a streetlight at the intersection of Scott River Road and Serpa Lane, lighting associated with nearby light industrial uses along Scott River Road, and residential lighting east of the project site. The surrounding area therefore already experiences a low level of ambient nighttime illumination.

The proposed project would include operational and security lighting within the WWTF site. However, all exterior lighting would be designed to minimize light and glare through the use of full cutoff fixtures, downward-directed shielding, and controls such as motion sensors and/or timers to limit lighting to periods of necessary use. Lighting would be confined to the facility footprint and would not be directed toward adjacent properties or the night sky. As the proposed project would not introduce unshielded or excessive nighttime lighting and would incorporate design features to minimize light spill and glare, it would not create a new source of substantial light or glare that would adversely affect day or nighttime views in the area. Therefore, impacts would be less than significant.

Mitigation Measures

No mitigation measures are required.

Findings

Based upon the review of the information above, implementation of the proposed project will have a less than significant impact with respect to *Aesthetics*.

Documentation and References

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Section II – Agriculture and Forestry Resources

The purpose of this section of the Initial Study is to evaluate whether implementation of the proposed project would result in the conversion, loss, or degradation of agricultural resources. This section describes the existing agricultural resources within the project study area and summarizes the federal, state, and local regulations, plans, and policies applicable to the protection and management of those resources.

Environmental Setting

Approximately 7.5 acres of the project site is located within the corporate limits of Fort Jones (APN 055-241-010 and APN 055-241-020) and is designated as Mobile Home (M-H) with a corresponding zoning of Manufactured Homes Park (M-H). An approximate 10-acre portion of the proposed project site (APN 024-030-490) is located within unincorporated Siskiyou County, immediately adjacent to Fort Jones' corporate limits. This parcel is currently zoned AG-2-B-40 (non-prime agriculture) 40 acre minimum parcel size and AG-1-B-80 (prime agriculture) (see Section 2, PROJECT DESCRIPTION; Figure 2-6, EXISTING GENERAL PLAN AND ZONING).

Vegetation at the existing WWTF (APN 024-040-080) is generally comprised of low-growing non-native grasses, with the remaining vegetation removed by the original development of the treatment facility. The existing 3.99-acre WWTF is fenced and maintains a series of interior roads along the top of the wastewater effluent ponds. The 7.5 acres of the project site located within Fort Jones (APN 055-241-010 and APN 055-241-020) has been fully disturbed, graveled, and is currently utilized as an equipment storage area (see Section 2, PROJECT DESCRIPTION; Figure 2-4, SITE PHOTOGRAPHS). Vegetation in the existing agricultural fields (APN 024-030-490) consists of irrigated alfalfa hay, which is a managed crop that is mowed and bailed 3-4 times per year, depending on growing conditions. Additionally, no timberlands or forest land are present within or immediately adjacent to the project site.

CALIFORNIA FARMLAND MAPPING AND MONITORING PROGRAM (FMMP)

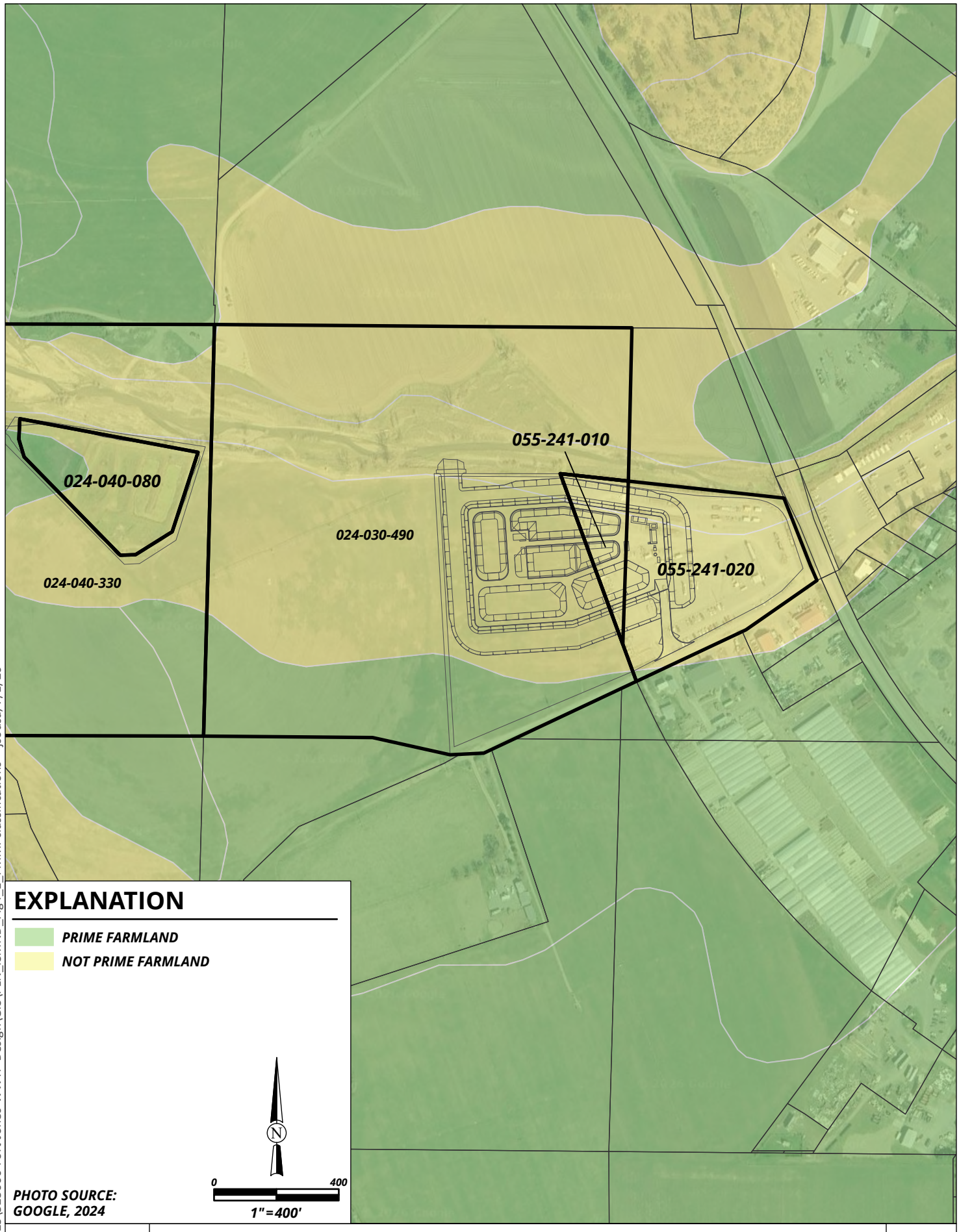
The Department of Conservation (DOC) Farmland Mapping and Monitoring Program (FMMP) maps and classifies farmland. Classifications are based on a combination of physical and chemical characteristics of the soil and climate that determine the degree of suitability of the land for crop production. As mentioned above, a 10-acre portion of the site contains irrigated alfalfa hay production and is mapped as both Unique Farmland and Prime Farmland by the FMMP (see Figure 4-1, FMMP CLASSIFICATIONS) (DOC, 2026a).

LAND CAPABILITY CLASSIFICATION

According to the U.S. Department of Agriculture, Natural Resources Conservation Service (NRCS), four soil units have been mapped within the project site, including the existing WWTF (see Figure 4-2, USDA SOILS AND FARMLAND DESIGNATIONS). These soils consist of Atter very gravelly sandy loam (0 to 5 percent slopes) (not prime farmland), Diyou loam, drained (prime farmland if irrigated and drained), Riverwash (not prime farmland), and Stoner gravelly sandy load (0 to 2 percent slopes) (prime farmland if irrigated) (NRCS, 2026).

Land Capability Classification Rating

The Land Capability Classification (LCC) indicates the suitability of soils for most kinds of crops. Groupings are made according to the limitations of the soils when used to grow crops, and the risk of damage to soils when they are used in agriculture. Soils are rated from Class 1 to Class 8, with soils having the fewest limitations receiving the highest rating (Class I). Specific subclasses are also utilized to further characterize soils. A description of each soil rating is provided in Table 4-1, LAND CAPABILITY CLASSIFICATION CLASSES. The LCC also includes capability subclasses, which are soil groups within one capability class and are designated by the letters "e", "w", "s", or "c" as described in Table 4-2, LAND CAPABILITY CLASSIFICATION SUBCLASSES.



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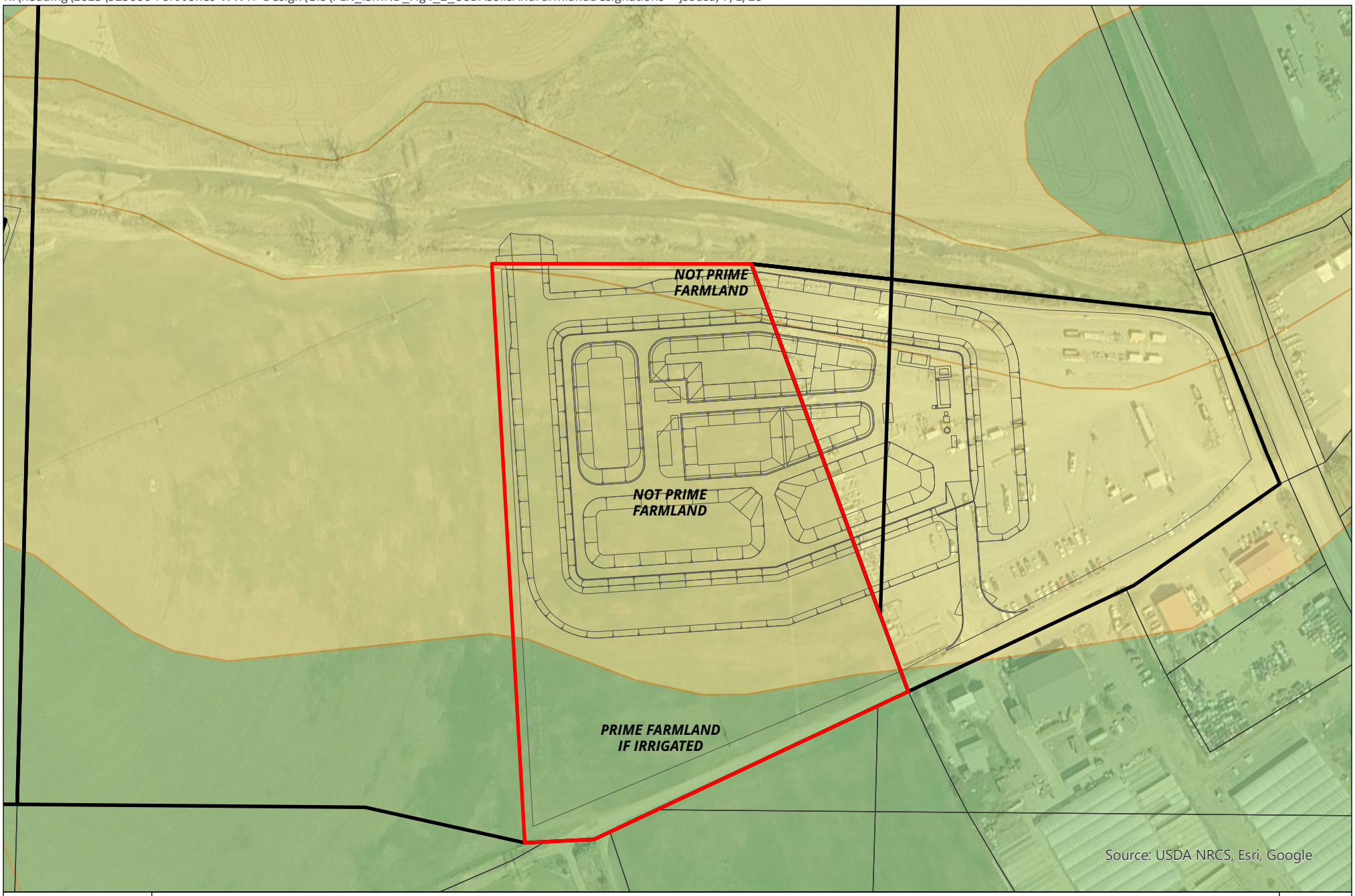
Fort Jones Wastewater Treatment Facility Upgrades
IS/MND

FMMP Classifications

July 2026

Figure 4-1

R:\Redding\2025\525006-Fort-Jones-WWTF-Design\GIS\PLN_ISMND_Fig4_2_USDAsoilsAndFarmlandDesignations -- jsousa, 7/1/26



Fort Jones Wastewater Treatment Facility Upgrades
IS/MND

USDA Soils and Farmland Designations

July 2026

Figure 4-2

Table 4-1
LAND CAPABILITY CLASSIFICATION CLASSES

Class	Description
1	Soils have few limitations that restrict their use.
2	Soils have moderate limitations that reduce the choice of plants or that require moderate conservation practices.
3	Soils have severe limitations that reduce the choice of plants or that require special conservation practices, or both.
4	Soils have very severe limitations that reduce the choice of plants or that require very careful management, or both.
5	Soils are subject to little or no erosion but have other limitations that are impractical to remove, that restrict their use mainly to pasture, rangeland, forestland, or wildlife habitat.
6	Soils have severe limitations that make them generally unsuitable for cultivation and that restrict their use mainly to pasture, rangeland, forestland, or wildlife habitat.
7	Soils have very severe limitations that make them unsuitable for cultivation and that restrict their use mainly to grazing, forestland, or wildlife habitat.
8	Soils and miscellaneous areas have limitations that preclude commercial plant production and that restrict their use to recreational purposes, wildlife habitat, watershed, or aesthetic purposes.
Source: Natural Resources Conservation Service, 2026.	

Table 4-2
LAND CAPABILITY CLASSIFICATION SUBCLASSES

Subclass	Description
e	The main problem or hazard is the risk of erosion. The susceptibility of erosion and past erosion damage are the main soil factors that affect soils in this subclass.
w	Water in or on the soil interferes with plant growth or cultivation. Poor soil drainage, wetness, a high-water table, and overflow are the factors that affect soils in this subclass.
s	The soil has limitations within the rooting zone, mainly because it is shallow, has low moisture-holding capacity, or is stony.
c	The chief limitation is climate that is very cold or very dry.
Source: Natural Resources Conservation Service, 2026.	

Storie Index Rating

The Storie Index provides a numeric rating (based upon a 100-point scale) of the relative degree of suitability or value of a given soil for intensive agriculture. The rating is based upon the character of the soil profile, surface texture, steepness of the slope, drainage, alkalinity, fertility, wind and water erosion, acidity, and microrelief. The Storie Index for the existing WWTF and proposed project is provided in Table 4-3, PROJECT SOIL TYPES.

Animal-Unit Rating

An animal unit (AU) is generally one mature cow of approximately 1,000 pounds and a calf as old as six months, or their equivalent. The NRCS uses 30 pounds per day (10,950 pounds per year) air-dry weight (as-fed) of forage as the standard forage demand for a 1,000-pound cow with a calf. The range production ratings shown in Table 4-3 identify the amount of vegetation that can be expected to grow annually in a well-managed area that is supporting the potential natural plant community. It includes all vegetation, whether or not it is palatable to grazing animals.

Project Site Soils

Soils on the project site are shown on Figure 4-3, PROJECT SITE SOILS and summarized in Table 4-3.

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Fort Jones Wastewater Treatment Facility Upgrades
IS/MND

Project Site Soils

July 2026

Figure 4-3

Table 4-3
PROJECT SOIL TYPES

Map Unit Symbol	Soil Name	Total Acres	% of Project Site	Land Capability Classification (LCC)	Storie Index	Range Production (pounds per acre per year)	Farmland Classification
Existing WWTF							
104	Atter very gravelly sandy loam 0 to 5 percent slopes	3.3	83.5%	Irrigated not specified 4s (non-irrigated)	43 (fair)	0	Not prime farmland
137	Diyou Loam, drained	0.7	16.5%	2w (irrigated) 3w (non-irrigated)	70 (good)	4,250	Prime farmland if irrigated
Proposed Project (Fort Jones Parcels)							
104	Atter very gravelly sandy loam 0 to 5 percent slopes	5.4	74.3%	Irrigated not specified 4s (non-irrigated)	43 (fair)	0	Not prime farmland
212	Riverwash	1.9	25.6%	Irrigated not specified 8w (non-irrigated)	Not rated	0	Not prime farmland
Proposed Project (Annexation Area)							
104	Atter very gravelly sandy loam 0 to 5 percent slopes	7.4	73.7%	Irrigated not specified 4s (non-irrigated)	43 (fair)	0	Not prime farmland
212	Riverwash	0.9	8.6%	Irrigated not specified 8w (non-irrigated)	Not rated	0	Not prime farmland
229	Stoner gravelly sandy loam 0 to 2 percent slopes	1.8	17.7%	2s (irrigated) 3s (non-irrigated)	67 (good)	800	Prime farmland if irrigated
Source: Natural Resources Conservation Service, 2026.							

WILLIAMSON ACT

The California Land Conservation Act of 1965, commonly known as the Williamson Act, allows local governments to form contracts with private landowners to restrict specific parcels of land to agricultural or open space use. The project area and surrounding adjoining agricultural lands are not under active Williamson Act contracts (DOC, 2026b).

Regulatory Setting

This section summarizes current federal, State, and local regulations relevant to the review of *Agriculture and Forestry Resources* for this project. Ordinances, regulations, or standards that are applicable to the environmental review of agricultural resource impacts include the following:

CALIFORNIA FARMLAND MAPPING AND MONITORING PROGRAM

The California Farmland Mapping and Monitoring Program (FMMP) was established by the California Department of Conservation (DOC), under the Division of Land Resource Protection. Important Farmland Maps are compiled by the FMMP pursuant to Section 65570 of the California Government Code. The FMMP is an informational service only and does not constitute State regulation of local land use decisions.

The FMMP, which monitors the conversion of the State's farmland to and from agricultural use, relies on information from the NRCS soils surveys, NRCS land inventory and monitoring criteria, and land use and water availability. Topography, climate, soil quality, and available irrigation water all factor into the FMMP farmland classifications. Classifications are based on a combination of physical and chemical characteristics of the soil and

climate that determine the degree of suitability of the land for crop production. The classifications under the FMMP are as follows:

- *Prime Farmland*—land that has the best combination of features for the production of agricultural crops;
- *Farmland of Statewide Importance*—land other than Prime Farmland that has a good combination of physical and chemical features for the production of agricultural crops, but that has more limitations than Prime Farmland, such as greater slopes or less ability to store soil moisture;
- *Unique Farmland*—land of lesser quality soils used for the production of the state's leading agricultural cash crops;
- *Farmland of Local Importance*—land of importance to the local agricultural economy;
- *Grazing Land*—existing vegetation that is suitable for grazing;
- *Urban and Built-Up Land*—land occupied by structures in density of at least one dwelling unit per 1.5 acres;
- *Land Committed to Nonagricultural Use*—vacant areas; existing land that has a permanent commitment to development but has an existing land use of agricultural or grazing lands; and
- *Other Land*— land not included in any other mapping category, common examples of which include low-density rural developments, brush, timber, wetland, and vacant and nonagricultural land surrounded on all sides by urban development.

The FMMP maps are updated every two years using aerial photographs, a computer-based mapping system, public review, and field reconnaissance. The FMMP definition of Prime Farmland is "land which has the best combination of physical and chemical characteristics for the production of crops. It has the soil quality, growing season, and moisture supply needed to produce sustained high yields of crops when treated and managed, including water management, according to current farming methods. Prime Farmland must have been used for the production of irrigated crops at some time during the two update cycles prior to the mapping date. It does not include publicly owned lands for which there is an adopted policy preventing agricultural use." FMMP also maps farmland that is classified as less than prime, such as Unique Farmland, Farmland of Statewide Importance, Farmland of Local Importance (which is defined by local jurisdictions and accepted by FMMP), Urban and Built-up Land, and Other Land.

CALIFORNIA LAND CONSERVATION ACT

The California Land Conservation Act of 1965, commonly referred to as the Williamson Act, is promulgated in California Government Code Section 51200-51297.4, and therefore is applicable only to specific land parcels within the State of California. The Williamson Act enables local governments to enter contracts with private landowners for the purpose of restricting specific parcels of land to agricultural or related open space uses in return for reduced property tax assessments. Private land within locally designated agricultural preserve areas is eligible for enrollment under Williamson Act contracts. The Williamson Act program is administered by the CDC, in conjunction with local governments, which administer the individual contract arrangements with landowners. The landowner commits the parcel to a 10-year period wherein no conversion out of agricultural use is permitted. Each year, the contract automatically renews unless a notice of non-renewal or cancellation is filed. In return, the land is taxed at a rate based on the actual use of the land for agricultural purposes, as opposed to its unrestricted market value. An application for immediate cancellation can also be requested by the landowner, provided that the proposed immediate cancellation application is consistent with the cancellation criteria stated in the California Land Conservation Act and those adopted by the affected county or city. Non-renewal or immediate cancellation does not change the zoning of the property. Participation in the Williamson Act program is dependent on county adoption and implementation of the program and is voluntary for landowners.

FARMLAND SECURITY ZONE CONTRACT

The DOC passed the Farmland Security Zone legislation (Govt. Code Section 51296) in 1998. The Farmland Security Zone allows counties to establish an additional program for farmlands to enter into contracts with the State. This legislation allows landowners whose land is under a Williamson Act contract to petition to the county board of supervisors to annul the Williamson Act contract for a Farmland Security Zone Contract. A Farmland Security Zone Contract is a 20-year contract that allows the property owner to receive 35 percent more in tax savings than a Williamson Act contract. Both of these contracts require that lands be within an established Agricultural Preserve.

Agricultural lands that are not in a preserve face the greatest threat of conversion, as they are assessed higher property taxes due to their proximity to urbanization.

FOREST LAND AND TIMBERLAND

Public Resources Code Section 12220(g) defines Forest Land as *"land that can support 10% native tree cover of any species, including hardwoods, under natural conditions, and that allows for management of one or more forest resources, including timber, aesthetics, fish and wildlife, biodiversity, water quality, recreation, and other public benefits."* Public Resources Code Section 4526 defines timberland as *"land, other than land owned by the federal government, which is available for, and capable of, growing a crop of trees of any commercial species used to produce lumber and other forest products, including Christmas trees."* Government Code Section 51104(g) defines Timberland Production Zone (TPZ) as *"an area which has been zoned pursuant to [Government Code] Section 51112 or 51113 and is devoted to and used for growing and harvesting timber, or for growing and harvesting timber and compatible uses, as defined in subdivision (h)."*

SCOTT VALLEY AREA PLAN

The Scott Valley Area Plan reflects the future development policies guiding future growth of the Scott Valley watershed. The Scott Valley Area Plan (formerly designated as "County Area Plan I") was adopted by the Siskiyou County Board of Supervisors as an amendment to the County's Land Use Element in 1980. Within the Scott Valley Area Plan prime agricultural soils are defined as Class I, II and III soils, or Class IV and above soils that are classified as Class I, II and II soils under irrigation. Policy 1 of the Plan notes that only agricultural and public uses may be permitted on prime agricultural soils.

SISKIYOU COUNTY GENERAL PLAN

The Siskiyou County General Plan is a blueprint for future development and describes the County's development goals and policies, It also is the foundation for land use decisions made by the Planning Commission and Board of Supervisors Although the General Plan established standards for the location and density of land uses, it does not directly regulate the land use as does zoning. Policy 34 states that all Class I, II, and III soils that become Class III under irrigation, with the exception of Class III soils determined to be non-irrigable are defined as prime agricultural land.

SISKIYOU COUNTY LOCAL AGENCY FORMATION COMMISSION

Cortese-Knox-Hertzberg Local Government Reorganization Act of 2000 (LAFCO) Government Code Section 56000 governs annexations of property into cities and districts. This code section outlines the process and requirements for cities to annex unincorporated areas, aiming to encourage orderly growth and address inefficiencies associated with unincorporated areas within or near city boundaries. The Siskiyou LAFCO is an independent agency responsible for the implementation of the Cortese-Knox-Hertzberg Local Government Reorganization Act of 2000. The Act, Government Code Section 56000 et seq., identifies the responsibilities of LAFCO, which include the review, approval, and/or denial of boundary changes, annexations, consolidations, special district formations, incorporations for cities and special districts, and the establishment of local Spheres of Influence (SOI) which are boundaries established for each governmental agency for future provision of services.

For determining prime agricultural land, LAFCO utilizes the definition prescribed in Government Code Section 56064 that states "Prime agricultural land" means an area of land, whether a single parcel or contiguous parcels, that has not been developed for a use other than an agricultural use and that meets any of the following qualifications:

(a) Land that qualifies, if irrigated, for rating as class I or class II in the USDA Natural Resources Conservation Service land use capability classification, whether or not land is actually irrigated, provided that irrigation is feasible.
(b) Land that qualifies for rating 80 through 100 Storie Index Rating.

(c) Land that supports livestock used for the production of food and fiber and that has an annual carrying capacity equivalent to at least one animal unit per acre as defined by the United States Department of Agriculture in the National Range and Pasture Handbook, Revision 1, December 2003.
(d) Land planted with fruit or nut-bearing trees, vines, bushes, or crops that have a nonbearing period of less than five years and that will return during the commercial bearing period on an annual basis from the production of unprocessed agricultural plant production not less than four hundred dollars ($400) per acre.
(e) Land that has returned from the production of unprocessed agricultural plant products an annual gross value of not less than four hundred dollars ($400) per acre for three of the previous five calendar years.

Therefore, land that would not qualify as prime under FMMP or NRCS definition of prime, may qualify as prime under the LAFCO definition.

Impact Analysis

The following includes an analysis of environmental parameters related to *Agricultural Resources* based on Appendix G of the State CEQA Guidelines. The discussion not only includes the areas for which there is potential for environmental impacts but also provides justification for the conclusions that either no impacts, less than significant impacts, or less than significant impacts with mitigation could occur.

Would the Project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Convert Prime Farmland, Unique Farmland, or 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?		X		
b) Conflict with existing zoning for agricultural use, or a Williamson Act Contract?			X	
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code Section 12220(g)), timberland (as defined by Public Resources Code Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 5110(g))?				X
d) Result in the loss of forest land or conversion of forest land to non-forest use?				X
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 land?			X	

a) *Convert Prime Farmland, Unique Farmland, or 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?*

Implementation of the proposed project entails the decommissioning of the existing WWTF and constructing a new treatment facility approximately 1,500 feet to the east towards the Town to allow the efficient use of utilities, maintenance, and access. The new facility is proposed on APN 055-241-010 and APN 055-241-020 (7.5 acres total) within Fort Jones and will require an approximate 10-acre portion of APN 024-030-490 located within unincorporated Siskiyou County. The 7.5 acres located within Fort Jones has been fully disturbed, graveled, and is currently utilized as an equipment storage area. As APN 024-030-490 resides within the County and outside of the Fort Jones' established Sphere of Influence (SOI), the proposed project will require the approval of an SOI

amendment by the Siskiyou County Local Agency Formation Commission (LAFCO) and authorization of a corporate boundary change to accommodate the new wastewater treatment facility.

The proposed project site is mapped as both Unique Farmland and Prime Farmland by the FMMP. However based on NRCS soils data, the development of the proposed project would primarily target and convert approximately 5.85 acres of the lower quality non-prime agriculture land from its existing use as irrigated alfalfa hay production to an upgraded public facility for wastewater treatment. Approximately 1.8 acres of prime farmland soils are included within the project area; however, the project has been designed to ensure these higher quality agricultural soils would not be permanently converted as part of the proposed project (see Figure 4-2, USDA SOILS AND FARMLAND DESIGNATIONS).

As noted above, the proposed project will require a relatively minor annexation of existing agricultural land from the adjoining westerly parcel (APN 024-030-490) into Fort Jones to accommodate the new treatment facility. As a result, the required SOI amendment, boundary change and annexation are subject to Siskiyou County LAFCO review and approval pursuant to Government Code Section 56000. For determining prime agricultural land LAFCO utilizes a five-point criteria prescribed in Government Code Section 56064 (see *Regulatory Setting*, above). It is important to note that land not qualifying as prime under FMMP or NRCS definitions of prime farmland, may ultimately qualify as prime farmland under the LAFCO's definition. Therefore, the following evaluation focuses on the criteria established in Section 56064, subsections (a) through (e) demonstrating that the vast majority of the conversion impacts marginal, low productivity soils. Per Section 56064, land is considered to be prime if it meets any of the following qualifications:

(a) Land that qualifies, if irrigated, for rating as class I or class II in the USDA Natural Resources Conservation Service land use capability classification, whether or not land is actually irrigated, provided that irrigation is feasible.

As shown in Table 4-3, above, the vast majority of the 10-acre annexation area (82.3%) is comprised of both the Atter very gravelly sandy loam and Riverwash soil types which have a Land Capability Classification (LCC) rating of 4 and 8, respectively. These lower quality soils are noted as having severe agricultural production limitations. The remaining area (1.8 acres) is comprised of Stoner gravelly sandy loam with a LCC rating of 2. Therefore, while the proposed project technically meets criteria (a) due to the minor 1.8-acre inclusion, the overwhelming majority of the targeted conversion area consists of very limited, non-prime soils.

(b) Land that qualifies for rating 80 through 100 Storie Index Rating.

As shown in Table 4-3, above, the Storie Index Rating for onsite soils in the 10-acre annexation area range between 43 (fair) to 67 (good) with no soil type exceeding a rating of 80. This lack of high-tier soil productivity further underscores the marginal agricultural value of the land. Therefore, the proposed project does not meet criteria (b).

(c) Land that supports livestock used for the production of food and fiber and that has an annual carrying capacity equivalent to at least one animal unit per acre as defined by the United States Department of Agriculture in the National Range and Pasture Handbook, Revision 1, December 2003.

Although the 10-acre annexation area is not currently utilized as grazing land, based on range production estimates as shown in Table 4-3, the site displays low forage potential and would not yield sufficient vegetation in a fallowed condition (10,950 pounds per year) to support an annual carrying capacity equivalent to at least one animal unit per acre. Therefore, the proposed project does not meet criteria (c).

(d) Land planted with fruit or nut-bearing trees, vines, bushes, or crops that have a nonbearing period of less than five years and that will return during the commercial bearing period on an annual basis from the production of unprocessed agricultural plant production not less than four hundred dollars ($400) per acre.

Per the 2020 through 2023 Annual Crop and Livestock Reports for Siskiyou County, the county-wide estimated annual production value per harvested acre of alfalfa hay ranged between $990 per acre and $1,675 per acre during the reporting period (Siskiyou, 2020-2023). For the annexation area, the annual

production from existing alfalfa production is over $800 per acre. Therefore, the proposed project meets criteria (d) based on a lower value dollar threshold established by this criterion, but compared to regional production values, the site production shows a below average production value.

(e) Land that has returned from the production of unprocessed agricultural plant products an annual gross value of not less than four hundred dollars ($400) per acre for three of the previous five calendar years.

See above response under criteria (d).

Based on the above evaluation pursuant to Government Code 56064, the proposed 10-acre annexation area meets criteria (a), (d) and (e), therefore qualifying onsite soils as prime farmland under LAFCO's broader Prime Farmland definition. Due to the siting and design of the new facility, implementation of the proposed project would result in the permanent conversion of approximately 6.32 acres of Prime Farmland. However, as previously established, this designation is largely triggered by a minor portion (1.8 acres) of higher quality soils located withing the site and low economic thresholds, rather than an indicator of high-quality agricultural soils throughout the entire project site.

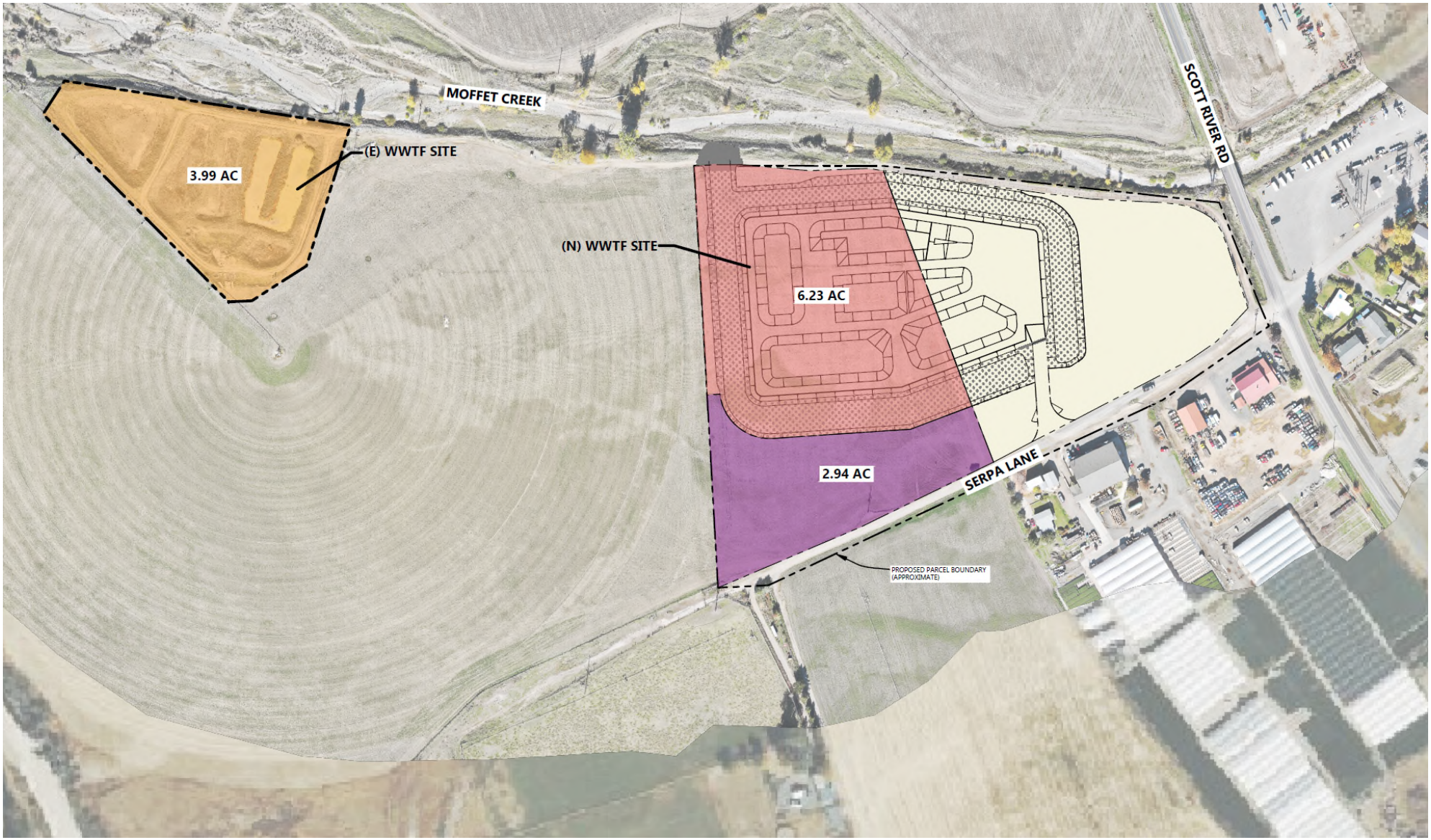
In an effort to offset the permanent conversion of 6.32 acres of Prime Farmland, as part of the decommissioning process, the existing 3.99-acre WWTF will be reclaimed for future agricultural use (see Mitigation Measure AG-1). Per the NRCS Soil Survey, the existing WWTF shares similar soil classifications as the proposed project. These similar surface soils within the 10-acre annexation area will be preserved as part of facility construction, placed at the decommissioned site, and recontoured to allow farming. Post project construction, prime farmland within the annexation area avoided by the new facility will continue to be available for agricultural production (2.94-acres), (see Mitigation Measure AG-2). Table 4-4, PRIME FARMLAND MITIGATION, and Figure 4-4, PRIME FARMLAND MITIGATION, illustrates the mitigation approach.

Table 4-4
PRIME FARMLAND MITIGATION

Conversion Area	Farmland Type	Permanent Conversion (acres)	Mitigation Method	Mitigation Credit	Mitigation Achieved (acres)
WWTF Footprint	Prime	6.32	Restoration of existing WWTF with recorded deed restriction on 3.99 acres (MM AG-1 and MM AG-2)	1:1	3.99
			Recorded deed restriction on 2.94 acres of annexed prime farmland (MM AG-2)	1:1	2.94
				Total Permanent Impact	***6.32 acres***
				Total Mitigation Achieved	**6.93 acres**
				NET INCREASE	**0.61 acres**

As illustrated in Table 4-4, with the combined implementation of Mitigation Measure AG-1 and Mitigation Measure AG-2, the proposed project would mitigate the conversion of prime farmland at greater than a 1:1 ratio resulting in a no-net-loss of prime farmland soils. Impacts are considered less than significant with mitigation incorporated in this regard.

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Fort Jones Wastewater Treatment Facility Upgrades
IS/MND

Prime Farmland Mitigation

July 2026

Figure 4-4

b) ***Conflict with existing zoning for agricultural use, or a Williamson Act Contract?***

The proposed project and adjoining lands are not under a Williamson Act contract. In addition, the proposed project site is not under a Farmland Security Zone contract or within an agricultural preserve. As noted in Section 2, PROJECT DESCRIPTION, implementation of the proposed project will require a general plan amendment from Mobile Home (M-H) to Public Facility (PF) and a zone change from Manufactured Homes Park (M-H) to Manufacturing (M) on 7.5 disturbed acres within the Town and a 10-acre annexation of prime farmland zoned AG-1-B-80 and AG-2-B-40 by Siskiyou County. Upon annexation the 10 acres would be rezoned to Manufacturing (M) consistent with the Town's zoning ordinance. As a result of the annexation 6.32 acres of prime farmland will be directly converted by the proposed project (see Table 4-4). However, with implementation of Mitigation Measure AG-1 (Restoration of Existing Wastewater Treatment Facility) and Mitigation Measure AG-2 (Deed Restrictions), prime farmland restoration and preservation methods would ultimately provide a net prime farmland increase.

The existing WWTP is located 1,500 feet west of the proposed new WWTP site, has been in use for over 70 years in this location, and has not prohibited the surrounding areas and properties from agricultural uses. The converted farmland represents a small percentage of farmland within Siskiyou County and will also not prohibit the remaining portions of the farmland from being farmed. Therefore, conflicts to existing zoning for agricultural uses are considered less than significant.

c) ***Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code Section 12220[g]), timberland (as defined by Public Resources Code Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 5110[g])?***

The proposed project would not conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code Section 12220[g]), timberland (as defined by Public Resources Code Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104[g]). The project site is not forest land, timberland, or zoned Timberland Production. Therefore, the proposed project would not conflict with existing zoning or cause rezoning and would have no impact on timberlands zoned as Timber Production. No impact would occur in this regard.

d) ***Result in the loss of forest land or conversion of forest land to non-forest use?***

The proposed project is not located within forest land and would not result in the loss of forest land or the conversion of forest land to non-forest uses. Therefore, no impacts related to forest land conversion would occur.

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 land?***

The proposed project would not result in the loss of forest land or conversion of forest land to non-forest use, as the project site is not located on forest land. It is important to note that the proposed wastewater treatment facility improvements will maintain the existing treatment capacity of 0.06 million gallons per day (MGD) average dry weather flows. Sewer service extension beyond the designated service area would not occur. In addition, as a public municipal utility, the proposed project is consistent with Policy 1 of the Scott Valley Area Plan which considers public facilities as a permittable use on prime farmland. The proposed project would not cause an increase in unplanned development, which could in turn lead to the conversion of other agricultural land. The proposed project represents a modernization of the existing wastewater treatment process to bring Fort Jones in compliance with State water quality regulations without increasing capacity for future growth or requiring an expansion of services to support the treatment facility. The proposed project would not result in the conversion of forest land and, based on the discussion under Item b), would not interfere with zoning for agricultural or forest land uses. Less than significant impacts would occur in this regard.

Mitigation Measures

The following mitigation measures have been developed to reduce potential impacts related to *Agriculture and Forestry Resources* to less than significant levels:

Mitigation Measure AG-1 – Restoration of Existing Wastewater Treatment Facility

Upon decommissioning, the Town and project contractor shall ensure restoration of the decommissioned wastewater treatment facility area and make the 3.99-acre site available for agricultural use through preparation and implementation of an Agricultural Soils Restoration Plan. The plan shall include, but not be limited to the following:

- *Baseline Agronomic Testing*: Quantitative testing of the topsoils slated for removal within the project impact area shall be performed prior to ground disturbance. This testing will establish baseline metrics for topsoil depth, soil texture, pH, electrical conductivity (EC), organic matter percentage, macro- and micro-nutrient levels, and water infiltration characteristics.

- *Soil Horizon Segregation*: Topsoil (A horizon) excavated during project construction shall be stripped separately from underlying subsoils (B and C-horizons) and parent material. These distinct layers shall be preserved exclusively for strategic placement on the decommissioned WWTF site, ensuring the final restored topsoil profile achieves a depth and structural horizon equivalent to adjacent, undisturbed agricultural land with similar surface soils.

- *Top Soil Preservation*: Temporarily stockpiled soils shall be protected from wind and water erosion, as well as noxious weed infestation, utilizing Best Management Practices (BMPs). These practices may include physical erosion control blankets, or the establishment of a temporary, non-invasive, sterile cover crop. Stockpiles shall be physically segregated from construction debris, fuels, and chemical contaminants.

- *Mechanical Compaction Mitigation*: Any compacted soils shall be subsoiled to a depth sufficient to alleviate compaction and restore root penetration and water infiltration characteristics comparable to the adjacent agricultural lands.

- *Soil Contouring and Post-Placement Nutrient Management***:** Placement of preserved topsoil shall occur at slopes generally consistent with adjacent agricultural land to promote efficient drainage. Following placement, soil testing shall be conducted to determine whether soil amendments are necessary to achieve soil productivity reasonably comparable to adjoining agricultural land. Common amendments may include compost, aged manure, gypsum, lime, and commercial fertilizers.

- *Biological Stabilization and Tilth Restoration*: Immediately following soil contouring and amendment incorporation, the restored site shall be drilled or hydroseeded with a deep-rooting pasture mix or regionally relevant cover crop. This cover crop shall be utilized to accelerate the restoration of soil aggregate stability, promote biological development, and prevent immediate sheet or rill erosion.

Restoration shall result in soil and site conditions capable of supporting agricultural production consistent with characteristics and reasonably comparable to similar adjacent farmland. Final soil testing results and documentation of restoration activities shall be submitted to the Siskiyou County Agricultural Commissioner and the Town Engineer for review and confirmation that the requirements of the Agricultural Soils Restoration Plan have been completed.

Mitigation Measure AG-2 – Deed Restrictions

To ensure the long-term preservation of Prime Farmland soils, prior to operation of the relocated wastewater treatment facility, the Town shall record a deed restriction or other legally enforceable instrument, acceptable to Siskiyou County, restricting the restored 3.99-acre former wastewater treatment facility site and 2.94 acres of annexed Prime Farmland to agricultural uses and prohibiting non-agricultural development. The restriction shall

run with the land, be binding upon all current and future owners and successors in interest, and remain in effect in perpetuity unless otherwise approved by Siskiyou County.

Findings

In the course of the above evaluation impacts associated with *Agriculture and Forestry Resources* were found to be less than significant with implementation of mitigation.

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Section III – Air Quality

This section examines the air quality in the project area, includes a summary of applicable air quality regulations, and analyzes potential air quality impacts associated with the proposed project. Air quality impacts were assessed in accordance with methodologies recommended by the US Environmental Protection Agency (EPA), California Air Resources Board (CARB), and the Siskiyou County Air Pollution Control District (Siskiyou County APCD). Where quantification was required, emissions were modeled using the California Emissions Estimator Model (CalEEMod).

Environmental Setting

The proposed project is located within the County of Siskiyou within the Northeast Plateau Air Basin (NEPAB). The NEPAB consists of a total of three counties: Siskiyou, Modoc and Lassen. This air basin is generally situated in the northeastern portion of California bordering Oregon to the north and Nevada to the east. The southern border is bound by the North Coast, Lake Tahoe, and the Sacramento Valley Air Basins (CARB, 2024). Air flows into the NEPAB from the north. The surrounding mountains act as a barrier to airflow, which traps air pollutants when meteorological conditions are unfavorable for transport and dilution. Poor air movement most frequently occurs in the fall and winter due to the presence of high-pressure cells over the NEPAB. During these periods, surface winds are typically lacking, and reduced vertical flow, caused by decreased surface heating, restricts air influx and concentrates pollutants under stable meteorological conditions. The highest surface concentrations of air pollutants coincide with agricultural burning activities, wildfire, or temperature inversions, which create a ceiling effect, trapping pollutants near the ground and hindering dispersion.

The local air quality agency with jurisdiction over the project site is the Siskiyou County APCD. Within the Siskiyou County APCD, the primary sources of air pollution are burning stoves, wildfires, farming operations, unpaved road dust, managed burning and disposal, and motor vehicles. Siskiyou County is designated as an unclassified/attainment area for all national ambient air quality standards (NAAQS; CARB, 2023). Additionally, Siskiyou County is designated as attainment or unclassified for all California ambient air quality standards (CAAQS; CARB, 2023).

Sensitive receptors (for example, children, senior citizens, and acutely or chronically ill people) are more susceptible to the effect of air pollution than the general population. Land uses that are considered sensitive receptors typically include residences, schools, parks, childcare centers, hospitals, and retirement homes. Sensitive receptors near the project site include existing residents that are located approximately 500 feet from construction activities.

Regulatory Setting

This section summarizes current federal, State, and local regulations relevant to the review of *Air Quality* for this project. Ordinances, regulations, or standards that are applicable to the environmental review of air quality impacts include the following:

AMBIENT AIR QUALITY STANDARDS

The federal Clean Air Act of 1971 and the Clean Air Act Amendments (1977) established the national ambient air quality standards (NAAQS), which are promulgated by the US EPA. The State of California has also adopted its own California ambient air quality standards (CAAQS), which are promulgated by CARB. Implementation of the project would occur in the Siskiyou County portion of the NEPAB, which is under the air quality regulatory jurisdiction of the Siskiyou County APCD and is subject to the rules and regulations adopted by the air district to achieve the NAAQS and CAAQS.

SISKIYOU COUNTY AIR POLLUTION CONTROL DISTRICT

The Siskiyou County APCD, along with other air districts in the NEPAB, has the responsibility of enforcing federal and state air quality regulations in Siskiyou County. It also issues rules and regulations setting specific standards of operation, defining permit requirements, and setting emission limits. For new or modified stationary sources,

Siskiyou County has defined 250 pounds (lbs)/day as the threshold of significance for NO_x, PM2.5, PM_{10}, and SO_2 emissions, and 2,500 lbs/day as the threshold of significance for CO emissions (Rule 6.1) (Siskiyou County APCD, 2001).

All projects in Siskiyou County are subject to applicable Siskiyou County APCD rules and regulations in effect at the time of construction and operation. Additionally, Siskiyou County is currently designated in attainment or unclassified status for all federal and state criteria pollutants; therefore, the County is not required to have a local air quality attainment plan. Descriptions of specific rules applicable to the proposed project may include, but are not limited to:

- Siskiyou County APCD Rule 4.1 and Rule 4.2. Visible Emissions and Nuisance: Rule 4.1 requires that airborne particles that are designated as No. 2 on the Ringelmann chart, as published by the United States Bureau of Mines remain on the site, they originate from under normal wind conditions. Proper mitigation techniques approved by Siskiyou County APCD must be implemented to ensure that fugitive dust is contained. This does not apply to dust emissions discharged through a stack or other point source. Rule 4.2 states that any air discharge that may cause injury or detriment, nuisance or annoyance, or damage to any public property or considerable number of people shall be regulated. This rule discusses all the health and safety issues that may interfere with public and private areas surrounding the site (Siskiyou County APCD, 1989).

- Siskiyou County APCD Rule 4.13. National Standards for Hazardous Air Pollutants. Rule 4.13 requires compliance with provisions of Part 61, Chapter I, Title 40 of the Code of Federal Regulations (40 CFR Part 61) for stationary sources of air pollution, such as National Emission Standards for Asbestos (Sikiyou County APCD, 1989).

- Siskiyou County APCD Rule 6.1. Construction Permit Standards for Criteria Pollutants: Rule 6.1 requires a permit for any new stationary source or modification with a net increase of 2,500 or more pounds of CO or 250 pounds or more for all other criteria pollutants and implement best available control technology (Siskiyou County APCD, 2001).

- Siskiyou County APCD Rule 6.4. Construction Permit Standards for Hazardous Air Pollutants: Rule 6.4 requires the installation of best available control technology for toxics at any constructed or reconstructed major source of hazardous air pollutants (Sikiyou County APCD, 1999).

Impact Analysis

The significance of potential impacts was determined based on State CEQA Guidelines, Appendix G, and the Siskiyou County APCD's rules and regulations. The discussion not only includes the areas for which there is potential for environmental impacts but also provides justification for the conclusions that either no impacts, less than significant impacts, or less than significant impacts with mitigation could occur. This section analyzes the short-term air quality impacts associated with construction activities as well as the long-term operational impacts that may result due to development of the proposed project.

The air quality analysis includes a review of criteria pollutant[1] emissions such as carbon monoxide (CO)[2], nitrogen oxides NO_x)[3], volatile organic compounds (VOC) as reactive organic gases (ROG)[4], particulate matter less than 10

[1] Criteria air pollutants refer to those air pollutants for which the USEPA and CARB has established National Ambient Air Quality Standards (NAAQS) and California Ambient Air Quality Standards (CAAQS) under the Federal Clean Air Act (CAA).

[2] CO is a non–reactive pollutant that is a product of incomplete combustion of organic material, and is mostly associated with motor vehicle traffic, and in wintertime, with wood–burning stoves and fireplaces.

[3] When combustion temperatures are extremely high, as in aircraft, truck and automobile engines, atmospheric nitrogen combines with oxygen to form various oxides of nitrogen (NOx). Nitric oxide (NO) and NO_2 are the most significant air pollutants generally referred to as NOx. Nitric oxide is a colorless and odorless gas that is relatively harmless to humans, quickly converts to NO_2 and can be measured. Nitrogen dioxide has been found to be a lung irritant capable of producing pulmonary edema.

[4] VOC means any compound of carbon, excluding carbon monoxide, carbon dioxide, carbonic acid, metallic carbides or carbonates, and ammonium carbonate, which participates in atmospheric photochemical reactions and thus, a precursor of ozone formation. ROG are any reactive compounds of carbon, excluding methane, CO, CO_2 carbonic acid, metallic carbides or carbonates, ammonium carbonate, and other exempt compounds. The terms VOC and ROG are often used interchangeably.

micrometers (coarse or PM_{10}), and particulate matter less than 2.5 micrometers (fine or $PM_{2.5}$).[5] For the purposes of assessing air quality impacts in CEQA documents, Siskiyou County APCD Rule 6.1 – Construction Permit Standards for Criteria Pollutants, which contains thresholds for operational emissions from new stationary sources, is commonly used as a significance threshold for project-level review for land use projects in Siskiyou County. Although these stationary source emissions thresholds do not directly apply to land use projects, they provide a reference point for levels of emissions that would trigger Siskiyou County APCD requirements for best available control technology and/or mitigation off-sets. Per Rule 6.1, criteria air pollutants from the operation of stationary sources are considered significant if they exceed the following thresholds listed in Table 4-5, SISKIYOU COUNTY APCD SIGNIFICANCE THRESHOLDS (Siskiyou County APCD, 2001).

Table 4-5
SISKIYOU COUNTY APCD SIGNIFICANCE THRESHOLDS

Pollutant	Significance Thresholds[1] (pounds per day)
Reactive Organic Compounds	250
Nitrogen Oxides	250
Carbon Monoxide	2500
Sulfur Oxides	250
Particulate Matter (PM10)	250
Particulate Matter (PM2.5)	250
[1]SCAPCD, 2001.	

In using SCAPCD Rule 6.1 as a threshold in this document, the Town of Fort Jones is exercising its discretion to formulate CEQA significance criteria based in part on the Siskiyou County APCD rules, as they reflect the best available expert judgment regarding what constitutes significant levels of air pollution within the NEPAB and Siskiyou County. The CEQA Checklist questions, discussion, and environmental significance conclusions are provided below under each individual environmental parameter related to *Air Quality*.

Would the Project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Conflict with or obstruct implementation of the applicable air quality plan?			X	
b) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or State ambient air quality standard.			X	
c) Expose sensitive receptors to substantial pollutant concentrations?		X		
d) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?			X	

a) *Conflict with or obstruct implementation of the applicable air quality plan?*

The proposed project would not conflict with or obstruct implementation of an air quality plan. Siskiyou County is currently designated in attainment or unclassified status for all federal and state ambient air quality standards; therefore, the County is not required to have a local air quality attainment plan.

[5] PM10 and PM2.5 consists of airborne particles that measure 10 microns or less in diameter and 2.5 microns or less in diameter, respectively. PM10 and PM2.5 represent fractions of particulate matter that can be inhaled into the air passages and the lungs, causing adverse health effects.

As described throughout this document, implementation of the proposed project would occur over a period of approximately 18 months and would include decommissioning of the existing wastewater treatment facility (WWTF) and the construction of a new WWTF approximately 1,500 feet to the east (see Section 2, PROJECT DESCRIPTION). The project must comply with various regulatory measures including Siskiyou County APCD Rule 4.1 and Rule 4.2., which requires the implementation of best management practices during construction activity to control pollutants including fugitive dust (Siskiyou County APCD, 1989). Once construction activities are complete there is limited potential for the project to generate operational air quality impacts. Operational emissions are anticipated to result from maintenance activities by the facility operator. Due to the duration of project construction activities, project design elements, limited operational activities, and required regulatory measures, the project would not exceed Siskiyou County APCD significant thresholds (see impact discussion III.b) or conflict with or obstruct implementation of an applicable air quality plan. Impacts are considered less than significant in this regard.

b) ***Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or State ambient air quality standard.***

As discussed in the *Environmental Setting*, the project is located in Siskiyou County, which is located in the NEPAB and is subject to the jurisdiction of the Siskiyou County APCD. The Siskiyou County APCD's primary responsibility is to achieve and maintain federal and State air quality standards, subject to the powers and duties of the CARB. Siskiyou County is currently designated in attainment or unclassified status for all federal and state ambient air quality standards.

The proposed project has the potential to generate the emissions of criteria air pollutants and ozone precursors (Reactive Organic Gases [ROG] and Oxides of Nitrogen [NO_x]) during the proposed construction activities. During construction activities, emissions would primarily be generated from fugitive dust from ground-disturbing activities and vehicle/equipment exhaust. Once construction activities are complete there is limited potential for the project to generate operational air quality impacts. Operational emissions are anticipated to result from maintenance activities by public works personnel.

Construction and operation emissions for the proposed project were estimated using the California Emissions Estimator Model (CalEEMod), which is a statewide land use emissions computer model designed to provide a uniform platform for government agencies to quantify potential criteria pollutant emissions associated with both construction and operation of a variety of land use projects (CAPCOA, 2022; see Attachment B – AIR QUALITY & GHG MODELING OUTPUTS). The model applies inherent default values for various land uses, including trip generation rates based on the Institute of Transportation Engineers (ITE) Manual, vehicle mix, trip length, average speed, etc. However, where project-specific data is available, such data should be input into the model. Project-specific information from Section 2, PROJECT DESCRIPTION, where available, was input into the model. Otherwise, where project-specific information was not available, the model default values were used for estimating emissions from the proposed project.

Table 4-6, MAXIMUM DAILY CONSTRUCTION EMISSIONS (UNMITIGATED), and Table 4-7, MAXIMUM DAILY OPERATIONAL EMISSIONS (UNMITIGATED), below provide the maximum daily construction and operations emissions estimates (unmitigated) as compared to the significance thresholds for criteria pollutants and ozone precursors in Siskiyou County APCD Rule 6.1.

Table 4-6
MAXIMUM DAILY CONSTRUCTION EMISSIONS (UNMITIGATED)

Criteria Pollutants	Emissions (pounds per day)					
	ROG	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
Maximum Daily Emissions[1]	8.7	44	50.2	<0.1	29.4	15.3
Significance Threshold[2]	250	250	2500	250	250	250
Exceeds Significance Threshold?	No	No	No	No	No	No

1. CAPCOA, 2022; Attachment B – AIR QUALITY & GHG MODELING INPUTS.
2. Siskiyou County ACPD, 2001.

Table 4-7
MAXIMUM DAILY OPERATIONAL EMISSIONS (UNMITIGATED)

Criteria Pollutants	Emissions (pounds per day)					
	ROG	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
Maximum Daily Emissions[1]	0.84	0.2	4.6	<0.1	0.2	<0.1
Significance Threshold[2]	250	250	2500	250	250	250
Exceeds Significance Threshold?	No	No	No	No	No	No

3. CAPCOA, 2022; Attachment B – AIR QUALITY & GHG MODELING INPUTS.
4. Siskiyou County ACPD, 2001.

As indicated in Table 4-6 and Table 4-7, the maximum daily construction and operation emissions (unmitigated) from the proposed project would be below the Siskiyou County APCD Rule 6.1 significance thresholds. Additionally, as noted above, Siskiyou County is currently designated in attainment or unclassified status for all federal and state ambient air quality standards. As such, the proposed project is not anticipated to result in a cumulatively considerable net increase of any criteria pollutants for which the project region is non-attainment. Impacts are considered less than significant in this regard.

c) *Expose sensitive receptors to substantial pollutant concentrations?*

High concentrations of criteria air pollutants and toxic air contaminants can result in adverse health effects to humans. Sensitive receptors (for example, children, senior citizens, and acutely or chronically ill people) are more susceptible to the effect of air pollution than the general population. Land uses that are considered sensitive receptors typically include residences, schools, parks, childcare centers, hospitals, and retirement homes. Sensitive receptors near the project site include existing residents that would be within approximately 100 feet of construction activities.

CONSTRUCTION ACTIVITIES

This discussion addresses whether the proposed construction activities would expose sensitive receptors to substantial concentrations of asbestos and lead, fugitive dust (PM_{10} and $PM_{2.5}$), and diesel particulate matter (diesel PM).

Asbestos and Lead

Asbestos particles and fibers are naturally occurring in some rock and soil formations, but because of its strength and heat resistance, asbestos has been used in a variety of building materials. If asbestos-containing materials (ACM) are disturbed, for example during demolition of a structure, asbestos particles and fibers may be released into the air.

According to the report, A General Location Guide to Ultramafic Rocks in California—Areas More Likely to Contain Naturally Occurring Asbestos, there are areas of Siskiyou County in which asbestos is likely to occur (CDOC, 2000).

The project site is not located within an area identified in the report as being likely to contain NOA. Furthermore, according to the Geotechnical Investigation Report prepared for the project (SHN, 2026a), soils at the project site are a combination of alluvial deposits from the Scott River and imported fill associated with historic farming activity. As such, the project site is not in an area containing ultramafic rocks that are more likely to contain NOA that could be released during the proposed construction activities.

Asbestos and lead paint may be present in the structures and associated infrastructure at the existing wastewater treatment facility that are proposed for demolition as part of the project. Prior to initiation of construction activities that would affect existing structures and associated infrastructure, a comprehensive survey shall be completed in locations where asbestos and lead-based paint are suspected. Removal or disturbance of material with any detectable amount of asbestos or lead-based paint must be handled in accordance with USEPA AHERA, USEPA NESHAP, and California Occupational Safety and Health Administration (Cal/OSHA) regulations. All hazardous materials shall be removed by trained and authorized personnel and disposed of at a licensed facility in compliance with local, State, and federal regulations and guidelines.

For the removal or disturbance of asbestos containing materials, these regulations require the following procedures:

- Survey by a California State Certified Asbestos Consultant (CAC) of the areas proposed for disturbance for asbestos-containing material.
- Documentation of the asbestos survey results in a signed report from the CAC.
- Notification to the SCAPCD at least 10 working days prior to any demolition.
- Employing the use of proper work practices outlined in the NESHAP asbestos regulations.
- Complying with Cal/OSHA worker safety requirements.

All asbestos-containing materials to be removed by demolition activities must be done by a registered asbestos abatement contractor, as an asbestos abatement project. The construction contractor must maintain all records of compliance with the NESHAP asbestos regulations and Siskiyou County APCD rules including, but not limited to, the following: 1) evidence of notification to the Siskiyou County APCD; 2) contact information for the asbestos abatement contractor and asbestos consultant; and 3) receipts (or other evidence) of offsite disposal of all asbestos-containing materials. These records shall be made available to the Town and Siskiyou County APCD upon request.

Lead-based paint abatement or removal would include removal of any lead hazard, which, according to Title 17 of the California Code of Regulations, includes deteriorated lead-based paint and lead-contaminated soil (soil contaminated with lead paint chips). Cal/OSHA's lead standard for construction activities is implemented under Title 8 of the California Code of Regulations. The standard applies to any construction or demolition activity that may release lead dust or fumes, including manual scraping, manual sanding, heat gun applications, power tool cleaning, rivet busting, abrasive blasting, welding, cutting, or torch burning of lead-based coatings.

Mitigation Measure HAZ-1 (Discovery of Previously Unknown Hazardous Materials) requires the completion of lead and asbestos surveys prior to the initiation of construction activities and the removal and disposal of asbestos and lead containing materials in compliance with applicable regulations. Mitigation Measure HAZ-2 (Discovery of Previously Unknown Hazardous Materials) requires construction activities to cease and additional surveys to be completed in the event that previously undetected asbestos or lead-containing materials are discovered during construction. Any identified hazardous materials shall be disposed of in accordance with applicable hazardous waste regulations. The implementation of Mitigation Measures HAZ-1 and HAZ-2 would reduce potential impacts of the project to less than significant levels.

Fugitive Dust

Fugitive dust has the potential to be generated during the proposed construction activities. As discussed in the analysis under impact discussion III.b above, the proposed project would not exceed the Siskiyou County APCD significance thresholds for particulate matter (PM_{10} and $PM_{2.5}$). However, fugitive dust from construction activity can still result in nuisances and localized health impacts. Fugitive dust emissions would vary from day to day, depending on the nature and magnitude of construction activity and local weather conditions. Fugitive dust emissions would also depend on soil moisture, silt content of soil, wind speed, and the amount of equipment operating.

To minimize impacts from fugitive dust generation during the proposed construction activities, the contractor will be required to comply with Siskiyou County APCD Rule 4.2. Rule 4.2 states that any air discharge that may cause injury or detriment, nuisance or annoyance, or damage to any public property or considerable number of people shall be regulated. To reduce fugitive dust generation during the proposed construction activity, compliance with Rule 4.2 along with Fugitive Dust Control Measures has been included as Mitigation Measure AQ-1 for the proposed project. Due to the temporary nature of the proposed construction activities and the incorporation of Mitigation Measure AQ-1, implementation of the proposed project would not expose sensitive receptors to substantial fugitive dust concentrations. Impacts are considered less than significant in this regard.

Diesel Particulate Matter (diesel PM)

The use of diesel-powered equipment during the proposed construction activities would generate diesel particulate matter (diesel PM), which is a known carcinogen. Due to the limited scale and duration of construction activities, and the rapid dissipation of diesel PM with distance, it is not anticipated that nearby sensitive receptors (within approximately 500 feet) would be exposed to substantial diesel PM concentrations. Based on the emissions modeling conducted for the project, maximum daily emissions of diesel PM (modeled by $PM_{2.5}$, which is conservatively considered a surrogate for diesel PM), would not exceed 16 pounds per day (CAPCOA, 2022). This is well below the Siskiyou County APCD significance threshold of 250 pounds per day for particulate matter (SCAPCD, 2001).

The proposed construction activities would occur in multiple phases and nearby sensitive receptors (residents) located within the vicinity of the project site would be exposed to construction contaminants only for the duration of construction activity. This brief exposure period would substantially limit exposure to hazardous emissions. Therefore, it is not anticipated that the proposed project's construction activity would expose sensitive receptors to substantial diesel PM concentrations.

OPERATIONAL ACTIVITIES

Operational air quality impacts may include emissions from project-generated traffic and project operations, including, but not limited to, maintenance trips. The predicted maximum daily emissions associated with the project operations compared to Siskiyou County APCD thresholds are summarized in Table 4-7. The proposed operational emissions would be well below the Siskiyou County APCD thresholds, and therefore operational impacts would be less than significant.

CONCLUSION

The construction and operational activities proposed by the project, as mitigated and in compliance with regulatory requirements, would not expose sensitive receptors to substantial pollutant concentrations. Therefore, implementation of the proposed project would result in a less than significant impact with mitigation incorporated.

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

The potential for the project to generate emissions of criteria air pollutants and TACs is addressed under impact discussions III.a through lll.c above. Some of the emissions that would be generated during the proposed construction activity also have the potential to generate odors. Since the project proposes a new wastewater treatment facility, it has the potential to generate odors during operation. The discussion below analyzes whether the potential odors from the proposed project would adversely affect a substantial number of people.

CONSTRUCTION

During project construction, there is the potential for the generation of objectionable odors in the form of equipment/vehicle exhaust and volatile organic compounds (from architectural coatings) in the immediate vicinity of the proposed site improvements. Based on the limited amount of people residing in close proximity to the project site, the short-term nature of construction activity, and the rapid dispersal of these emissions with distance, it is not anticipated the potential odors would adversely affect a substantial number of people.

OPERATION

Due to the subjective nature of odor impacts, the number of variables that can influence the potential for an odor impact, and the variety of odor sources, there are no quantitative or formulaic methodologies to determine the presence of a significant odor impact. Rather, air districts often recommend that odor analyses strive to fully disclose all pertinent information. The intensity of an odor source's operations and its proximity to sensitive receptors influences the potential significance of odor emissions.

During operation, wastewater treatment facilities have the potential to generate odors from the result of decomposition of organic human waste, which can release hydrogen sulfide, ammonia, and other volatile organic compounds (VOCs). A technical memorandum was prepared for the project to evaluate the potential source and transport of odors with respect to sensitive uses and evaluate control measures to minimize odor impacts from operation of the new WWTF (see Attachment C – ODOR CONTROL MEMO). The memorandum identifies the anticipated locations of odor generation at the new WWTF (e.g., raw wastewater pumping station, headworks, mechanical screen, facultative pond, etc.) and evaluates the proposed control measures, which include the following:

- *Distance to Sensitive Uses*: The WWTF is proposed to be constructed as far from existing sensitive uses (residences) as possible within the boundary allotted for the project. As shown in the memorandum, the closest sensitive uses are located east and south of the project site and range from 617 to 872 feet from the odor generating components of the new WWTF.

- *Incorporation of Engineering Technologies and Design Measures*: As outlined in the memorandum, a variety of design measures have been incorporated into the project to minimize odors including, but not limited to:

    - Locating the headworks channel and screen in a fully enclosed building with an active ventilation, two-stage odor control system. The influent lift station will also be enclosed, and air from within the headspace of the lift station wet well and valve box will be captured and routed through the active odor control system for the headworks building.
    - Active and passive aeration and mixing along with efficient hydraulic design in areas where high organic loading occurs.
    - A deep influent facultative zone designed to result in anaerobic conditions deeper in the water column along with a surface aerator to maintain an oxygenated "cap" over the top few feet of the water column.
    - Recirculation of aerated effluent back to the influent end of the system to provide additional aeration and contact time to oxidize organic matter.
    - Use of a rock filter for the removal of algae in the treatment system during the dry season when wastewater flows are reduced.
    - Location of the effluent infiltration ponds in highly porous gravels and sands to allow effluent to infiltrate quickly and prevent standing water during the dry season.

- *Vegetative Buffers*: The new WWTF includes vegetative buffers along the south and east boundaries of the facility to act as a filter for odors between the odor generating components of the facility and the closest sensitive uses. The proposed vegetative barriers will be 30 feet wide with multiple rows of trees of varying species with shrubbery planted between the trees. Vegetative barriers create a wind block that forces air up into the atmosphere, creating turbulence that promotes dissipation of odors up and away from the ground where sensitive receptors are located. Many odor generating compounds are heavier than air such that they tend to travel along the ground when undisturbed.

Based on the limited density of development near the project site, the distance to the nearest sensitive uses, and the proposed odor control measures, it is not anticipated that operation of the proposed project would result in other emissions (such as those leading to odors) that would adversely affect a substantial number of people. Impacts are considered less than significant in this regard.

Mitigation Measures

The following mitigation measures have been developed to reduce potential impacts related to *Air Quality* to less than significant levels:

Mitigation Measure AQ-1

The construction and demolition contractor shall be responsible for implementing Siskiyou County APCD Rule 4.2 and Fugitive Dust Control Measures to reduce the potential generation of fugitive dust during the proposed construction activities. Compliance with these requirements shall be required to minimize dust generation during construction activity.

- All active construction areas (for example, parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered a minimum of two times per day during the dry season;
- Hydroseed or apply non-toxic soil stabilizers to inactive construction areas;
- Dust-generating activities shall be limited during periods of high winds (over 15 mph);
- Suspend excavation and grading activity when winds exceed 25 mph;
- All haul trucks transporting soil, sand, or other loose material, likely to give rise to airborne dust, shall be covered;
- All vehicle speeds shall be limited to 15 miles per hour within the construction area;
- Promptly remove earth or other tracked out material from paved streets onto which earth, or other material has been transported by trucking or earth-moving equipment; and
- Conduct digging, backfilling, and paving of utility trenches in such a manner as to minimize the creation of airborne dust.

Findings

Based upon the review of the information above, with implementation of mitigation measures the proposed project will have a less than significant impact with respect to *Air Quality*.

Documentation and References

CAPCOA (California Air Pollution Control Officer's Association). 2022. *California Emission Estimator Model (CalEEMod). Version 2022.1.1.44*. Model Run on 06/16/2026. [Online]: https://www.caleemod.com/.

CARB (California Air Resources Board). 2023. *Maps of State and Federal Area Designations*. [Online]: https://ww2.arb.ca.gov/resources/documents/maps-state-and-federal-area-designations.

CARB. 2024. *California Air Basins and Counties Map*. [Online]: https://ww2.arb.ca.gov/sites/default/files/classic/isd/fuels/gasoline/rvp/airbasinbw.pdf.

DOC (California Department of Conservation). 2000. *A General Location Guide for Ultramafic Rocks in California – Areas More Likely to Contain Naturally Occurring Asbestos*. Open-File Report 2000-19.

SHN (SHN Consulting Engineers and Geologists). 2026a. *Geotechnical Investigation Report*. April 2026.

SHN. 2026b. *Wastewater Facilities Plan Addendum No. 2*. June 2026.

Siskiyou County APCD (Siskiyou County Air Pollution Control District). 1989. *Rule 4.1 – Visible Emissions, Rule 4.2 – Nuisance, and Rule 4.13 – National Standards for Hazardous Air Pollutants*. [Online]: https://ww2.arb.ca.gov/capp/cst/tch/current-air-district-rules.

Siskiyou County APCD. 2001. *Rule 6.1 – Construction Permit Standards for Criteria Pollutants.* [Online]: https://ww2.arb.ca.gov/capp/cst/tch/current-air-district-rules.

Siskiyou County APCD. 1999. *Rule 6.4 – Construction Permit Standards for Hazardous Air Pollutants*. [Online]: https://ww2.arb.ca.gov/capp/cst/tch/current-air-district-rules.

Section IV – Biological Resources

The purpose of this section of the Initial Study is to determine the extent to which the project contributes to the physical deterioration of biological resources. This section describes the biological resources within the project study area, and the applicable regulations that govern those resources.

Environmental Setting

The proposed project is located southeast of the existing wastewater treatment facilities adjacent to Scott River Road in the Fort Jones, Siskiyou County. The approximately 25.5-acre study area consists primarily of highly disturbed and developed land, including the existing wastewater treatment facility (WWTF), access roads, an irrigated alfalfa field, and a gravel work pad. Moffett Creek borders the northern edge of the project area, while the Scott River is located approximately 200 feet west of the existing WWTF.

A biological evaluation was conducted on August 5, 2025, including a review of the California Natural Diversity Database (CNDDB), California Native Plant Society (CNPS) Inventory, U.S. Fish and Wildlife Service (USFWS) Information for Planning and Consultation (IPaC) records, National Marine Fisheries Service (NMFS) records, and a field survey of the project site. No sensitive natural communities, wetlands, or special-status plant species were identified within the project area. The biological evaluation determined that the project site is highly disturbed and primarily supports agricultural and developed land uses. Potentially sensitive biological resources associated with the project include nesting migratory birds, northwestern pond turtle, and nearby milkweed patches that may provide habitat for monarch butterflies.

Regulatory Setting

This section summarizes current federal, State, and local regulations relevant to the review of *Biological Resources* for this project. Regulations that are applicable to the environmental review of biological resource impacts include the following:

CALIFORNIA FISH AND GAME CODE SECTION 1600-1616 (STREAMBED ALTERATION)

California Fish and Game Code Section 1600 et seq. requires that a project proponent notify the California Department of Fish and Wildlife (CDFW) prior to any activity that may substantially divert or obstruct the natural flow of, or substantially modify the bed, channel, or bank of, any river, stream, or lake, or result in the deposition or removal of material from such waters. If CDFW determines that a proposed activity may substantially affect a river, stream, or lake, the project proponent must obtain a Streambed Alteration Agreement (SAA) prior to commencement of work. The SAA establishes terms and conditions to avoid, minimize, and/or mitigate potential impacts to aquatic and riparian resources and to ensure protection of associated biological and water quality functions. The SAA will include conditions that minimize/avoid potentially significant adverse impacts to riparian habitat and waters of the state.

CALIFORNIA FISH AND GAME CODE SECTION 3503 & 3503.5 (NESTING BIRD PROTECTIONS)

The California Fish and Game Code provides regulatory protection for resident and migratory birds, including raptors, within the State of California. Under these provisions, it is unlawful to "take," possess, or needlessly destroy any bird, or to destroy the nest or eggs of any bird, except as otherwise permitted under the Code and applicable regulations. These protections are typically implemented through project-specific avoidance and minimization measures during construction activities, including pre-construction nesting bird surveys and buffers around active nests where necessary to avoid disturbance.

CALIFORNIA ENDANGERED SPECIES ACT

The California Endangered Species Act (CESA) (Fish and Game Code Section 2050 et seq.) prohibits the "take" of plant and animal species listed as threatened or endangered under State law. Under CESA, state lead agencies are required to consult with the CDFW during the California Environmental Quality Act (CEQA) process when a project

may affect listed species. Under Fish and Game Code Section 2081, CDFW may authorize incidental take of State-listed species through issuance of an Incidental Take Permit, provided that impacts are minimized and fully mitigated, and that issuance of the permit would not jeopardize the continued existence of the species. Where applicable, projects may also require federal authorization under the federal Endangered Species Act (FESA) for federally listed species, which is a separate regulatory process administered by the U.S. Fish and Wildlife Service or National Marine Fisheries Service. Compliance with CESA and coordination with CDFW during the CEQA process ensures that potential impacts to State-listed species are appropriately identified and addressed through avoidance, minimization, and mitigation measures where necessary.

CALIFORNIA NATIVE PLANT PROTECTION ACT

The California Native Plant Protection Act (NPPA) (Fish and Game Code Section 1900–1913) establishes protections for rare and endangered native plant species in California. The statute prohibits the take, possession, transport, import, or sale of listed rare or endangered native plants, except as otherwise authorized under the Act. Many plant species protected under the NPPA are also listed under the CESA; however, the NPPA continues to provide independent statutory protection for rare plant species regardless of CESA listing status. The CDFW maintains lists of rare and endangered plants subject to these protections and oversees implementation of applicable permitting requirements. Compliance with the NPPA typically occurs through early botanical surveys, avoidance of identified populations where feasible, and coordination with CDFW where impacts to rare plants cannot be avoided.

FEDERAL ENDANGERED SPECIES ACT

The USFWS and the National Marine Fisheries Service (NMFS) administer the FESA of 1973. Under FESA, species listed as threatened or endangered, as well as their designated critical habitat, are afforded federal protection from activities that may result in "take," which is broadly defined to include actions that would harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect such species.

FESA authorizes incidental take of listed species under certain circumstances. For non-federal actions, incidental take may be authorized through Section 10 permits issued by USFWS or NMFS as part of an approved Habitat Conservation Plan. For actions involving a federal nexus—such as a federal permit, funding, or authorization—compliance is achieved through consultation under Section 7 of FESA. Section 7 requires federal agencies to ensure that any action they authorize, fund, or carry out is not likely to jeopardize the continued existence of listed species or result in the destruction or adverse modification of designated critical habitat, as documented through a Biological Opinion that may include incidental take provisions. Implementation of FESA ensures that potential impacts to federally listed species and their habitats are evaluated and addressed through avoidance, minimization, and mitigation measures where necessary.

FEDERAL MIGRATORY BIRD TREATY ACT

Most native bird species in California are protected under federal and/or State regulations, including those occurring during breeding and migratory periods. Under the federal Migratory Bird Treaty Act (MBTA) of 1918, it is unlawful to pursue, hunt, take, capture, kill, or possess migratory birds, or their nests and eggs, except as authorized under applicable federal regulations. Implementation of the MBTA typically requires avoidance of direct impacts to active nests during construction activities. Projects are commonly conditioned to include pre-construction nesting bird surveys and implementation of appropriate buffers around active nests to avoid disturbance that could result in nest abandonment or loss of reproductive success.

FEDERAL MAGNUSON-STEVENS FISHERY CONSERVATION AND MANAGEMENT ACT

The Magnuson-Stevens Fishery Conservation and Management Act (Public Law 104-297), as amended by the Sustainable Fisheries Act, requires federal agencies to consult with the National Marine Fisheries Service (NMFS) on any action they authorize, fund, or carry out that may adversely affect designated Essential Fish Habitat (EFH) for federally managed fish species. Essential Fish Habitat includes waters and substrate necessary for spawning, breeding, feeding, or growth to maturity of commercially important marine and anadromous fish species. When a

federal nexus exists, EFH consultation is conducted to evaluate potential adverse effects and to recommend measures to avoid, minimize, or offset impacts to these habitats.

FEDERAL BALD AND GOLDEN EAGLE PROTECTION ACT

The Bald and Golden Eagle Protection Act (16 U.S.C. §668 et seq.) provides for the protection of bald eagles and golden eagles by prohibiting, except under specific authorized conditions, the take, possession, and commerce of these species, including their nests, eggs, and parts. The Act applies to both occupied and unoccupied nests, with limited allowances for disturbance or relocation only under permits issued by the U.S. Fish and Wildlife Service.

WETLANDS AND WATERS

The United States Army Corps of Engineers (USACE) is the federal agency responsible for implementing Section 404 of the Clean Water Act (CWA), which regulates the discharge of dredged or fill material into waters of the United States, including wetlands. A Section 404 permit is required for activities that result in the placement of fill or structures below the ordinary high-water mark or within jurisdictional waters. The USACE issues both individual permits and Nationwide Permits (NWPs) for categories of activities that have been determined to result in minimal individual and cumulative impacts. Projects requiring a Section 404 permit must also obtain Section 401 Water Quality Certification from the State Water Resources Control Board or applicable Regional Water Quality Control Board. The Section 401 certification ensures that authorized activities comply with state water quality standards.

In California, the Regional Water Quality Control Boards (RWQCBs) regulate discharges to waters of the state and implement state wetland protection policies, including the “no net loss” policy for wetlands. Where impacts to wetlands or other waters of the state occur, the RWQCB typically requires avoidance, minimization, and compensatory mitigation as conditions of Water Quality Certification to ensure protection of beneficial uses and compliance with Basin Plan objectives.

Impact Analysis

METHODS

Records reviewed for this evaluation included the CNDDB for special-status plant and wildlife species and sensitive natural communities within a five-mile radius of the study area; the CNPS Inventory records for special-status plant species potentially occurring within the U.S. Geological Survey (USGS) Fort Jones 7.5-minute quadrangle; the USFWS records for federally listed, proposed, and candidate plant and wildlife species under USFWS jurisdiction; USFWS critical habitat data; and the NMFS records for federally listed fish species and designated critical habitat within the Fort Jones 7.5-minute quadrangle. Results of the records review are provided in Attachment D, BIOLOGICAL RESOURCES ASSESSMENT.

To evaluate the potential occurrence of special-status species and other sensitive biological resources, a biological field survey was conducted on August 5, 2025. Most special-status plant and wildlife species with the potential to occur in the study area would have been identifiable during the survey period. For species that would not have been detectable at the time of the field survey due to seasonal or life-history limitations, the potential for occurrence was evaluated based on habitat characteristics observed within the study area and the surrounding vicinity.

The following includes an analysis of environmental parameters related to *Biological Resources* based on Appendix G of the State CEQA Guidelines. The discussion not only includes the areas for which there is potential for environmental impacts but also provides justification for the conclusions that either no impacts, less than significant impacts, or less than significant impacts with mitigation could occur.

Would the Project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
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 Wildlife or U.S. Fish and Wildlife Service?		**X**		
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local of regional plans, policies, regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?		**X**		
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?				**X**
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?		**X**		
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?				**X**
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?				**X**

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 Wildlife or U.S. Fish and Wildlife Service*****?**

SPECIAL-STATUS PLANT SPECIES

The potential for each special-status plant species to occur within the project's study area is evaluated in Attachment D, BIOLOGICAL RESOURCES ASSESSMENT. A review of federal and state databases identified several special-status plant and wildlife species with potential to occur within five miles of the project area. However, field surveys and habitat assessments determined that the project site does not contain suitable habitat for special-status plant species, and none were observed during the biological survey. Therefore, implementation of the proposed project would not result in direct or indirect impacts to special-status plant species. No impact would occur in this regard.

SPECIAL-STATUS ANIMAL SPECIES

A review of federal and state databases identified several special-status plant and wildlife species with potential to occur within five miles of the project area. However, field surveys and habitat assessments determined that the project site does not contain suitable habitat for special-status plant species, and none were observed during the biological survey.

The biological evaluation identified northwestern pond turtle (NWPT), monarch butterfly, and nesting migratory birds as the only special-status biological resources with some potential to be affected by project implementation. Although suitable aquatic habitat for NWPT is absent from the project site, individual turtles could occasionally disperse through work areas near the Scott River. Likewise, milkweed patches supporting potential monarch

butterfly breeding habitat occur immediately adjacent to, but outside of, the project area along Moffett Creek. Nesting habitat for migratory birds is present within nearby riparian vegetation and open ground habitats.

Construction activities could result in direct disturbance to nesting birds, monarch butterfly host plants, or individual NWPT if present. Additionally, the federal Migratory Bird Treaty Act and California Fish and Game Code protect active nests, eggs, and nesting birds from disturbance or destruction.

Implementation of Mitigation Measure BIO-1 (Northwestern Pond Turtle Protection), Mitigation Measure BIO-2 (Monarch Butterfly Protection), and Mitigation Measure BIO-3 (Nesting Bird Protection) would avoid or minimize impacts through worker environmental awareness training, pre-construction surveys, exclusion fencing, construction boundary demarcation, avoidance of milkweed populations, seasonal work restrictions, and nesting bird surveys. With implementation of these measures, impacts to special-status species would be reduced to a less than significant level.

b) ***Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local of regional plans, policies, regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?***

The project area consists primarily of existing wastewater treatment facilities, agricultural land, gravel access roads, and other disturbed areas. No sensitive natural communities occur within the project footprint. Although riparian habitat associated with Moffett Creek occurs adjacent to the northern boundary of the site, project construction would occur outside of the riparian corridor and would not require removal or alteration of riparian vegetation. Construction activities would be confined to previously disturbed areas and would not directly impact riparian habitat or sensitive natural communities. Therefore, direct impacts to riparian habitat and sensitive natural communities would be less than significant.

Construction activities have the potential to introduce or spread noxious and invasive weed species through the movement of contaminated soil, equipment, vehicles, and construction materials. Under California law, a noxious weed is a plant species determined to be troublesome, aggressive, intrusive, detrimental, or destructive to agriculture, native species, or other natural resources, and difficult to control or eradicate. The California Department of Food and Agriculture (CDFA) assigns ratings to noxious weeds based on their statewide significance, distribution, and the likelihood that control or eradication efforts will be successful.

Unwashed construction equipment arriving from outside the project area could introduce weed propagules into adjacent agricultural lands and nearby natural habitats, including the riparian corridor associated with Moffett Creek. Establishment of invasive weeds could degrade habitat quality, compete with native vegetation, and increase future management requirements. Implementation of Mitigation Measure BIO-4 (Noxious Weed Prevention) would minimize the potential for introduction and spread of noxious weeds during construction. Therefore, impacts related to the introduction or spread of noxious weeds would be reduced to a less than significant level.

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?***

The biological evaluation identified no wetlands, waters of the United States, waters of the State, or other jurisdictional aquatic resources within the proposed construction footprint. The proposed project would not involve the placement of fill, excavation, grading, or hydrologic modification within wetlands or other protected aquatic habitats. Therefore, implementation of the proposed project would not result in direct or indirect impacts to federally or State-protected waters, wetlands, or other jurisdictional aquatic resources. As a result, no mitigation measures or regulatory permits related to impacts on aquatic resources would be required, and no impact would occur.

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?***

WILDLIFE COORIDORS

Wildlife movement corridors, also referred to as dispersal corridors or landscape linkages, are generally defined as linear features that facilitate movement of wildlife between habitat areas and allow for dispersal, migration, and access to resources. The project site is located within a developed agricultural landscape and is not known to support a designated wildlife movement corridor, regional habitat linkage, or other area recognized as important for wildlife movement. Construction activities would be temporary and would occur primarily within previously disturbed areas adjacent to the existing WWTF. Following construction, the proposed project would continue operation as a public utility facility and would not create a new physical barrier to wildlife movement or impede access to adjacent habitats.

Although the Scott River and Moffett Creek provide habitat and movement opportunities for aquatic and semi-aquatic wildlife species, no work is proposed within these waterways or their associated riparian habitats. Implementation of standard erosion-control, sediment-control, and spill-prevention best management practices would minimize the potential for indirect impacts to aquatic habitats and associated fish species within the watershed.

As the proposed project would not remove or fragment habitat corridors, impede wildlife movement, interfere with established migratory routes, or adversely affect wildlife nursery sites, implementation of the proposed project would result in less than significant impacts related to wildlife movement.

NESTING MIGRATORY BIRDS

The USFWS identified the following Birds of Conservation Concern as having the potential to occur in the project area: Cassin's finch, evening grosbeak, oak titmouse, rufous hummingbird, and western screech-owl. Although not identified as Birds of Conservation Concern, bald eagle and golden eagle also warrant consideration because they are protected under the Bald and Golden Eagle Protection Act.

Construction activities could adversely affect nesting migratory birds through the removal of active nests or through noise and other disturbances that could cause adult birds to abandon active nests containing eggs or young. Such impacts could result in the take of migratory birds protected under the federal Migratory Bird Treaty Act and Sections 3503 and 3503.5 of the California Fish and Game Code.

Suitable nesting habitat for migratory birds is present within and adjacent to the project site. Riparian vegetation associated with Moffett Creek north of the study area has a high potential to support nesting birds, while open areas within the study area may provide nesting habitat for ground-nesting species such as killdeer. The potential for impacts to nesting birds would be substantially reduced by conducting vegetation removal and ground-disturbing activities outside of the typical nesting season (generally February 1st through August 31st). If construction activities are scheduled during the nesting season, pre-construction nesting bird surveys shall be conducted in accordance with Mitigation Measure BIO-3 (Nesting Migratory Birds).

With implementation of Mitigation Measure BIO-3, direct and indirect impacts to nesting migratory birds, including Birds of Conservation Concern and other species protected under State and federal law, would be reduced to a less than significant level.

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

Siskiyou County nor Fort Jones has a tree preservation ordinance, nor are there other local policies or ordinances related to the protection of biological resources that would apply to the proposed project. The project would comply with applicable federal, state, and local regulations protecting biological resources, including the federal Endangered Species Act, Migratory Bird Treaty Act, California Endangered Species Act, and California Fish and Game Code. Mitigation measures requiring surveys, avoidance buffers, worker training, and resource protection procedures would ensure compliance with applicable regulations protecting sensitive biological resources. Therefore, the project would not conflict with any local policy or ordinance protecting biological resources, and impacts 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?***

A Habitat Conservation Plan (HCP) is a federal planning document that is prepared pursuant to Section 10 of the Federal Endangered Species Act (FESA). A Natural Community Conservation Plan (NCCP) is a State planning document administered by CDFW. There are no HCPs, NCCPs or other habitat conservation plans that apply to the proposed project. No impact would occur in this regard.

Mitigation Measures

The following mitigation measures have been developed to reduce potential impacts related to *Biological Resources* to less than significant levels:

Mitigation Measure BIO-1 – Northwestern Pond Turtle

If any ground-disturbing activity is proposed within 1,200 feet of the Scott River and outside of the existing fenced WWTF site, the following measures shall be implemented to ensure that potential impacts to the northwestern pond turtle (NWPT) are avoided or appropriately minimized. The NWPT is currently proposed for federal listing as Threatened, and the U.S. Fish and Wildlife Service (USFWS) may recommend a different suite of measures to protect the turtle. Therefore, alternative measures acceptable to the USFWS may be substituted for those provided below.

- *Worker's Environmental Awareness and Protection Training*: A Worker's Environmental Awareness and Protection (WEAP) Training shall be implemented by a USFWS-approved biologist prior to the commencement of construction and to any new crew members prior to beginning work on the jobsite. Upon completion of the program, employees will sign a form stating they attended the program and understand all protection measures. The project proponent will maintain a list of all personnel who have successfully completed the education program at the worksite.

- *Pre-Construction Surveys*: A USFWS-approved biologist shall conduct three pre-construction surveys of the project site for NWPT.

    - One survey shall be conducted no more than 48 hours before the onset of work activities, ideally when weather conditions are suitable to detect pond turtles.
    - Two additional surveys shall be conducted prior to the onset of work activities with at least three days between surveys during suitable weather conditions during the northwestern pond turtle's active season (generally March 1st–September 30th) when air temperatures regularly exceed 55 degrees Fahrenheit.

- *Exclusionary Fencing*: Silt fencing or other barriers to turtle movement shall be established around the perimeter of the work area within 1,200 feet of the Scott River and shall be inspected/maintained throughout the duration of construction. The interior of the exclusionary zone shall be inspected as part of the pre-construction surveys to ensure that no turtles are trapped within the barriers.

- *Turtle Relocation*: If any life stage of the NWPT (adult, hatchling, or egg) is found and individuals are likely to be killed or injured by work activities, project activities that may harm the species shall be halted within 50 feet of the turtles until the individuals move out of harm's way or until a USFWS-approved biologist can capture and relocate them.

- *Trash Removal*: All trash that could attract predators of the NWPT and all plastics that NWPT could consume or become entangled in shall be removed daily from the project site and disposed of properly.

- *Erosion Control Materials*: Plastic monofilament netting (erosion control matting), loosely woven netting, or similar material in any form shall not be used at the project site because NWPT can become entangled and trapped in them. Any such material found onsite shall be immediately removed by construction personnel. Material utilizing fixed weaves (strands cannot move), polypropylene, polymer or other synthetic materials shall not be use.

- *Nighttime Work*: The project proponent shall conduct project activities no earlier than 30 minutes after sunrise and no later than 30 minutes before sunset. If the Town of Fort Jones determines that nighttime work is necessary, all lighting shall be directed to the work area and shielded to prevent spill over into occupied or assumed occupied habitat outside the work area.

- *Construction Equipment*: No equipment in which NWPT could seek shelter shall be left on site overnight outside of the designated staging areas, defined as those areas that are enclosed with silt fence or some other barrier designed to reasonably prevent wildlife from entering. The project proponent shall cover dirt or sand piles left overnight outside of the designated staging areas with tarps or plastic to prevent NWPT from sheltering in the material. For onsite storage of pipes, conduits and other materials that could provide shelter for NWPT that is not surrounded by NWPT exclusion fencing, an open-top trailer shall be used to elevate the materials above ground. This is intended to reduce the potential for NWPT to climb into the conduits and other materials.

- *Cover Holes and Trenches*: All holes and trenches over 6.0 inches deep shall be covered overnight or escape ramps installed and shall be inspected each morning by a qualified biologist or assistant biologist.

- *Vehicle Speed Limit*: Project-related vehicles shall observe a 15.0 miles per hour speed limit within construction areas, except on County roads, and State and federal highways. Off-road traffic outside of designated and fenced project work areas shall be prohibited.

- *No Pets*: No pets shall be permitted at the project site, to avoid and minimize the potential for harassment, injury, and death of the NWPT.

- *No Herbicides or Insecticides*: No herbicides or insecticides shall be used unless the USFWS determines that with implementation of best management practices (BMPs) that no NWPT are likely to be harmed.

- *Refueling and Vehicle Maintenance*: Refueling and maintenance of vehicles and equipment shall occur within a designated staging area a minimum of 100 feet from riparian habitat or aquatic areas, unless the USFWS approves, and the equipment is stationary and less than 100 feet from aquatic areas.

- *Spill Response*: Prior to the onset of work, the contractor shall have a plan in place for prompt and effective response to any accidental spills. A spill-containment kit shall be present at all times on site. The plan shall include informing all workers of the importance of preventing spills and of the appropriate measures to implement should a spill occur.

- *Vehicle Leak Prevention*: Vehicles and equipment shall be checked daily for leaks, and all vehicular fluid spills will be contained and cleaned up immediately following the procedures noted in the above measure.

Mitigation Measure BIO-2 – Monarch Butterfly

The monarch butterfly is currently proposed for federal listing as Threatened. If the western migratory population of the monarch butterfly is formally listed or remains proposed for listing at the time of construction, the following measures shall be implemented, or an alternative suite of measures recommended by the U.S. Fish and Wildlife Service (USFWS) may be substituted for those presented below.

- The limits of the construction area shall clearly be demarcated with fencing, pin flags, or other means. Construction equipment shall not venture beyond the marked construction boundary. Additionally, known milkweed populations adjacent to the construction area shall be flagged for visibility.

Mitigation Measure BIO-3 – Nesting Migratory Birds

To avoid impacts to nesting birds, and/or raptors, protected under California Fish and Game Code Section 3503 and Section 3503.5, including their nests and eggs, one of the following shall be implemented:

- Vegetation removal and ground-disturbance activities shall occur between September 1st and January 31st when birds are not nesting; or

- If vegetation removal and ground disturbance activities occur during the nesting season, a pre-construction nesting survey shall be conducted by a qualified biologist to identify active nests in and adjacent to the project area.

Surveys shall begin prior to sunrise and continue until vegetation and nests have been thoroughly observed. The survey shall take into account acoustic impacts and line-of-sight project disturbances to determine a sufficient survey radius to maximize observations of nesting birds. A nesting bird survey report should be prepared and, at a minimum, the report should include a description of the area surveyed, date and time of the survey, ambient conditions, bird species observed, a description of any active nests observed, any evidence of breeding behaviors (e.g., courtship, carrying nest materials or food, etc.), and a description of any outstanding conditions that may have impacted the survey results (e.g., weather conditions, excess noise, presence of predators).

The results of the survey shall be submitted electronically to the California Department of Fish and Wildlife (CDFW) upon completion. The survey shall be conducted no more than one week prior to the initiation of construction. If construction activities are delayed or suspended for more than one week after the pre-construction survey, the site shall be resurveyed.

If an active nest is located during pre-construction surveys, a non-disturbance buffer should be established around the nest by a qualified biologist in consultation with CDFW and United States Fish and Wildlife Service to comply with Fish and Game Code Sections 3503 and 3503.5 and the Migratory Bird Treaty Act. Compliance measures may include, but are not limited to, exclusion buffers, sound-attenuation measures, and seasonal work closures based on the known biology and life history of the species identified during the survey, as well as ongoing monitoring by biologists. Nesting bird surveys should be conducted no more than seven days prior to the initiation of construction. If construction activities are delayed or suspended for more than seven days after the pre-construction nesting bird survey, the site should be resurveyed.

Mitigation Measure BIO-4 – Noxious Weed Prevention

The introduction and spread of invasive plant species and noxious weeds shall be avoided or minimized through implementation of the following measures:

- Only certified or verified weed-free erosion control materials, mulch, and seed shall be used during construction activities.
- Import and export of fill material shall be limited to sources that are certified or documented to be free of invasive plant material and noxious weed contamination.
- All construction equipment shall be cleaned of soil, vegetative matter, and debris prior to entering the project site. Equipment shall be washed at a commercial wash facility or otherwise cleaned to prevent the introduction of invasive plant material.

Any equipment found to be contaminated with soil or vegetative material shall be cleaned prior to use on the project site, regardless of prior operating location.

Findings

Based upon the review of the information above, with implementation of mitigation measures the proposed project will have a less than significant impact with respect to *Biological Resources*.

Documentation and References

Catalyst (Catalyst Environmental Solutions). 2026. *Biological Evaluation Results – Town of Fort Jones Wastewater Treatment Facilities Improvements Project*. June 2026.
SHN (SHN Consulting Engineers and Geologists). 2026. *Wastewater Facilities Plan Addendum No. 2*. June 2026.

Section V – Cultural Resources

The purpose of the section of the Initial Study is to identify any potential cultural resources within or adjacent to the proposed project, and to assist the Lead Agency, in this case the Town of Fort Jones, in determining whether such resources meet the office definitions of "historical resources," as provided in the California Public Resources Code (PRC), in particular under the California Environmental Quality Act (CEQA).

CEQA requires a lead agency to determine whether a project may have a significant effect on historical resources (Section 21084.1). If it can be demonstrated that a project will cause damage to resources Eligible for or Listed in the California Register of Historic Resources (CRHR), Tribal Cultural Resources (TCRs) and other resources on county or local lists, or those determined by the lead agency to be significant, the lead agency may require reasonable efforts be made to permit any or all of the resources to be preserved in place or left in an undisturbed state. To the extent that they cannot be left undisturbed, mitigation measures are required (Section 21083.2[a], [b], and [c]).

The analysis in this section has been prepared in accordance with Section 15064.5 of the State CEQA Guidelines, which considers the potential impacts on prehistoric, historic, and paleontological resources. This section describes the potential cultural resources within the project study area, and the applicable regulations that govern those resources and is based on the following evaluations:

- *Cultural Resources Inventory – Historic Properties Identification Report for the Town of Fort Jones Wastewater Facility Improvements*, prepared by AnthropologyRx, February 2026.

The information provided below is an abridged version of the cultural resources report and is provided here to afford a brief context of the potential cultural resources in the project area. Information on the specific location of prehistoric and historic sites is confidential and exempt from the Freedom of Information Act (FOIA) and the California Public Records Act (CPRA); therefore, this information has been redacted for use in this Initial Study and the cultural resource reports are not included as attachments. Professionally qualified individuals, as determined by the California Office of Historic Preservation (OHP), may contact the Town of Fort Jones in order to inquire about its availability.

Environmental Setting

The proposed is located on the western edge of the Town of Fort Jones, near the confluence of Moffett Creek and the Scott River, in Siskiyou County, California. The Area of Potential Effects (APE) can be found on the Fort Jones California USGS 7.5 minute quadrangle map in Township 43 North, Range 09 West, Sections 2 and 3 of the Mount Diablo Base and Meridian. The horizontal APE encompasses approximately 30 acres within and adjacent to the existing Town of Fort Jones WWTF. The proposed maximum vertical APE is ten feet below ground surface. The APE is generally bound by agricultural properties.

The APE is in the northern portion of the Scott Valley, a high mountain valley on the eastern edge of the Klamath Mountains, approximately 25 miles northwest of the City of Mount Shasta. The Scott Valley extends approximately 25 miles north-south and 10 miles east-west at its largest point, draining approximately 819 square miles, and is underlain by fractured consolidated bedrock dating from the pre-Silurian to Late Jurassic and possibly Early Cretaceous periods (Mack, 1958). This foundation bedrock is overlain by permeable alluvium in river valleys, most deeply in the flood plain of the Scott River. The surficial geology within the region is Pleistocene-Holocene sedimentary alluvium (California Geological Survey, 2022).

The Klamath Mountains Geomorphic Province is characterized by rugged topography with prominent peaks and ridges reaching 6,000-8,000 feet above sea level, resulting from uplift leaving successive benches with gold-bearing gravels on the sides of canyons, and is considered a northern extension of the Sierra Nevada (California Geological Survey, 2002). The Klamath Mountains are deeply dissected by the Klamath, McCloud, Sacramento, and Trinity Rivers with no consistent directional trends, and the Scott Valley and Hayfork Valley are the only two sizeable alluvial valleys in the region (Skinner *et al.,* 2006).

Typical geographic variation found within the Scott Valley includes upland forests dominated by ponderosa pine (*Pinus ponderosa*) with scatterings of white oak (*Quercus garryana*), black oak (*Quercus kelloggii*), and cedar (*Calocedrus decurrens*); while lowland forests are more evenly ponderosa pine. The herbaceous community in the valley floor is predominantly grasses (*Poaceae* spp.) cultivated for grazing or alfalfa and other hay crops. Wedge leaf ceanothus (*Ceanothus cuneatus*), gooseberry species (*Ribes* sp.), and native grasses are common in and around the APE. Wildlife known to Scott Valley include black tail deer (*Odocoileus hemionus columbianus*), mountain lion (*Puma concolor*), black bear (*Ursus americanus californiensis*), and raptors such as red-tail hawk (*Buteo jamaicensis*), bald eagle (*Haliaeetus leucocephalus*), and golden eagle (*Aquila chrysaetos*).

The APE is approximately 2,700 feet above mean sea level, receives approximately 25 inches of precipitation per year, and experiences mean temperatures ranging from 23 F in the winter to 91 F in the summer. Moffett Creek is located immediately north of the APE, and the Scott River is located approximately 350 feet west of the APE. The landscape around the APE has been heavily impacted by mining and agricultural activities since the 1850s.

According to the United States Department of Agricultural (USDA) Web Soil Service, soils within the APE are characterized by the Atter very gravelly sandy loam, 0 to 5 percent slopes (78%), Stoner gravelly sandy loam, 0 to 2 percent slopes (6%), and Diyou loam drained (2%). In general, these soils are deep, somewhat excessively drained soil that formed in recent, rocky alluvium on alluvial fans and stream terraces in mountain valleys of northern California and southwestern Oregon. The USDA also defines 14% of the APE as Riverwash, which is not a specific soil series but a classification of land areas that are frequently flooded, washed, and reworked by rivers and streams.

Based on the soil profile, the potential for discovering buried prehistoric archaeological sites in the APE is average, as the soils within the APE have formed on alluvial fans and stream terraces, landforms well-documented for their high potential to contain stratified, buried cultural deposits. Prehistoric populations often chose to settle on or near alluvial landforms due to their proximity to water sources and resource-rich valley floors. The reworking of the area by Riverwash diminishes the potential for buried cultural resource deposits in the APE.

PREHISTORIC CONTEXT

Archeological studies relevant to the study have been largely confined to few areas within Siskiyou and northern Shasta, and western Modoc Counties. Much of the archaeological data that have been gathered over the past five decades of research stems from various archaeological excavations conducted in the region. These data have contributed to the knowledge of local archaeological patterns and chronologies that likely span 6,500 years in Scott Valley and upwards of 9,000 years in the Sacramento River canyon. The archaeological data for the region support the ethnographies of the Shasta, Wintu, and Modoc Indians, and the linguistic patterns of the Hokan and Penutian stock. The archaeological chronology presented here is excerpted from Fentress 2002.

The first archaeological excavation in the region (and in Shasta Indian ethnographic territory) was undertaken at CA-SIS-13 (Wallace and Taylor 1952), a small rockshelter on the eastern side of the Shasta Valley. The site was provisionally dated at 150 to 250 B.P. based on the recovery of small triangular barbed obsidian points and was identified as a seasonal hunting camp due to the simple flaked stone assemblage. In 1965, CA-SIS-327, a small pithouse village on the Shasta River was excavated by Shasta College (Clewett 1968). Late period projectile points (Tuluwat Barbed and Small-stemmed) dominated the assemblage, but Clickapudi Series points were also recovered indicating a possible earlier component.

The 1980s saw an increase of cultural resource management projects in the region (Nilsson 1985, 1987, 1988; Nilsson et al. 1989). In 1989, CA-SIS-266 was excavated by the Bureau of Land Management (Ritter 1989). The site was a rockshelter at Sheep Rock (bordering the Cascade Crest) which contained midden and lithic materials dated to 2550 to 1250 B.P. by radiocarbon and obsidian hydration methods. The site constituents suggest people used CA-SIS-266 as a base camp for foraging and seed processing activities (Hamusek et al. 1996).

Based on previous research, Nilsson (1991) proposed a two-part prehistoric sequence for the region. The earliest period, ca. 2500 B.P. to 1500 B.P. (Ager Phase), was characterized by sites in both bottomland and upland transition zones. The assemblages indicated subsistence activities including hunting and plant processing but little or no fishing. Assemblages were characterized by Elko Comer-notched, medium side-notched and stemmed leaf-shaped projectile points. Ground stone consisted of unifacial milling stones with unifacial and bifacial manos. Obsidian reduction was based on reworking imported preforms made almost exclusively from Grasshopper Flat/Lost Iron

Wells/Red Switchback obsidian. Core reduction of local cryptocrystalline silicates and metavolcanics into flake tools was also noted.

The subsequent Meek Phase extended from 1500 B.P. to Euro-American contact. Subsistence and settlement patterns shifted to riverine exploitation with upland task sites and a broader-based economy. Assemblages included Tuluwat Barbed and Desert Side-notched projectile points. Milling equipment now included hopper mortars and pestles. Basketry, ceramic figurines, and Siskiyou Utility Ware pottery also appeared. Lithic reduction technologies became more varied including all phases of early to late-stage biface reduction. Medicine Lake Highlands obsidian was used almost exclusively. The river-based subsistence system during the Meek Phase was consistent with ethnographically documented Shasta Indian land use patterns. In addition, the basketry, ceramics, and lithic assemblages resemble documented Shasta material culture.

Evidence for occupation of the region prior to the Ager Phase (before 2500 B.P.) is limited to hydration readings on debitage converted at the Sacramento Canyon rate (Basgall and Hildebrandt 1989:198). The converted dates must be viewed cautiously since the Shasta Valley is located at a higher altitude and is presumably colder than the Sacramento River Canyon. At the Louie Site, obsidian hydration readings from the site converted to ca. 6000 to 4000 B.P. (Hamusek et al 1996). Obsidian samples collected during Bureau of Land Management surveys, also converted at the Sacramento Canyon rate, suggested an early occupation ca. 9000 to 7000 B.P., with pulses of activity around 4300 B.P. and ca. 2000 B.P. (Hamusek et al. 1996:126). The authors noted that the Sacramento River Canyon conversion rate produced anomalous results. For example, converted hydration rates for projectile points gave far older dates than expected (e.g., 4139 B.P. for a Tuluwat Barbed projectile point). The absence of early period data besides hydration dates on debitage in the Shasta Valley is puzzling, considering the antiquity of prehistoric occupation in the larger region. The lack of data probably reflects several factors.

Two sites excavated during cultural resource management projects on the Cascade Crest indicated occupation during the middle Holocene. The Hunter site (CA-SIS-1088), at 1066 m (3500 ft.) elevation on the Little Shasta River, produced a radiocarbon date of 3325 B.P. obtained on charcoal from a fire hearth. Point typology and hydration readings on large contracting stem points, a medium-sized side-notched point, and a small side- notched point resulted in a proposed age range of 5000 to 500 B.P. for the site (Nilsson 1985). At the First Spring site (CA-SIS-425), at an elevation of 1633 m (5360 ft.), hydration readings were obtained from some 2000 pieces of obsidian debitage recovered in an undisturbed stratigraphic context. The converted hydration readings indicated use of the site began ca. 6000 to 5000 B.P. and increased in the late prehistoric period (Winthrop and Gray 1985).

ETHNOGRAPHIC CONTEXT

The study area is recognized as the ancestral homeland of the Shasta Indians. The following ethnographic summary is not intended as a thorough description of Shasta culture but instead is meant to provide a background to the present cultural resource investigation with specific references to the project area. In this section, the past tense is sometimes used when referring to native peoples because this is a historical study. This convention is not intended to suggest that Shasta people only existed in the past. To the contrary, the Shasta have strong cultural and social identities today.

The emergence of land use patterns and material culture possibly ancestral to those documented for the Shasta are thought to begin in the Shasta Valley around 1500-2000 B.P. (Sundahl 1997). In historic times, the Shasta occupied the Shasta Valley, and parts of the Klamath, upper McCloud, and Sacramento river areas. The most detailed accounts of the Shasta are by Dixon (1907) and Holt (1946). Later, Heizer and Hester (1970) mapped Shasta village sites based on information gathered by Dixon, Holt, as well as early historic accounts. Silver (1978) summarized the existing ethnographic data.

Shasta territory is mountainous and cut with deep canyons and rivers including the Klamath, Shasta, Scott, Salmon, and Sacramento. The Shasta proper occupied the Shasta Valley and Scott Valley. The Klamath River Shasta occupied an area from Seiad Valley to Jenny Creek (Dixon 1907; Holt 1946) or as far as Beswick (Heizer and Hester 1970; Kroeber 1925; Silver 1978).

Generally close cultural and trade relationships existed between all the Shasta groups and the Hokan-speaking Karuk and Achomawi. The Shasta conducted lively trade relationships with many other groups, handling goods from as far away as the Northwest Coast, the Columbia Plateau, Modoc Plateau, and the California coast (Silver

1978:213). Distant trading partners included the Rogue River Athapaskans and Warm Spring Indians in Oregon, and the Hupa, Yurok, and Wintu in California (Silver 1978:213).

The Shasta were central to the trade in Medicine Lake Highlands obsidian. They traded the high-quality tool material to the Karuk, Yurok, and Hupa, and made ceremonial obsidian blades from Medicine Lake Highlands material for export to the Karuk and Yurok (Silver 1978:213). Shasta living "near Glass Mountain" made large knives for transport down the Klamath River (Voegelin 1942:193). The Shasta traded obsidian to the Wintu for acorns (Silver 1978:213). Relations with the Achomawi were occasionally marked by warfare, but nonetheless, the Shasta obtained Medicine Lake Highlands obsidian from the Pit River people in exchange for Dentalium (Voegelin 1942:198). In contrast, regular battles occurred in the Medicine Lake Highlands over obsidian sources between the Shasta, Modoc, and Wintu (Merriam 1905).

The Shasta people built their permanent winter villages along major drainages. The principal staples, in the typical northern California manner, were acorns and salmon, and the Shasta practiced an economic strategy based on seasonal transhumance. The yearly round began in spring, corresponding to the first salmon run on the Klamath and other rivers. Winter villages composed of semi-subterranean rectangular dwellings were largely abandoned in favor of fishing camps. Brush huts were constructed along rivers and occupied by entire families.

In late spring and summer, men moved away to hunt deer and pronghorn, as well as sheep, bear, and elk. During spring and summer, temporary shelters were framed with willow poles and covered with brush (Dixon 1907). The women gathered a great variety of plants during summer, including berries (wild grape, manzanita, madrone, black, goose, service and elder), greens (wild celery, parsley, and rhubarb), and roots (epos, camas, tiger lily).

Families returned to fishing camps again in August with the fall run of salmon. By September, large camps were set up on the valley slopes to collect acorns from black oak, white oak, and canyon live-oak. Oak trees grow on the western slopes of the Cascades at the edge of the Shasta Valley floor, and it is possible that Shasta Indians harvested acorns in the historic period when they settled in the area. In late fall, the villages were reconstructed, and people settled in for the winter. Sporadic fishing and hunting continued until the next spring (Silver 1978).

Shasta fishing technology was highly developed, reflecting the importance of this resource. Salmon, sucker, trout, as well as eels and crayfish were caught using nets, arrows, spears, harpoons, weirs, hooks and lines, and traps (Dixon 1907:428- 431). Obsidian tipped arrows along with pitfalls and traps were used for deer, elk, and bear hunting (Dixon 1907). Scrapers were often made of red obsidian (Dixon 1907:391) probably originating from the Red Switchback source which was named for its distinctively colored obsidian. Milling equipment, primarily hand stones and milling slabs, were used to pulverize acorns, fish, and plant foods (Kroeber 1925:293). Mortars and pestles were not used and were regarded as dangerous objects because they had supernatural power (Dixon 1907:393).

HISTORIC ERA

Although Spanish explorers and missionaries settled in California in 1769, they remained on the coast, leaving the northeast corner of the state for later exploration. For more than half a century after the Spanish occupied California, Siskiyou County remained locked in its geographic isolation, a land unknown to all Euro-Americans. Mexico established its independence from Spain in 1821; California became a semi-independent colony of the new Mexican Republic (Beck and Haase 1974).

The initiation of the historic era varied by region throughout California, but generally it began between the mid-1500s and mid-1800s. Historic-era cultural activities provide a record of Spanish, Mexican, and American rule, occupation, and land use. An abbreviated history is presented to provide a background of the presence, chronological significance, and historical relationship of cultural resources within the extended study area.

The earliest explorations of California by Europeans were by sea. Portuguese captain Juan Rodriquez Cabrillo landed in the vicinity of San Diego in 1542. He also toured the Channel Islands before heading up the coast along the length of the State. He was followed by Sir Francis Drake in 1579 and Sebastian Viscano in 1602. None of these first explorers established settlements or had extensive interactions with Native Californians.

During the Spanish Period (1769 to 1822), the Spanish government established a series of presidios, missions, and towns along the Alta California (New Spain) coast, from San Diego to San Francisco. The Spanish colonized the local Native Americans along the way. Despite Spanish occupation, however, California remained largely unsettled throughout this period. The routes used to travel between the presidios and missions provided the outline for today's U.S. 101 and I-5 (Kyle et al., 2002).

The Mexican people took New Spain back from the Spanish in 1822, and renamed it the Republic of Mexico, thus beginning the Mexican Period (1822 to 1848). During this time, the Catholic missions were secularized, and the Indians were left to fend for themselves. Large land grants, also known as ranchos, were given to loyal Californians.

Many governments ruled or vied for power over California during the Mexican Period. This unrest lured outsiders who were seeking to take advantage of California's abundant resources. As more settlers arrived, relations between Mexico and the United States grew tense, ultimately resulting in war in 1846. California was formally annexed to the United States by the Treaty of Guadalupe Hidalgo in 1848, ending the Mexican-American War (Kyle et al., 2002).

The Siskiyou Trail, which ran between California's Central Valley and the Pacific Northwest was regularly used by Hudson's Bay Company trappers in the 1830s. The trail's reach was increased by "Forty-Niners" during the California Gold Rush.

The end of the Mexican-American War and the discovery of gold marked the beginning of the American Period (1848 to present). This discovery drew many people into California, caused a significant increase in the local non-native population and, in turn, decimated the indigenous population. Sacramento, San Francisco, Stockton, and many other cities grew from small settlements to "boom" towns, and roads, churches, schools, and other towns were built throughout the State. The American Civil War took place from 1861 to 1865, and although California's involvement was minimal, construction of the railroad may have been the most important immediate effect of the Civil War on California. Easy access to rail lines made citrus growing and other large-scale agricultural pursuits an important element in the State's economy. The creation of a government and a system of laws led to the admission of California as a free state in 1850 (Kyle et al., 2002).

After the discovery of an important gold strike near present day Yreka, California, in 1851, prospectors flooded the area. Siskiyou County was created on March 22, 1852, from parts of Shasta and Klamath Counties, and named after the Siskiyou mountain range. Parts of the county's territory were given to Modoc County in 1855.

In the mid-1880s, the construction of the Central Pacific Railroad along the Siskiyou Trail brought the first wave of tourism. Visitors were drawn by the county's many summer resorts, and hunting and fishing recreation in the largely untouched region. The Southern Pacific railroad, the successor to the Central Pacific, called its rail line "The Road of a Thousand Wonders."

In the early 1940s, Siskiyou County was home to the semi-serious State of Jefferson movement, which sought to create a new state from several counties of northern California and the adjoining counties of southern Oregon. The movement has seen a revival in recent years.

SCOTT VALLEY

While Scott Valley was named for John Scott, the man who discovered gold at Scott Bar in 1850, possibly the first known Euro American travelers to the Valley were the Hudson Bay Trappers. One of the most notable was Thomas McKay, who traveled through the Valley with his company of trappers, working the rich beaver streams, in 1836. McKay and his men called the valley Beaver Valley, due to the large quantity of beaver they found in the region's streams and rivers. Early on, the Scott River was also referred to as Beaver River.

The excitement of the California Gold Rush spurred rapid settlement, with miners and entrepreneurs establishing claims and small communities. Gold mining increased through the 1850s and 1860s, with placer mining being particularly popular in Scott Valley. Miners used placer techniques to extract gold from streams and rivers. This influx of prospectors led to the establishment of towns like Fort Jones, Greenview, and Etna, which served as centers for commerce and supply for the mining community.

As gold became scarcer and more challenging to extract profitably, many miners transitioned to ranching and agriculture, utilizing the fertile valley soils. Sheep and cattle ranching became prominent, and small farms sprouted along the valley's streams. The arrival of the railroad in the late 19th century facilitated transportation of goods and people, boosting local economies. After WWII, technological advances and population shifts began to change the valley's landscape. Industrialization, improved transportation, and access to wider markets helped diversify the local economy.

FORT JONES

Fort Jones was officially founded in 1852, initially as a frontier military post and trading center, during the California Gold Rush period. The discovery of gold in the surrounding hills and streams drew prospectors and settlers to Siskiyou County, including the area near present-day Fort Jones. Miners and entrepreneurs set up camps and mining claims, fueling rapid growth. Fort Jones played a strategic role in protecting explorers, settlers, and miners as a supply depot for prospectors moving through the region.

After the initial gold rush, Fort Jones evolved into a center for cattle ranching, timber, and small-scale farming. The lush surrounding valleys provided farmland, while nearby forests supplied timber, supporting a growing local economy. The town became known for cattle trading, logging, and ranching. By the early 20th century, Fort Jones had developed with the construction of schools, churches, and businesses. The arrival of the railroad in the late 1800s was pivotal, enabling the transport of timber, livestock, and agricultural products to broader markets. Population growth stabilized, and the town maintained its vital regional role.

SENSITIVITY

The results of archival research, the Sacred Lands file (SLF), previous surveys adjacent to and within the study area, and the environmental context all contribute to an assessment of the sensitivity level for a given project area. The search of the SLF returned a negative result.

The entire APE was intensively surveyed for cultural resources by Mr. Kevin Dalton, Registered Professional Archaeologist (RPA) on 29 August 2025. The survey strategy employed systematic survey transects spaced at 25-meter intervals. No cultural resources were identified within the APE.

Based on the geomorphological and topographic characteristics of the project area, the results of the records and literature search, the age the soils mapped in the area, and the level of historic disturbance, the APE is considered to have an average potential for subsurface archaeological remains.

Regulatory Setting

This section summarizes current federal, State, and local regulations relevant to the review of *Cultural Resources* for this project. Ordinances, regulations, or standards that are applicable to the environmental review of biological resource impacts include the following:

NATIONAL REGISTER OF HISTORIC PLACES

To be eligible for listing on the National Register, a resource must be significant in American history, architecture, archaeology, engineering, or culture, and generally must be greater than 50 years in age. Districts, sites, buildings, structures, and objects of potential significance must meet one or more of the following four established criteria (36 CFR Section 60.4):

- *Criterion A.* Properties that are associated with events that have made a significant contribution to the broad patterns of our history.
- *Criterion B.* Properties that are associated with the lives of persons significant to our past.
- *Criterion C.* Properties that embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master; or that possess high artistic values; or that represent a significant and distinguishable entity whose components may lack individual distinction.

- *Criterion D.* Properties that have yielded, or may be likely to yield, information important in prehistory or history.

In addition to these criteria, a resource must retain integrity to be considered eligible for listing on the NRHP. Integrity is the authenticity of the physical identity that is evidenced by the survival of characteristics that existed during the resource's period of significance. Resources must retain enough of their character or appearance to be recognizable as resources and to convey the reasons for their significance. Integrity is the ability of a property to convey its significance. To be listed in the NRHP, a property must not only be shown to be significant under the National Register criteria, but it must also possess integrity. The evaluation of a historic property's integrity is sometimes a subjective judgment, but it must always be grounded in an understanding of the property's physical elements and how they relate to its significance. National Register Bulletin 15 describes seven aspects of integrity used in order to determine a historic property's integrity:

1. *Location.* The relationship between the property and its location is often important in understanding why the property was created.
2. *Design.* The design aspect includes the combination of elements that create the form, plan, space, structure, and style of a property.
3. *Setting.* The setting is defined as the physical environment of a historic property.
4. *Materials.* Materials are the physical elements combined during a particular period of time and in a particular configuration to form a historic property.
5. *Workmanship.* Workmanship is the physical evidence of the crafts of a particular culture of people during any given period in history or prehistory.
6. *Feeling.* Feeling is described as a property's expression of the aesthetic or historic sense of a particular period of time.
7. *Association.* Association is the direct link between an important historic event or person and a historic property.

Section 101(d)(6)(A) of the National Historic Preservation Act (NHPA) allows properties of traditional religious and cultural importance to a Native American tribe to be determined eligible for NRHP inclusion. In addition, a broader range of Traditional Cultural Properties (TCPs) is also considered and may be determined eligible for or listed in the NRHP. A TCP is a property associated with the cultural practices or beliefs of a living community; TCPs are rooted in that community's history and are important in maintaining the continuing cultural identity of the community. In the NRHP programs, "culture" is understood to mean the traditions, beliefs, practices, lifeways, arts, crafts, and social institutions of any community, be it an Indian tribe, a local ethnic group, or the nation as a whole.

CALIFORNIA REGISTER OF HISTORICAL PLACES

As provided in California Public Resources Code (PRC) Section 5020.4, the California Legislature established the CRHR in 1992. The CRHR is used as a guide by state and local agencies, private groups, and citizens to identify the state historical resources and properties to be protected, to the extent prudent and feasible, from substantial adverse change. The CRHR, as instituted by the California Public Resources Code, automatically includes all California properties already listed in the NRHP and those formally determined to be eligible for listing in the NRHP. The CRHR may also include various other types of historical resources that meet the criteria for eligibility, including the following:

- Individual historic resources.
- Resources that contribute to a historic district.
- Resources identified as significant in historic resource surveys.
- Resources with a significance rating of Category 3 through Category 5 in the State Inventory (Categories 3 and 4 refer to potential eligibility for the NRHP; Category 5 indicates a property with local significance).

The CRHR follows the lead of the NRHP in utilizing the 50-year threshold: a resource is usually considered for its historical significance only after it reaches the age of 50 years. This threshold is not absolute but was selected as a reasonable span of time after which a professional evaluation of historical value/importance should be made. The criteria for listing resources in the CRHR were expressly developed to be in accordance with previously established criteria developed for listing on the NRHP. Section 15064.5(a)(3) of the CEQA Guidelines states that "[g]enerally, a resource shall be considered by the lead agency to be 'historically significant' if the resource meets the criteria for

listing on the California Register of Historical Resources" (PRC Section 5024.1; 14 CCR 4852), including if the resource:

PRC Section 5024.1 requires an evaluation of historical resources to determine their eligibility for listing in the CRHR. The purpose of the register is to maintain listings of the State's historical resources and to indicate which properties are to be protected from substantial adverse change. The criteria for listing resources on the CRHR were expressly developed to be in accordance with previously established criteria developed for listing in the National Register of Historic Places (NRHP), enumerated below. According to PRC Section 5024.1(c) (1–4), a resource is considered historically significant if it (i) retains "substantial integrity," and (ii) meets at least one of the following criteria:

1. Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;
2. Is associated with the lives of persons important in our past;
3. Embodies the distinctive characteristics of a type, period, region, or method of installation, or represents the work of an important creative individual, or possesses high artistic values; or
4. Has yielded, or may be likely to yield, information important in prehistory or history.

A historical resource is a resource listed in, or determined to be eligible for listing, in the CRHR (Section 21084.1), a resource included in a local register of historical resources (Section 15064.5[a][2]), or any object, building, structure, site, area, place, record, or manuscript that a lead agency determines to be historically significant (Section 15064.5[a][3]).

Impact Analysis

The following includes an analysis of environmental parameters related to *Cultural Resources* based on Appendix G of the State CEQA Guidelines. The discussion not only includes the areas for which there is potential for environmental impacts but also provides justification for the conclusions that either no impacts, less than significant impacts, or less than significant impacts with mitigation could occur.

Would the Project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Cause a substantial adverse change in the significance of a historical resource pursuant to Section 15064.5?			**X**	
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?		**X**		
c) Disturb any human remains, including those interred outside of dedicated cemeteries?		**X**		

a) *Cause a substantial adverse change in the significance of a historical resource pursuant to Section 15064.5?*

Significant cultural resources, as buildings, sites, structures, objects, and districts significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California, must meet the criteria described in the *Regulatory Setting*, above. If no eligible resources are identified within the project area, then the project is not considered to have a significant impact on cultural resources. In addition, State regulations require that measures be taken to protect any resources that are uncovered during construction, and compliance with CEQA Guidelines Section 15064.5(f) requires that construction activities halt if potentially significant resources are discovered until the resources can be assessed by a qualified person.

Based on the findings of the *Cultural Resources Inventory – Historic Properties Identification Report for the Town of Fort Jones Wastewater Facility Improvements* (AnthropologyRx, 2026), there are no historic or prehistoric archaeological sites located during the cultural resources survey of the project site. Implementation of the proposed project, as currently designed, will not result in a significant adverse impact to a historical resources as defined by NHPA and CEQA. Impacts are considered less than significant.

b) ***Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?***

The proposed project would result in a significant impact if it caused a substantial adverse change in the significance of an archaeological resource. Based on the results of the investigations described above, there are no resources in the project area with intact visible surface manifestations that qualify as archaeological resources or historical resources as defined by CEQA Guidelines Section 15064.5. However, there is the possibility of encountering buried archaeological resources during project activities, including ground disturbing activities onsite. Inadvertent discovery procedures should be implemented for resources found as a result of project development would reduce potential impacts on undocumented resources to less than significant levels. To minimize potential impacts to prehistoric and historic resources, including Native American cultural resources, Mitigation Measure CR-1 (Inadvertent Discovery) is required. With implementation of this measure, impacts to cultural resources would be less than significant.

c) ***Disturb any human remains, including those interred outside of dedicated cemeteries?***

There are no known burial sites on or immediately adjacent to the proposed project site. If human remains are unearthed during future development of the site, the provisions of California Health and Safety Code Section 7050.5 shall apply. Under this Section, no further disturbance shall occur until the Siskiyou County Coroner has made the necessary findings as to origin and disposition, pursuant to California PRC Section 5097.98 and Mitigation Measure CR-2 (Human Burial and Human Remains). Impacts are considered less than significant with mitigation incorporated.

Mitigation Measures

The following mitigation measures have been developed to reduce potential impacts related to *Cultural Resources* to less than significant levels:

Mitigation Measure CR-1 – Inadvertent Discovery

If cultural resources, such as chipped or ground stone, or bone are inadvertently discovered during ground-disturbance activities, work shall be stopped within 50 feet of the discovery, as required by the California Environmental Quality Act (CEQA; January 1999 Revised Guidelines, Title 14 California Code of Regulations [CCR] 15064.5 (f)). Work near the archaeological finds shall not resume until a professional archaeologist, who meets the Secretary of the Interior's Standards and Guidelines, has evaluated the material, and offered recommendations for further action.

Mitigation Measure CR-2 – Human Burial or Human Remains

If in the event that previously unidentified evidence of human burial or human remains are discovered during project construction, work will stop at the discovery location, within 20 meters (66 feet), and any nearby area reasonably suspected to overlie human remains (Public Resources Code, Section 7050.5) the Siskiyou County Coroner must be informed and consulted, per State law. If the coroner determines the remains to be Native American, he or she shall contact the Native American Heritage Commission within 24 hours. The Native American Heritage Commission shall identify the person or persons it believes to be the most likely descendent. The most likely descendent will be given an opportunity to make recommendations for means of treatment of the human remains and any associated grave goods. when the commission is unable to identify a descendant or the descendants identified fail to make a recommendation, or the landowner or his or her authorized representative rejects the recommendation of the descendants and the mediation provided for in subdivision (k) of Section 5097.94, if invoked, fails to provide measures acceptable to the landowner, the landowner or his or her authorized

representative shall reinter the human remains and items associated with Native American human remains with appropriate dignity on the property in a location not subject to further and future subsurface disturbance. Work in the area shall not continue until the human remains are dealt with according to the recommendations of the County Coroner, Native American Heritage Commission and/or the most likely descendent have been implemented.

Findings

Based upon the review of the information above, with implementation of mitigation measures the proposed project will have a less than significant impact with respect to *Cultural Resources*.

Documentation and References

AnthropologyRx. 2026. *Cultural Resources Inventory – Historic Properties Identification Report for the Town of Fort Jones Wastewater Facility Improvements*. February 2026.

SHN (SHN Consulting Engineers and Geologists). 2026. *Wastewater Facilities Plan Addendum No. 2*. June 2026.

Section VI – Energy

The purpose of this section of the Initial Study is to analyze the potential direct and indirect environmental impacts associated with the project's projected energy consumption. Such impacts can include the depletion of nonrenewable resources (e.g., oil, natural gas, coal, etc.). Analyses of emissions of air quality and greenhouse gas (GHG) pollutants during both the construction and long-term operational phases of the project are analyzed in Section III, AIR QUALITY, and Section VIII, GREENHOUSE GAS EMISSIONS.

Environmental Setting

PacifiCorp provides electric services in Siskiyou County. Natural gas is currently not available in Siskiyou County. The existing wastewater treatment facility (WWTF) does not currently require any energy resources (e.g., electricity). However, existing electrical infrastructure facilities are in place where the new WWTF site is located.

Regulatory Setting

This section summarizes current State regulations relevant to the review of *Energy* consumption for this project. Ordinances, regulations, or standards that are applicable to the environmental review of potential impacts related to energy consumption include the following:

CALIFORNIA ENERGY ACTION PLAN UPDATE

The California Public Utilities Commission and California Energy Commission 2008 Energy Action Plan Update provides a status update to the 2005 Energy Action Plan II, which is the State's principal energy planning and policy document. The plan continues the goals of the original Energy Action Plan, describes a coordinated implementation plan for State energy policies, and identifies specific action areas to ensure that California's energy is adequate, affordable, technologically advanced, and environmentally sound. First-priority actions to address California's increasing energy demands are energy efficiency, demand response (i.e., reduction of customer energy usage during peak periods in order to address system reliability and support the best use of energy infrastructure), and the use of renewable sources of power. If these actions are unable to satisfy the increasing energy and capacity needs, the plan supports clean and efficient fossil-fired generation.

CALIFORNIA ENERGY EFFICIENCY STANDARDS (TITLE 24)

Building energy efficiency standards for new residential and nonresidential buildings were adopted by the California Energy Resources Conservation and Development Commission (now the California Energy Commission [CEC]) in June 1977 and are updated every three years (CCR Title 24, Part 6). CCR Title 24, Part 6 requires the design of building shells and building components to conserve energy. The standards are updated periodically to allow for consideration and possible incorporation of new energy efficiency technologies and methods. The current 2025 Title 24 standards became effective January 1, 2026.

CALIFORNIA GREEN BUILDING STANDARDS

The California Green Building Standards Code (California Code of Regulations, Title 24, Part 11), commonly referred to as the CALGreen Code, is a statewide mandatory construction code that was developed and adopted by the California Building Standards Commission and the California Department of Housing and Community Development. The CALGreen standards require new residential and commercial buildings to comply with mandatory measures under the topics of planning and design, energy efficiency, water efficiency and conservation, material conservation and resource efficiency, and environmental quality. CALGreen also provides voluntary tiers and measures that local governments may adopt which encourage or require additional measures in the five green building topics. The most recent update to the CALGreen Code was adopted in 2025 and took effect on January 1, 2026.

RENEWABLE ENERGY STANDARDS/RENEWABLE PORTFOLIO STANDARD

In 2002, California established its Renewable Portfolio Standard program[6] with the goal of increasing the annual percentage of renewable energy in the state's electricity mix by the equivalent of at least 1 percent of sales, with an aggregate total of 20 percent by 2017. The California Public Utilities Commission subsequently accelerated that goal to 2010 for retail sellers of electricity (Public Utilities Code Section 399.15[b][1]). Then-Governor Schwarzenegger signed Executive Order S-14-08 in 2008, increasing the target to 33 percent renewable energy by 2020. In September 2009, then-Governor Schwarzenegger continued California's commitment to the Renewable Portfolio Standard by signing Executive Order S-21-09, which directs the CARB under its AB 32 authority to enact regulations to help the State meet its Renewable Portfolio Standard goal of 33 percent renewable energy by 2020. In September 2010, the CARB adopted its Renewable Electricity Standard regulations, which require all the State's load-serving entities to meet this target. In October 2015, then-Governor Brown signed into legislation Senate Bill 350, which requires retail sellers and publicly owned utilities to procure 50 percent of their electricity from eligible renewable energy resources by 2030. Signed in 2018, SB 100 revised the program's goal to achieve the 50 percent renewable resources target by December 31, 2026 and a 60 percent renewable resources target by December 31, 2030. SB 100 also established a further goal to have an electric grid that is entirely powered by clean energy by 2045. Under the bill, the State cannot increase carbon emissions elsewhere in the western grid or allow resource shuffling to achieve the 100 percent carbon-free electricity target.

Impact Analysis

The impact analysis for energy consumption focuses on the three sources of energy that are relevant to the proposed project: electricity, transportation fuel for vehicle and truck trips, and the fuel necessary for off-road construction equipment. The analysis of electricity and fuel use is based on California Emissions Estimator Model (CalEEMod) project specific data (CAPCOA, 2022; see Attachment B – AIR QUALITY & GHG MODELING OUTPUTS).

The following includes an analysis of environmental parameters related to *Energy* based on Appendix G of the State CEQA Guidelines. The discussion not only includes the areas for which there is potential for environmental impacts but also provides justification for the conclusions that either no impacts, less than significant impacts, or less than significant impacts with mitigation could occur.

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

a) *Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?*

CONSTRUCTION

As described throughout this document, implementation of the proposed project would occur over a period of approximately 18 months and would include decommissioning of the existing wastewater treatment facility (WWTF) and the construction of a new WWTF approximately 1,500 feet to the east (see Section 2, PROJECT DESCRIPTION). Construction activity would include demolition activity for removal of the existing WWTF and excavation, grading, and installation of the components of the new WWTF. During the proposed construction activities, energy would be consumed in the form of petroleum-based fuels used to power off-road construction

[6] The Renewable Portfolio Standard is a flexible, market-driven policy to ensure that the public benefits of wind, solar, biomass, and geothermal energy continue to be realized as electricity markets become more competitive. The policy ensures that a minimum amount of renewable energy is included in the portfolio of electricity resources serving a state or country.

vehicles and equipment on the project site, construction worker travel and hauling truck trips to and from the project site, and to operate generators to provide temporary power for lighting and electronic equipment. Once construction activities are complete there is limited potential for the project to generate operational energy use.

Table 4-8, OFF-ROAD CONSTRUCTION EQUIPMENT DIESEL FUEL CONSUMPTION and Table 4-9, CONSTRUCTION PERIOD PETROLEUM FUEL CONSUMPTION provides an estimate of construction fuel consumption for the project based on the information provided by the CalEEMod emissions model (CAPCOA, 2022; see Attachment B – AIR QUALITY & GHG MODELING OUTPUTS).

Table 4-8
OFF-ROAD CONSTRUCTION EQUIPMENT DIESEL FUEL CONSUMPTION

Equipment[1]	Quantity[1]	Horsepower[1]	Load Factor[1]	Fuel Consumption Rate[2] (gallons per hour)	Duration[1] (total hours)	Total Fuel Consumption[3,4] (gallons)
Demolition						
Concrete/Industrial Saws	1	33	0.73	1.20	160	192.00
Excavators	3	36	0.38	0.68	480	326.40
Rubber Tired Dozers	2	367	0.40	7.34	320	2,348.80
					Subtotal[4]	***2,867.20***
Site Preparation						
Rubber Tired Dozers	3	367	0.40	7.34	480	3,523.20
Tractors/Loaders/Backhoes	4	84	0.37	1.55	640	992.00
					Subtotal[4]	***4,515.20***
Grading						
Excavators	1	36	0.38	0.68	520	353.60
Graders	1	148	0.41	3.03	520	1,576.60
Rubber Tired Dozers	1	367	0.40	7.34	520	3,816.80
Tactors/Loaders/Backhoes	3	84	0.37	1.55	1,560	2,418.00
					Subtotal[4]	***8,165.00***
Building Construction						
Cranes	1	367	0.29	5.32	707	3,761.24
Forklifts	3	82	0.20	0.82	2,424	1,987.68
Generators Sets	1	14	0.74	0.51	808	412.08
Tactors/Loaders/Backhoes	3	84	0.37	1.55	2,121	3,287.55
Welders	1	46	0.45	1.03	808	832.24
					Subtotal[4]	***10,280.79***
Paving						
Pavers	2	81	0.42	1.70	320	544.00
Paving Equipment	2	89	0.36	1.60	320	512.00
Rollers	2	36	0.38	0.68	320	217.60
					Subtotal[4]	***1,273.60***
Architectural Coating						
Air Compressors	1	37	0.48	0.88	144	69.12
					Subtotal[4]	***69.12***
Linear, Grubbing & Land Clearing						
Graders	1	148	0.41	3.03	84	254.52
					Subtotal[4]	***254.52***
Linear, Drainage Utilities, Sub-Grade						
Trenchers	1	40	0.5	1.00	84	84.00
					Subtotal[4]	***84.00***
					Total Diesel Usage[4]	***27,509.43***

1. Derived from CalEEMod modeling results (CAPCOA, 2022).
2. Derived using the following equation: *Fuel Consumption Rate = Horsepower x Load Factor x Fuel Consumption Factor.*
   Where: Fuel Consumption Factor for a diesel engine is 0.05 gallons per horsepower per hour (gal/hp/hr).
3. Derived using the following equation: *Total Fuel Consumption = Quantity of Equipment x Duration in Hours x Fuel Consumption Rate.*
4. Values may be slightly off due to rounding.

Table 4-9
CONSTRUCTION PERIOD PETROLEUM FUEL CONSUMPTION

Phase	Number of Daily Trips[1]	Number of Days[1]	Trip Commute Distance (in miles)[1]	Fuel Usage (miles per gallon)[2]	Gasoline/Diesel Usage (in gallons)[3,4]
Worker and Vendor Trips (Gasoline)					
Demolition	30	20	11.9	10	714
Site Preparation	35	20	11.9	10	833
Grading	30	65	11.9	10	2,321
Pipeline Preparation	5	14	11.9	10	83
Pipeline Installation	5	23	11.9	10	140
Building Construction	106	101	11.9	10	12,740
Paving	30	20	11.9	10	714
Architectural Coating	15	24	11.9	10	428
Trenching	5	30	11.9	10	179
				Total Gasoline Usage[4]	***18,152***
Hauling Trips (Diesel)					
Demolition	5	20	20	8	250
Site Preparation	11	20	20	8	550
Grading	4	65	20	8	650
Pipeline Installation	3	23	20	8	173
				Total Diesel Usage[4]	***1,623***

1. Derived from CalEEMod modeling results (CAPCOA, 2022).
2. This is a conservative estimate, as it assumes no electric, hybrid, or other alternative fuel vehicles in the fleet mix.
3. Derived using the following equation: *Gasoline/Diesel Usage = # of Daily Trips x # of Days x Avg. Round-Trip Distance / Fuel Usage*
4. Values may be off due to rounding.

As shown in Tables 4-8 and 4-9, off-road construction equipment and hauling trips would consume a total of approximately 27,509 gallons of diesel fuel over the project's construction period. Worker and vendor trips would consume a total of approximately 18,152 gallons of gasoline and hauling trips would consume a total of approximately 1,623 gallons of diesel fuel over the project's construction period. These fuels would be consumed over a period of approximately 18 months and would represent a small percentage of the total energy used in the State.

There are no unusual project characteristics that would need construction equipment or practices that would be less energy efficient than at comparable construction sites in the region or State. Construction activity would be temporary and fuel consumption would cease once construction ends. Due to the temporary nature of construction activities, the fuel and energy needed during the project would not be considered a wasteful or inefficient use of energy. As such, it is expected that construction energy consumption associated with the project would be comparable to other similar construction projects, and would therefore not be inefficient, wasteful, or unnecessary.

OPERATIONS

Energy use during operation of the wastewater system would relate primarily to wastewater treatment and pumping as well as maintenance activity by Town personnel. It is estimated that the new WWTF would use approximately 73,632 kWh of electricity per year. Besides electricity use at the new WWTF, energy resources required for the proposed project would primarily include the use of diesel and petroleum-based fuels during operational activities for employee vehicles and equipment. Individual permanent emergency generators would also be used in case of power failure for the new WWTF.

To reduce energy use at the new WWTF, the project will include Variable Frequency Drives (VFDs) for some of the proposed equipment (e.g., pumps, blowers, etc.). This energy management device improves efficiency, performance, and reliability of the system. For example, a VFD will reduce the frequency of the motor, thus reducing the speed and ultimately the discharge of the pumps. By reducing the frequency of the motor, significant energy savings are achievable. Another feature of a VFD is the integrated soft start feature. A VFD employs a soft start feature that conserves energy by gradually increasing the frequency of a pump and reducing the initial current surge when a pump starts. The soft start feature improves efficiency while also reducing stresses to the pump and other system components.

As such, it is expected that operational energy consumption associated with the project would be comparable to other similar wastewater treatment facilities, and would therefore not be inefficient, wasteful, or unnecessary.

CONCLUSION

Therefore, construction and operation of the proposed project would not result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation. Impacts would be less than significant in this regard.

b) *Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?*

As described throughout this document, implementation of the proposed project would occur over a period of approximately 18 months and would include decommissioning of the existing wastewater treatment facility (WWTF) and the construction of a new WWTF approximately 1,500 feet to the east (see Section 2, PROJECT DESCRIPTION). Once construction activities are complete there is limited potential for the project to result in operational energy use. Operational energy use is anticipated to result from the electrical services to the new WWTF and maintenance activities by Town personnel.

To reduce energy use at the new WWTF, the project will include Variable Frequency Drives (VFDs) for some of the proposed equipment (e.g., pumps, blowers, etc.). This energy management device improves efficiency, performance, and reliability of the system. For example, a VFD will reduce the frequency of the motor, thus reducing the speed and ultimately the discharge of the pumps. By reducing the frequency of the motor, significant energy savings are achievable. Another feature of a VFD is the integrated soft start feature. A VFD employs a soft start feature that conserves energy by gradually increasing the frequency of a pump and reducing the initial current surge when a pump starts. The soft start feature improves efficiency while also reducing stresses to the pump and other system components.

Based on the temporary nature of the proposed construction activity, the limited operational activity, and the proposed energy efficient equipment at the new WWTF, the proposed project would not conflict with or obstruct a State or local plan for renewable energy or energy efficiency. State and local agencies regulate the use and consumption of energy during construction and operational activity through various methods and programs. Impacts would be less than significant in this regard.

Mitigation Measures

No mitigation measures are required.

Findings

Based upon the review of the information above, implementation of the proposed project will have a less than significant with respect to *Energy*.

Documentation and References

CAPCOA (California Air Pollution Control Officer's Association). 2022. *California Emission Estimator Model (CalEEMod). Version 2022.1.1.44*. Model Run on 06/16/2026. [Online]: https://www.caleemod.com/.
SHN (SHN Consulting Engineers and Geologists). 2026. *Wastewater Facilities Plan Addendum No. 2*. June 2026.

Section VII – Geology and Soils

The purpose of this section of the Initial Study is to describe the geologic and seismic setting of the project area, identify potential impacts associated with implementation of the proposed project, and, as necessary, recommend mitigation to reduce the significance of impacts. The issues addressed in this section are risks associated with faults, strong seismic ground shaking, seismic-related ground failure such as liquefaction, landslides, and unstable geological units and/or soils.

Environmental Setting

REGIONAL GEOLOGY

Fort Jones is in the Klamath Mountains Province (KMP) of Northern California, which is comprised of arcuate volcanic arc terranes, oceanic crust, and deep-oceanic sediments that have been accreted (or welded) to the western margin of North America. The KMP is deformed with tight folds and abundant east-northeast verging thrust faults. Rock types found in the KMP include schists, serpentinites, greenstones and other metavolcanics and meta-volcaniclastics, argillaceous and arenaceous metasediments, and marbles. Fort Jones is in an area of the KMP dominated by metasedimentary rocks. Younger intrusive stocks and dikes are present in the KMP, but not within the Fort Jones area.

Fort Jones is located within the northern end of the Scott River Valley, a narrow alluvial floodplain extending approximately 25 miles long and varying in width between ½ and 4 miles. The valley is infilled with unconsolidated stream channel, floodplain, and alluvial fan deposits of recent age with some pockets of Pleistocene-aged alluvial deposits. Deposits range in thickness up to 400 feet thick in the central portion of the Valley (Mack, 1958). Bedrock can be observed outcropping adjacent to the Valley consisting of metamorphosed sedimentary rocks with minor igneous intrusive rock ranging in age from Middle Paleozoic to Cenozoic (Hotz, 1978).

SOILS

According to the United States Department of Agricultural (USDA) Web Soil Service, soils within the project site are characterized by the Atter very gravelly sandy loam, 0 to 5 percent slopes (78%), Stoner gravelly sandy loam, 0 to 2 percent slopes (6%), and Diyou loam drained (2%) (NRCS, 2026). In general, these soils are deep, somewhat excessively drained soil that formed in recent, rocky alluvium on alluvial fans and stream terraces in mountain valleys of northern California and southwestern Oregon. The USDA also defines 14% of the site as Riverwash, which is not a specific soil series but a classification of land areas that are frequently flooded, washed, and reworked by rivers and streams.

FAULTS

Active faults are defined as faults that have had surface displacement in the Holocene epoch (in the past 11,000 years) based on California Code of Regulations (CCR) Division 2, Title 14, also known as the Alquist-Priolo Earthquake Fault Zoning Act (A-P Act). Potentially active faults are defined by the A-P Act as faults showing surface displacement during mid to late Quaternary time (about 1.6 million years before present) that have a relatively high potential for ground rupture. In general, Quaternary faults that do not record evidence of Holocene surface displacement are not considered as being active by the State. In addition, the California Geologic Survey (CGS) evaluates the activity rating of a fault in fault evaluation reports (FER). FERs compile available geologic and seismologic data and evaluate if a fault should be zoned as active, potentially active, or inactive. If a FER evaluates a fault as active, then it is typically incorporated into a Special Studies Zone in accordance with the Alquist-Priolo Earthquake Hazards Act. The project site is not located within an Alquist-Priolo Earthquake Fault Zone and no active faults are known to pass through the project site (DOC, 2026a; 2026b).

Most mapped faults within the vicinity of the Fort Jones area, including the Soap Creek Ridge fault, are considered pre-Quaternary in age (no activity within the last 2.6 million years) (CGS, Interactive Fault Map). The closest mapped active (Holocene-aged) fault is the Yellow Butte fault, located approximately 28 miles east from the project site. Given that there are no known active faults within the Valley, the risk of surface fault rupture at the project site is considered very low (SHN, 2026a).

LANDSLIDES

The site is located on relatively level to gently sloping terrain approximately ½ mile east of Moffett Creek and the steep valley margin. Topographic survey data at the project site indicates a 0.3% slope gradient from east to west heading toward the Scott River (SHN, 2026a). According to DOC's Fire Perimeters and Deep Landslide Susceptibility Mapping, the project site is not identified as a very high landslide susceptibility area (DOC, 2026c).

LIQUEFACTION POTENTIAL

Liquefaction is a soil behavior phenomenon in which soil located below the groundwater table temporarily loses strength during and immediately after a seismic event because of strong earthquake ground motions. Recently deposited sediments (such as geologically young Holocene-aged sediments) consisting of relatively loose, saturated, non-cemented granular materials (such as those present in select intervals at the site) are most susceptible. Stiff, fine-grained clay-rich soils form the opposite end of the spectrum and are not susceptible to liquefaction.

Liquefaction occurs as seismic shear stresses propagate through a saturated soil and distort the soil structure, causing loosely packed groups of particles to contract or collapse. If drainage is impeded and cannot quickly occur, the collapsing soil structure increases the porewater pressure between the soil grains. When porewater pressures increase to a level approaching the weight of the overlying soil, the granular layer temporarily behaves as a viscous liquid rather than a solid. As strength is lost, there is an increased risk of settlement. Liquefaction-induced settlement occurs as the elevated porewater pressures dissipate and the soil consolidates after the earthquake. In addition to settlement, lateral spreading may occur where a steep embankment borders the edge of a bay or other water body.

Subsurface materials encountered within the upper 20 feet at the site predominantly consist of medium dense granular soils (gravels and sands), with fewer intervals of stiff to medium stiff clays. Portions of the soil profile were observed to be loose and saturated; however, these intervals consist primarily of gravels. Although gravels can be susceptible to liquefaction under certain conditions, liquefaction is more commonly associated with sandy soils. Gravels are generally considered to have low liquefaction susceptibility unless special conditions are present. Therefore, the risks associated with liquefaction at the site are considered to be low (SHN, 2026a).

Regulatory Setting

This section summarizes current federal, State, and local regulations relevant to the review of *Geology and Soils* for this project. Ordinances, regulations, or standards that are applicable to the environmental review of potential impacts related to geology and soils include the following:

ALQUIST-PRIOLO EARTHQUAKE FAULT ZONING ACT

The Alquist-Priolo Earthquake Fault Zoning Act was passed in 1972 (originally enacted as the Alquist-Priolo Special Studies Zones Act and renamed in 1994) and is intended to reduce the risk to life and property from surface fault rupture during earthquakes. The main purpose of the law is to prevent the construction of buildings used for human occupancy on the surface trace of active faults. The law only addresses the hazard of surface fault rupture and is not directed toward other earthquake hazards. The Alquist-Priolo Act requires the State Geologist to establish regulatory zones known as "Earthquake Fault Zones" around the surface traces of active faults and to issue appropriate maps. The maps are distributed to all affected cities, counties, and state agencies for their use in planning efforts. Local agencies must regulate most development projects within the zones. Projects include all land divisions and most structures for human occupancy.

CALIFORNIA BUILDING CODE

The California Building Code (CBC), which is codified in CCR Title 24, Part 2, was promulgated to safeguard the public health, safety, and general welfare by establishing minimum standards related to structural strength, egress facilities, and general building stability. The purpose of the CBC is to regulate and control the design, construction, quality of materials, use/occupancy, location, and maintenance of all building and structures within its jurisdiction.

Title 24 is administered by the California Building Standards Commission, which, by law, is responsible for coordinating all building standards. Under State law, all building standards must be centralized in Title 24 or they are not enforceable.

FORT JONES GENERAL PLAN, SAFETY ELEMENT

The purpose of the Fort Jones General Plan Safety Element is to introduce safety considerations into the planning process in order to reduce loss of life, injuries, property damage, and social and economic dislocation due to seismic activity, fire, flooding, and other natural hazards. The major safety concerns in the Fort Jones planning area are structural fires, wildfires, flooding, and the limited but possible impact of volcanic activity from Mount Shasta. The general plan determined several safety considerations are not relevant in the Fort Jones planning: seismically induced ground rupture, ground shaking, ground failure, subsidence, tsunami, seiche and dam failure.

SEISMIC HAZARD MAPPING ACT

The Seismic Hazard Mapping Act (SHMA) was adopted by the state in 1990 to protect the public from the effects of non-surface fault rupture earthquake hazards, including strong ground shaking, liquefaction, seismically induced landslides, or other ground failure caused by earthquakes. The goal of the act is to minimize loss of life and property by identifying and mitigating seismic hazards. The California Geological Survey prepares seismic hazard zone maps and provides them to local governments; these maps identify areas susceptible to amplified shaking, liquefaction, earthquake-induced landslides, and other ground failures. SHMA requires responsible agencies to only approve projects within seismic hazard zones following a site-specific investigation to determine if the hazard is present, and if so, the inclusion of appropriate mitigation(s). In addition, the SHMA requires real estate sellers and agents at the time of sale to disclose whether a property is within one of the designated seismic hazard zones.

SISKIYOU COUNTY HAZARD MITIGATION PLAN

The purpose of the Siskiyou County Hazard Mitigation Plan (2018) is to implement and sustain actions that reduce vulnerability and risk from hazards or reduce the severity of the effects of hazards on people and property. Mitigation actions are both short-term and long-term activities, which reduce the cause or occurrence of hazards; reduce exposure to hazards or reduce effects of hazards through various means to include preparedness, response, and recovery measures. The Hazard Mitigation Plan identifies all natural hazards within Siskiyou County, including earthquake, flood, wildfire, landslide/other earth movement, drought, severe weather/storm, dam failure, and volcano/lahar/ash fall hazards. The Plan's goal is to identify mitigation projects that will reduce the vulnerability and damage potential of each hazard. The Hazard Mitigation Plan was a collaborative planning effort between Siskiyou County, local jurisdictions and special districts within the County.

Impact Analysis

The following includes an analysis of environmental parameters related to *Geology and Soils* based on Appendix G of the State CEQA Guidelines. The discussion not only includes the areas for which there is potential for environmental impacts but also provides justification for the conclusions that either no impacts, less than significant impacts, or less than significant impacts with mitigation could occur.

Would the Project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
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 Publications 42.			**X**	

Would the Project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
ii) Strong seismic ground shaking?			X	
iii) Seismic-related ground failure, including liquefaction?			X	
iv) Landslides?			X	
b) Result in substantial soil erosion or the loss of topsoil?			X	
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?			X	
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?				X
e) Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?				X
f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?				X

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:

There are no Alquist-Priolo earthquake faults designated in the subject area of Siskiyou County. The proposed project involves improvements to the Town's wastewater treatment system. No impact would occur in this regard.

ii. Strong seismic ground shaking:

The entire northern California region is subject to the potential for moderate to strong seismic ground shaking due to both nearby and distant seismic sources. Earthquakes are caused by sudden slip along faults when accumulated stress in the Earth's crust is released in the form of seismic waves, which propagate through the crust and result in ground shaking. Seismic events may originate on faults located many miles from the project vicinity. In addition, renewed activity at Mount Shasta could be associated with localized seismicity and potential strong ground shaking. Accordingly, seismic shaking represents a regional hazard rather than a site-specific condition.

While all areas of California are subject to potential earthquake effects, the level of seismic shaking hazard at the project site is not considered greater than that experienced throughout the surrounding region. The project involves improvements to the Town's wastewater treatment system and would be designed in accordance with applicable California Building Code requirements. A design-level geotechnical investigation has been prepared for the project, which provides site-specific recommendations for grading, foundation design, and seismic resistance measures. Implementation of these recommendations would reduce the potential risks associated with strong ground shaking. Therefore, impacts related to seismic ground shaking would be less than significant.

iii. Seismic-related ground failure, including liquefaction:

Liquefaction occurs when saturated, unconsolidated, cohesionless soils lose strength in response to applied stress, such as earthquake shaking, resulting in a temporary loss of soil bearing capacity and potential ground failure. Liquefaction potential is generally associated with young alluvial deposits or stream channel sediments where groundwater is shallow and seismic shaking is sufficiently strong and sustained.

Although the project site is located within a seismically active region of northern California, the site is not considered highly susceptible to liquefaction due to the anticipated geologic conditions and depth to groundwater. Regional seismic sources are generally located at distances that are not expected to produce sufficiently long-duration strong ground shaking to induce widespread liquefaction. In addition, older volcanic deposits underlying portions of the region exhibit characteristics of competent bedrock and are not typically susceptible to liquefaction, and coarser-grained glacial outwash deposits are generally not prone to liquefaction due to their high permeability and low susceptibility to excess pore pressure buildup.

Implementation of the recommendations contained in the project-specific geotechnical investigation (SHN, 2026), along with compliance with applicable California Building Code requirements, would reduce the potential for seismic-related ground failure, including liquefaction, to a less than significant level.

iv. Landslides:

As previously mentioned above under *Environmental Setting*, the project site is not identified as a very high landslide susceptibility area (DOC, 2026c). No impact would occur in this regard.

b) *Result in substantial soil erosion or the loss of topsoil?*

Construction of the proposed project would involve excavation, grading, and installation of project components, which would result in temporary disturbance of soils and exposure of disturbed areas to potential storm events. These conditions could result in accelerated surface runoff, localized erosion, and sedimentation. In addition, construction activities could expose soils to wind erosion, which could adversely affect onsite soil stability and post-construction revegetation potential.

Earthwork, grading, and soil stockpiling activities would be conducted in accordance with the conditions of a grading permit issued by the Town of Fort Jones and a Construction Stormwater Pollution Prevention Plan (SWPPP) and Notice of Intent (NOI) administered by the North Coast Regional Water Quality Control Board (NCRWQCB). The SWPPP would identify and require implementation of Best Management Practices (BMPs) for erosion and sediment control to minimize potential impacts on downstream water quality and aquatic resources.

Standard BMPs may include, but are not limited to, limiting construction activities to the dry season where feasible; preserving existing vegetation where appropriate; installation of straw wattles, silt fences, and/or gravel berms to reduce sediment transport; implementation of spill prevention and containment measures to prevent release of fuels, oils, and other hazardous materials; and revegetation of disturbed areas following completion of construction. Because BMPs for erosion and sediment control would be implemented in accordance with applicable regulatory requirements, the potential for soil erosion and loss of topsoil would be less than significant.

c) *Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?*

Refer to impact discussion VII.a, above. Impacts would be less than significant.

d) *Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?*

Expansive soils are characterized by a high shrink-swell potential, expanding when wet and contracting when dry, which can result in damage to foundations and other structural improvements. Expansive soils are not known to occur at the project site or in the surrounding vicinity. Soil mapping prepared by the Natural Resources Conservation Service does not identify the presence of expansive soil units in the project area (NRCS, 2026). Therefore, no impact would occur in this regard.

e) ***Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?***

The project does not propose the installation or use of alternative wastewater disposal systems. Therefore, no impact would occur in this regard.

f) ***Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?***

No paleontological resources or unique geologic features are known to exist on the project site, and the potential for their occurrence is considered minimal. Therefore, no impact would occur in this regard.

Mitigation Measures

No mitigation measures are required.

Findings

Based upon the review of the information above, implementation of the proposed project will have a less than significant impact with respect to *Geology and Soils*.

Documentation and References

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Fort Jones (Town of Fort Jones). 2006. *Town of Fort Jones General Plan, Safety Element*. January 2006.

NRCS (Natural Resources Conservation Service). 2026.*Web Soil Survey Report- Lake Shastina Area, California.* [Online]: https://websoilsurvey.nrcs.usda.gov/app/. Accessed February 20, 2026.

SCOES (Siskiyou County Office of Emergency Services). 2018a. *Hazard Mitigation Plan Volume 1: Planning Area Wide Elements*. August 2018.

SCOES. 2018b. *Hazard Mitigation Plan Volume 2: Planning Partner Annexes*. August 2018.

SHN (SHN Consulting Engineers and Geologists). 2026a. *Geotechnical Investigation Report – Proposed Wastewater Treatment Facility, Siskiyou County, Fort Jones, California*. January 2026.

SHN. 2026b. *Wastewater Facilities Plan Addendum No. 2*. June 2026.

Siskiyou. 2026. *Siskiyou County Geographic Information System*. [Online]: https://www.co.siskiyou.ca.us/gis. Accessed February 20, 2026.

Section VIII – Greenhouse Gas Emissions

This section of the Initial Study evaluates greenhouse gas (GHG) emissions associated with the proposed project and analyzes project compliance with applicable regulations. Consideration of the project's consistency with applicable plans, policies, and regulations, as well as the introduction of new sources of GHGs, is included in this section.

Environmental Setting

"Global warming" and "global climate change" are the terms used to describe the increase in the average temperature of the earth's near-surface air and oceans since the mid-20th century and its projected continuation. Warming of the climate system is now considered to be unequivocal, with global surface temperature increasing approximately 1.33 degrees Fahrenheit (°F) over the last 100 years. Continued warming is projected to increase global average temperature between 2 and 11°F over the next 100 years.

Natural processes and human actions have been identified as the causes of this warming. The International Panel on Climate Change (IPCC) concludes that variations in natural phenomena such as solar radiation and volcanoes produced most of the warming from pre-industrial times to 1950 and had a small cooling effect afterward.[7] After 1950, however, increasing GHG concentrations resulting from human activity such as fossil fuel burning, and deforestation have been responsible for most of the observed temperature increase. These basic conclusions have been endorsed by more than 45 scientific societies and academies of science, including all the national academies of science of the major industrialized countries. Since 2007, no scientific body of national or international standing has maintained a dissenting opinion.

Increases in GHG concentrations in the earth's atmosphere are thought to be the main cause of human-induced climate change. The IPCC is now 95 percent certain that humans are the main cause of current global warming.[8] GHG naturally trap heat by impeding the exit of solar radiation that has hit the earth and is reflected back into space. Some GHG occur naturally and are necessary for keeping the earth's surface inhabitable. However, increases in the concentrations of these gases in the atmosphere during the last 100 years have decreased the amount of solar radiation that is reflected into space, intensifying the natural greenhouse effect, and resulting in the increase of global average temperature.

Gases that trap heat in the atmosphere are referred to as GHG because they capture heat radiated from the sun as it is reflected back into the atmosphere, much like a greenhouse does. The accumulation of GHG has been implicated as the driving force for global climate change. The primary GHG are carbon dioxide (CO_2), methane (CH_4), and nitrous oxide (N_2O), ozone, and water vapor.

While the presence of the primary GHG in the atmosphere are naturally occurring, CO_2, CH_4, and N_2O are also emitted from human activities, accelerating the rate at which these compounds occur within earth's atmosphere. Emissions of CO_2 are largely by-products of fossil fuel combustion, whereas methane results from off-gassing associated with agricultural practices, coal mines, and landfills. Other GHG include hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride, and are generated in certain industrial processes.

CO_2 is the reference gas for climate change because it is the predominant GHG emitted. The effect that each of the aforementioned gases can have on global warming is a combination of the mass of their emissions and their global warming potential (GWP). GWP indicates, on a pound-for-pound basis, how much a gas is predicted to contribute to global warming relative to how much warming would be predicted to be caused by the same mass of CO_2. CH_4 and N_2O are substantially more potent GHG than CO_2, with GWP of 28 and 265 times that of CO_2, respectively.[9]

[7] IPCC, *2014: Climate Change 2014: Synthesis Report. Contribution of Working Groups I, II and III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change*, https://www.ipcc.ch/site/assets/uploads/2018/05/SYR_AR5_FINAL_full_wcover.pdf
[8] IPCC, *2014: Climate Change 2014: Synthesis Report. Contribution of Working Groups I, II and III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change*, https://www.ipcc.ch/site/assets/uploads/2018/05/SYR_AR5_FINAL_full_wcover.pdf
[9] IPCC, *2014: Climate Change 2014: Synthesis Report. Contribution of Working Groups I, II and III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change*, https://www.ipcc.ch/site/assets/uploads/2018/05/SYR_AR5_FINAL_full_wcover.pdf

In emissions inventories, GHG emissions are typically reported in terms of pounds or metric tons (MT) of CO_2 equivalents (CO_2e). CO_2e are calculated as the product of the mass emitted of a given GHG and its specific GWP. While CH_4 and N_2O have much higher GWP than CO_2, CO_2 is emitted in such vastly higher quantities that it accounts for the majority of GHG emissions in CO_2e.

Regulatory Setting

This section summarizes current federal, State, and local regulations relevant to the review of *Greenhouse Gas Emissions* for this project. Ordinances, regulations, or standards that are applicable to the environmental review of potential impacts related to greenhouse gases include the following:

ASSEMBLY BILL 32 (CALIFORNIA GLOBAL WARMING SOLUTIONS ACT OF 2006)

The primary legislation that has driven GHG regulation and analysis in California is the California Global Warming Solutions Act of 2006 (AB 32; California Health and Safety Code Division 25.5, Sections 38500 - 38599), which instructs CARB to develop and enforce regulations for the reporting and verifying of statewide GHG emissions. The act directed CARB to set a greenhouse gas emissions limit based on 1990 levels, to be achieved by 2020. The bill set a timeline for adopting a scoping plan for achieving GHG reductions in a technologically and economically feasible manner.

CALIFORNIA BUILDING ENERGY EFFICIENCY STANDARDS AND GREEN BUILDING STANDARDS

Title 24 of the California Code of Regulations regulates how each new home and business is built or altered in California. It includes requirements for the structural, plumbing, electrical, and mechanical systems of buildings, and for fire and life safety, energy conservation, green design, and accessibility in and about buildings. Two sections of Title 24 – Part 6, the California Energy Code, and Part 11, the California Green Building Standards Code or CalGreen Code – contain standards that address GHG emissions related to construction. The current 2025 Title 24 standards became effective January 1, 2026.

CARB CLIMATE CHANGE SCOPING PLAN

The California Air Resources Board (CARB) adopted the Scoping Plan to achieve the goals of AB 32. The Scoping Plan establishes an overall framework for the measures that would be adopted to reduce California's GHG emissions. CARB determined that achieving the 1990 emissions level would require a reduction of GHG emissions of approximately 29 percent below what would otherwise occur in 2020 in the absence of new laws and regulations (referred to as "business-as-usual"). The Scoping Plan functions as a roadmap to achieve GHG reductions in California required by AB 32 through subsequently enacted regulations. AB 32 requires CARB to update the Scoping Plan at least once every five years. CARB adopted the first major update to the Scoping Plan on May 22, 2014. The May 2014 updated Scoping Plans summarized science related to climate change, including anticipated impacts to California and the levels of GHG reduction necessary to likely avoid risking irreparable damage. The second major Scoping Plan update was on December 14, 2017, which identified the actions California has already taken to reduce GHG emissions and focuses on areas where further reductions could be achieved to reduce the GHG emissions by 40 percent from the 1990 levels by 2030. In December 2022, CARB adopted a third update to the Scoping Plan[10]. The 2022 Scoping Plan details how the State will achieve carbon neutrality and reduce anthropogenic GHG emissions by 85 percent below the 1990 levels by 2045, as directed by AB 1279.

CALIFORNIA RENEWABLE PORTFOLIO STANDARD

In 2002, California established a Renewable Portfolio Standard (RPS) that requires a retail seller of electricity to include in its resource portfolio a certain amount of electricity from renewable energy sources, such as wind, geothermal, small hydro, and solar energy. The retailer can satisfy this obligation by using renewable energy from its own facilities, purchasing renewable energy from another supplier's facilities, using Renewable Energy Credits (RECs) that certify renewable energy has been created, or a combination of all of these. California's RPS

[10] California Air Resources Board, *California's 2022 Climate Change Scoping Plan, https://ww2.arb.ca.gov/sites/default/files/2023-04/2022-sp.pdf*. Accessed July 11, 2024.

requirements have been accelerated and expanded a number of times since the program's inception. Most recently, then-Governor Jerry Brown signed into law Senate Bill (SB) 100 in September 2018, which requires utilities to procure 60 percent of their electricity from renewables by 2030 and sets as a state policy that state agencies and end-use retail customers receive 100 percent of energy from renewable and zero-carbon resources by 2045. In addition, SB 350 requires California utilities to develop Integrated Resource Plans (IRPs) that incorporate a GHG emission reduction planning component. Compliance with the California RPS requires Pacific Gas and Electric (PG&E) to develop and implement an IRP that demonstrates they are on schedule to comply with the goals of providing 60 percent renewable sources by 2030. To ensure retail sellers meet their RPS requirement, the California Public Utilities Commission (CPUC) is responsible for establishing enforcement procedures and imposing penalties for non-compliance with the program.

EXECUTIVE ORDER B-30-15

In April 2015, Governor Edmund G. Brown, Jr. signed Executive Order B-30-15 in order to establish an interim GHG reduction goal for California of 40 percent below 1990 levels by 2030. This target GHG reduction by 2030 would make it possible for California to reach the ultimate goal of reducing GHG emissions by 80 percent under 1990 levels by the year 2050.

EXECUTIVE ORDER S-3-05

In 2005, in recognition of California's vulnerability to the effects of climate change, then-Governor Arnold Schwarzenegger established Executive Order S-3-05. This order sets forth target dates by which statewide GHG emissions would be reduced. These include by 2010, reduce GHG emissions to 2000 levels; by 2020, reduce GHG emissions to 1990 levels; and by 2050, reduce GHG emissions to 80 percent below 1990 levels.

SENATE BILL 32

On September 8, 2016, Governor Jerry Brown signed Senate Bill 32 (Pavley - Chapter 249, Stats. of 2016), requiring California to reduce GHG emissions to 40 percent below 1990 levels by 2030. SB 32 states that: "In adopting rules and regulations to achieve the maximum technologically feasible and cost-effective greenhouse gas emissions reductions authorized by this division, the state [air resources] board shall ensure that statewide greenhouse gas emissions are reduced to at least 40 percent below the statewide greenhouse gas emissions limit no later than December 31, 2030." SB 32 codifies the interim target created by EO B-30-15 for 2030.

Impact Analysis

At this time, neither the SCAPCD nor Siskiyou County has adopted numerical thresholds of significance for GHG emissions that would apply to the proposed project. Additionally, there is no Climate Action Plan that has been adopted by the County and is applicable to the proposed project. However, it is recommended that all projects subject to CEQA review be considered in the context of GHG emissions and climate change impacts, and that CEQA documents include a quantification of GHG emissions from all project sources, as well as minimize and mitigate GHG emissions as feasible. The project would generate GHG emissions through short-term construction activities and long-term operational activities.

In light of the lack of established GHG emissions thresholds that would apply to the proposed project, CEQA allows lead agencies to identify thresholds of significance applicable to a project that are supported by substantial evidence. Substantial evidence is defined in the CEQA statute to mean "facts, reasonable assumptions predicated on facts, and expert opinion supported by facts" (14 CCR 15384[b]).[11] Substantial evidence can be in the form of technical studies, agency staff reports or opinions, expert opinions supported by facts, and prior CEQA assessments

[11] 14 CCR 15384 provides the following discussion: "Substantial evidence" as used in the Guidelines is the same as the standard of review used by courts in reviewing agency decisions. Some cases suggest that a higher standard, the so called "fair argument standard" applies when a court is reviewing an agency's decision whether to prepare an EIR. Public Resources Code section 21082.2 was amended in 1993 (Chapter 1131) to provide that substantial evidence shall include "facts, reasonable assumptions predicated upon facts, and expert opinion supported by facts." The statute further provides that "argument, speculation, unsubstantiated opinion or narrative, evidence which is clearly inaccurate or erroneous, or evidence of social or economic impacts which do not contribute to, or are not caused by, physical impacts on the environment, is not substantial evidence."

and planning documents. Therefore, to establish additional context in which to consider the order of magnitude of the proposed project's GHG emissions, this analysis accounts for the following considerations by other government agencies and associations about what levels of GHG emissions constitute a cumulatively considerable incremental contribution to climate change:

- Sacramento Metropolitan Air Quality Management District established thresholds, including 1,100 metric tons of CO_2e per year for the construction phase of development projects, or 10,000 direct metric tons of CO_2e per year from the operation of stationary source projects.[12]

- Placer County Air Pollution Control District recommends a tiered approach to determine if a project's GHG emissions would result in a significant impact. First, project GHG emissions are compared to the de minimis level of 1,100 metric tons of CO_2e per year. If a project does not exceed this threshold, it does not have significant GHG emissions. If the project exceeds the de minimis level and does not exceed the 10,000 metric tons of CO_2e per year bright line threshold, then the project's GHG emissions can be compared to the efficiency thresholds. These thresholds are 26.5 metric tons of CO_2e per 1,000 square feet for non-residential projects in an urban area, and 27.3 metric tons of CO_2e per 1,000 square feet for non-residential projects in a rural area.[13]

As described, the 1,100 metric tons of CO_2e per year threshold is used by other air districts for the construction and operation of land use development projects. Therefore, the proposed project's GHG emissions were compared to the 1,100 metric tons of CO_2e per year quantitative threshold. The substantial evidence for this GHG emissions threshold is based on the expert opinion of various California air districts, which have applied the 1,100 metric tons of CO_2e per year threshold in numerous CEQA documents where those air districts were the lead agency.

The following includes an analysis of environmental parameters related to *Greenhouse Gas Emissions* based on Appendix G of the State CEQA Guidelines. The discussion not only includes the areas for which there is potential for environmental impacts but also provides justification for the conclusions that either no impacts, less than significant impacts, or less than significant impacts with mitigation could occur.

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

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

As described throughout this document, implementation of the proposed project would occur over a period of approximately 18 months and would include decommissioning of the existing wastewater treatment facility (WWTF) and the construction of a new WWTF approximately 1,500 feet to the east (see Section 2, PROJECT DESCRIPTION). The project would result in a temporary increase in GHG emissions during construction activities, including but not limited to exhaust emissions from worker commute vehicles, and off-road heavy-duty equipment. Once construction activities are complete there is limited potential for the project to generate operational GHG emission impacts. Operational emissions are anticipated to result from maintenance activities by Town personnel. The proposed project would generate both direct and indirect GHG emissions. Direct GHG emissions include emissions from construction activities, area sources, and mobile (vehicles and equipment) sources. Indirect GHG emissions include emissions from energy consumption, solid waste, and water demand.

[12] Sacramento Metropolitan Air Quality Management District, Guide to Air Quality Assessment in Sacramento County - SMAQMD Thresholds of Significance Table, April 2020, https://www.airquality.org/LandUseTransportation/Documents/CH2ThresholdsTable4-2020.pdf
[13] Placer County Air Pollution Control District, 2017 CEQA Handbook – Chapter 2, Thresholds of Significance. https://placerair.org/DocumentCenter/View/2047/Chapter-2-Thresholds-of-Significance-PDf

Construction and operational emissions for the proposed project were estimated using the California Emissions Estimator Model (CalEEMod), which is a statewide land use emissions computer model designed to provide a uniform platform for government agencies to quantify potential GHG emissions associated with both construction and operation of a variety of land use projects (CAPCOA, 2022; see Attachment B – AIR QUALITY & GHG MODELING OUTPUTS). The model applies inherent default values for various land uses, including trip generation rates based on the Institute of Transportation Engineers (ITE) Manual, vehicle mix, trip length, average speed, etc. However, where project-specific data is available, such data should be input into the model. Project-specific information from Section 2.0, PROJECT DESCRIPTION, where available, was input into the model. Otherwise, where project-specific information was not available, the model default values were used for estimating emissions from the project.

Table 4-10, ANNUAL GHG EMISSIONS FROM CONTRUCTION AND OPERATIONAL (UNMITIGATED) presents the estimates of unmitigated annual GHG emissions from the proposed construction and operational activities as compared to the 1,100 $MTCO_2e$/yr threshold of significance.

Table 4-10
ANNUAL GHG EMISSIONS FROM CONSTRUCTION AND OPERTATION (UNMITIGATED)

Project Phase	GHG Emission ($MTCO_2e$/yr)[1]	Threshold of Significance ($MTCO_2e$/yr)[2]	Significant Impact?
Construction	338	1,100	No
Operations	45	1,100	No

1. Derived from CalEEMod modeling results (CAPCOA, 2022).
2. SMAQMD, 2026; PCAPCD, 2017.

As indicated in Table 4-10, the construction and operational GHG emissions from the proposed project are well below the threshold of significance of 1,100 $MTCO_2e$/yr used by multiple air districts in the State. Therefore, the proposed project would not generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment. Impacts are less than significant in this regard.

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

As described throughout this document, implementation of the proposed project would occur over a period of approximately 18 months and would include decommissioning of the existing wastewater treatment facility (WWTF) and the construction of a new WWTF approximately 1,500 feet to the east (see Section 2, PROJECT DESCRIPTION). The proposed project would result in GHG emissions from construction and operations. A GHG impact would be significant if the project would conflict with an applicable plan, policy, or regulation for the purpose of reducing GHG emissions.

The proposed project is subject to myriad State and local regulations applicable to project design, construction, and operation that would reduce GHG emissions, increase energy efficiency, and provide compliance with the CARB Climate Change Scoping Plan (CARB, 2022). The State of California has the most comprehensive GHG regulatory requirements in the United States, with laws and regulations requiring reductions that affect project emissions. Legal mandates to reduce GHG emissions from vehicles, for example, reduce project-related vehicular emissions. Legal mandates to reduce per capita water consumption and impose waste management standards to reduce methane and other GHGs from solid wastes are all examples of mandates that reduce GHGs.

As discussed above under impact discussion VIII.a, GHG emissions from the proposed project's construction and operational activity are well below the threshold of significance of 1,100 MTCO2e/yr that is used by several air districts in the state to determine the significance of impacts from GHG emissions. As such, construction and operational emissions from the proposed project would be less than significant and would not conflict with any plans, policies, or regulations related to GHG emissions.

To reduce energy use at the new WWTF, the project will include Variable Frequency Drives (VFDs) for some of the proposed equipment (e.g., pumps, blowers, etc.). This energy management device improves efficiency, performance, and reliability of the system. For example, a VFD will reduce the frequency of the motor, thus reducing

the speed and ultimately the discharge of the pumps. By reducing the frequency of the motor, significant energy savings are achievable. Another feature of a VFD is the integrated soft start feature. A VFD employs a soft start feature that conserves energy by gradually increasing the frequency of a pump and reducing the initial current surge when a pump starts. The soft start feature improves efficiency while also reducing stresses to the pump and other system components. These energy efficiency features at the new WWTF would reduce indirect GHG emissions generated by electricity consumption during project operation and provide consistency with the goals of the CARB Scoping Plan related to reducing GHG emissions from the public utility sector (CARB, 2022).

Therefore, the proposed project as designed and in compliance with existing laws and regulations, would not generate GHG emissions that would conflict with an applicable plan, policy, or regulation for the purpose of reducing GHG emissions. Impacts would be less than significant in this regard.

Mitigation Measures

No mitigation measures are required.

Findings

Based upon the review of the information above, implementation of the proposed project will have a less than significant impact with respect to *Greenhouse Gas Emissions*.

Documentation and References

CAPCOA (California Air Pollution Control Officer's Association). 2022. *California Emission Estimator Model (CalEEMod). Version 2022.1.1.44*. Model Run on 06/16/2026. [Online]: https://www.caleemod.com/.

CARB (California Air Resources Board). 2022. *2022 Scoping Plan for Achieving Carbon Neutrality*. [Online]: https://ww2.arb.ca.gov/our-work/programs/ab-32-climate-change-scoping-plan/2022-scoping-plan-documents.

SHN (SHN Consulting Engineers and Geologists). 2026b. *Wastewater Facilities Plan Addendum No. 2*. June 2026.

Section IX – Hazards and Hazardous Materials

Hazards are those physical safety factors that can cause injury or death, and while by themselves in isolation may not pose a significant safety hazard to the public, when combined with development of projects can exacerbate hazardous conditions. Hazardous materials are typically chemicals or processes that are used or generated by a project that could pose harm to people working at the site or on adjacent areas. Many of these chemicals can cause hazardous conditions to occur should they be improperly disposed of or accidentally spilled as part of project development or operations.

Hazardous materials refer generally to hazardous substances, hazardous waste, and other materials that exhibit corrosive, poisonous, flammable, and/or reactive properties and have the potential to harm human health and/or the environment. The term "hazardous materials" as used in this section includes all materials defined in the California Health and Safety Code Section 25501(n): *"A material that, because of its quantity, concentration, or physical or chemical characteristics, poses a significant present or potential hazard to human health and safety or to the environment if released into the workplace or the environment. 'Hazardous materials' include, but are not limited to, hazardous substances, hazardous waste, and any material that a handler or the unified program agency has a reasonable basis for believing that it would be injurious to the health and safety of persons or harmful to the environment if released into the workplace or the environment."*

The purpose of this section of the Initial Study is to identify, to the extent feasible, the potential for hazards associated with historic and current site uses, surrounding sites, and recognized environmental conditions in connection with the project site and to identify potential risks to human health.

Environmental Setting

EMERGENCY RESPONSE

Emergency response plans include elements to maintain continuity of government, emergency functions of governmental agencies, mobilization and application of resources, mutual aid, and public information. Emergency response plans are maintained at the federal, State, and local levels for all types of disaster, both natural and human caused. Local governments have the primary responsibility for preparedness and response activities. The primary evacuation route out of Fort Jones is Highway 3, northbound to Yreka and southbound towards the town of Etna. Scott River Road and Eastside Road could also serve as evacuation routes. Schools, churches, and community centers in Yreka and Etna, and the Siskiyou County Fairgrounds in Yreka, could serve as safe locations for evacuees during a hazard event. The proposed project is located immediately adjacent to Scott River Road that is identified an adopted emergency evacuation route in the Siskiyou County General Plan Safety Element (Siskiyou, 2025).

FIRE PROTECTION

Fort Jones has its own fire department manned by a volunteer staff. Mutual Aid agreements with surrounding communities and CAL FIRE have been enacted to assist the local fire department in the event of a large fire (Fort Jones, 2006). The Town also includes a large surrounding area of State Responsibility Area (SRA) lands that are primarily CAL FIRE's responsibility for fire protection (CAL FIRE, 2026). Where local fire protection agencies are responsible for wildfire protection, the land is classified as a Local Responsibility Area (LRA). The project site is located within a Local Responsibility Area (LRA) (CAL FIRE, 2026).

CAL FIRE has mapped areas of significant fire hazards in the state through its Fire and Resources Assessment Program (FRAP). These maps place areas of the state into different fire hazard severity zones (FHSZ) based on a hazard scoring system using subjective criteria for fuels, fire history, terrain influences, housing density, and occurrence of severe fire weather where urban conflagration could result in catastrophic losses. This classification system designates lands in three general classifications, "Moderate", "High" and "Very High" Fire Hazard Severity Zones. The FRAP identifies the project area as a very high fire hazard severity zone (CAL FIRE, 2026).

HAZARDOUS MATERIALS

The US Environmental Protection Agency (EPA) maintains the Enforcement and Compliance History Online (ECHO) program. The ECHO website provides environmental regulatory compliance and enforcement information for approximately 800,000 regulated facilities nationwide. The ECHO website includes environmental permit, inspection, violation, enforcement action, and penalty information about EPA-regulated facilities. Facilities included on the site are Clean Air Act (CAA) stationary sources; Clean Water Act (CWA) facilities with direct discharge permits, under the National Pollutant Discharge Elimination System; generators and handlers of hazardous waste, regulated under the Resource Conservation and Recovery Act (RCRA); and public drinking water systems, regulated under the Safe Drinking Water Act (SDWA). ECHO also includes information about EPA cases under other environmental statutes. When available, information is provided on surrounding demographics, and ECHO includes other EPA environmental data sets to provide additional context for analyses, such as Toxics Release Inventory data. According to the ECHO program, the project site and adjoining properties are not listed as having a hazardous materials violation (EPA, 2026).

Under Government Code Section 65962.5, both the California Department of Toxic Substances Control (DTSC) and the State Water Resources Control Board (SWRCB) are required to maintain lists of sites known to have hazardous substances present in the environment. Both agencies maintain up-to-date lists on their websites. A search of the DTSC and SWRCB lists identified no open cases of hazardous waste violations onsite or within ½-mile of the site (DTSC, 2026; SWRCB, 2026). One former leaking underground storage tank clean-up site is located within ¼-mile of the site along Bridge Street. Remedial activities have been completed and case has been closed by the SWRCB.

The Siskiyou County Environmental Health Department (EHD) is the administering agency and the Certified Unified Program Agency (CUPA) for Siskiyou County with responsibility for regulating hazardous materials handlers, hazardous waste generators, underground storage tank facilities, above ground storage tanks, and stationary sources handling regulated substances. A Hazardous Materials Business Plan (HMBP) is required of businesses in Siskiyou County that handle, use, generate, or store hazardous materials. The primary purpose of this plan is to provide readily available information regarding the location, type, and health risks of hazardous materials to emergency response personnel, authorized government officials, and the public. Large cases of hazardous materials contamination or violations are referred to the North Coast Regional Water Quality Control Board (NCRWQCB) and the DTSC.

Regulatory Setting

Hazardous materials and wastes can pose a significant actual or potential hazard to human health and the environment when improperly treated, stored, transported, disposed of, or otherwise managed. Many federal, State, and local programs that regulate the use, storage, and transportation of hazardous materials and hazardous waste are in place to prevent these unwanted consequences. These regulatory programs are designed to reduce the danger that hazardous substances may pose to people and businesses under normal daily circumstances and as a result of emergencies and disasters.

Current federal, State, and local regulations relevant to the review of *Hazards and Hazardous Materials* for this project are summarized below. Ordinances, regulations, or standards that are applicable to the environmental review of potential impacts related to hazards and hazardous materials include the following:

CALIFORNIA BUILDING CODE

The State of California provided a minimum standard for building design through the California Building Code (CBC), which is in Part 2 of Title 24 of the California Code of Regulations. Commercial buildings are plan-checked by the County for compliance with the CBC. Typical fire safety requirements of the CBC included the installation of sprinklers, establishment of fire resistance standards for fire doors, certain building materials, and particular types of construction, and the clearance of debris and vegetation within a prescribed distance from occupied structures in wildlife hazard areas.

CALIFORNIA DEPARTMENT OF FORESTRY AND FIRE PROTECTION

The California Department of Forestry and Fire Protection (CAL FIRE) has mapped fire threat potential throughout California. CAL FIRE ranks fire threat based on the availability of fuel and the likelihood of an area burning (based on topography, fire history, and climate). The rankings include no fire threat, moderate, high, and very high fire threat. CAL FIRE produced the 2010 Strategic Fire Plan for California, with goals, objectives, and policies to prepare for and mitigate the effects of fire on California's natural and built environments.

CALIFORNIA DIVISION OF OCCUPATIONAL SAFETY AND HEALTH

Like OSHA at the federal level, the California Division of Occupational Safety and Health (Cal/OSHA) is the responsible State-level agency for ensuring workplace safety. Cal/OSHA assumes primary responsibility for the adoption and enforcement of standards regarding workplace safety and safety practices. In the event that a site is contaminated, a site safety plan must be crafted and implemented to protect the safety of workers. Site safety plans establish policies, practices, and procedures to prevent the exposure of workers and members of the public to hazardous materials originating from contaminated sites or buildings.

CALIFORNIA ENVIRONMENTAL PROTECTION AGENCY

One of the primary agencies that regulate hazardous materials is the Cal EPA. The State, through Cal EPA, is authorized by the EPA to enforce and implement certain federal hazardous materials laws and regulations. The California DTSC, a department of the Cal EPA, protects California and Californians from exposure to hazardous waste, primarily under the authority of the RCRA and the California Health and Safety Code. The DTSC requirements include the need for written programs and response plans, such as Hazardous Materials Business Plans. DTSC programs include dealing with cleanups of improper hazardous waste management; evaluation of samples taken from sites; enforcement of regulations regarding use, storage, and disposal of hazardous materials; and encouragement of pollution prevention.

CALIFORNIA FIRE CODE

The California Fire Code (CFC) is Part 9 of the California Building Standards Code (California Code of Regulations, Title 24). Updated every 3 years, the CFC includes provisions and standards for emergency planning and preparedness, fire service features, fire protection systems, hazardous materials, fire flow requirements, and fire hydrant locations and distribution. Similar to the CBC, the CFC is generally adopted on a jurisdiction-by-jurisdiction basis, subject to further modification based on local conditions.

CALIFORNIA VEHICLE CODE

The State of California regulates the transportation of hazardous waste originating or passing through the state. Common carriers are licensed by the California Highway Patrol (CHP) pursuant to the California Vehicle Code, Section 32000. This section requires licensing for every motor (common) carrier who transports, for a fee, in excess of 500 pounds of hazardous materials at one time and every carrier, if not for hire, carries more than 1,000 pounds of hazardous material of the type requiring placards. Common carriers conduct a large portion of the business in the delivery of hazardous materials.

EMERGENCY RESPONSE TO HAZARDOUS MATERIALS INCIDENTS

To coordinate emergency services provided by local, state, and federal agencies, California has developed an Emergency Response Plan pursuant to the Emergency Services Act. The Plan is administered by the state Office of Emergency Services. Local agencies are required to develop area plans for an organized response to releases of hazardous materials that are dependent on Business Plans submitted by handlers of hazardous materials and waste within that agency's area. Pursuant to California Health and Safety Code, Section 25503(a) and CCR Section 2729, any business handling hazardous material must establish and implement a Hazardous Materials Business Plan. These Business Plans are then submitted to the local administering agency. In the County, the administering agency is Siskiyou County Environmental Health Department.

SISKIYOU COUNTY EMERGENCY OPERATIONS PLAN

The Siskiyou County Emergency Operations Plan (EOP) establishes procedures for responding to various emergency situations, including regional flooding, nuclear power plant incident, volcanic activity, tsunami/seiche waves, hazardous materials incident, nuclear defense emergency, dam failure, approaching wildland fire, and seismic activity.

SISKIYOU COUNTY HAZARD MITIGATION PLAN

The Siskiyou County Hazard Mitigation Plan (HMP) is a multi-jurisdictional planning document developed to identify natural and human-caused hazards that may affect Siskiyou County and to establish strategies for reducing long-term risk to people, property, critical infrastructure, and natural resources. The Plan is prepared in accordance with the Disaster Mitigation Act of 2000 (DMA 2000) and is periodically updated to maintain Federal Emergency Management Agency (FEMA) approval and eligibility for hazard mitigation funding. The primary purpose of the HMP is to reduce or eliminate long-term risk from identified hazards through coordinated mitigation actions. Key objectives of the Plan include reducing loss of life and injury from natural hazards; minimizing damage to public and private infrastructure; protecting critical facilities and essential services; increasing community resilience and disaster preparedness; and guiding integration of hazard mitigation into land use and infrastructure planning.

UNIFIED HAZARDOUS WASTE AND HAZARDOUS MATERIALS MANAGEMENT REGULATORY PROGRAM

In January 1996, Cal-EPA adopted regulations implementing a "Unified Hazardous Waste and Hazardous Materials Management Regulatory Program" (Unified Program). The six elements of the Unified Program are as follows: 1) hazardous waste generators and hazardous waste on-site treatment; 2) underground storage tanks; 3) above-ground storage tanks; 4) hazardous material release response plans and inventories 5) risk management and prevention programs; and 6) Unified Fire Code hazardous materials management plans and inventories. The Unified Program is implemented at the local level by a local agency — the Certified Unified Program Agency (CUPA). The CUPA is responsible for consolidating the administration of the six program elements within its jurisdiction. As mentioned above, the Siskiyou County EHD is the designated CUPA for the County.

Impact Analysis

The following includes an analysis of environmental parameters related to *Hazards and Hazardous Materials* based on Appendix G of the State CEQA Guidelines. The discussion not only includes the areas for which there is potential for environmental impacts but also provides justification for the conclusions that either no impacts, less than significant impacts, or less than significant impacts with mitigation could occur.

Would the Project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?			**X**	
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?			**X**	
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?				**X**
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?				**X**

Would the Project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
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?				X
f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?			X	
g) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires?			X	

a) *Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?*

CONSTRUCTION

Hazardous materials are typically chemicals or processes that are used or generated by a project that could pose harm to people working at the site or on adjacent areas. Many of these chemicals can cause hazardous conditions to occur should they be improperly disposed of or accidentally spilled as part of project development or operations. Hazardous materials are also those listed as hazardous pursuant to Government Code Section 65962.5.

Construction activities would the temporary use of regulated materials (such as petroleum hydrocarbons, fuels, and lubricants) for the use of mechanized equipment during construction. Improper use and transportation of hazardous materials could result in accidental releases or spills, potentially posing health risks to workers, the public, and the environment. These activities are controlled by State and federal regulations. Throughout the transport, use, or disposal of potentially hazardous materials, the contractor is required to employ standard cleanup and safety procedures to minimize the potential for public exposure from accidental releases of such substances into the environment.

All hazardous or regulated materials that are used on site during construction activities will be properly stored and secured to prevent access by the general public; no construction equipment fuel or lubricants will be stored onsite during the project development. No hazardous materials will be disposed of at the project site. Procedures will be followed when handling or storing hazardous materials, and all job site employees will be trained in the proper usage and storage of hazardous materials, as needed. The potential hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials is less than significant.

In addition, a Stormwater Pollution Prevention Plan (SWPPP) would be prepared and implemented for the project. The SWPPP would describe any hazardous materials required for the project and would include best management practices for prevention of accidental spills as well as cleanup requirements for any accidental spills or releases of hazardous materials. Therefore, compliance with applicable laws and regulations would minimize the potential for the project to create a significant hazard to the public or the environment, and impacts would be less than significant. No mitigation measures are required.

OPERATION

During the operation of the proposed project, maintenance, cleaning, and landscaping products may be stored and used at the project site that contain toxic substances (for example, paints, solvents, pesticides, fertilizers, and cleaning products). These products are typically low in concentration and used in small quantities that would not pose a significant risk to humans or the environment during transport and use at the project site. Furthermore, these products would be used in adherence to warning labels and storage recommendations from the individual manufacturers.

Businesses that store hazardous materials are subject to the County's HMBP program, which is regulated by the Siskiyou County EHD as part of the Certified Unified Program. The program requires the preparation of a document that provides an inventory of hazardous materials onsite, emergency plans and procedures in the event of an accidental release, and training for employees on safety procedures for handling hazardous materials and in the event of a release or threatened release. These plans are routine documents that are intended to disclose the presence of hazardous materials and provide information on what to do if materials are inadvertently released. The proposed project is subject to preparation of a HMBP. Therefore, operation of the proposed project would not create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials. Impacts are less than significant in this regard.

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?***

CONSTRUCTION

Potential construction-related hazards could occur during project construction because construction activities would involve the use of heavy equipment and the handling of small quantities of fuels, oils, lubricants, and other potentially hazardous materials. However, the risk of accidental release is considered low because these materials would be used in limited quantities and would be managed in accordance with standard construction practices and applicable regulatory requirements. Construction contractors would implement appropriate spill prevention, containment, and cleanup procedures to minimize the potential for accidental releases. Any release of hazardous materials would be contained and remediated in accordance with applicable local, State, and federal regulations. Therefore, impacts associated with the routine use, transport, and disposal of hazardous materials during construction would be less than significant.

Asbestos-containing materials (ACMs) and lead-based paint (LBP) may be present in existing well houses, pipelines, or other facilities that could be removed, modified, or demolished as part of the proposed project. Disturbance of ACMs or LBP during construction could expose workers and the public to hazardous materials if not properly managed. Lead hazard abatement activities are regulated under Title 17 of the California Code of Regulations and applicable California Occupational Safety and Health Administration (Cal/OSHA) standards. The Cal/OSHA Lead in Construction Standard (Title 8, California Code of Regulations, Section 1532.1) applies to construction activities that may generate lead-containing dust or fumes, including demolition, sanding, scraping, abrasive blasting, cutting, welding, and similar activities.

Implementation of Mitigation Measure HAZ-1 (Asbestos Survey and Abatement) and Mitigation Measure HAZ-2 (Discovery of Previously Unknown Hazardous Materials) would ensure that ACMs, LBP, and any other hazardous building materials are identified, managed, removed, and disposed of in accordance with applicable regulatory requirements. Compliance with these measures would reduce potential exposure risks to workers and the public to a less than significant level.

OPERATION

As previously noted, operation of the proposed project would require the storage and use of maintenance, cleaning, and landscaping products that contain toxic substances (for example, paints, solvents, pesticides, fertilizers, and cleaning products). These products are typically low in concentration and used in small quantities that would not pose a significant risk to humans or the environment during use at the project site. Furthermore, these products would be used in adherence to warning labels and storage recommendations from the individual manufacturers to reduce the risk of upset and accident conditions. With appropriate storage, handling, and application practices, it is unlikely that any hazardous materials used during operation of the project would be released in a manner that would create a significant hazard to the public or the environment. Impacts would be less than significant in this regard.

c) ***Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?***

The nearest school to the project is Fort Jones Union Elementary School, located approximately 0.26 mile southeast of the project site. No existing or proposed school is located within one-quarter mile of the project. In addition, the proposed project would not involve the routine use, transport, storage, disposal, or release of hazardous materials in a manner that could create a significant hazard to a school environment. Therefore, implementation of the proposed project would not emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school. No impact would occur in this regard.

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

Pursuant to Government Code Section 65962.5, both the DTSC and the SWRCB maintain lists of sites known to have hazardous substances present in the environment. A review of the DTSC EnviroStor and SWRCB GeoTracker databases identified no active hazardous materials contamination sites, hazardous waste violations, or cleanup cases on or adjacent to the project site (DTSC, 2026; SWRCB, 2026).

One former cleanup site was identified within the project vicinity. The site, designated as "USFS Fort Jones (T0609300073)," is located at 328 Bridge Street, approximately 720 feet from the project site. The site is listed in the GeoTracker database as a Leaking Underground Storage Tank (LUST) cleanup site with a status of "Completed – Case Closed" as of May 8, 2003. Because corrective actions were completed and regulatory closure was granted more than two decades ago, the site is not considered an active source of hazardous materials contamination that could affect the project site.

Based on the absence of active hazardous materials contamination sites on or in the vicinity of the project site, implementation of the proposed project would not expose future users of the site to a significant hazard from existing hazardous materials contamination. No impact would occur in this regard.

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?***

The proposed project is not located within an airport land use plan area and is not located within two miles of a public airport or public use airport. The nearest public-use airport is the Scott Valley Airport, located approximately five miles south of the project site. Due to the distance between the project site and the airport, the proposed project would not result in a safety hazard for people residing or working in the project area associated with airport operations, including aircraft overflights, emergency landings, or other aviation-related activities. Therefore, implementation of the proposed project would not result in an airport-related hazard, and no impact would occur.

f) ***Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?***

As discussed above under the *Environmental Setting*, the primary evacuation route out of Fort Jones is Highway 3, northbound to Yreka and southbound towards the Town of Etna. Scott River Road and Eastside Road could also serve as evacuation routes. The proposed project is located immediately adjacent to Scott River Road that is identified an adopted emergency evacuation route in the Siskiyou County General Plan Safety Element (Siskiyou, 2025).

The project would be designed to meet emergency access standards and accommodate the onsite maneuvering of emergency vehicles as required. This type of project is not of the nature to substantially impact emergency response or evacuation. No roadway closures are anticipated during temporary construction activities. As a result, the proposed project would not impair implementation of any emergency response plan or emergency evaluation plan

as it would not alter existing roadways, or physically interfere with existing roadway patterns. Impacts would be less than significant in this regard.

g) *Expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires?*

As discussed in the *Environmental Setting*, CAL FIRE designates the project area as a High Fire Hazard Severity Zone (FHSZ) (CAL FIRE, 2026). However, the proposed project consists of improvements to the existing Fort Jones WWTF and does not include the construction of habitable structures or other land uses that would result in permanent occupancy of the site. Consequently, the project would not increase the number of people exposed to wildfire hazards.

As discussed further in Section XX, WILDFIRE, construction and operation of the proposed project would not substantially increase wildfire risk, interfere with emergency response or evacuation, or otherwise exacerbate fire hazards in the area. In addition, the proposed WWTF improvements would be located within the same FHSZ as the existing WWTF infrastructure and would not result in development that expands into previously undeveloped wildfire-prone areas. Therefore, the proposed project would not expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires and impacts would be less than significant.

Mitigation Measures

The following mitigation measure has been developed to reduce potential impacts related to *Hazards and Hazardous Materials* to less than significant levels:

Mitigation Measure HAZ-1 – Hazardous Building Materials Survey and Abatement

Prior to initiation of construction activities that would disturb, remove, modify, or demolish existing piping, structures, coatings, or materials that could contain ACMs or LBP, the Town shall retain qualified environmental professionals to conduct surveys for ACMs and LBP in accordance with applicable California Division of Occupational Safety and Health (Cal/OSHA) regulations, including Title 8, California Code of Regulations Sections 1529 and 1532.1, and other applicable federal, State, and local requirements.

If ACMs, LBP, or other hazardous building materials are identified, all removal, handling, transportation, and disposal activities shall be conducted by appropriately trained and licensed personnel in accordance with applicable Cal/OSHA, California Air Resources Board, U.S. Environmental Protection Agency, and California Department of Toxic Substances Control requirements. Hazardous materials shall be removed, stabilized, or otherwise managed prior to construction activities that could disturb the materials. Removed materials shall be transported and disposed of at facilities authorized to accept such materials in accordance with all applicable regulations.

Construction contractors shall implement appropriate worker protection measures, engineering controls, and dust suppression practices to prevent the release of asbestos fibers, lead-containing dust, or other hazardous materials during removal and construction activities.

Mitigation Measure HAZ-2 – Discovery of Previously Unknown Hazardous Materials

In the event previously unidentified ACMs, LBP, or other suspect hazardous materials are encountered during construction, work in the vicinity of the discovery shall cease immediately. The Town shall retain a qualified environmental professional to evaluate the material and determine appropriate handling, abatement, and disposal requirements. Alternatively, the Town may presume the material to be hazardous and manage it accordingly.

Construction activities in the affected area shall not resume until the material has been properly characterized, removed, or otherwise managed in accordance with applicable federal, State, and local regulations. Any hazardous materials identified during construction shall be handled, transported, and disposed of in accordance with applicable hazardous waste requirements.

Findings

Based upon the review of the information above, with implementation of mitigation measures the proposed project will have a less than significant impact with respect to *Hazards and Hazardous Materials*.

Documentation and References

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Section X – Hydrology and Water Quality

The purpose of this section of the Initial Study is to describe the existing hydrologic and water quality setting of the proposed project site and surrounding area. This section also evaluates the potential for short-term and long-term impacts to surface water and groundwater quality associated with both construction activities and the long-term operation of the proposed project. Consideration is given to hydrologic conditions, water quality, and applicable regulatory requirements governing stormwater discharge, wastewater management, and protection of beneficial uses.

Environmental Setting

The proposed project is located within Scott Valley in Siskiyou County, an alluvial valley floor setting influenced by the Scott River watershed and its tributary drainage network, including Moffett Creek. The hydrologic environment is characterized by a combination of perennial riverine flow, seasonally variable tributary discharge, shallow groundwater interaction, and an extensive floodplain system associated with the Scott River.

HYDROLOGY

Regional

The Scott River is the dominant hydrologic feature in the project vicinity and serves as the primary drainage conveyance for Scott Valley. The river flows generally northward through the valley before joining the Klamath River downstream. In the vicinity of Fort Jones, the Scott River is a low-gradient, alluvial system with an active floodplain that is periodically inundated during high-flow events associated with winter storms and spring snowmelt.

Flows in the Scott River are highly seasonal, with lower baseflows typically occurring during late summer and early fall and substantially higher flows during wet-season storm events. The river's floodplain in this reach is broad and largely agricultural, although localized constrictions occur due to infrastructure, levees, and developed areas. The system is also influenced by groundwater-surface water interaction, which contributes to late-season baseflow support under normal hydrologic conditions. The Scott River functions as the principal receiving water for surface runoff and tributary inflows from Scott Valley and is a key downstream hydrologic feature relevant to regional water quality and flood management.

Local

Moffett Creek is a smaller tributary to the Scott River located adjacent to and downstream of the Fort Jones urban area. The creek originates in the foothills west of Scott Valley and flows generally northwest toward its confluence with the Scott River and can experience an increased hydrologic response compared to the Scott River due to its smaller watershed size and steeper upstream topography. Flow conditions are typically intermittent to perennial depending on seasonal precipitation and groundwater contributions. During winter and spring storm events, the creek conveys higher peak flows, while late summer conditions may result in reduced or absent surface flow in portions of the channel. As it approaches the valley floor, Moffett Creek transitions from a confined upland channel to a broader alluvial drainage system influenced by local stormwater runoff, agricultural drainage, and valley floor hydrology. It ultimately contributes flow to the Scott River downstream of Fort Jones.

NORTH COAST BASIN PLAN

The Water Quality Control Plan for the North Coast Region (Basin Plan) establishes water quality standards and implementation measures for waters within the jurisdiction of the North Coast Regional Water Quality Control Board (NCRWQCB). The Basin Plan identifies the beneficial uses of waters within the region, establishes water quality objectives necessary to protect those uses.

Beneficial Uses

The project area drains to Moffett Creek, a tributary to the Scott River within the North Coast Region. Beneficial uses designated for the Scott River and its tributaries include municipal and domestic supply (MUN), agricultural supply (AGR), industrial service supply (IND), industrial process supply (PRO), groundwater recharge (GWR), freshwater replenishment (FRSH), navigation (NAV), hydropower generation (POW), water contact recreation (REC-1), non-contact recreation (REC-2), commercial and sport fishing (COMM), cold freshwater habitat (COLD), wildlife habitat (WILD), and rare, threatened, or endangered species habitat (RARE). These beneficial uses are protected through the NCRWQCB Basin Plan and form the basis for applicable water quality objectives and permit requirements.

Water Quality

The Basin Plan establishes narrative and numeric water quality objectives designed to protect designated beneficial uses. Narrative objectives address, among other factors, sediment, suspended materials, turbidity, dissolved oxygen, temperature, nutrients, pathogens, toxicity, and nuisance conditions. Numeric objectives applicable to the Scott River Hydrologic Area include limits for total dissolved solids, pH, hardness, and boron.

The Scott River watershed is listed on the Clean Water Act Section 303(d) list of impaired waters for sediment and temperature (NCRWQCB, 2026). As a result, the NCRWQCB has adopted Total Maximum Daily Loads (TMDLs) and implementation measures to restore and maintain water quality conditions necessary to support cold freshwater habitat, migration, and spawning beneficial uses associated with salmonid fisheries.

GROUNDWATER

To characterize subsurface conditions within the project area, ten exploratory borings were completed throughout the proposed project site to depths of approximately 20 feet below ground surface (bgs). Groundwater was encountered during drilling at depths ranging from approximately 10.5 to 16.5 feet bgs under dry-season conditions. Publicly available groundwater monitoring data from wells in the vicinity of the project site indicate that groundwater levels fluctuate seasonally, generally ranging from approximately 4 to more than 10 feet. Consistent with these observations, groundwater monitoring conducted at three wells located within the existing wastewater treatment facility since 2017 has documented seasonal groundwater elevations ranging from approximately 11 to 23 feet bgs (SHN, 2026a). Together, these data indicate that groundwater beneath the project site is relatively shallow and subject to seasonal fluctuations associated with precipitation, streamflow conditions, and groundwater recharge within the Scott Valley Groundwater Basin.

Scott Valley Groundwater Basin

The Siskiyou County Flood Control and Water Conservation District (SCFCWCD) is participating in a consortium of nearby groundwater users to form a Groundwater Sustainability Agency (GSA) pursuant to the requirements of AB 1739, SB 1168, and SB 1319 collectively known as the Sustainable Groundwater Management Act (SGMA).

The proposed project is located within the Scott Valley Groundwater Basin in northern Siskiyou County. The Scott Valley Groundwater Basin is bounded by the Klamath Mountains to the west and north, and the Cascade Range to the east, and is hydraulically interconnected with the Scott River and its tributary system, which serves as the primary surface water feature in the valley.

The Scott Valley Groundwater Basin is classified by Department of Water Resources (DWR) under Bulletin 118 and SGMA as a medium-priority groundwater basin, meaning it is subject to SGMA requirements for preparation and implementation of a Groundwater Sustainability Plan (GSP). Basin prioritization is based on statewide evaluation criteria that assess groundwater reliance, population, agricultural use, well density, and documented groundwater impacts. Medium- and high-priority basins are required to achieve groundwater sustainability through locally developed GSPs, while low- and very low-priority basins are not required to comply with SGMA planning requirements (SCFCWCD, 2021; 2026).

Municipal Groundwater Use

The Town of Fort Jones provides municipal water service within the project area. Water supplies are provided by one primary well with a capacity of approximately 500 gallons per minute and two secondary wells with a combined capacity of approximately 370 gallons per minute. The Town also maintains two above ground storage tanks with capacities of approximately 180,000 gallons and 200,000 gallons, respectively. While total system firm capacity is not formally quantified, the Town has not historically implemented summer water use restrictions and has not relied on secondary wells to meet demand during dry periods (LAFCO, 2021).

FLOOD HAZARDS

The project area is located within the Scott Valley floor, a hydraulically active alluvial environment associated with the Scott River floodplain system and its tributaries, including Moffett Creek. Portions of the valley floor are mapped by the Federal Emergency Management Agency (FEMA) as within the 100-year floodplain and regulatory floodway, reflecting the area's susceptibility to periodic inundation during high-flow events. According to FEMA Flood Insurance Rate Maps (FIRMs), the project site is located within the regulatory floodway associated with the Scott River and Moffett Creek (FEMA, 2025).

Regulatory Setting

This section summarizes current federal, State, and local regulations relevant to the review of *Hydrology and Water Quality* for this project. Ordinances, regulations, or standards that are applicable to the environmental review of potential impacts related to hydrology and water quality include the following:

CLEAN WATER ACT

The Clean Water Act (CWA) is a federal law that protects the nation’s surface waters, including lakes, rivers, coastal wetlands, and “waters of the United States.” The CWA specifies that discharges to waters are illegal, unless authorized by an appropriate permit. The permits regulate the discharge of dredged and fill materials, construction-related stormwater discharges, and activities that may result in discharges of pollutants to waters of the United States. If waters of the U.S. are located on a project site, a proposed project is likely to discharge to them, and if impacts on them are anticipated, the project must obtain a CWA Section 401 Water Quality Certification from the appropriate Regional Water Quality Control Board (RWQCB).

FEDERAL ANTI-DEGRADATION POLICY

The federal Anti-Degradation Policy (40 CFR Section 131.12), promulgated pursuant to the federal Clean Water Act (CWA), establishes a framework for maintaining and protecting existing water quality and beneficial uses of the nation's waters. States are required to adopt and implement antidegradation policies consistent with federal requirements as part of their water quality standards programs.

The policy contains three tiers of protection. First, existing instream water uses and the level of water quality necessary to protect those uses must be maintained and protected. Second, where water quality exceeds levels necessary to support fish, wildlife, recreation, and other beneficial uses, that higher water quality must be maintained unless a lowering of water quality is determined to be necessary to accommodate important economic or social development and all applicable water quality standards are maintained. Third, waters designated as Outstanding National Resource Waters (ONRWs), including certain waters located within national and state parks, wildlife refuges, and waters of exceptional ecological or recreational significance, receive the highest level of protection and existing water quality must be maintained and protected. In California, implementation of the federal Anti-Degradation Policy is achieved through the State Water Resources Control Board's Anti-Degradation Policy (State Water Board Resolution 68-16) and the Basin Planning process administered by the Regional Water Quality Control Boards.

FEDERAL EMERGENCY MANAGEMENT AGENCY

The FEMA oversees federal floodplain management policies and runs the National Flood Insurance Program (NFIP) adopted under the National Flood Insurance Act of 1968. FEMA prepares Flood Insurance Rate Maps (FIRM) that delineate the regulatory floodplain to assist local governments with land use planning and floodplain management decisions to meet the requirements of the NFIP. Floodplains are divided into flood hazard areas, which are areas designated according to their potential for flooding, as delineated on FIRMs. Special Flood Hazard Areas (SFHAs) are the areas identified as having a one percent chance of flooding in a given year (otherwise known as the 100-year flood). In general, the NFIP mandates that development is not to proceed within the regulatory 100-year floodplain, if the development is expected to increase flood elevation by 1 foot or more.

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM

The National Pollutant Discharge Elimination System (NPDES) program is administered by the US Environmental Protection Agency (EPA), which delegated oversight in California to the Regional Water Quality Control Boards. The NPDES program provides general permits and individual permits. The general permits are for construction projects that disturb more than one acre of land. The general permit requires the applicant to file a public Notice of Intent (NOI) to discharge stormwater and to prepare and implement a Stormwater Pollution Prevention Plan (SWPPP). The SWPPP includes a site map, description of proposed activities, demonstration of compliance with applicable ordinances and regulations, and a description of Best Management Practices (BMPs) that would be implemented to reduce erosion and discharge of construction-related pollutants. The CWA-established NPDES permit program regulates municipal and industrial discharges to surface waters of the United States from their municipal separate storm sewer systems (MS4s). Under the NPDES program, all facilities that discharge pollutants into waters of the United States are required to obtain a NPDES permit. Requirements for stormwater discharges are also regulated under this program.

California's MS4 program includes Phase I permits for large and medium municipalities and Phase II permits for certain small municipalities located within designated urbanized areas or otherwise designated by the regulatory agencies. The Town of Fort Jones is located in rural Siskiyou County and is not a regulated Phase I or Phase II MS4 permittee. Therefore, the Town is not subject to municipal stormwater management program requirements associated with an MS4 permit. The project site is not located within a jurisdiction covered by a municipal stormwater permit that imposes post-construction stormwater treatment or hydromodification management requirements.

Construction activities disturbing one acre or more are subject to the State Water Resources Control Boad's (SWRCB) NPDES Construction General Permit (Order WQ 2022-0057-DWQ, as amended). Compliance with the Construction General Permit requires preparation and implementation of a SWPPP, implementation of BMPs, and monitoring and reporting, as applicable, to minimize erosion, sedimentation, and pollutant discharges during construction.

PORTER-COLOGNE WATER QUALITY CONTROL ACT

The Porter-Cologne Water Quality Control Act acts in cooperation with the CWA to establish the SWRCB. The SWRCB is divided into nine regions, each overseen by an RWQCB. The SWRCB, and thus each RWQCB, is responsible for protecting California's surface waters and groundwater supplies. The Porter-Cologne Water Quality Control Act develops Basin Plans that designate the beneficial uses of California's rivers and groundwater basins. The Basin Plans also establish narrative and numerical water quality objectives for those waters. Basin Plans are updated every three years and provide the basis of determining waste discharge requirements, taking enforcement actions, and evaluating clean water grant proposals. The Porter-Cologne Water Quality Control Act is also responsible for implementing CWA Sections 401-402 and 303(d) to SWRCB and RWQCBs.

The proposed project would occur partially within the FEMA-designated 100-year floodplain and floodway of the Scott River and Moffett Creek. However, no fill, dredging, excavation, or other disturbance of jurisdictional waters or wetlands would occur. Therefore, the proposed project would not require authorization under Section 404 of the Clean Water Act, and a Section 401 Water Quality Certification would not be required.

STATEWIDE GENERAL CONSTRUCTION PERMIT

Construction projects that disturb one acre or more of land are subject to the SWRCB's NPDES Construction General Permit (Order WQ 2022-0057-DWQ, as amended). Prior to commencement of construction, the project proponent must obtain permit coverage through the State Water Board's Stormwater Multiple Application and Report Tracking System (SMARTS). Permit registration documents typically include a NOI, risk determination, site maps, a SWPPP, applicable fees, and certification by the legally responsible person. The SWPPP must identify potential pollutant sources and specify BMPs to control erosion, sedimentation, and construction-related pollutant discharges. Compliance with the Construction General Permit is intended to minimize adverse effects on water quality during construction activities.

STATE WATER RESOURCES CONTROL BOARD WASTE DISCHARGE REQUIREMENTS

Waste Discharge Requirements (WDRs) are issued by the Regional Water Quality Control Boards pursuant to the Porter-Cologne Water Quality Control Act and serve as the primary regulatory mechanism for controlling discharges of waste to waters of the state that are not otherwise regulated under general statewide permits or conditional waivers. The WDR program is implemented through regulations in the California Code of Regulations and is designed to ensure that discharges comply with applicable water quality objectives and protect beneficial uses identified in regional Basin Plans.

WDRs may be issued for a variety of discharge types, including domestic and municipal wastewater, food processing wastewater, and industrial wastewater, where such discharges have the potential to affect surface water or groundwater quality. Depending on the characteristics of the discharge, WDRs may be issued as individual permits or general permits and may incorporate NPDES requirements when discharges occur to surface waters of the United States. For municipal wastewater treatment facilities, WDRs typically establish effluent limitations, receiving water limitations, monitoring and reporting requirements, and operational standards to ensure that discharges do not cause violations of water quality standards or degradation of beneficial uses.

Pursuant to NCRWQCB Waste Discharge Requirements for the Town of Fort Jones Wastewater Treatment Facility (Order No. R1-2014-0029/WDID No. 1A811570SIS), the Town shall maintain compliance with the following effluent limitations:

Table 4-11
FINAL EFFLUENT LIMITATIONS

Parameter	Effluent Limitations					
	Units	Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Biochemical Oxygen Demand (5-day @ 20°C)	mg/L	50	--	80	--	--
Total Suspended Solids	mg/L	50	--	80	--	--
pH	std units	--	--	--	6.0	9.0
Settleable Solids	ml/L	0.1	--	0.2	--	--

The Town shall maintain compliance with the following groundwater limitations:

- The collection, treatment, storage, and disposal of wastewater shall not cause or contribute to a statistically significant degradation of groundwater quality unless a technical evaluation is performed that demonstrates that any degradation that could reasonably be expected to occur, after implementation of all regulatory requirements and reasonable best management practices, will not violate groundwater quality objectives or cause impacts to beneficial uses of groundwater.

- The collection, treatment, storage, and disposal of the treated wastewater shall not cause or contribute to levels of chemical constituents in groundwater that exceed the levels specified in title 22, Division 4,

Chapter 15, Article 4, section 64435 of the California Code of Regulations or listed in Table 3-2 of the Basin Plan.

- The collection, treatment, storage and disposal of the treated wastewater shall not cause or contribute to levels of radionuclides in groundwater in excess of the limits specified in title 22, Division 4, Chapter 15, Article 5, section 64443 of the California Code of Regulations.

- The collection, treatment, storage, and disposal of wastewater shall not cause groundwater to contain taste- or odor-producing substances in concentrations that cause nuisance or adversely affect beneficial uses.

- In groundwater used or potentially used for domestic and municipal supply (MUN), the collection, treatment, storage and disposal of the treated wastewater shall not cause the median concentration of coliform organisms over any 7-day period to exceed 1.1 MPN per 100 milliliters or 1 colony per 100 milliliters.

Any sanitary sewer overflow (SSO) that results in a discharge of untreated or partially treated wastewater to (a) waters of the State, (b) groundwater, or (c) land that creates pollution, contamination, or nuisance as defined in Water Code section 13050 (m) is prohibited. A Report of Waste Discharge (ROWD) application will be prepared and submitted to the RWQCB as part of the wastewater facility upgrades.

SUSTAINABLE GROUNDWATER MANAGEMENT ACT

In 2014, California enacted the Sustainable Groundwater Management Act (SGMA) (Water Code §10720 et seq.), establishing a statewide framework for sustainable groundwater management. SGMA requires groundwater basins designated by the California Department of Water Resources as high- or medium-priority to be managed under one or more Groundwater Sustainability Plans (GSPs). The purpose of SGMA is to achieve long-term groundwater sustainability by avoiding undesirable results, including chronic lowering of groundwater levels, reduction of groundwater storage, seawater intrusion, degraded water quality, land subsidence, and depletion of interconnected surface waters.

To implement SGMA, local agencies are required to form Groundwater Sustainability Agencies (GSAs), which are responsible for preparing and implementing GSPs. GSAs are authorized to regulate groundwater extraction, require registration and monitoring of groundwater wells, collect groundwater-use information, assess fees, and implement management actions necessary to achieve groundwater sustainability.

Siskiyou County contains four medium-priority groundwater basins that are subject to SGMA requirements: the Shasta Valley Basin, Scott Valley Basin, Butte Valley Basin, and Tulelake Subbasin. The SCFCWCD serves as the GSA for the Shasta Valley, Scott Valley, and Butte Valley basins. The Siskiyou County Board of Supervisors also participates as a member agency in the Tulelake Subbasin GSA, together with the Tulelake Irrigation District, Modoc County, and the City of Tulelake. Applicable GSPs have been prepared and are being implemented for these basins in accordance with SGMA requirements. The proposed project does not involve groundwater extraction and therefore would not conflict with implementation of the Scott Valley GSP.

WATER QUALITY CONTROL PLAN FOR THE NORTH COAST REGION (BASIN PLAN)

The Water Quality Control Plan for the North Coast Region (Basin Plan) is adopted pursuant to the Porter-Cologne Water Quality Control Act and the federal Clean Water Act and serves as the primary regulatory framework for protecting surface water and groundwater resources in the North Coast Region.

Under Porter-Cologne, “waters of the state” include any surface water or groundwater, including saline waters, within the boundaries of California. The Basin Plan identifies the beneficial uses of waters within the region, establishes water quality objectives necessary to protect those uses, incorporates the State Water Resources Control Board's Anti-degradation Policy (Resolution 68-16), and specifies implementation programs to achieve and maintain water quality standards.

The Basin Plan is used by the Regional Water Board to regulate discharges of waste that could affect waters of the state through permits, waste discharge requirements, and other regulatory actions. Regional Water Board orders and permits are required to be consistent with applicable Basin Plan provisions. The Basin Plan also serves as a reference for other agencies engaged in permitting, environmental review, and resource management activities.

The Basin Plan is adopted by the NCRWQCB and approved by the SWRCB and the California Office of Administrative Law. Water quality standards contained in the Basin Plan are subject to approval by the US EPA pursuant to the CWA. Because the proposed project is located within the Scott River floodplain, protection of surface water quality and compliance with applicable Basin Plan water quality objectives would be achieved through implementation of construction best management practices, compliance with applicable NPDES permits, and adherence to the Town's wastewater discharge requirements.

Impact Analysis

The following includes an analysis of environmental parameters related to *Hydrology and Water Quality* based on Appendix G of the State CEQA Guidelines. The discussion not only includes the areas for which there is potential for environmental impacts but also provides justification for the conclusions that either no impacts, less than significant impacts, or less than significant impacts with mitigation could occur.

Would the Project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?			**X**	
b) Substantially decease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?			**X**	
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;			**X**	
ii) Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site;			**X**	
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; or			**X**	
iv) Impede or redirect flood flows?			**X**	
d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?			**X**	
e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?			**X**	

a) *Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?*

CONSTRUCTION

Implementation of the proposed project would not require new waste discharge requirements (WDRs) for construction activities. Construction of the proposed project would involve excavation, grading, trenching, and

installation of wastewater treatment and conveyance facilities, resulting in temporary soil disturbance and exposure of disturbed areas to precipitation and wind erosion. Without appropriate controls, construction activities could result in increased runoff, erosion, sedimentation, and the inadvertent release of pollutants to nearby drainage features and surface waters.

Earthwork, grading, and soil stockpiling activities would be conducted in accordance with applicable grading permit requirements and construction specifications. Because project construction would disturb more than one acre, the project would be subject to the State Water Resources Control Board's General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities (Order WQ 2022-0057-DWQ, as amended). Prior to construction, the Town would obtain permit coverage and prepare and implement a project-specific SWPPP.

The SWPPP would identify potential pollutant sources and specify Best Management Practices (BMPs) to minimize erosion, sedimentation, and pollutant discharges during construction. BMPs would include erosion and sediment controls, good housekeeping practices, spill prevention and response procedures, materials management measures, dust control measures, and site stabilization requirements. Given the project's location within the Scott River floodplain, BMPs would be designed to prevent sediment, construction materials, fuels, lubricants, and other pollutants from entering adjacent drainage features or surface waters.

Implementation of the SWPPP and compliance with the Construction General Permit would minimize the potential for construction-related impacts on surface water quality, groundwater quality, and beneficial uses identified in the Basin Plan. Therefore, the proposed project would not violate water quality standards or substantially degrade surface water or groundwater quality, and impacts would be less than significant.

OPERATION

Operationally, the existing WWTF is regulated under Waste Discharge Requirement Order No. R1-2014-0029 issued by the NCRWQCB. The WDR establishes requirements governing wastewater treatment, effluent management, monitoring, reporting, and facility operation to ensure protection of groundwater quality, nearby surface waters, and designated beneficial uses identified in the Basin Plan.

The proposed project would include improvements to the existing treatment system, including construction of influent storage and treatment ponds. Similar to existing operations, the project would not introduce a new discharge point to Moffett Creek, the Scott River, or other surface waters. Rather, the improvements are intended to enhance treatment reliability, increase operational flexibility, improve effluent quality, and maintain compliance with applicable regulatory requirements. Any modifications to treatment processes, wastewater flows, disposal practices, or monitoring requirements resulting from project implementation would be subject to review and approval by the NCRWQCB and, as necessary, amendment of the facility's WDRs prior to operation. Compliance with applicable WDRs would ensure that wastewater treatment and disposal activities are conducted in a manner protective of Basin Plan water quality objectives and beneficial uses, including municipal and domestic supply, agricultural supply, cold freshwater habitat, migration, spawning, and wildlife habitat.

Therefore, implementation of the proposed project would not violate water quality standards, substantially degrade surface water or groundwater quality, or conflict with applicable water quality control regulations. Therefore, operational impacts related to water quality would be less than significant.

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

The proposed project is located within the Scott Valley Groundwater Basin, a medium-priority basin managed under the SGMA by the SCFCWCD, acting as the GSA. Groundwater beneath the project site is relatively shallow and subject to seasonal fluctuations associated with precipitation, surface water conditions, and basin recharge.

The proposed project consists of improvements to the existing wastewater treatment facility and would not involve the installation of new groundwater production wells, increased groundwater extraction, or a substantial increase in water demand. Project construction would result in localized soil disturbance and the addition of treatment

infrastructure within an existing developed wastewater treatment facility. Although new ponds, structures, and associated facilities would occupy previously undeveloped portions of the site, the overall increase in impervious surface area would be limited and would not substantially reduce groundwater recharge within the Scott Valley Groundwater Basin.

According to SCFCWCD, municipal groundwater pumping accounts for approximately 1,000 AFY within the Scott Valley Groundwater Basin. Based on Fort Jones' population of 663 persons, the Town is estimated to utilize approximately 180 AFY of groundwater for municipal purposes. The proposed project's total long-term water demand of approximately 2.6 AFY would represent approximately 1.4 percent of the Town's municipal groundwater use and approximately 0.3 percent of total municipal groundwater pumping within the Basin. In addition, groundwater storage within the Basin increased by an estimated 8,454 AF during Water Year 2025 (SCFCWCD, 2026), indicating that the project's incremental demand would be negligible relative to overall groundwater storage fluctuations within the Basin.

No new groundwater wells or additional water supply sources are proposed. Long-term operational water demand would not substantially increase groundwater extraction, and the project would continue to treat and manage wastewater generated within the existing Fort Jones service area. The project would not induce substantial growth or development that could increase groundwater demand. Although construction of treatment infrastructure would result in a minor increase in impervious surfaces, the increase would not substantially alter groundwater recharge patterns within the Basin. Furthermore, treated wastewater disposal activities would continue to contribute localized groundwater recharge, subject to compliance with Waste Discharge Requirements Order No. R1-2014-0029. The project would not alter regional drainage patterns, interfere with natural groundwater recharge processes, or conflict with implementation of the Scott Valley Groundwater Sustainability Plan. Therefore, the project would not substantially deplete groundwater supplies, reduce groundwater recharge, or impede achievement of groundwater sustainability goals established for the Scott Valley Groundwater Basin. Impacts would be less than significant.

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 offsite:*

As discussed above, project construction would involve earthwork, grading, excavation, and temporary soil stockpiling that could increase the potential for erosion and sediment transport during storm events. Because the project would disturb more than one acre, construction activities would be conducted in accordance with the SWRCB Construction General Permit, including preparation and implementation of a SWPPP and submittal of a NOI. The SWPPP would identify site-specific BMPs designed to minimize erosion, stabilize disturbed soils, control sediment transport, and prevent the discharge of pollutants from the construction site.

Implementation of these measures would reduce the potential for construction-related erosion, loss of topsoil, and sedimentation of adjacent drainage features, including Moffett Creek. Compliance with the Construction General Permit and implementation of the SWPPP would ensure that erosion and sediment control measures are maintained throughout construction and adjusted as necessary based on site conditions. Therefore, the potential for substantial soil erosion, loss of topsoil, or sedimentation resulting from construction of the proposed project would be less than significant.

ii. *Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite:*

Implementation of the proposed project would include construction of a 17.5-acre wastewater treatment facility within the currently mapped FEMA 100-year floodway as shown on Figure 2-5, FEMA FLOOD ZONE, in Section 2, PROJECT DESCRIPTION. Though the location is within the floodway, the magnitude of encroachment represented by the fill is considered small when compared to the total conveyance area of Moffett Creek during a 100-year flood event, and the fill is located near the edge of flooding extents, where flood depths are shallow as compared to the channel and immediately-adjacent overbanks of the waterway.

FEMA has a "no rise" policy requiring that new development not encroach within the 100-year floodplain or that the project demonstrates that the new encroachment will not increase the water surface elevation during the most probable 100-year flood using an appropriate engineering study and mitigation if needed. As a result, a flood study was completed (SHN, 2026b) (see Attachment F, REGULATORY FLOODWAY IMPACT ANALYSIS REPORT).

The evaluation was completed utilizing the Corps of Engineers' HEC-RAS backwater program as a formal means of identifying potential flood risk impacts associated with implementation of the proposed project, using the model associated with the current FEMA Flood Insurance Rate Map to estimate current flood risk. The model has both 1-dimensional (1D) and 2-dimensional (2D) elements, with 1D cross sections used to describe the hydraulics of the main channel of Moffett Creek and a 2D mesh that incorporates elevations and land use parameters across the land surface to estimate flood depths, extents, durations and velocities in the land adjacent to Moffett Creek. The proposed project is located within the 2D domain of the model. SHN modified the model to incorporate the project design and evaluated several 1D cross-sections and 2D model elements near the project area (see Attachment F, REGULATORY FLOODWAY IMPACT ANALYSIS REPORT). Table 4-12, BASE FLOOD WATER SURFACE ELEVATIONS, provides existing and post project base flood water surface elevations at each modeled cross-section.

Table 4-12
BASE FLOOD WATER SURFACE ELEVATIONS

Cross Section	Waterway	Existing Condition Elevation	Post Project Condition Elevation	Post Project Difference (feet)
103	Moffett Creek	2718.15	2718.14	-0.01
341	Moffett Creek	2718.19	2718.18	-0.01
533	Moffett Creek	2718.19	2718.18	-0.01
976	Moffett Creek	2718.09	2718.08	-0.01
1329	Moffett Creek	2718.83	2718.83	0
1579	Moffett Creek	2721.29	2721.17	-0.12
1723	Moffett Creek	2721.56	2721.44	-0.12
1873	Moffett Creek	2722.01	2721.89	-0.12
2325	Moffett Creek	2724.10	2723.98	-0.16
2771	Moffett Creek	2726.36	2726.25	-0.11
Source: SHN, Regulatory Floodway Impact Analysis Report, June 2026				

Based on the HEC-RAS hydraulic analysis prepared by SHN (June 2026), implementation of the proposed project would not result in an increase in 100-year flood water surface elevations, flood depths, flow velocities, or inundation extent within the Moffett Creek floodway (see Table 4-12). Hydraulic modeling indicates that post-project water surface elevations would remain unchanged or be slightly reduced compared to existing conditions at all evaluated cross-sections. These results demonstrate that the proposed improvements would not impede flood flows, redirect floodwaters, reduce flood conveyance capacity, or increase flood hazards on-site or off-site.

Although portions of the project would be located within the mapped FEMA floodway, the hydraulic analysis confirms that the proposed facilities would not cause a measurable rise in base flood elevations or adversely affect floodplain function. Project components would be elevated, anchored, and designed in accordance with applicable engineering standards to withstand anticipated flood conditions. Ancillary improvements located within or adjacent to the floodplain, including fencing, retaining walls, and related infrastructure, would be designed using standard engineering practices to avoid obstruction of flood flows and to resist flood-related damage.

Implementation of the project would require FEMA review and approval of a Conditional Letter of Map Revision based on Fill (CLOMR-F) prior to placement of fill within the floodway. The CLOMR-F application would be prepared and submitted to FEMA concurrent with project permitting. As a condition of project approval, no grading or fill placement within the mapped floodway would occur until FEMA has approved the CLOMR-F and all applicable federal, state, and local floodplain management requirements have been satisfied.

Because hydraulic modeling demonstrates no increase in flood elevations or flood hazards and project implementation would be subject to FEMA review and approval, the proposed project would not expose people or structures to a significant risk of loss, injury, or death involving flooding, nor would it substantially alter existing floodplain characteristics. Therefore, impacts related to flood hazards, floodway encroachment, and interference with floodplain functions would be less than significant.

iii. *Create or contribute runoff water which would exceed the capacity of existing planned stormwater drainage systems or provide substantial additional sources of polluted runoff:*

Refer to previous impact discussions under X.a, X.c.i, and X.c.ii. Impacts would be less than significant.

iv. *Impede or redirect flood flows:*

Refer to previous impact discussion under X.c.ii. Impacts would be less than significant.

d) *In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?*

For flood hazards, refer to the discussion under Impact X.c.ii above. The proposed project is located within the mapped FEMA floodway; however, the HEC-RAS hydraulic analysis demonstrates that implementation of the proposed project would not increase 100-year flood elevations, flood depths, flow velocities, or inundation extent within the Moffett Creek floodplain. Project facilities would be elevated, anchored, and designed in accordance with applicable engineering standards to withstand anticipated flood conditions. In addition, wastewater treatment and storage facilities would continue to be operated in accordance with Waste Discharge Requirements Order No. R1-2014-0029 issued by the NCRWQCB.

A tsunami is a series of ocean waves generated by fault displacement, submarine landslides, or major coastal seismic events. A seiche is an oscillating wave that occurs in an enclosed or partially enclosed body of water in response to seismic shaking or other disturbances.

The project site is located inland and is not subject to tsunami or seiche hazards. Given the inland location of the site, the absence of exposure to tsunami or seiche inundation, and the design of project facilities to withstand anticipated flood conditions, implementation of the proposed project would not result in a significant risk of release of pollutants due to inundation. Therefore, impacts would be less than significant.

e) *Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?*

The NCRWQCB has adopted the Basin Plan, which encompasses the Scott Valley watershed and establishes water quality objectives and beneficial uses for surface waters in the region, including the Scott River system. Implementation of the Basin Plan is achieved through regulatory mechanisms such as NPDES permits, WDRs, and associated enforcement actions (NCRWQCB, 2018).

CONSTRUCTION

Temporary water for dust control during construction would be provided by municipal sources within the Town and would not require a new water extraction source. Construction of the proposed project would be required to comply with applicable stormwater permitting requirements, including coverage under the SWRCB Construction General Permit, which would require preparation and implementation of a SWPPP and submittal of a NOI prior to construction. The SWPPP would include BMPs designed to control erosion, sedimentation, and construction-related pollutants. With implementation of these regulatory requirements, the proposed project would not conflict with or obstruct implementation of the Basin Plan, and impacts related to regulatory consistency would be less than significant.

OPERATION

As discussed in the *Environmental Setting*, the proposed project is located within the Scott Valley Groundwater Basin, which is managed pursuant to the SGMA and the Scott Valley GSP. The Basin is also subject to applicable water quality control requirements, including the North Coast Regional Water Quality Control Board Basin Plan and Waste Discharge Requirements Order No. R1-2014-0029 (SHN, 2026c).

The proposed project would not introduce new or expanded groundwater extraction facilities and would not substantially increase groundwater demand. In addition, the project would be implemented within an existing wastewater treatment facility site and would not substantially alter land uses or create large areas of impervious surface that could affect groundwater recharge at a basin scale. Treated wastewater disposal activities would continue in accordance with existing Waste Discharge Requirements and would contribute localized groundwater recharge consistent with current permitted operations.

Because the project would not modify groundwater extraction, would remain consistent with existing waste discharge requirements and Basin Plan objectives, and would not interfere with implementation of the Scott Valley GSP, it would not conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan. Impacts would be less than significant.

Mitigation Measures

No mitigation measures are required.

Findings

Based upon the review of the information above, implementation of the proposed project will have a less than significant impact with respect to *Hydrology and Water Quality*.

Documentation and References

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SHN. 2026c. *Wastewater Facilities Plan Addendum No. 2*. June 2026.

Section XI - Land Use and Planning

This section of the Initial Study describes the impacts on land use and planning that would result from implementation of the proposed project, including consistency with relevant local land use plans and compatibility with surrounding land uses.

Environmental Setting

The Town of Fort Jones is located in west-central Siskiyou County, Northern California, along State Highway 3 approximately 10 miles south of Yreka within the Scott Valley. The Scott Valley is a predominantly agricultural region traversed by the Scott River and bordered by mountainous terrain on all sides.

ONSITE LAND USES

The following Assessor's Parcel Numbers (APN) comprise the project site: 024-040-080, 024-030-490, 055-241-010, and 055-241-020. The elevation of the project area ranges from 2,710 to 2,730 feet above mean sea level, with most of the site being nearly flat; steep banks are present around the sewage ponds and at some locations along Moffett Creek. The existing WWTF has been operating for over 70 years. Uses at the site include six unlined wastewater ponds (approximately 3.99 acres), facility fencing, pipelines, above ground structures, and gravel access roads. Immediately surrounding the facility on agricultural lands are developed roadways, managed alfalfa fields, above ground and overhead irrigation sprinklers lines, power lines, well heads and other appurtenances for the ongoing management of agricultural operations.

The proposed project site is largely undeveloped and consists primarily of agricultural land, with overhead power lines and an unpaved road (Serpa Lane) extending along the southern boundary of the site. The eastern portion of the site (approximately 7.5 acres within the Town of Fort Jones [APN 055-241-010 and 055-241-020]) has been previously disturbed, covered with gravel, and is currently used for equipment storage. The agricultural fields consists of alfalfa hay, a managed crop that is harvested approximately three to four times per year, depending on growing conditions.

SURROUNDING LAND USES

The areas north, west, and southwest of the project site consist primarily of agricultural lands used for the production of alfalfa hay, as well as the Scott River and Moffett Creek. The agricultural lands are developed with groundwater wells, underground sewer and agricultural water conveyance pipelines, and aboveground irrigation sprinkler systems that are operated seasonally. Existing infrastructure in the surrounding area also includes overhead electrical distribution lines, unpaved access roads serving the Town's existing wastewater treatment facility and adjacent agricultural fields, and access to Scott River Road. Residential uses are located east of the project site across Scott River Road along Bridge Street. Light industrial uses are located immediately south of the site along Serpa Lane.

EXISTING GENERAL PLAN AND ZONING

The Siskiyou County General Plan does not have specific land use designations (such as commercial, residential, agriculture, etc.). Rather, it is based on land classifications, such as hazards and other resource area specific topics which are overlays. Evaluation for the project site and immediately surrounding lands shows that the designated overlays for the project include Erosion Hazard, Building Foundation Limitations, Flood Hazard, Surface Hydrology, Deer Wintering Area and Wildfire Hazard.

The existing 3.99-acre WWTF is a public facility located in unincorporated Siskiyou County on lands owned by the Town. The existing uses at the wastewater facility pre-date the County's General Plan, and the existing wastewater facility is considered a nonconforming existing use. Therefore, while the existing use and parcel size (less than the 40 acre minimum zoning requirement) do not conform to the County's general plan and zoning, it is an existing use that pre-dates these designations and is therefore exempt from the zoning provisions of the Siskiyou County General Plan.

The Fort Jones General Plan designates the 7.5-acre WWTF relocation site (APN 055-241-010 and 055-241-020), within the Town, as Mobile Home (M-H) and is zoned Manufactured Homes Park (M-H). An approximate 10-acre portion of the proposed project site (APN 024-030-490) is located within unincorporated Siskiyou County, immediately adjacent to Fort Jones' corporate limits. This parcel is currently zoned AG-2-B-40 (non-prime agriculture) 40 acre minimum parcel size and AG-1-B-80 (prime agriculture) 80 acre minimum parcel size.

Surrounding zoning districts include Manufactured Homes Park (M-H) directly east across Scott River Road, Low Density Residential (R-1) southeast along Bridge Street, and Manufacturing (M) and General Commercial (C-2) immediately south of the project site along Serpa Lane. North of the site across Moffett Creek is unincorporated county land zoned Rural Residential (R-R) and Non-Prime Agricultural Land-40 acre minimum (AG-2-B-40). Uses in the AG-2-B-40 zone are intended for areas where general agricultural related activities occur, and due to the soil (non-prime) and other factors (such as local climate) cropping varies across the County.

Regulatory Setting

This section summarizes current local regulations relevant to the review of *Land Use and Planning* for this project. Ordinances, regulations, or standards that are applicable to the environmental review of potential impacts related to land use and planning include the following:

FORT JONES GENERAL PLAN

The Town of Fort Jones General Plan is a blueprint for future development and describes the Town's development goals and policies, It also is the foundation for land use decisions made by the Planning Commission and City Council. Although the General Plan established standards for the location and density of land uses, it does not directly regulate the land use as does zoning. The Town's General Plan was utilized throughout this Initial Study as the fundamental planning document governing the project site.

FORT JONES 6TH CYCLE (2023 – 2031) HOUSING ELEMENT

The Housing Element of the General Plan is a comprehensive statement by the Town of Fort Jones of its current and future housing needs for all income levels and proposed actions to facilitate the provision of housing to meet those needs. The policies contained in this element are an expression of the statewide housing priority to allow for the attainment of decent housing and a suitable living environment for every Californian, as well as a reflection of the unique concerns of the community. The purpose of the Housing Element is to establish specific goals and policies relative to the provision of housing, and to adopt an action plan toward this end. In addition, the Housing Element identifies and analyzes housing needs, resources, and constraints to meeting those needs.

FORT JONES MUNICIPAL CODE

The Zoning Ordinance (Title 18) of the Town of Fort Jones Code of Ordinances promotes the protection of public health, safety, peace, morals, comfort, convenience and general well fare of the Town. Specially, the zoning ordinance assists in providing a definite plan of development of the Town and to guide, control and regulate future growth of the Town through the regulation of land uses, buildings and structures. The zoning or districting plan effectuated by this title consists of the establishment of various districts, including all territory within which the use of land, buildings, the space for buildings, and the height and bulk of buildings are regulated.

SCOTT VALLEY AREA PLAN

The Scott Valley Area Plan is a component of the Siskiyou County General Plan that provides policy direction for land use, resource management, and rural development within Scott Valley, including the communities of Fort Jones, Etna, and surrounding unincorporated areas. The Plan is intended to preserve the valley's agricultural character while accommodating limited, compatible development consistent with environmental constraints and available infrastructure. The Scott Valley Area Plan (formerly designated as "County Area Plan I) was adopted by the Siskiyou County Board of Supervisors as an amendment to the County's Land Use Element in 1980.

SISKIYOU COUNTY GENERAL PLAN

The Siskiyou County General Plan is a blueprint for future development and describes the County's development goals and policies, It also is the foundation for land use decisions made by the Planning Commission and Board of Supervisors Although the General Plan established standards for the location and density of land uses, it does not directly regulate the land use as does zoning.

SISKIYOU COUNTY LOCAL AGENCY FORMATION COMMISSION

Cortese-Knox-Hertzberg Local Government Reorganization Act of 2000 (LAFCO) Government Code Section 56000 governs annexations of property into cities and districts. This code section outlines the process and requirements for cities to annex unincorporated areas, aiming to encourage orderly growth and address inefficiencies associated with unincorporated areas within or near city boundaries. The Siskiyou LAFCO is an independent agency responsible for the implementation of the Cortese-Knox-Hertzberg Local Government Reorganization Act of 2000. The Act, Government Code Section 56000 et seq., identifies the responsibilities of LAFCO, which include the review, approval, and/or denial of boundary changes, annexations, consolidations, special district formations, incorporations for cities and special districts, and the establishment of local Spheres of Influence (SOI) which are boundaries established for each governmental agency for future provision of services.

SISKIYOU COUNTY HAZARD MITIGATION PLAN

The Siskiyou County Hazard Mitigation Plan (HMP) is a multi-jurisdictional planning document developed to identify natural and human-caused hazards that may affect Siskiyou County and to establish strategies for reducing long-term risk to people, property, critical infrastructure, and natural resources. The Plan is prepared in accordance with the Disaster Mitigation Act of 2000 (DMA 2000) and is periodically updated to maintain Federal Emergency Management Agency (FEMA) approval and eligibility for hazard mitigation funding. The primary purpose of the HMP is to reduce or eliminate long-term risk from identified hazards through coordinated mitigation actions. Key objectives of the Plan include reducing loss of life and injury from natural hazards; minimizing damage to public and private infrastructure; protecting critical facilities and essential services; increasing community resilience and disaster preparedness; and guiding integration of hazard mitigation into land use and infrastructure planning.

Impact Analysis

The following includes an analysis of environmental parameters related to *Land Use and Planning* based on Appendix G of the State CEQA Guidelines. The discussion not only includes the areas for which there is potential for environmental impacts but also provides justification for the conclusions that either no impacts, less than significant impacts, or less than significant impacts with mitigation could occur.

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

a) *Physically divide an established community?*

The existing wastewater treatment facility (WWTF), originally constructed in the 1950s, is deficient in its ability to adequately serve current treatment needs. Effluent water quality has not consistently met Waste Discharge Requirements (WDRs) for biochemical oxygen demand (BOD), total suspended solids (TSS), and settleable solids. The proposed project would improve wastewater treatment performance and provide treatment processes capable of meeting applicable water quality objectives and regulatory requirements established by the North Coast Regional Water Quality Control Board (NCRWQCB).

Implementation of the proposed project would not create any road, ditch, wall, or other feature that would physically divide an established community. Therefore, the project would not physically divide an established community, and no impact would occur.

b) ***Cause a significant environmental impact due to conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?***

Implementation of the proposed project would require a general plan amendment to change the land use designation of the project site from Mobile Home (M-H) to Public Facility (PF). The Public Facility (PF) designation accommodates public lands and facilities, including schools, parks, open space, and natural areas. The designation also allows for other publicly owned lands and utility facilities that are not typically available for recreation or public access. According to the Fort Jones General Plan, the Public Facility (PF) designation is compatible with all zoning districts (Fort Jones, 2006). The proposed project would also require a zone change from Manufactured Homes Park (M-H) (7.5 acres within Fort Jones) and AG-1-B-80/AG-2-B-40 (10 acres of unincorporated Siskiyou County) to the Town's Manufacturing (M) zone district. Therefore, the proposed project would be consistent with Title 18 (Zoning) of the Fort Jones Municipal Code, and a zoning amendment would not be required.

As discussed previously, effluent produced by the existing WWTF has not consistently met WDRs for BOD, TSS, and settleable solids. The proposed project would improve wastewater treatment performance and provide treatment processes capable of meeting applicable water quality objectives established by the NCRWQCB. The project would continue to support existing and planned land uses within the Town consistent with the General Plan and zoning regulations.

The proposed project has been designed to serve only those areas within the Town's existing sewer service area that currently receive wastewater service. The proposed project would not induce substantial growth, expand the Town's service area, or result in the inefficient use of land. Planning efforts associated with the proposed facility and prior WWTF improvements have been limited to providing adequate treatment capacity for anticipated development consistent with the Fort Jones General Plan. Accordingly, the proposed project would continue to support infill development and redevelopment opportunities within areas designated for growth.

By improving treatment efficiency and achieving compliance with applicable water quality standards, the proposed project would protect environmental resources, including groundwater resources and aquatic habitat. The facility would incorporate upgraded instrumentation and controls to optimize treatment performance and would include energy-efficient pumps, motors, and other equipment designed to reduce overall energy consumption.

As discussed throughout this Initial Study, the proposed project is consistent with applicable plans, policies, regulations, and ordinances adopted for the purpose of avoiding or mitigating environmental effects. Where potentially significant impacts have been identified, mitigation measures have been incorporated to reduce impacts to less than significant levels. Therefore, the proposed project would not conflict with any applicable land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect. Impacts would be less than significant.

Mitigation Measures

No mitigation measures are required.

Findings

Based upon the review of the information above, implementation of the proposed project will have a less than significant impact with respect to *Land Use and Planning*.

Documentation and References

Fort Jones (Town of Fort Jones). 2023. *Town of Fort Jones 2023 – 2031 Housing Element*. Revised July 2024.
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https://library.municode.com/ca/fort_jones/codes/code_of_ordinances. Accessed February 12, 2026.

Fort Jones. 2006. *Town of Fort Jones General Plan*. January 2006.
LAFCO (Siskiyou County Local Agency Formation Commission). 2021. *City of Fort Jones Municipal Services Review and Sphere of Influence Update*. April 2021.
SHN (SHN Consulting Engineers and Geologists). 2026. *Wastewater Facilities Plan Addendum No. 2*. June 2026.
Siskiyou (Siskiyou County). 1972. *Siskiyou County General Plan*. 1972, as amended.
Siskiyou. 2026. *Siskiyou County Geographic Information System*. [Online]: https://www.co.siskiyou.ca.us/gis. Accessed February 12, 2026.
Siskiyou. 1980. *Scott Valley Area Plan*. November 13, 1980.

Section XII – Mineral Resources

The purpose of this section of the Initial Study is to address potential impacts of the proposed project on mineral resources. This section also discusses the proposed project in the context of regional and local mineral resources and addresses the potential impacts to mineral resource deposits that may occur as a result of implementation of the proposed project.

Environmental Setting

A mineral resource is land on which known deposits of commercially viable mineral or aggregate deposits exist. This designation is applied to sites determined by the State Division of Mines and Geology as being a resource of regional significance and is intended to help maintain any quarrying operations and protect them from encroachment of incompatible uses.

The California Department of Conservation's (DOC) Division of Mine Reclamation (DMR) compiles data on the status of mines and the commodities produced. The California Geological Survey (CGS) produces Mineral Land Classification (MLC) studies that identify areas with potentially important mineral resources that should be considered in local and regional planning. Based on maps prepared by the DOC and CGS, this area of Siskiyou County does not contain oil, natural gas, or geothermal fields (DOC, 2026).

Regulatory Setting

This section summarizes current State and local regulations relevant to the review of *Mineral Resources* for this project. Ordinances, regulations, or standards that are applicable to the environmental review of potential impacts related to mineral resources include the following:

DIVISION OF MINE RECLAMATION

In 1991, the Division of Mine Reclamation (DMR) was created to provide a measure of oversight for local governments as they administer the Surface Mining and Reclamation Act (SMARA) within their respective jurisdictions. While the primary focus is on existing mining operations and the return of those mined lands to a usable and safe condition, issues relating to abandoned legacy mines are addressed through the Abandoned Mine Lands Unit.

SURFACE MINING AND RECLAMATION ACT

The Surface Mining and Reclamation Act of 1975 (SMARA, Public Resources Code, Sections 2710-2796) provides a comprehensive surface mining and reclamation policy with the regulation of surface mining operations to assure that adverse environmental impacts are minimized, and mined lands are reclaimed to a usable condition. SMARA also encourages the production, conservation, and protection of the state's mineral resources. Public Resources Code Section 2207 provides annual reporting requirements for all mines in the state, under which the State Mining and Geology Board is also granted authority and obligations. SMARA also requires the State Geologist to classify land into MRZs according to its known or inferred mineral potential. The primary goal of mineral land classification is to ensure that the mineral potential of land is recognized by local government decision makers and considered before land-use decisions are made that could preclude mining.

Impact Analysis

The following includes an analysis of environmental parameters related to *Mineral Resources* based on Appendix G of the State CEQA Guidelines. The discussion not only includes the areas for which there is potential for environmental impacts but also provides justification for the conclusions that either no impacts, less than significant impacts, or less than significant impacts with mitigation could occur.

Would the Project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the State?				**X**
b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local General Plan, specific plan, or other land use plan?				**X**

a) *Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the State?*

The project site is not designated as a Mineral Resource Zone (MRZ) containing significant mineral resources, and no known mineral resources of regional or statewide importance occur on or near the site. Accordingly, implementation of the proposed project would not result in the loss of availability of a known mineral resource. Therefore, no impact would occur in this regard.

b) *Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local General Plan, specific plan, or other land use plan?*

The proposed project would not result in the loss of availability of a locally important mineral resource recovery site as delineated on a local General Plan, specific plan, or other applicable land use plan. The project site is not identified in the Fort Jones General Plan, Siskiyou County General Plan, or any other applicable land use plan as containing significant mineral resource values. In addition, the project site is not located within a designated MRZ or Mineral Resource Buffer area. Therefore, implementation of the proposed project would not result in the loss of availability of a locally important mineral resource recovery site, and no impact would occur.

Mitigation Measures

No mitigation measures are required.

Findings

In the course of the above evaluation, impacts associated with *Mineral Resources* were found to not be significant because of the inability of a project of this scope to create such impacts or the absence of project characteristics producing effects of this type.

Documentation and References

DOC (California Department of Conservation). 2026. *The CGS Information Warehouse: MLC.* [Online]: https://maps.conservation.ca.gov/cgs/informationwarehouse/mlc/. Accessed February 12. 2026.
Fort Jones (Town of Fort Jones). 2006. *Town of Fort Jones General Plan, Conservation Element*. January 2006.
SHN (SHN Consulting Engineers and Geologists). 2026. *Wastewater Facilities Plan Addendum No. 2*. June 2026.
Siskiyou (Siskiyou County). 2025. *Siskiyou County General Plan Update Background Report*. January 2025.
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Section XIII – Noise

The purpose of this section of the Initial Study is to evaluate noise source impacts to onsite and surrounding land uses as a result of project implementation. Noise impacts are those that exceed general plan or other local ordinances developed to provide reasonable control of noise to residences, parks, open spaces and other specific designated sites. Noise sources typically include roadways, freeways, schools, industrial and commercial operations and other facilities that can generate noise.

Noise Scales and Definitions

Sound is described in terms of the loudness (amplitude) of the sound and frequency (pitch) of the sound. The standard unit of measurement of the loudness of sound is the decibel (dB). Since the human ear is not equally sensitive to sound at all frequencies, a special frequency-dependent rating scale has been devised to relate noise to human sensitivity. The A-weighted decibel scale (dBA) performs this compensation by discriminating against frequencies in a manner approximating the sensitivity of the human ear.

Decibels are based on the logarithmic scale. The logarithmic scale compresses the wide range in sound pressure levels to a more usable range of numbers in a manner similar to the Richter scale used to measure earthquakes. In terms of human response to noise, a sound 10 dBA higher than another is judged to be twice as loud, and 20 dBA higher four times as loud, and so forth. Everyday sounds normally range from 30 dBA (very quiet) to 100 dBA (very loud). Many methods have been developed for evaluating community noise to account for, among other things:

- The variation of noise levels over time;
- The influence of periodic individual loud events; and
- The community response to changes in the community noise environment.

Numerous methods have been developed to measure sound over a period of time; refer to Table 4-13, NOISE DESCRIPTORS.

Table 4-13
NOISE DESCRIPTORS

Term	Definition
Decibel (dB)	The unit for measuring the volume of sound equal to 10 times the logarithm (base 10) of the ratio of the pressure of a measured sound to a reference pressure (20 micropascals).
A-Weighted Decibel (dBA)	A sound measurement scale that adjusts the pressure of individual frequencies according to human sensitivities. The scale accounts for the fact that the region of highest sensitivity for the human ear is between 2,000 and 4,000 cycles per second (hertz).
Equivalent Sound Level (L_{eq})	The sound level containing the same total energy as a time varying signal over a given time period. The L_{eq} is the value that expresses the time averaged total energy of a fluctuating sound level.
Maximum Sound Level (L_{max})	The highest individual sound level (dBA) occurring over a given time period.
Minimum Sound Level (L_{min})	The lowest individual sound level (dBA) occurring over a given time period.
Community Noise Equivalent Level (CNEL)	A rating of community noise exposure to all sources of sound that differentiates between daytime, evening, and nighttime noise exposure. These adjustments are +5 dBA for the evening, 7:00 PM to 10:00 PM, and +10 dBA for the night, 10:00 PM to 7:00 AM.
Day/Night Average (L_{dn})	The L_{dn} is a measure of the 24-hour average noise level at a given location. It was adopted by the U.S. Environmental Protection Agency (EPA) for developing criteria for the evaluation of community noise exposure. It is based on a measure of the average noise level over a given time period called the L_{eq}. The L_{dn} is calculated by averaging the L_{eq}'s for each hour of the day at a given location after penalizing the "sleeping hours" (defined as 10:00 PM to 7:00 AM) by 10 dBA to account for the increased sensitivity of people to noises that occur at night.
Exceedance Level (L_n)	The A-weighted noise levels that are exceeded 1%, 10%, 50%, and 90% (L_{01}, L_{10}, L_{50}, L_{90}, respectively) of the time during the measurement period.
Source: Handbook of Noise Control, Cyril M Harris, 1979.	

Environmental Setting

Existing ambient noise conditions in the project vicinity are influenced by vehicle traffic on Scott River Road, agricultural operations, light industrial activities, and residential land uses. Intermittent noise generated by tractors, harvesters, grading equipment, trucks, lawn mowers, and similar equipment can range from approximately 70 to 100 dBA at a distance of 50 feet from the source (FHWA, 2006), while routine residential activities, such as conversation, vehicle use, and lawn maintenance, generally produce lower noise levels than heavy equipment operations.

SENSITIVE NOISE RECEPTORS

Residential developments, schools, hospitals, rest homes, long-term medical and mental care facilities, and park and recreation areas are considered sensitive noise receptors as these are locations where people sleep or typically expect quiet conditions. Sensitive noise conditions are typically at night and measured as indoor levels in decibels (dB). Based on the findings of the Fort Jones General Plan Noise Element, only Highway 3 was identified as a major noise producer in the planning area. Scott River Road is another major road within the Town, but currently carries a low volume of traffic and does not represent a significant noise source (Fort Jones, 2006).

Land uses north and south of the existing WWTF are primarily agricultural with the nearest residences located approximately 1,600 feet to the southeast and 1,400 feet to the southwest along Bridge Street across Scott River Road. The closest sensitive receptor is located approximately 200 feet from the project boundary and approximately 450 feet from the new WWTF footprint.

AIRPORTS

There are no aviation facilities in the vicinity of the project site. Scott Valley Airport is located approximately five miles south of Fort Jones and eight miles north of the City of Etna on Island Road east of Highway 3. The proposed project is not located within an airport land use plan or within two miles of a private airport or airstrip.

RAILROADS

There are no railroad tracks in the vicinity of the project site.

Regulatory Setting

This section summarizes current State and local regulations relevant to the review of *Noise* for this project. Ordinances, regulations, or standards that are applicable to the environmental review of potential impacts related to noise include the following:

CALIFORNIA GOVERNMENT CODE

California Government Code Section 65302 (f) mandates that the legislative body of each county and city adopt a noise element as part of its comprehensive general plan. The local noise element must recognize the land use compatibility guidelines established by the State Department of Health Services. The guidelines rank noise land use compatibility in terms of "normally acceptable", "conditionally acceptable", "normally unacceptable", and "clearly unacceptable" noise levels for various land use types. Single-family homes are "normally acceptable" in exterior noise environments up to 60 CNEL and "conditionally acceptable" up to 70 CNEL. Multiple-family residential uses are "normally acceptable" up to 65 CNEL and "conditionally acceptable" up to 70 CNEL. Schools, libraries, and churches are "normally acceptable" up to 70 CNEL, as are office buildings and business, commercial, and professional uses.

CALTRANS CRITERIA FOR ACCEPTABLE VIBRATION

Vibration is like noise in that it involves a source, a transmission path, and a receiver. While vibration is related to noise, it differs in that in that noise is generally considered to be pressure waves transmitted through air, whereas vibration usually consists of the excitation of a structure or surface. As with noise, vibration consists of an

amplitude and frequency. A person's perception to the vibration will depend on their individual sensitivity to vibration, as well as the amplitude and frequency of the source and the response of the system which is vibrating. Vibration can be measured in terms of acceleration, velocity, or displacement. A common practice is to monitor vibration measures in terms of PPV in inches per second (in/sec). Standards pertaining to perception as well as damage to structures have been developed for vibration levels defined in terms of PPV. The Town does not have specific policies pertaining to vibration levels.

Human and structural response to different vibration levels is influenced by a number of factors, including ground type, distance between source and receptor, duration, and the number of perceived vibration events. Table 4-14, EFFECTS OF VARIOUS VIBRATION LEVELS, which was developed by Caltrans, shows the vibration levels which would normally be required to result in damage to structures. The vibration levels are presented in terms of PPV in in/sec. Table 4-14 indicates that the threshold for architectural damage to structures is 0.20 in/sec PPV and continuous vibrations of 0.10 in/sec PPV, or greater, would likely cause annoyance to sensitive receptors.

Table 4-14
EFFECTS OF VARIOUS VIBRATION LEVELS

Predicted Noise Levels, L_{max} dB		Human Reaction	Effect on Buildings
mm per second	inches per second		
0.15 – 0.30	0.006 – 0.019	Threshold of perception; possibility of intrusion.	Vibrations unlikely to cause damage of any type.
2.0	0.08	Vibrations readily perceptible.	Recommended upper level of the vibration to which ruins and ancient monuments should be subjected.
2.5	0.10	Level at which continuous vibrations begin to annoy people.	Virtually no risk of "architectural" damage to normal buildings.
5.0	0.20	Vibrations annoying to people in buildings (this agrees with the levels established for people standing on bridges and subjected to relatively short periods of vibrations).	Threshold at which there is a risk of "architectural" damage to normal dwelling - houses with plastered walls and ceilings Special types of finish such as lining of walls, flexible ceiling treatment, etc., would minimize "architectural" damage.
10 – 15	0.4 – 0.6	Vibrations considered unpleasant by people subjected to continuous vibrations and unacceptable to some people walking on bridges.	Vibrations at a greater level than normally expected from traffic, but would cause "architectural" damage and possibly minor structural damage.
Source: Caltrans. Transportation Related Earthborne Vibrations, Technical Advisory: TAV-02- 01-R9601. February 2002.			

FORT JONES GENERAL PLAN, NOISE ELEMENT

The Fort Jones General Plan Noise Element (Fort Jones, 2006) provides general guidance for noise related activities in the Town with some very limited site specific noise contours and analysis. For this project, there is no information in the Noise Element that relates to the project area, other than a brief discussion of transportation related noise at the intersection of Highway 3 and Scott River Road. The Noise Element provides general guidance with the establishment of an outdoor noise criterion of 50 decibels at the property line for outdoor activity noise annoyance (see Table 4-15, NOISE LEVEL PERFORMANCE STANDARDS FOR NEW PROJECTS AFFECTED BY NON-TRANSPORTATION NOISE). Meaning that at about 50 decibels, noise may be considered annoying or interfering with peoples' enjoyment of the outdoors. While the threshold is established, there is no criteria that discusses permanent versus temporary noise thresholds.

Table 4-15
NOISE LEVEL PERFORMANCE STANDARDS FOR NEW PROJECTS AFFECTED BY NON-TRANSPORTATION NOISE

Noise Level Descriptor	Day Time (7 a.m. to 10 p.m.)	Nighttime (10 p.m. to 7 a.m.)
Hourly L_{eq}, dB	50	45
Source: Town of Fort Jones General Plan Noise Element. January 2006.		

TITLE 24 - BUILDING CODE

The State's noise insulation standards are codified in the California Code of Regulations, Title 24: Part 1, Building Standards Administrative Code, and Part 2, California Building Code. These noise standards are applied to new construction in California for the purpose of interior noise compatibility from exterior noise sources. The regulations specify that acoustical studies must be prepared when noise-sensitive structures, such as residential buildings, schools, or hospitals, are located near major transportation noise sources, and where such noise sources create an exterior noise level of 65 dBA CNEL or higher. Acoustical studies that accompany building plans must demonstrate that the structure has been designed to limit interior noise in habitable rooms to acceptable noise levels. For new residential buildings, schools, and hospitals, the acceptable interior noise limit for new construction is 45 dBA CNEL.

Impact Analysis

The following includes an analysis of environmental parameters related to *Noise* based on Appendix G of the State CEQA Guidelines. The discussion not only includes the areas for which there is potential for environmental impacts but also provides justification for the conclusions that either no impacts, less than significant impacts, or less than significant impacts with mitigation could occur.

Would the project result in:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
a) 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?		**X**		
b) Generation of excessive ground-borne vibration or ground-borne noise levels?			**X**	
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?				**X**

a) *Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?*

CONSTRUCTION

Construction of the project would temporarily increase noise in the immediate vicinity of the project over an approximately 18-month period due to the use of construction equipment as well as from increased traffic as construction workers commute to and from the project site. Construction access would be from Serpa Lane.

Noise impacts resulting from construction would depend upon the noise generated by various pieces of construction equipment, the timing and duration of noise-generating activities, and the distance between construction noise sources and noise sensitive areas. Construction noise impacts primarily result when construction activities occur during noise-sensitive times of the day (for example, early morning, evening, or nighttime hours), the construction occurs in areas immediately adjoining noise sensitive land uses or habitats, or when construction lasts over extended periods of time. Construction activities generate considerable amounts of noise, especially during earthmoving activities when heavy equipment is used. Equipment for construction of the project would include excavators, backhoes, loaders, drill rigs, tactors, flatbed trucks, dump trucks, personnel transport vehicles, service trucks, cement trucks, compaction equipment, and paving equipment. Noise levels from construction equipment are shown in Table 4-16, CONSTRUCTION EQUIPMENT NOISE.

Table 4-16
CONSTRUCTION EQUIPMENT NOISE

Type of Equipment	Predicted Noise Levels, L_{max} dB			
	Noise Level at 50 Feet	Noise Level at 100 Feet	Noise Level at 200 Feet	Noise Level at 400 Feet
Backhoe	78	72	66	60
Compactor (ground)	83	77	71	65
Compressor (air)	78	72	66	60
Dozer	82	76	70	64
Dump Truck	76	70	64	58
Excavator	81	75	69	63
Flat Bed Truck	74	68	62	56
Front End Loader	79	73	67	61
Drill Rig	79	73	67	61
Tractor	84	78	72	66
Dump Truck	76	70	64	58
Concrete Mixer Truck	79	73	67	61
Concrete Pump Truck	81	75	69	63
Paver	77	71	65	59
Pickup Truck/Service Vehicles	75	69	63	56
Generator	81	75	69	63
Jackhammer	89	83	77	71
Pneumatic Tools	85	79	73	67
Source: Federal Highway Administration. FHWA Roadway Construction Noise Model User's Guide. January 2006.				

Annoyance due to construction activities primarily occurs when: 1) construction activities occur during noise-sensitive times of the day (e.g., early morning, evening, or nighttime hours); 2) the construction occurs in areas immediately adjoining noise-sensitive land uses; or 3) when construction lasts over extended periods of time. Noise generated by construction would be the greatest during site grading activities and excavation for underground utilities. Activities involved in construction would generate maximum noise levels, as indicated in Table 4-16, ranging from 74 to 89 dB at a distance of 50 feet.

Onsite construction activities associated with the proposed project would primarily occur at approximately 450 feet from the nearest sensitive receptor along Bridge Street with the closest construction activities occurring at approximately 100 feet for installation of the new sanitary sewer tie in across Scott River Road. Based on a review of the anticipated construction equipment, temporary construction noise levels are anticipated to be up to 89 dBA at 50 feet during construction (FHWA, 2006). These levels were used as conservative levels to assess impacts on nearby sensitive receptors. It should be noted that sound from a point source is known to attenuate (decrease) at a rate of -6 dB for each doubling of distance. For example, a noise level of 89 dB as measured at 50 feet from the noise source would attenuate to 83 dB at 100 feet from the source, to 77 dB at 200 feet from the source, to 71 dB at 400 feet from the source, and to 65 dB at 800 feet from the source to the receptor.

Noise from construction activities would be transitory (occurring intermittently over the construction period), temporary (occurring over an overall timeframe of approximately 18 months), and the location of work at any given time would vary as portions of the project construction get completed. Given its transitory and temporary nature,

construction activities could result in a short-term noise impact in the vicinity of the project site, depending on the timing and location of construction activities. To mitigate the noise impacts from short-term construction activities, Mitigation Measure N-1 (Temporary Construction Noise) is required for the proposed project. Mitigation Measure N1-1 limits construction activities to the hours between 7:00 a.m. and 7:00 p.m. Monday through Saturday and prohibited during evenings, nights, federal holidays and on Sunday. Additionally, all stationary equipment and construction equipment shall be maintained in good working order and fitted with factory approved muffler systems per. Mitigation Measure N-2 (Construction Vehicle Routing and Access) would ensure that construction access and equipment staging occurs away from existing residents. With these requirements implemented, impacts to nearby sensitive receptors from construction activities would be less than significant with mitigation incorporated.

OPERATION

The proposed project consists of the construction of a new wastewater treatment facility to address the Town's existing wastewater deficiencies. This includes construction of treatment ponds, headworks, a lift station and installation of new blowers, aerators, mixers, generator, pumps and construction of ancillary support structures (i.e., admin/lab and electrical and control buildings), parking area, and new access roads.

Operational noise generated by the new WWTF would include noise from pumps, blowers, and other wastewater transport and treatment equipment, from onsite activities, and from vehicles traveling to and from the site. Several of these noise sources, such as the enclosed blowers (75-85 decibel rating), would be in placed buildings and insulated with damping foam and acoustic absorbers; therefore, they would not generate substantial amounts of noise. Submersible pumps will be placed inside the wet wells located underground, thereby minimizing operation noise. As a result, operation noise generated by WWTF operations would be less than significant.

The onsite generator would be housed in a sound-attenuated National Electrical Manufacturers Association (NEMA) rated enclosure. The short duration and intermittent timing of the noise from the backup generator would not result in a substantial permanent increase in ambient noise levels above current levels. Onsite maintenance activities would occasionally generate noise, but these infrequent events would not add measurably to long-term average noise levels. Earthen berms and landscaping would separate the new facility from adjacent areas, breaking the line-of-site between onsite noise sources and adjacent offsite areas. Operational noise impacts are considered less than significant in this regard.

b) *Generation of excessive ground-borne vibration or ground-borne noise levels?*

CONSTRUCTION

Increases in ground-borne vibration levels attributable to the proposed project would be primarily associated with construction-related activities. Construction on the project site would have the potential to result in varying degrees of temporary ground-borne vibration, depending on the specific construction equipment used and the operations involved. Ground vibration generated by construction equipment spreads through the ground and diminishes in magnitude with increases in distance. The effect on buildings located in the vicinity of the construction site often varies depending on soil type, ground strata, and construction characteristics of the receiver building(s). The results from vibration can range from no perceptible effects at the lowest vibration levels, to low rumbling sounds and perceptible vibration at moderate levels, to slight damage at the highest levels. Ground-borne vibrations from construction activities rarely reach levels that damage structures.

The Federal Transit Administration (FTA) has published standard vibration velocities for construction equipment operations. In general, depending on the building category of the nearest buildings adjacent to the potential pile driving area, the potential construction vibration damage criteria vary. For example, for a building that is constructed with reinforced concrete with no plaster, the FTA guidelines show that a vibration level of up to 0.50 inch per second (in/sec) peak particle velocity (PPV) is considered safe and would not result in any construction vibration damage. The types of construction vibration impact include human annoyance and building damage. Human annoyance occurs when construction vibration rises significantly above the threshold of human perception for extended periods of time. Building damage can be cosmetic or structural. Ordinary buildings that are not particularly fragile would not experience any cosmetic damage (e.g., plaster cracks) at distances beyond 30 feet.

Construction related ground vibration is normally associated with impact equipment such as pile drivers, jackhammers, and the operation of some heavy-duty construction equipment, such as dozers and trucks. Since there are no established vibration standards in the Town, this evaluation uses the FTA (2006) recommended standard of 0.2 inches per second peak particle velocity with respect to the prevention of structural damage for normal buildings. This measurement is also the level at which vibrations may begin to annoy people inside buildings (Caltrans, 2013). In general, the FTA architectural damage criterion for continuous vibrations (i.e., 0.2 in/sec) appears to be conservative. The types of construction vibration impacts include human annoyance and building damage. Ordinary buildings that are not particularly fragile would not experience any cosmetic damage (e.g., plaster cracks) at distances beyond 25 feet. This distance can vary substantially depending on the soil composition and underground geological layer between vibration source and receiver. In addition, not all buildings respond similarly to vibration generated by construction equipment.

Onsite construction activities have the potential to generate low levels of ground-borne vibration. Table 4-17, VIBRATION LEVELS FOR VARYING CONSTRUCTION EQUIPMENT, identifies the typical vibration levels produced by construction equipment.

Table 4-17
VIBRATION LEVELS FOR VARYING CONSTRUCTION EQUIPMENT

Equipment	Approximate peak particle velocity at 25 feet (inches/second)	Approximate peak particle velocity at 50 feet (inches/second)	Approximate peak particle velocity at 100 feet (inches/second)
Large bulldozer	0.089	0.031	0.011
Loaded trucks	0.076	0.027	0.010
Small bulldozer	0.003	0.001	0.000
Auger/Drill rigs	0.089	0.031	0.011
Jackhammer	0.035	0.012	0.004
Vibrator Hammer	0.070	0.025	0.009
Vibratory Compactor/roller	0.210	0.074	0.026
Source: j.c.brennan & associates, Inc. Dignity Health Mercy Medical Center North State Pavilion Environmental Noise Analysis. March 2019.			

Table 4-17 provides that construction vibration levels anticipated for the project are less than the 0.2 in/sec PPV threshold of damage to buildings and less than the 0.1 in/sec threshold of annoyance criteria at distances of 50 feet. Sensitive receptors which could be impacted by construction related vibrations, especially vibratory compactors/rollers, are located approximately 450 feet, or further, from the project site construction areas, with the exception of the new sanitary sewer tie in (approximately 100 feet). At these distances construction vibrations are not predicted to exceed acceptable levels. Additionally, construction activities would be temporary in nature and would likely occur during normal daytime working hours.

Because construction vibrations are not predicted to cause damage to existing buildings or cause annoyance to sensitive receptors, implementation of the proposed project would not expose persons to or generate excessive ground borne vibration or ground borne noise levels. Therefore, construction vibrations are not anticipated to cause damage to existing buildings or cause annoyance to sensitive receptors. Vibration impacts associated with construction are considered to be less than significant and no mitigation measures are required.

OPERATION

The proposed project would not generate ground-borne vibration that could be felt at surrounding uses. The proposed project would not involve railroads or substantial heavy truck operations, with the exception of maintenance vehicles to the project site once the facility is operational. As a result, impacts from vibration associated with project operation would be less than significant and no mitigation measures are required.

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?***

The closest public use airport to the project site is the Scott Valley Airport, which is just over five miles south of the project site. In addition, according to the Federal Aviation Administration, the project site is not located in the vicinity of a private air strip. Since the project would not result in people residing at the project site and the project area is located well beyond the noise impacts zone for this airport, it is not anticipated that the project would result in exposing people to excessive noise levels from the Scott Valley Airport. No impact would occur in this regard.

Mitigation Measures

The following mitigation measure has been developed to reduce potential impacts related to *Noise* to less than significant levels:

Mitigation Measure N-1 – Temporary Construction Noise

The project contractor shall implement the following measures during project construction to minimize temporary noise impacts on nearby sensitive receptors. These requirements shall be included on grading and construction plans and incorporated into construction contract specifications.

- Construction activities shall be limited to the hours between 7:00 a.m. and 7:00 p.m. Monday through Saturday. Construction activities shall not occur on Sundays or recognized holidays. If construction activities are required outside the permitted construction hours, the Town shall provide notice to nearby residents and property owners at least 48 hours in advance describing the nature, location, duration, and anticipated hours of the work.

- All construction equipment, fixed or mobile, shall be equipped with properly operating mufflers and sound-control devices no less effective than those originally installed by the manufacturer. Equipment shall be maintained in accordance with manufacturer specifications.

- Stationary noise-generating equipment, including generators, compressors, pumps, and similar equipment, shall be located as far as practical from occupied residences and other sensitive receptors. When feasible, temporary noise shields, enclosures, or other sound-attenuating measures shall be utilized.

- Construction contractors shall minimize equipment idling times and shall shut off equipment when not in active use, consistent with safety and operational requirements.

- The contractor shall designate a disturbance coordinator or construction manager to respond to noise-related complaints, as feasible. Upon receipt of a noise complaint, the contractor shall investigate the complaint and implement reasonable corrective measures, where feasible, to reduce construction-related noise impacts.

Mitigation Measure N-2 – Construction Vehicle Routing and Access

In addition to the permitted hours of construction activities, project grading and construction plans shall identify construction vehicle access routes and staging areas. The plans shall be subject to review and concurrence by the Town of Fort Jones Public Works Department and shall be implemented by the project contractor throughout the duration of construction activities.

- During all project-related construction activities, construction worker parking, material delivery vehicles, and heavy trucks used for soil, aggregate, equipment, or material hauling shall utilize designated haul routes approved by the Town of Fort Jones. Such vehicles shall avoid travel on local residential streets, including but not limited to Bridge Street.

- Onsite construction access shall be limited to the project access point along Serpa Lane.

- Construction staging, equipment storage, and material stockpiling shall be restricted to the designated construction staging area shown on Figure 2-9, WASTEWATER FACILITY UPGRADES, and shall not occur within public roadways or residential areas.

- The contractor shall post and maintain appropriate signage directing construction traffic to approved access and haul routes and shall inform subcontractors and delivery drivers of the approved routing requirements prior to commencement of construction activities.

Findings

Based upon the review of the information above, with implementation of mitigation measures the proposed project will have a less than significant impact with respect to *Noise*.

Documentation and References

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Fort Jones. 2026. *Town of Fort Jones Code of Ordinances – Title 18*. [Online]: https://library.municode.com/ca/fort_jones/codes/code_of_ordinances. Accessed February 12, 2026.

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SHN (SHN Consulting Engineers and Geologists). 2026. *Wastewater Facilities Plan Addendum No. 2*. June 2026.

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Section XIV – Population and Housing

This section addresses potential impacts of the project on population and housing in the project area and provides an overview of current population estimates and projected population growth.

Environmental Setting

The Town of Fort Jones is located within the eastern portion of Siskiyou County, bordered by the Klamath Mountains and Klamath National Forest to the west. It is the second smallest incorporated city in Siskiyou County. The Town has a developed core area immediately adjacent to Highway 3 and Scott River Road along the southern edge.

Fort Jones' population is currently estimated at 663 persons or 1.5 percent of the County's total population (DOF, 2025a). Between January 2024 and January 2025, the Town's population decreased from 668 to 663 (DOF, 2025a). This reflects a reduction of about -0.7 percent compared to about -0.3 percent for Siskiyou County over the same time period. According to the Siskiyou County Transportation Commission's 2021 Regional Transportation Plan (RTP), population in the County is anticipated to decline at a rate of 0.27 percent per year, with an estimated population of 41,434 persons in Siskiyou County by 2040 (SCTC, 2021). As of January 1, 2025, Fort Jones has an estimated 330 housing units, with a vacancy rate of 8.8% and an average of 2.20 persons per household (DOF, 2025b).

The potential for population growth for the Town is very limited and highly dependent on the economy. The Fort Jones General Plan directs development and growth to vacant lots within the planning area through goals and policies that promote infill development.

Regulatory Setting

This section summarizes current federal, State, and local regulations relevant to the review of *Population and Housing* for this project. Ordinances, regulations, or standards that are applicable to the environmental review of potential impacts related to population and housing include the following:

CALIFORNIA PLANNING AND ZONING LAW

The legal framework in which California cities and counties exercise local planning and land use functions is set forth in the California Planning and Zoning Law, Sections 65000 to 66499.58. Under State planning law, each city and county must adopt a comprehensive, long-term general plan. State law gives cities and counties wide latitude in how a jurisdiction may create a general plan, but there are fundamental requirements that must be met. These requirements include the inclusion of seven mandatory elements described in the Government Code, including a section on land use. Each of the elements must contain text and descriptions setting forth objectives, principles, standards, policies, and plan proposals; diagrams and maps that incorporate data and analysis; and mitigation measures.

FORT JONES GENERAL PLAN

The Town of Fort Jones General Plan is a blueprint for future development and describes the Town's development goals and policies, It also is the foundation for land use decisions made by the Planning Commission and City Council. Although the General Plan established standards for the location and density of land uses, it does not directly regulate the land use as does zoning. The Fort Jones General Plan, adopted in January of 2006, coordinates all components of the City's physical development, and sets objectives, policies and standards which guide future growth within the City's planning area.

FORT JONES 6TH CYCLE (2023-2031) HOUSING ELEMENT

The Fort Jones 6th Cycle (2023-2031) Housing Element was prepared to guide the Town's housing development from 2023 through 2031. The Housing Element is a State-mandated eight-year policy document that is a component

of the Fort Jones General Plan. The overall purpose of the Housing Element is to identify current and projected housing needs, show locations where housing can be built, and set goals, policies, and programs to meet the community's housing needs. The foundation of the Housing Element is the Regional Housing Needs Allocation (RHNA), which begins with a determination of housing need issued by the State Department of Housing and Community Development (HCD). A jurisdiction is required to demonstrate whether it has sufficient capacity to achieve its RHNA. However, identification of a site's capacity does not guarantee that construction will occur on that site, as the actual construction of units would occur as a result of a development application from a private or nonprofit developer. The RHNA for Fort Jones for this Housing Element Update is two units, including one very low-income unit and one low-income unit. On August 2, 2024, HCD determined that the Fort Jones 6th Cycle (2023-2031) Housing Element will substantially comply with State Housing Element Law (Government Code Section 65580 et seq).

HOUSING CRISIS ACT OF 2019 – SENATE BILL 330 (SB 330)

Pursuant to SB 330, also known as the Housing Crisis Act of 2019, which was signed into law on October 9, 2019, Government Code Section 65863 prohibits a jurisdiction from reducing the residential density of any parcel unless the reduction is consistent with the adopted General Plan (including the Housing Element) and it does not negatively impact the jurisdiction's ability to maintain its identified Regional Housing Needs Allocation. In addition, Government Code Section 66300(b)(1)(A) was enacted and provides that agencies shall not "chang[e] the general plan land use designation, specific plan land use designation, or zoning of a parcel or parcels of property to a less intensive use or reducing the intensity of land use within an existing general plan land use designation, specific plan land use designation, or zoning district in effect at the time of the proposed change, below what was allowed under the land use designation or zoning ordinances of the affected county or affected city, as applicable, as in effect on January 1, 2018." For purposes of Government Code Section 66300(b)(1)(A), a "less intensive use" includes any changes that would lessen the intensity of potential housing development. Pursuant to SB 330, replacement capacity for any displaced residential units must be provided at the time of project approval. However, Government Code Section 66300(a)(1)(B) provides that an "affected city" does not include any city that has a population of 5,000 or less and is not located within an urbanized area, as designated by the United States Census Bureau (CGC Section 66300, as amended).

Impact Analysis

The following includes an analysis of environmental parameters related to *Population and Housing* based on Appendix G of the State CEQA Guidelines. The discussion not only includes the areas for which there is potential for environmental impacts but also provides justification for the conclusions that either no impacts, less than significant impacts, or less than significant impacts with mitigation could occur.

Would the Project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
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)*?				**X**
b) Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?				**X**

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)?*

Implementation of the proposed project would not induce substantial unplanned population growth in the area, either directly or indirectly. The project would upgrade the Town's existing wastewater treatment facility to meet regulatory requirements and to serve existing and planned development within the established service area. The

proposed project would not extend utilities or services to new service areas, nor would it include components intended to facilitate population growth beyond that already anticipated in the Town's General Plan. Accordingly, the proposed project would not result in inducement of unplanned population growth. Therefore, no impact would occur in this regard.

b) ***Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?***

DISPLACEMENT OF EXISTING PEOPLE OR HOUSING

The proposed project would not displace people or existing housing units nor does it include the demolition of any existing housing. No impact would occur in this regard.

SENATE BILL 330 CONSISTENCY

Government Code 65863

State law requires that the Housing Element identify adequate sites for housing by including an inventory of land suitable for residential development, including vacant sites and non-vacant sites having potential for redevelopment, with an analysis of the development capacity that can realistically be achieved for each site. The purpose of the Housing Element sites inventory is to evaluate whether there are sufficient sites with appropriate zoning density to meet the RHNA. The sites inventory is based on the Town's current land use designations and zoning requirements. Table 2-1 of the Fort Jones 6th Cycle (2023-2031) Housing Element provides a summary of Fort Jones' ability to meet their RHNA. After accounting for capacity on vacant sites, and projected accessory dwelling units (ADU), the Town of Fort Jones has a surplus capacity that can accommodate an estimated 16 units, which exceeds the Town's RHNA (Fort Jones, 2024).

Implementation of the proposed project would require a general plan amendment from Mobile Home (M-H) to Public Facility (PF) and a zone change from Manufactured Homes Park (M-H) to Manufacturing (M) to support development of the new wastewater treatment facility and bring the Town's wastewater treatment system into compliance with the North Coast Regional Water Quality Control Board (NCRWQCB) water quality regulations. The proposed project is not included in the adequate sites or vacant land inventories of the Housing Element (Fort Jones, 2024). Therefore, as the project would not remove or reduce the intensity of any site listed in the Housing Element adequate sites inventory, the proposed general plan amendment and zone change would not reduce the Housing Element's RHNA allocation for the 2023-2031 planning period. No impact would occur in this regard.

Government Code Section 66300

As previously described above under *Regulatory Setting*, Government Code Section 66300(b)(1)(A) was enacted and provides that "affected" agencies shall not "chang[e] the general plan land use designation, specific plan land use designation, or zoning…to a less intensive use…below what was allowed under the land use designation and zoning ordinances in effect on January 1, 2018." Government Code Section 66300(a)(1)(B) provides that an "affected city" does not include any city that has a population of 5,000 or less and is not located within an urbanized area, as designated by the United States Census Bureau. Under the 2020 Census criteria, the Census Bureau updated its definition of urban areas to require at least 2,000 housing units or a population of at least 5,000, eliminated the former "urban cluster" classification.

The Town of Fort Jones has an existing population of 663 persons which is well below the 5,000 person threshold for an urban designation. Based on the Census Bureau, the Town is classified as a rural area (Census Bureau, 2020). As a result, Fort Jones is not defined as an "affected city"; therefore, compliance with Government Code Section 66300 is not applicable to the proposed project. No impact would occur in this regard.

Mitigation Measures

No mitigation measures are required.

Findings

In the course of the above evaluation, impacts associated with *Population and Housing* were found to not be significant because of the inability of a project of this scope to create such impacts or the absence of project characteristics producing effects of this type.

Documentation and References

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SHN (SHN Consulting Engineers and Geologists). 2026. *Wastewater Facilities Plan Addendum No. 2*. June 2026.

Section XV – Public Services

This section of the Initial Study describes the affected environment for public services that serve the project area. It also describes the impacts on existing public services that would result from implementation of the proposed project and mitigation measures, if necessary, that would reduce these impacts.

Environmental Setting

FIRE PROTECTION

The Fort Jones Fire Department is a combination paid and volunteer fire department that was established in 1877 (LAFCO, 2021). The department provides fire protection and emergency response services to the Town of Fort Jones and the broader Scott Valley area. Its primary response area encompasses approximately 380 square miles, including service along Highway 3 from Forest Mountain to Etna Summit, the communities of Callahan and Fort Jones, and approximately 24 miles of Scott River Road. Through automatic aid agreements, the department also provides secondary response coverage to an additional approximately 865 square miles. In addition, the Town is surrounded by extensive State Responsibility Area (SRA) lands, for which CAL FIRE has primary responsibility for wildfire protection (CAL FIRE, 2026).

POLICE PROTECTION

Fort Jones does not operate an independent police department. Instead, the Town contracts with the City of Etna for law enforcement services. Under this arrangement, the Town receives police protection from two full-time police officers, a part-time Community Services Officer, animal control services, and patrol vehicles (LAFCO, 2021). Since 2019, the Etna Police Department has operated a substation in Fort Jones, providing a consistent local law enforcement presence and replacing previous service provided by the Siskiyou County Sheriff's Office (LAFCO, 2021). The substation allows Town residents to access law enforcement services locally without traveling to Etna.

SCHOOLS

Fort Jones maintains one Junior High School and one Elementary School (Fort Jones, 2006).

PARKS

Fort Jones maintains one city park and one ball park, for a total of 4.6 acres of park land in the Town (Fort Jones, 2006).

OTHER PUBLIC FACILITIES

Fort Jones does not provide public services beyond those described above. Library services are provided by Siskiyou County through its countywide library system, which includes branch libraries in Fort Jones, Montague, Mount Shasta, Weed, and Yreka. Residents of Fort Jones are served by the Fort Jones Branch Library.

Impact Analysis

The following includes an analysis of environmental parameters related to *Public Services* based on Appendix G of the State CEQA Guidelines. The discussion not only includes the areas for which there is potential for environmental impacts but also provides justification for the conclusions that either no impacts, less than significant impacts, or less than significant impacts with mitigation could occur.

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:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
Fire Protection?				**X**
Police Protection?				**X**
Schools?				**X**
Parks?				**X**
Other Public Facilities?				**X**

FIRE PROTECTION

Implementation of the proposed project would not result in an increase in demand for fire protection services that would require new or expanded fire protection facilities. The project would not increase the Town's population or generate substantial employment growth and, therefore, would not increase the demand for fire protection services. In addition, project implementation would not adversely affect emergency response times or otherwise create an additional burden on existing fire protection facilities. Accordingly, the proposed project would not require the construction or expansion of fire protection facilities, and no impact would occur in this regard.

POLICE PROTECTION

Implementation of the proposed project would not result in an increase in demand for law enforcement services that would require new or expanded law enforcement facilities. The project would not increase the Town's population or generate substantial employment growth and, therefore, would not increase the demand for law enforcement services. In addition, project implementation would not create conditions that would require additional law enforcement personnel, equipment, or facilities. Accordingly, the proposed project would not require the construction or expansion of law enforcement facilities, and no impact would occur in this regard.

SCHOOLS

Implementation of the proposed project would not include the construction of residential uses and would not increase the local population. As a result, the project would not generate additional student enrollment that would require the construction of new school facilities or the expansion of existing school facilities serving the Town of Fort Jones. Therefore, no impact would occur in this regard.

PARKS

As discussed in Section XVI, RECREATION, implementation of the proposed project would not increase the demand for parks or recreational facilities and would not result in the physical deterioration of existing park facilities. In addition, the project would not require the construction or expansion of park or recreational facilities that could result in adverse physical environmental effects. Therefore, no impact would occur in this regard.

OTHER PUBLIC FACILITIES

The proposed project would not involve a substantial change in land use, substantially increase employment in the region, induce population growth, or create a demand for new housing or related facilities. As a result, the project would not generate a need for new or expanded public facilities beyond those evaluated elsewhere in this document. Accordingly, increased demand on other public facilities is not anticipated, and no impact would occur in this regard.

Mitigation Measures

No mitigation measures are required.

Findings

In the course of the above evaluation, impacts associated with *Public Services* were found to not be significant because of the inability of a project of this scope to create such impacts or the absence of project characteristics producing effects of this type.

Documentation and References

CAL FIRE (California Department of Forestry and Fire Protection). 2026. *Fire Hazard Severity Zones.* [Online]: https://egis.fire.ca.gov/FHSZ/. Accessed February 6, 2026.
Fort Jones (Town of Fort Jones). 2006. *Town of Fort Jones General Plan, Open Space Element*. January 2006.
LAFCO (Siskiyou County Local Agency Formation Commission). 2021. *City of Fort Jones Municipal Services Review and Sphere of Influence Update*. April 2021.
SHN (SHN Consulting Engineers and Geologists). 2026. *Wastewater Facilities Plan Addendum No. 2*. June 2026.

Section XVI – Recreation

This section of the Initial Study discusses any increased demand for various recreational facilities and identifies any potential need for new recreational facilities generated by the proposed project. This section also describes the recreational resources within the project area.

Environmental Setting

REGIONAL RECREATIONAL AMENITIES

Multiple jurisdictions manage hundreds of miles of off-road trails within Siskiyou County and the Scott Valley area. In addition, a wide range of recreational opportunities is available through federal, state, and local parks, forests, open space areas, and fishing resources. Recreational facilities and lands in the region are managed by agencies including the Bureau of Land Management (BLM), United States Forest Service (USFS), National Park Service (NPS), California State Parks, and Siskiyou County. These resources provide opportunities for hiking, camping, fishing, off-highway vehicle use, hunting, wildlife viewing, and other outdoor recreational activities.

LOCAL RECREATIONAL AMENITIES

The Town of Fort Jones maintains one community park and one ball park and provides access to athletic fields located at both the elementary school and junior high school. Collectively, these facilities provide approximately 30.6 acres of recreational amenities within the Town (Fort Jones, 2006).

Regulatory Setting

This section summarizes current State and local regulations relevant to the review of *Recreation* for this project. Ordinances, regulations, or standards that are applicable to the environmental review of potential impacts related to recreation include the following:

FORT JONES GENERAL PLAN, OPEN SPACE ELEMENT

Government Code Section 65560(b)(3) specifies that open space for outdoor recreation be addressed in a community's general plan. This topic has been addressed in the Open Space Element of the Fort Jones General Plan.

QUIMBY ACT

The Quimby Act provides for a maximum of three acres of park dedication/fee per 1,000 persons unless the amount of existing neighborhood and community parkland exceeds that limit. If a jurisdiction exceeds the three acres per 1,000 persons, then the jurisdiction is eligible to adopt the higher five acres per 1,000 persons standard. Given that the proposed project is not a residential subdivision, it is not subject to the requirements of the Quimby Act.

Impact Analysis

The following includes an analysis of environmental parameters related to *Recreation* based on Appendix G of the State CEQA Guidelines. The discussion not only includes the areas for which there is potential for environmental impacts but also provides justification for the conclusions that either no impacts, less than significant impacts, or less than significant impacts with mitigation could occur.

Would the Project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
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?				**X**
b) Include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?				**X**

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?*

The proposed project would not result in an increase in housing, population, or employment within the Town of Fort Jones and, therefore, would not increase the use of existing neighborhood or regional parks and recreational facilities. Because the project would not generate additional demand for recreational resources, it would not contribute to the deterioration of existing facilities or require the construction of new recreational facilities. Therefore, no impact would occur in this regard.

b) *Include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?*

The proposed project does not include recreational facilities, nor would it require the construction or expansion of recreational facilities that could result in adverse physical environmental effects. In addition, implementation of the proposed project would not increase population or recreational demand and, therefore, would not result in substantially increased use of existing recreational facilities. As a result, the project would not necessitate the construction of new recreational facilities or the expansion of existing facilities. Therefore, no impact would occur in this regard.

Mitigation Measures

No mitigation measures are required.

Findings

In the course of the above evaluation, impacts associated with *Recreation* were found to not be significant because of the inability of a project of this scope to create such impacts or the absence of project characteristics producing effects of this type.

Documentation and References

Fort Jones (Town of Fort Jones). 2006. *Town of Fort Jones General Plan, Open Space Element*. January 2006.

Section XVII – Transportation

The purpose of the evaluation is to address traffic and transportation impacts of the proposed project on surrounding streets and intersections, as well as provide an assessment of Vehicle Miles of Travel (VMT). This section also discusses the proposed project in the context of local access, roadways, emergency access, bicycle, pedestrian safety, and transit service; and potential hazards due to geometric design features as a result of implementation of the proposed project.

Environmental Setting

ROADWAYS

Access to the project site is provided by Scott River Road and Serpa Lane. Scott River Road is a paved, two-lane major collector roadway with 12-foot travel lanes that forms the eastern boundary of the project site. Serpa Lane is an approximately 16-foot-wide unimproved local access road bordering the southern boundary of the site. Serpa Lane provides access to several light industrial uses located immediately south of the project site.

EMERGENCY ACCESS

The primary evacuation route serving the Town of Fort Jones is Highway 3, which provides access north to Yreka and south to Etna. Scott River Road also serves as an evacuation route for portions of the surrounding area. The proposed project is located immediately adjacent to Scott River Road, which is identified as an adopted emergency evacuation route in the Siskiyou County General Plan Safety Element (Siskiyou County, 2025).

BICYCLE FACILITIES

There are no existing bicycle facilities within the project area.

PEDESTRIAN FACILITIES

There are no existing pedestrian facilities (sidewalks) within the project area.

TRANSIT SERVICE

The Town does not have intra-city bus service. Public transit services within the Town are provided by STAGE (Siskiyou Transit & General Express). STAGE offers a scheduled bus route connecting Fort Jones to Yreka and the surrounding Scott Valley area. There are no transit stops in the immediately project vicinity.

Regulatory Setting

This section summarizes current State and local regulations relevant to the review of *Transportation* for this project. Regulations that are applicable to the environmental review of potential impacts related to transportation include the following:

SENATE BILL 743

Passed in 2013, SB 743 changes the focus of transportation impact analysis in the California Environmental Quality Act (CEQA) from measuring impacts to drivers, to measuring the impact of driving. The change has been made by replacing level of service (LOS) with VMT. This shift in transportation impact focus is intended to better align transportation impact analysis and mitigation outcomes with the State's goals to reduce greenhouse gas (GHG) emissions, encourage infill development, and improve public health through more active transportation. Level of service or other delay metrics may still be used to evaluate the impact of projects but is not used to determine a significant impact under CEQA.

SISKIYOU COUNTY REGIONAL TRANSPORTATION PLAN

The Siskiyou County Regional Transportation Plan (RTP), prepared by the Siskiyou County Local Transportation Commission (SCLTC) serves as the planning blueprint to guide transportation investments in Siskiyou County involving local, State, and federal funding over the next twenty years. Transportation improvements in the RTP are identified as short-range (2031) and long-range (2041). The last RTP update was in 2016.

The overall focus of the 2021 RTP is directed at developing a coordinated and balanced multimodal regional transportation system that is financially constrained to the revenues anticipated over the life of the plan. The coordinated focus brings the County, Caltrans, cities of Yreka, Mount Shasta, Weed, Etna, Fort Jones, Dorris, Dunsmuir, Montague, and Tulelake, government resource agencies, commercial and agricultural interests, Native American Tribal governments, and citizens into the planning process. The balance is achieved by considering investment and improvements for moving people and goods across all types of transportation including automobiles, public transit, bicycle, pedestrian, trucking, railroad, and aviation (SCLTC, 2021).

Impact Analysis

With the introduction of the California Governor's Office of Planning and Research (OPR) Technical Advisory, VMT has become an important indicator for determining if a new development will result in a "significant transportation impact" under CEQA. Passed in 2013, SB 743 changes the focus of transportation impact analysis in CEQA from measuring impacts to drivers, to measuring the impact of driving. The change has been made by replacing level of service (LOS) with VMT. This shift in transportation impact focus is intended to better align transportation impact analysis and mitigation outcomes with the State's goals to reduce greenhouse gas (GHG) emissions, encourage infill development, and improve public health through more active transportation. Level of service or other delay metrics may still be used to evaluate the impact of projects but is not used to determine a significant impact under CEQA.

The following includes an analysis of environmental parameters related to *Transportation* based on Appendix G of the State CEQA Guidelines. The discussion not only includes the areas for which there is potential for environmental impacts but also provides justification for the conclusions that either no impacts, less than significant impacts, or less than significant impacts with mitigation could occur.

Would the Project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Conflict with a program plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities?				**X**
b) Conflict or be inconsistent with CEQA Guidelines Section 15064.3, Subdivision (b)?			**X**	
c) Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?			**X**	
d) Result in inadequate emergency access?			**X**	

a) *Conflict with a program plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities?*

Project construction activities would be contained within the project site and would not substantially interfere with existing vehicle, transit, bicycle, or pedestrian circulation, other than generating a limited number of temporary worker, equipment, and truck trips during construction. These temporary increases in traffic would be short-term in nature and would cease upon completion of construction activities.

Operation of the proposed wastewater treatment facility would not result in a substantial increase in traffic compared to existing conditions. Accordingly, the project would not generate additional vehicle, transit, bicycle, or pedestrian travel that could conflict with an applicable program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, or pedestrian facilities. Therefore, no impact would occur in this regard.

b) *Conflict or be inconsistent with CEQA Guidelines Section 15064.3, Subdivision (b)?*

CEQA Guidelines Section 15064.3, subdivision (b), establishes vehicle miles traveled (VMT) as the primary metric for evaluating transportation impacts. Subdivision (b)(3) addresses qualitative analysis and recognizes that lead agencies may, in certain cases, rely on qualitative methods where a project's VMT cannot be readily quantified. In such cases, lead agencies may consider factors such as project location, land use characteristics, proximity to destinations, and availability of alternative transportation options that influence vehicle travel.

The proposed project consists of construction of a new wastewater treatment facility that would generate temporary construction-related traffic. Construction-related trips would be short-term in duration and would cease upon completion of construction activities. The project would not generate new permanent operational trips, as facility operators currently access the existing WWTF on a routine basis. Accordingly, there would be no net increase in long-term trip generation, and the project would be expected to meet applicable screening thresholds for residential and non-residential land uses, including the Office of Planning and Research (OPR) screening threshold of 110 daily trips for VMT evaluation (OPR, 2018).

Construction-related VMT would be associated with worker commutes and material haul trips; however, such effects are temporary in nature and would cease upon completion of construction. Consistent with OPR guidance, heavy-duty truck trips are not required to be included in project VMT screening. Moreover, opportunities to reduce construction-related VMT are limited due to the short duration and specialized nature of construction activities. Because the project would not result in a net increase in operational trips and construction-related travel would be temporary, the project would not result in a significant VMT impact.

c) *Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?*

Construction activities would be confined to the project site, as described in Section 2, PROJECT DESCRIPTION, and would not involve changes to existing roadway geometry or the introduction of new roadway uses. Accordingly, the project would not substantially increase hazards due to a design feature (e.g., sharp curves, limited sight distance, or dangerous intersections) or incompatible uses on the circulation system. The project would not introduce atypical or incompatible users, such as farm equipment or other specialized vehicles, to roadways or transportation facilities not designed to accommodate them. Therefore, the proposed project would not result in roadway design hazards or unsafe operational conditions for vehicles, pedestrians, or other users, and impacts would be less than significant.

d) *Result in inadequate emergency access?*

The project site is located within an established area that is adequately served by existing roadway infrastructure, providing sufficient access for emergency service providers. The proposed project would not introduce land uses or operational activities that would interfere with existing emergency response services or adopted emergency evacuation plans for the area. Therefore, the project would not impair emergency access or evacuation, and impacts would be less than significant in this regard.

Mitigation Measures

No mitigation measures are required.

Findings

Based upon the review of the information above, implementation of the proposed project will have a less than significant impact with respect to *Transportation*.

Documentation and References

Fort Jones (Town of Fort Jones). 2006. *Town of Fort Jones General Plan*. January 2006.
OPR (Governor's Office of Planning and Research). 2018. *Technical Advisory on Evaluating Transportation Impacts in CEQA*. December 2018.
SCLTC (Siskiyou County Local Transportation Commission). 2021. *2021 Regional Transportation Plan*. August 2021.
SHN (SHN Consulting Engineers and Geologists). 2022. *Wastewater Facilities Plan Addendum*. November 2022.
SHN. 2026. *Wastewater Facilities Plan Addendum No. 2*. June 2026.
Siskiyou (Siskiyou County). 2025. *Siskiyou County Draft General Plan, Safety Element*. 2025.
Siskiyou. 2026. *Siskiyou County Geographic Information System*. [Online]: https://www.co.siskiyou.ca.us/gis. Accessed February 6, 2026.

Section XVIII – Tribal Cultural Resources

This section of the Initial Study describes the affected environment and regulatory setting for Tribal Cultural Resources (TCRs) on the project site. Ethnographic information is presented for the Shastan Peoples, the larger cultural group identified for the project location.

Environmental Setting

ETHNOGRAPHIC CONTEXT

The study area is recognized as the ancestral homeland of the Shasta Indians. The following ethnographic summary is not intended as a thorough description of Shasta culture but instead is meant to provide a background to the present cultural resource investigation with specific references to the project area. In this section, the past tense is sometimes used when referring to native peoples because this is a historical study. This convention is not intended to suggest that Shasta people only existed in the past. To the contrary, the Shasta have strong cultural and social identities today.

The emergence of land use patterns and material culture possibly ancestral to those documented for the Shasta are thought to begin in the Shasta Valley around 1500-2000 B.P. (Sundahl 1997). In historic times, the Shasta occupied the Shasta Valley, and parts of the Klamath, upper McCloud, and Sacramento river areas. The most detailed accounts of the Shasta are by Dixon (1907) and Holt (1946). Later, Heizer and Hester (1970) mapped Shasta village sites based on information gathered by Dixon, Holt, as well as early historic accounts. Silver (1978) summarized the existing ethnographic data.

Shasta territory is mountainous and cut with deep canyons and rivers including the Klamath, Shasta, Scott, Salmon, and Sacramento. The Shasta proper occupied the Shasta Valley and Scott Valley. The Klamath River Shasta occupied an area from Seiad Valley to Jenny Creek (Dixon 1907; Holt 1946) or as far as Beswick (Heizer and Hester 1970; Kroeber 1925; Silver 1978).

Generally close cultural and trade relationships existed between all the Shasta groups and the Hokan-speaking Karuk and Achomawi. The Shasta conducted lively trade relationships with many other groups, handling goods from as far away as the Northwest Coast, the Columbia Plateau, Modoc Plateau, and the California coast (Silver 1978:213). Distant trading partners included the Rogue River Athapaskans and Warm Spring Indians in Oregon, and the Hupa, Yurok, and Wintu in California (Silver 1978:213).

The Shasta were central to the trade in Medicine Lake Highlands obsidian. They traded the high-quality tool material to the Karuk, Yurok, and Hupa, and made ceremonial obsidian blades from Medicine Lake Highlands material for export to the Karuk and Yurok (Silver 1978:213). Shasta living "near Glass Mountain" made large knives for transport down the Klamath River (Voegelin 1942:193). The Shasta traded obsidian to the Wintu for acorns (Silver 1978:213). Relations with the Achomawi were occasionally marked by warfare, but nonetheless, the Shasta obtained Medicine Lake Highlands obsidian from the Pit River people in exchange for Dentalium (Voegelin 1942:198). In contrast, regular battles occurred in the Medicine Lake Highlands over obsidian sources between the Shasta, Modoc, and Wintu (Merriam 1905).

The Shasta people built their permanent winter villages along major drainages. The principal staples, in the typical northern California manner, were acorns and salmon, and the Shasta practiced an economic strategy based on seasonal transhumance. The yearly round began in spring, corresponding to the first salmon run on the Klamath and other rivers. Winter villages composed of semi-subterranean rectangular dwellings were largely abandoned in favor of fishing camps. Brush huts were constructed along rivers and occupied by entire families.

In late spring and summer, men moved away to hunt deer and pronghorn, as well as sheep, bear, and elk. During spring and summer, temporary shelters were framed with willow poles and covered with brush (Dixon 1907). The women gathered a great variety of plants during summer, including berries (wild grape, manzanita, madrone, black, goose, service and elder), greens (wild celery, parsley, and rhubarb), and roots (epos, camas, tiger lily).

Families returned to fishing camps again in August with the fall run of salmon. By September, large camps were set up on the valley slopes to collect acorns from black oak, white oak, and canyon live-oak. Oak trees grow on the western slopes of the Cascades at the edge of the Shasta Valley floor, and it is possible that Shasta Indians harvested acorns in the historic period when they settled in the area. In late fall, the villages were reconstructed, and people settled in for the winter. Sporadic fishing and hunting continued until the next spring (Silver 1978).

Shasta fishing technology was highly developed, reflecting the importance of this resource. Salmon, sucker, trout, as well as eels and crayfish were caught using nets, arrows, spears, harpoons, weirs, hooks and lines, and traps (Dixon 1907:428- 431). Obsidian tipped arrows along with pitfalls and traps were used for deer, elk, and bear hunting (Dixon 1907). Scrapers were often made of red obsidian (Dixon 1907:391) probably originating from the Red Switchback source which was named for its distinctively colored obsidian. Milling equipment, primarily hand stones and milling slabs, were used to pulverize acorns, fish, and plant foods (Kroeber 1925:293). Mortars and pestles were not used and were regarded as dangerous objects because they had supernatural power (Dixon 1907:393).

Regulatory Setting

This section summarizes current State and local regulations relevant to the review of *Tribal Cultural Resources* for this project. Regulations that are applicable to the environmental review of potential impacts related to Tribal Cultural Resources include the following:

ASSEMBLY BILL 52

Assembly Bill 52 (AB 52) amended CEQA to require that: 1) a lead agency provide notice to any California Native American tribes that have requested notice of projects proposed by the lead agency; and 2) for any tribe that responded to the notice within 30 days of receipt with a request for consultation, the lead agency must consult with the tribe. Topics that may be addressed during consultation include tribal cultural resources, the potential significance of project impacts, type of environmental document that should be prepared, and possible mitigation measures and project alternatives.

Pursuant to AB 52, Section 21073 of the Public Resources Code defines California Native American tribes as "a Native American tribe located in California that is on the contact list maintained by the NAHC for the purposes of Chapter 905 of the Statutes of 2004." This includes both federally and non-federally recognized tribes. Section 21074(a) of the Public Resource Code defines TCRs for the purpose of CEQA as:

1) Sites, features, places, cultural landscapes (geographically defined in terms of the size and scope), sacred places, and objects with cultural value to a California Native American tribe that are either of the following:

   (a) included or determined to be eligible for inclusion in the California Register of Historical Resources; and/or
   (b) included in a local register of historical resources as defined in subdivision (k) of Section 5020.1; and/or

2) a resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Section 5024.1. In applying the criteria set forth in subdivision (c) of Section 5024.1 for the purposes of this paragraph, the lead agency shall consider the significance of the resource to a California Native American tribe.

Because criteria (a) and (b) also meet the definition of a Historical Resource under CEQA, a TCR may also require additional consideration as a Historical Resource. TCRs may or may not exhibit archaeological, cultural, or physical indicators.

Recognizing that California tribes are experts in their tribal cultural resources and heritage, AB 52 requires that CEQA lead agencies provide tribes that requested notification an opportunity to consult at the commencement of the CEQA process to identify TCRs. Furthermore, because a significant effect on a TCR is considered a significant

impact on the environment under CEQA, consultation is used to develop appropriate avoidance, impact minimization, and mitigation measures.

Tribal Consultation

A review of the Sacred Lands file (SLF) was completed by staff at the Native American Heritage Commission (NAHC) in Sacramento. The search of the SLF returned a negative result. The NAHC also forwarded a Native American Contacts list and suggested tribes and individuals on that list be contacted to solicit their input or concerns regarding the project.

Consultation and correspondence with various culturally affiliated Tribal groups and agencies were conducted in accordance with Public Resources Code (PRC) Section 21080.3.1 (AB 52). On December 10, 2025, the Town of Fort Jones initiated environmental review under the California Environmental Quality Act (CEQA) for the proposed Fort Jones Wastewater Treatment Facility Upgrades project. The Town sent project notification letters to the Karuk Tribe and Shasta Nation, each a California Native American Tribe that is traditionally and culturally affiliated with the geographic area of the proposed project, on December 10, 2025, pursuant to PRC Section 21080.3.1, notifying that the project was under review and to provide the Tribes 30 days from the receipt of the letter to request consultation on the project in writing. No responses were received requesting initiation of consultation under the provisions of AB 52.

Impact Analysis

The following includes an analysis of environmental parameters related to *Tribal Cultural Resources* based on Appendix G of the State CEQA Guidelines. The discussion not only includes the areas for which there is potential for environmental impacts but also provides justification for the conclusions that either no impacts, less than significant impacts, or less than significant impacts with mitigation could occur.

Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:	**Potentially Significant Impact**	**Less Than Significant With Mitigation Incorporated**	**Less Than Significant Impact**	**No Impact**
a) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), or		**X**		
b) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resources Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.		**X**		

a) *Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k)?*

No TCRs were identified within or immediately adjacent to the project area and, therefore, the proposed project would not result in a significant impact to known TCRs. Impacts to unknown TCRs that may be discovered would be less than significant with the incorporation of Mitigation Measure TCR-1 (Unanticipated Discovery), below. Impacts would be less than significant.

b) *A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resources*

Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.

As described above, no known TCRs have been identified (as defined in PRC Section 21074) within the project area. Therefore, the project would not cause a significant adverse change in the significance of a TCR that is either listed in, or eligible for listing in, the CRHR, or in a local register of historical resources as defined in PRC Section 5020.1(k). The proposed project would not cause a substantial adverse effect to a known TCR. Mitigation Measures CR-1 and CR-2 address the inadvertent discovery of cultural resources and human remains during construction. Impacts would be less than significant.

Mitigation Measures

The following mitigation measures have been developed to reduce potential impacts related to *Tribal Cultural Resources* to less than significant levels:

Mitigation Measure TCR-1 – Unanticipated Discovery

If any suspected TCRs are discovered during ground-disturbing construction activities, all work shall cease within at least 50 feet of the find. The Town shall invite a Tribal Representative from a California Native American tribe that is traditionally and culturally affiliated with the geographic area to make recommendations about whether or not the discovery represents a TCR (PRC Section 21074) and, if so, to make recommendations for culturally appropriate treatment. The contractor shall implement any measures determined by the Town to be necessary. Work at the discovery location cannot resume until the treatment has been implemented to the satisfaction of the Town of Fort Jones.

In addition, refer to Mitigation Measure CR-1 and CR-2 in Section V, CULTURAL RESOURCES.

Findings

In the course of the above evaluation impacts associated with *Tribal Cultural Resources* were found to be less than significant with implementation of mitigation. Mitigation measures for the protection of currently unknown but potentially discoverable resources are also provided for in Section V, CULTURAL RESOURCES.

Documentation and References

AnthropologyRx. 2026. *Cultural Resources Inventory – Historic Properties Identification Report for the Town of Fort Jones Wastewater Facility Improvements*. February 2026.

SHN (SHN Consulting Engineers and Geologists). 2026. *Wastewater Facilities Plan Addendum No. 2*. June 2026.

Section XIX – Utilities and Service Systems

This section of the Initial Study evaluates the proposed project's potential impacts on utilities and service systems, including water supply, wastewater collection and treatment, stormwater drainage, solid waste, and utility infrastructure.

Environmental Setting

WATER

The proposed project is located within the Scott Valley Groundwater Basin (Basin), a medium-priority groundwater basin in Northern California managed under the Sustainable Groundwater Management Act (SGMA). The Basin is subject to a Groundwater Sustainability Plan (GSP) prepared to ensure long-term sustainable groundwater management for agricultural, residential, municipal, industrial, and environmental uses.

The Town of Fort Jones provides municipal water service within the project area. Water supplies are provided by one primary well with a capacity of approximately 500 gallons per minute and two secondary wells with a combined capacity of approximately 370 gallons per minute. The Town also maintains two storage tanks with capacities of approximately 180,000 gallons and 200,000 gallons, respectively. While total system firm capacity is not formally quantified, the Town has not historically implemented summer water use restrictions and has not relied on secondary wells to meet demand during dry periods (LAFCO, 2021).

WASTEWATER

The existing wastewater treatment facility (WWTF) has been in operation for more than 70 years. Wastewater is conveyed to the facility through the Town's existing underground wastewater collection system. Following treatment, effluent is discharged to onsite evaporation and percolation ponds. The existing WWTF, in its current configuration, is unable to consistently meet Waste Discharge Requirements (WDRs) established by the North Coast Regional Water Quality Control Board (NCRWQCB), the agency responsible for regulating wastewater discharges within the region.

STORMWATER

There are no existing engineered stormwater drainages within the project area.

SOLID WASTE

Household solid waste in Fort Jones is collected by Scott Valley Disposal and transported to the Yreka Solid Waste Landfill located south 2420 Oberlin Road in Yreka. Under existing State permits, the landfill may accept 100 tons of solid water per day until the year 2055. Sludge material generated from the existing wastewater treatment facility is pumped from the treatment ponds and transported to the Anderson septage receiving facility, as needed.

UTILITIES

Electricity within Fort Jones is provided by Pacific Power. Individual parcels in the Town utilize propane tanks.

Regulatory Setting

This section summarizes current State and local regulations relevant to the review of *Utilities and Service Systems* for this project. Ordinances, regulations, or standards that are applicable to the environmental review of potential impacts related to utilities and service systems include the following:

CALIFORNIA INTEGRATED WASTE MANAGEMENT ACT

The California Integrated Waste Management Act of 1989, or Assembly Bill (AB) 939, required the implementation of integrated waste management plans, and mandated that local jurisdictions divert at least 50 percent of all solid waste generated (from 1990 levels), beginning January 1, 2000, and divert at least 75 percent by 2010. Projects that would have an adverse effect on waste diversion goals are required to include waste diversion mitigation measures to assist in reducing these impacts to less than significant levels. With the passage of Senate Bill (SB) 1016 (the Per Capita Disposal Measurement System) in 2006, only per capita disposal rates are measured to determine if a jurisdiction's efforts are meeting the intent of AB 939.

CALIFORNIA SOLID WASTE REUSE AND RECYCLING ACCESS ACT

The California Solid Waste Reuse and the Recycling Access Act of 1991 (AB 1327) is codified in Public Resources Code Sections 42900-42911. As amended, AB 1327 requires each local jurisdiction to adopt an ordinance requiring commercial, industrial, or institutional building, marina, or residential buildings having five or more living units to provide an adequate storage area for the collection and removal of recyclable materials. The size of these storage areas is to be determined by the appropriate jurisdictions' ordinance. If no such ordinance exists in the jurisdiction, the Cal Recycle model ordinance shall take effect.

SUSTAINABLE GROUNDWATER MANAGEMENT ACT

In 2014, California enacted the Sustainable Groundwater Management Act (SGMA; Water Code Section 10720 et seq.). SGMA and related amendments to California law require all groundwater basins designated as high or medium priority in the DWR California Statewide Groundwater Elevation Monitoring (CASGEM) Program, and that are subject to critical overdraft conditions, must be managed under a new Groundwater Sustainability Plan (GSP) or a coordinated set of GSPs. High or medium priority basins that are not subject to a critical overdraft must be regulated under one or more GSPs by 2022. Where GSPs are required, one or more local Groundwater Sustainability Agencies (GSAs) must be formed to implement applicable GSPs. A GSA has the authority to require registration of groundwater wells, measure and manage extractions, require reports, and assess fees, and to request revisions of basin boundaries, including establishing new subbasins.

Impact Analysis

The following includes an analysis of environmental parameters related to *Utilities and Service Systems* based on Appendix G of the State CEQA Guidelines. The discussion not only includes the areas for which there is potential for environmental impacts but also provides justification for the conclusions that either no impacts, less than significant impacts, or less than significant impacts with mitigation could occur.

Would the Project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Require or result in the relocation or construction of new or expanded water or wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?		**X**		
b) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry, and multiple dry years?			**X**	
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?				**X**

Would the Project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
d) Generate solid waste in excess of State or local standards, or infrastructure, or otherwise impair the attainment of solid waste reduction goals?			X	
e) Comply with federal, State, and local management and reduction statutes and regulations related to solid waste?			X	

a) ***Require or result in the relocation or construction of new or expanded water or wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?***

The existing WWTF is regulated by the NCRWQCB under Waste Discharge Requirements (WDR) Order No. R1-2014-0029, adopted June 19, 2014. The WDR establishes effluent limitations, discharge standards, groundwater protection criteria, and monitoring and reporting requirements to ensure compliance with applicable water quality objectives.

As previously described in Section 2, PROJECT DESCRIPTION, the proposed project would involve relocation and reconstruction of the existing WWTF approximately 1,500 feet east of the current facility footprint. The project would include construction of new wastewater treatment infrastructure, including treatment ponds, headworks, mechanical and electrical facilities, piping, and associated appurtenances. The project would also include installation of new influent and effluent conveyance pipelines and utility connections to serve the relocated facility.

CONSTRUCTION

Construction-related wastewater would be limited to sanitary wastewater generated by construction personnel and would be managed through the use of portable toilet facilities. No temporary construction wastewater treatment facilities would be required. Construction of the relocated WWTF and associated utility infrastructure would involve typical earthwork, grading, trenching, pipeline installation, and facility construction activities. These activities are evaluated throughout this document for potential environmental effects, including air quality, biological resources, cultural resources, noise, hydrology, and transportation.

OPERATION

The relocated WWTF would replace the existing facility and would operate within substantially similar service capacity. The project is designed to improve treatment reliability and enable compliance with RWQCB effluent limitations for biochemical oxygen demand (BOD), total suspended solids (TSS), and settleable solids. The new facility would not result in expansion of service area beyond existing and planned development anticipated under the Town's General Plan. Rather, it would maintain existing wastewater treatment capacity while relocating treatment operations to a site with improved operational and environmental controls. All environmental effects associated with construction of the relocated WWTF and associated utility infrastructure are evaluated throughout this document and would be mitigated as identified (refer to Mitigation Measures AG-1, AG-2, AQ-1, BIO-1, BIO-2, BIO-3, BIO-4, CR-1, CR-2, HAZ-1, HAZ-2, N-1, N-2, and TCR-1).

CONCLUSION

The proposed project would require construction of new wastewater treatment facilities and associated utility infrastructure; however, these facilities would replace existing WWTF operations and would not result in expanded service capacity beyond existing and planned development. All construction-related environmental impacts associated with the relocated facilities and utility improvements are addressed in the respective resource sections of this document and would be less than significant with implementation of mitigation measures. Therefore, the

project would not result in the construction or expansion of utilities that would cause significant environmental effects beyond those analyzed in this document.

b) ***Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry, and multiple dry years?***

The proposed project would relocate and upgrade the existing wastewater treatment facility from an unincorporated location approximately 1,500 feet east of the existing facility to a site within the corporate limits of Fort Jones.

CONSTRUCTION

Construction water would be supplied by water trucks filling from metered fire hydrants, as identified in coordination with the Department of Public Works. Construction water would be used primarily for dust suppression during grading and earthwork activities, as well as limited equipment and vehicle washing. Total construction water demand is estimated at approximately 1 acre-foot over an approximately 18-month construction period. Existing municipal water supplies are sufficient to meet this temporary construction demand. No new water supply sources, entitlements, or infrastructure improvements would be required to serve construction activities. Construction-related water demand would be short-term and would cease upon completion of construction.

OPERATION

Operational water demand for the proposed facility is estimated at approximately 2,100 gallons per day (2.4 acre-feet per year [AFY]) for routine operations and maintenance. Temporary irrigation water would also be required during establishment of landscaping. Tree and shrub plantings would require approximately 3.7 acre-feet over a three-year establishment period. Following establishment, irrigation would be discontinued for native landscaping, with only limited permanent irrigation required for nine apple trees (*Malus domestica*) and nine pear trees (*Pyrus communis*) near the facility entrance. Based on typical irrigation requirements for fruit trees in northern California, the trees would require approximately 360 gallons per day during the irrigation season, or approximately 0.2 AFY. Therefore, total long-term project water demand would be approximately 2.6 AFY, consisting of the operational demand of 2.4 AFY plus approximately 0.2 AFY for permanent irrigation of the fruit trees.

According to the Siskiyou County Flood Control and Water Conservation District (SCFCWCD), municipal groundwater pumping accounts for approximately 1,000 AFY within the Scott Valley Groundwater Basin.[14] Based on the Town of Fort Jones' population of 663 persons, the Town is estimated to utilize approximately 180 AFY of groundwater for municipal purposes. The proposed project's total long-term water demand of approximately 2.6 AFY would represent approximately 1.4 percent of the Town's municipal groundwater use and approximately 0.3 percent of total municipal groundwater pumping within the Basin. In addition, groundwater storage within the Basin increased by an estimated 8,454 AF during Water Year 2025 (SCFCWCD, 2026). As discussed in the *Environmental Setting* subsection, the Town has not historically implemented summer water use restrictions and has not relied on secondary wells to meet demand during dry periods (LAFCO, 2021).

No new groundwater wells or additional water supply sources are proposed. Long-term operational water demand would not substantially increase demand on local water supply resources or groundwater supplies. The project's estimated long-term demand of approximately 2.6 AFY is small relative to existing municipal groundwater use within Fort Jones and the Scott Valley Groundwater Basin. Existing municipal supplies have historically been sufficient to meet demand during both normal and dry-year conditions, as evidenced by the Town's lack of summer water use restrictions and its ability to meet demand without reliance on secondary wells. In addition, implementation of the proposed project would not induce population growth or facilitate additional development that would increase water demand beyond the proposed facility and associated landscaping. The proposed project's water demand is consistent with the available groundwater resources managed under the Scott Valley Groundwater Sustainability Plan and would not interfere with implementation of measures intended to ensure long-term groundwater sustainability. Therefore, sufficient water supplies are available to serve the project and

[14] Estime assumes 1 AF per 3.5 person/year and population of 3,520 people (based on estimate in 2019 Basin Prioritization) (SCFCWCD, Scott Valley Groundwater Basin Sustainability Plan – WY 2025 Annual Report, April 2026).

reasonably foreseeable future development during normal, dry, and multiple dry years, and impacts would be less than significant.

CONCLUSION

Based on the above, existing water supplies would be sufficient to serve the proposed project, including construction, long-term operation, and temporary landscaping establishment irrigation, as well as reasonably foreseeable planned growth in the service area, during normal, dry, and multiple dry years. Therefore, the project would not result in insufficient water supplies available to serve the project or reasonably foreseeable planned growth in the service area, and impacts would be less than significant.

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?*

The proposed project would not increase the permitted treatment capacity of the existing wastewater treatment system, which is approximately 0.06 million gallons per day (MGD) average dry weather flow. The relocated wastewater treatment facility would be designed to maintain this existing treatment capacity and would not expand service levels beyond existing conditions or anticipated development consistent with the Town's General Plan.

The wastewater treatment system is regulated under NCRWQCB Waste Discharge Requirements (Order No. R1-2014-0029), which establish operational limits and performance standards for the facility. The proposed project would continue to operate in compliance with these requirements and would not require an increase in permitted discharge capacity. As the proposed project would not increase wastewater treatment demand beyond existing permitted capacity or existing service commitments, no determination of additional treatment capacity would be required by the wastewater service provider. The existing wastewater treatment system would remain sufficient to serve existing and planned demands. Therefore, the project would not result in the need for expanded wastewater treatment capacity, and no significant impact would occur.

d) *Generate solid waste in excess of State or local standards, or infrastructure, or otherwise impair the attainment of solid waste reduction goals?*

CONSTRUCTION

The amount of solid waste generated during project construction would be typical of construction activities of similar size and type and is not expected to exceed applicable State or local standards, substantially affect landfill capacity, or impede attainment of solid waste reduction or diversion goals. Construction waste would be managed in accordance with applicable regulations, including California Green Building Standards Code (CALGreen) requirements for construction and demolition debris recycling and diversion, as well as applicable local requirements implemented to meet State diversion mandates.

OPERATION

Operation of the proposed project would not result in an increase in solid waste generation associated with residential development, as the project does not include residential uses. Solid waste generated during facility operations would be limited to minor quantities of routine materials typical of wastewater treatment facility operations and would be disposed of through the Town's existing solid waste collection system. Sludge generated by the relocated wastewater treatment facility is anticipated to be comparable to, or less than, existing sludge volumes produced by the current facility. Sludge handling and disposal practices would remain consistent with existing operations, including transport to the Anderson septage receiving facility, as needed.

Solid waste handling and diversion practices within the Town are required to comply with State solid waste reduction mandates, including Senate Bill 1383 (SB 1383), which establishes requirements for the reduction of short-lived climate pollutants and the recovery of organic waste from the waste stream. The proposed project would not generate a new or substantial source of organic waste beyond existing WWTF operations, and any

applicable organic waste streams generated during operation would be handled in accordance with SB 1383 requirements through the Town's contracted solid waste services.

CONCLUSION

Overall, the proposed project would not substantially increase solid waste generation, would not require expansion of landfill or solid waste facilities, and would not conflict with State or local solid waste reduction or diversion requirements, including SB 1383. Therefore, impacts related to solid waste would be less than significant.

e) ***Comply with federal, State, and local management and reduction statutes and regulations related to solid waste?***

The proposed project would be required to comply with applicable federal, State, and local solid waste management and diversion regulations. This includes the California Integrated Waste Management Act of 1989 (AB 939), which establishes waste diversion requirements for local jurisdictions, the California Solid Waste Reuse and Recycling Access Act of 1991, and the California Green Building Standards Code (CALGreen), which requires recycling and diversion of construction and demolition debris to the maximum extent feasible. In addition, the proposed project would be subject to Senate Bill 1383 (SB 1383) requirements, which mandate statewide reductions in short-lived climate pollutants through the recovery and diversion of organic waste from landfills. While SB 1383 primarily applies to municipal solid waste streams, the proposed project would not generate a substantial increase in organic waste. Any applicable organic waste generated during operation would be managed in accordance with the Town's solid waste collection program and applicable SB 1383 implementation requirements.

CONSTRUCTION

Construction-related solid waste would be transported to the Yreka Solid Waste Landfill transfer station and disposed of at the permitted landfill facility in Yreka. The landfill operates under existing permits that regulate daily intake capacity and long-term operations. The relatively small volume of construction waste generated by the project would not be expected to substantially affect landfill capacity or interfere with the facility's permitted operations.

OPERATION

Operational solid waste generation would be limited to minor quantities associated with routine wastewater treatment facility operations and would be handled through the Town's existing solid waste collection system. As the proposed project would comply with applicable solid waste statutes and regulations, including AB 939, SB 1383, and CALGreen requirements. Therefore, implementation of the proposed project would not conflict with or impede attainment of applicable solid waste diversion or reduction mandates. Impacts would be less than significant.

Mitigation Measures

No mitigation measures are required.

Findings

Based upon the review of the information above, implementation of the proposed project will have a less than significant impact with respect to *Utilities and Service Systems*.

Documentation and References

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Section XX – Wildfire

This section of the Initial Study provides an analysis of potential wildfire impacts. The analysis considers potential impacts of the project on emergency access and evacuation routes to, through and from the project area and the exacerbation of fire risk or that may result in temporary or ongoing impacts to the environment during or following a fire.

Environmental Setting

Human activities such as equipment operation cause the vast majority of wildland fires that occur on average throughout the State. Generally, the fire season extends from early spring through late fall of each year during the hotter, dryer months.

Fire conditions arise from a combination of high temperatures, low moisture content in the air and fuel, accumulation of vegetation, and high winds. The outbreak and spread of wildland fires within the project area is a potential danger, particularly during the hot, dry summer and fall months. Various factors contribute to the intensity and spread of wildland fires: humidity, wind speed and direction, vegetation type, the amount of vegetation (fuel), and topography. The topography, climate, and vegetation of much of the area are conducive to the spread of wildland fires once started.

The Town is subject to urban fires; it is also subject to wild land fires since forested lands border the community on the east and northeast. Fort Jones has its own fire department manned by a volunteer staff. Mutual Aid agreements with surrounding communities and the State of California have been enacted to assist the local fire department in the event of a large fire (Fort Jones, 2006).

FIRE PROTECTION

The Town of Fort Jones is subject to urban fires; it is also subject to wild land fires since forested lands border the community on the east and northeast. Fort Jones has its own fire department manned by a volunteer staff. Mutual Aid agreements with surrounding communities and CAL FIRE have been enacted to assist the local fire department in the event of a large fire (Fort Jones, 2006). The Town also includes a large surrounding area of State Responsibility Area lands that are primarily CAL FIRE's responsibility for fire protection (CAL FIRE, 2026).

FIRE HAZARD SEVERITY ZONE

CAL FIRE has mapped areas of significant fire hazards in the state through its Fire and Resources Assessment Program (FRAP). These maps place areas of the state into different fire hazard severity zones (FHSZ) based on a hazard scoring system using subjective criteria for fuels, fire history, terrain influences, housing density, and occurrence of severe fire weather where urban conflagration could result in catastrophic losses. This classification system designates lands in three general classifications, "Moderate", "High" and "Very High" Fire Hazard Severity Zones. The FRAP identifies the project area as a very high fire hazard severity zone (CAL FIRE, 2026).

As part of this mapping system, land where CAL FIRE is responsible for wildland fire protection and generally located in unincorporated areas is classified as a State Responsibility Area (SRA). Where local fire protection agencies are responsible for wildfire protection, the land is classified as a Local Responsibility Area (LRA). The project site is located within a Local Responsibility Area (LRA) (CAL FIRE, 2026).

EMERGENCY EVACUATION

The primary evacuation route out of Fort Jones is Highway 3, northbound to Yreka and southbound towards the town of Etna. Scott River Road could also serve as an evacuation route. Schools, churches, and community centers in Yreka and Etna, and the Siskiyou County Fairgrounds in Yreka, could serve as safe locations for evacuees during a hazard event. The proposed project is located immediately adjacent to Scott River Road that is identified an adopted emergency evacuation route in the Siskiyou County General Plan Safety Element (Siskiyou, 2025).

Regulatory Setting

This section summarizes current federal, State, and local regulations relevant to the review of *Wildfire* for this project. Ordinances, regulations, or standards that are applicable to the environmental review of potential impacts related to wildfire hazards include the following:

CALIFORNIA DEPARTMENT OF FORESTRY AND FIRE PROTECTION

CAL FIRE protects the people of California from fires, responds to emergencies, and protects and enhances forest, range, and watershed values providing social, economic, and environmental benefits to rural and urban citizens. The Office of the State Fire Marshal supports CAL FIRE's mission by focusing on fire prevention. It provides support through a wide variety of fire safety responsibilities including by regulating buildings in which people live, congregate, or are confined; by controlling substances and products which may, in and of themselves, or by their misuse, cause injuries, death, and destruction by fire; by providing statewide direction for fire prevention in wildland areas; by regulating hazardous liquid pipelines; by reviewing regulations and building standards; and by providing training and education in fire protection methods and responsibilities.

CALIFORNIA FIRE CODE

The California Fire Code (CFC) is contained within Title 24, Chapter 9 of the California Code of Regulations. Based on the International Fire Code, the CFC was created by the California Buildings Standards Commission and regulates the use, handling, and storage requirements for hazardous materials at fixed facilities. Similar to the International Fire Code, the CFC and CBC use a hazards classification system to determine the appropriate measures to incorporate to protect life and property.

CALIFORNIA PUBLIC RESOURCES CODE

California Public Resources Code Section 4290 requires minimum fire safety standards related to defensible space that are applicable to SRA lands and lands classified and designated as VHFHSZs. California Public Resources Code Section 4291 requires a reduction of fire hazards around buildings, which requires 100 feet of vegetation management around all buildings and is the primary mechanism for conducting fire prevention activities on private property within CAL FIRE jurisdiction.

FORT JONES GENERAL PLAN, SAFETY ELEMENT

The purpose of the Safety Element is to introduce safety considerations into the planning process in order to reduce loss of life, injuries, property damage, and social and economic dislocation due to seismic activity, fire, flooding, and other natural hazards. The major safety concerns in the Fort Jones planning area are structural fires, wildfires, flooding, and the limited but possible impact of volcanic activity from Mount Shasta. The following general plan objective and policies apply to the proposed project:

- Objective SE-2: The manner in which lands are developed can greatly influence the level of fire risk that could occur. It is the objective of this goal to reduce the likelihood of a fire loss through preventative measures during project development.
    - Policy SE-2A: Ensure that all proposed developments are reviewed for fire safety standards by the Fire Chief, including adequacy of fire flow, supply, and access.
    - Policy SE-2B: Coordinate project reviews with the California Department of Forestry and Fire Protection (CDF) on all projects located near a potential wildfire source, and at a minimum implement CDF standards as a means to protect life and property.

SISKIYOU COUNTY EMERGENCY OPERATIONS PLAN

The Siskiyou County Emergency Operations Plan (EOP) establishes procedures for responding to various emergency situations, including regional flooding, nuclear power plant incident, volcanic activity, tsunami/seiche

waves, hazardous materials incident, nuclear defense emergency, dam failure, approaching wildland fire, and seismic activity.

SISKIYOU COUNTY HAZARD MITIGATION PLAN

The Siskiyou County Hazard Mitigation Plan (HMP) is a multi-jurisdictional planning document developed to identify natural and human-caused hazards that may affect Siskiyou County and to establish strategies for reducing long-term risk to people, property, critical infrastructure, and natural resources. The Plan is prepared in accordance with the Disaster Mitigation Act of 2000 (DMA 2000) and is periodically updated to maintain Federal Emergency Management Agency (FEMA) approval and eligibility for hazard mitigation funding. The primary purpose of the HMP is to reduce or eliminate long-term risk from identified hazards through coordinated mitigation actions. Key objectives of the Plan include reducing loss of life and injury from natural hazards; minimizing damage to public and private infrastructure; protecting critical facilities and essential services; increasing community resilience and disaster preparedness; and guiding integration of hazard mitigation into land use and infrastructure planning.

Impact Analysis

The following includes an analysis of environmental parameters related to *Wildfire* based on Appendix G of the State CEQA Guidelines. The discussion not only includes the areas for which there is potential for environmental impacts but also provides justification for the conclusions that either no impacts, less than significant impacts, or less than significant impacts with mitigation could occur.

If located in or near State responsibility areas or lands classified as very high fire hazard severity zones, would the project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Substantially impair an adopted emergency response plan or emergency evacuation plan?			**X**	
b) Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose projects occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of wildfire?			**X**	
c) Require installation or maintenance of associated infrastructure (such as roads, fuel sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?			**X**	
d) Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result, post-fire slope instability, or drainage changes?			**X**	

a) *Substantially impair an adopted emergency response plan or emergency evacuation plan?*

Refer to Impact IX.f above. The proposed project is located adjacent to Scott River Road, which is designated in the Siskiyou County General Plan Safety Element as an emergency evacuation route. Project implementation would occur within the existing wastewater treatment facility footprint and would utilize existing access via Serpa Lane and Scott River Road.

The proposed project would not involve permanent modifications to public roadways, changes to designated evacuation routes, or alterations to emergency response circulation patterns. Construction activities would be staged on-site and are not expected to require long-term or full closure of Scott River Road; any temporary traffic control measures would be implemented in coordination with applicable local agencies to maintain emergency access at all times.

As the proposed project would not physically obstruct or alter an adopted emergency response or evacuation route, nor interfere with emergency access or circulation, implementation of the proposed project would not substantially impair implementation of an emergency response or evacuation plan. Therefore, impacts would be less than significant.

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 wildfire?***

Operation of the wastewater treatment facility does not require full-time onsite personnel, although the facility operator would continue to conduct routine inspections and maintenance activities. The proposed project would not substantially increase onsite occupancy or introduce new sensitive receptors to the project area, other than temporary construction workers during construction activities.

The project site is located on the relatively flat floor of Scott Valley and is not characterized by steep slopes, dense wildland vegetation, or other physical features that would contribute to increased wildfire spread. Implementation of the proposed project would not alter topography, prevailing wind patterns, vegetation conditions, or access routes in a manner that would exacerbate wildfire risk. In addition, the project would not introduce land uses or infrastructure that could increase the potential for uncontrolled wildfire spread.

Because the proposed project would not exacerbate wildfire hazards due to slope, prevailing winds, or other environmental factors, and would not substantially increase the number of people exposed to wildfire hazards, implementation of the project would not expose project occupants to significant pollutant concentrations from wildfire smoke or the uncontrolled spread of wildfire. Therefore, impacts would be less than significant.

c) ***Require installation or maintenance of associated infrastructure (such as roads, fuel sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?***

Access to the project site is provided by Serpa Lane via Scott River Road. The proposed project consists of improvements to an existing wastewater treatment facility and would utilize existing access routes and utility connections. Construction activities would be conducted in accordance with applicable fire prevention and safety requirements, including equipment maintenance, control of ignition sources, and implementation of standard construction best management practices to reduce the potential for accidental ignition during construction.

Implementation of the project would not require the installation or long-term maintenance of new infrastructure such as roads, fuel breaks, emergency water supplies, transmission lines, or other utility extensions that could increase wildfire ignition potential, spread risk, or result in adverse environmental effects. All construction-related activities would occur within the existing developed facility footprint or immediately adjacent disturbed areas and would not necessitate off-site infrastructure improvements that could exacerbate wildfire hazards. As the proposed project would not require the installation or maintenance of wildfire-related infrastructure that could increase fire risk or result in environmental impacts, impacts would be less than significant.

d) ***Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result, post-fire slope instability, or drainage changes?***

The project site is located on the relatively flat floor of Scott Valley within an alluvial floodplain environment associated with the Scott River and Moffett Creek. The site and surrounding area are characterized by low-relief topography and are not located on or adjacent to steep slopes, unstable hillsides, canyons, or other landforms susceptible to post-fire debris flows, landslides, or slope failure. There are no substantial upslope areas immediately adjacent to the project site that could generate debris-flow hazards following a wildfire.

Construction activities associated with the proposed project would not alter site topography in a manner that would increase runoff, erosion, or downstream flooding hazards. In addition, construction would be conducted in accordance with a Storm Water Pollution Prevention Plan (SWPPP) and associated erosion and sediment control best management practices (BMPs) designed to minimize erosion and control stormwater runoff from disturbed areas.

Because the project site is located within a low-gradient valley floor environment, is not subject to significant post-fire slope instability hazards, and would incorporate erosion and runoff control measures during construction, implementation of the proposed project would not expose people or structures to significant risks, including

downslope or downstream flooding, landsliding, or debris flows as a result of runoff, post-fire slope instability, or drainage changes. Therefore, impacts would be less than significant.

Mitigation Measures

No mitigation measures are required.

Findings

Based upon the review of the information above, implementation of the proposed project will have a less than significant impact with respect to *Wildfire*.

Documentation and References

CAL FIRE (California Department of Forestry and Fire Protection). 2026. *Fire Hazard Severity Zones.* [Online]: https://egis.fire.ca.gov/FHSZ/. Accessed February 6, 2026.
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Section XXI – Mandatory Findings of Significance

Based on the analysis undertaken as part of this Initial Study, the following findings can be made:

Would the Project:	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 the 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?		**X**		
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)?			**X**	
c) Does the project have potential environmental effects which may cause substantial adverse effects on human beings, either directly or indirectly?		**X**		

Impact Analysis

a) ***Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below the 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?***

Evaluation of the proposed project, as described in Section IV, BIOLOGICAL RESOURCES, indicates that project implementation would not 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, or threaten to eliminate a plant or animal community or reduce the range of a rare or endangered species. Potential impacts to biological resources would be reduced to less than significant levels through implementation of Mitigation Measures BIO-1 through BIO-4, as identified in Section IV, BIOLOGICAL RESOURCES.

Based on the analysis presented in Section V, CULTURAL RESOURCES, the project area is not considered eligible for listing in the National Register of Historic Places (NRHP) or the California Register of Historical Resources (CRHR) under any significance criteria. The project site is located in an area that is not known to be sensitive for prehistoric or historic archaeological resources and is considered to have low to moderate sensitivity for buried cultural resources. While no known archaeological deposits or features are documented within the project area, implementation of Mitigation Measures CR-1 and CR-2 would ensure that any previously unidentified cultural resources discovered during construction would be properly identified, evaluated, and protected in accordance with applicable regulations. Therefore, impacts to cultural resources, including archaeological and historical resources, 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)?***

As discussed throughout this Initial Study, implementation of the proposed project could result in environmental impacts that are individually limited in scope. However, these impacts would not be cumulatively considerable when viewed in combination with the effects of past, present, and reasonably foreseeable future projects in the region.

Potential impacts to agricultural, biological, and cultural resources are addressed in Section II, AGRICULTURE AND FORESTRY RESOURCES, Section IV, BIOLOGICAL RESOURCES, and Section V, CULTURAL RESOURCES. Implementation of Mitigation Measures AG-1 and AG-2, BIO-1 through BIO-4, and CR-1 and CR-2 (see also TCR-1) would reduce these impacts to less than significant levels. As discussed in Section III, AIR QUALITY, project construction activities would generate temporary emissions that could incrementally contribute to regional air quality impacts; however, implementation of Mitigation Measure AQ-1 would reduce construction-related emissions to a less than significant level. Implementation of Mitigation Measures HAZ-1 and HAZ-2 would ensure that project activities do not result in significant hazards associated with the release of hazardous materials during construction. Similarly, temporary construction noise impacts discussed in Section XIII, NOISE, would be reduced to less than significant levels through implementation of Mitigation Measures N-1 and N-2.

Because the project's impacts would be temporary, limited in geographic extent, and reduced to less than significant levels through implementation of mitigation measures and compliance with applicable local, State, and federal regulations, the project would not make a cumulatively considerable contribution to any significant cumulative environmental impact. Therefore, cumulative impacts associated with the proposed project would be less than significant.

c) *Does the project have potential environmental effects which may cause substantial adverse effects on human beings, either directly or indirectly?*

The potential for the proposed project to result in environmental effects that could adversely affect human beings, either directly or indirectly, has been evaluated throughout this document. Where the project could result in potential impacts to human beings, including those associated with air quality, biological resources, hazardous materials and noise, mitigation measures have been incorporated to reduce these impacts to less than significant levels. In addition, compliance with applicable local, State, and federal laws and regulations would further reduce potential impacts. With implementation of project design features, required mitigation measures, and regulatory compliance, the proposed project would not result in substantial adverse effects on human beings, either directly or indirectly. Therefore, impacts would be less than significant with mitigation incorporated.

Mitigation Measures

Mitigation Measure AG-1 – Restoration of Existing Wastewater Treatment Facility

Upon decommissioning, the Town and project contractor shall ensure restoration of the decommissioned wastewater treatment facility area and make the 3.99-acre site available for agricultural use through preparation and implementation of an Agricultural Soils Restoration Plan. The plan shall include, but not be limited to the following:

- *Baseline Agronomic Testing*: Quantitative testing of the topsoils slated for removal within the project impact area shall be performed prior to ground disturbance. This testing will establish baseline metrics for topsoil depth, soil texture, pH, electrical conductivity (EC), organic matter percentage, macro- and micro-nutrient levels, and water infiltration characteristics.

- *Soil Horizon Segregation*: Topsoil (A horizon) excavated during project construction shall be stripped separately from underlying subsoils (B and C-horizons) and parent material. These distinct layers shall be preserved exclusively for strategic placement on the decommissioned WWTF site, ensuring the final restored topsoil profile achieves a depth and structural horizon equivalent to adjacent, undisturbed agricultural land with similar surface soils.

- *Top Soil Preservation*: Temporarily stockpiled soils shall be protected from wind and water erosion, as well as noxious weed infestation, utilizing Best Management Practices (BMPs). These practices may include physical erosion control blankets, or the establishment of a temporary, non-invasive, sterile cover crop. Stockpiles shall be physically segregated from construction debris, fuels, and chemical contaminants.

- *Mechanical Compaction Mitigation*: Any compacted soils shall be subsoiled to a depth sufficient to alleviate compaction and restore root penetration and water infiltration characteristics comparable to the adjacent agricultural lands.

- *Soil Contouring and Post-Placement Nutrient Management***:** Placement of preserved topsoil shall occur at slopes generally consistent with adjacent agricultural land to promote efficient drainage. Following placement, soil testing shall be conducted to determine whether soil amendments are necessary to achieve soil productivity reasonably comparable to adjoining agricultural land. Common amendments may include compost, aged manure, gypsum, lime, and commercial fertilizers.

- *Biological Stabilization and Tilth Restoration*: Immediately following soil contouring and amendment incorporation, the restored site shall be drilled or hydroseeded with a deep-rooting pasture mix or regionally relevant cover crop. This cover crop shall be utilized to accelerate the restoration of soil aggregate stability, promote biological development, and prevent immediate sheet or rill erosion.

Restoration shall result in soil and site conditions capable of supporting agricultural production consistent with characteristics and reasonably comparable to similar adjacent farmland. Final soil testing results and documentation of restoration activities shall be submitted to the Siskiyou County Agricultural Commissioner and the Town Engineer for review and confirmation that the requirements of the Agricultural Soils Restoration Plan have been completed.

Mitigation Measure AG-2 – Deed Restrictions

To ensure the long-term preservation of Prime Farmland soils, prior to operation of the relocated wastewater treatment facility, the Town shall record a deed restriction or other legally enforceable instrument, acceptable to Siskiyou County, restricting the restored 3.99-acre former wastewater treatment facility site and 2.94 acres of annexed Prime Farmland to agricultural uses and prohibiting non-agricultural development. The restriction shall run with the land, be binding upon all current and future owners and successors in interest, and remain in effect in perpetuity unless otherwise approved by Siskiyou County.

Mitigation Measure AQ-1

The construction and demolition contractor shall be responsible for implementing Siskiyou County APCD Rule 4.2 and Fugitive Dust Control Measures to reduce the potential generation of fugitive dust during the proposed construction activities. Compliance with these requirements shall be required to minimize dust generation during construction activity.

- All active construction areas (for example, parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered a minimum of two times per day during the dry season;
- Hydroseed or apply non-toxic soil stabilizers to inactive construction areas;
- Dust-generating activities shall be limited during periods of high winds (over 15 mph);
- Suspend excavation and grading activity when winds exceed 25 mph;
- All haul trucks transporting soil, sand, or other loose material, likely to give rise to airborne dust, shall be covered;
- All vehicle speeds shall be limited to 15 miles per hour within the construction area;
- Promptly remove earth or other tracked out material from paved streets onto which earth, or other material has been transported by trucking or earth-moving equipment; and
- Conduct digging, backfilling, and paving of utility trenches in such a manner as to minimize the creation of airborne dust.

Mitigation Measure BIO-1 – Northwestern Pond Turtle

If any ground-disturbing activity is proposed within 1,200 feet of the Scott River and outside of the existing fenced WWTF site, the following measures shall be implemented to ensure that potential impacts to the northwestern pond turtle (NWPT) are avoided or appropriately minimized. The NWPT is currently proposed for federal listing as Threatened, and the U.S. Fish and Wildlife Service (USFWS) may recommend a different suite of measures to protect the turtle. Therefore, alternative measures acceptable to the USFWS may be substituted for those provided below.

- *Worker's Environmental Awareness and Protection Training*: A Worker's Environmental Awareness and Protection (WEAP) Training shall be implemented by a USFWS-approved biologist prior to the commencement of construction and to any new crew members prior to beginning work on the jobsite. Upon completion of the program, employees will sign a form stating they attended the program and understand all protection measures. The project proponent will maintain a list of all personnel who have successfully completed the education program at the worksite.

- *Pre-Construction Surveys*: A USFWS-approved biologist shall conduct three pre-construction surveys of the project site for NWPT.

    - One survey shall be conducted no more than 48 hours before the onset of work activities, ideally when weather conditions are suitable to detect pond turtles.
    - Two additional surveys shall be conducted prior to the onset of work activities with at least three days between surveys during suitable weather conditions during the northwestern pond turtle's active season (generally March 1st–September 30th) when air temperatures regularly exceed 55 degrees Fahrenheit.

- *Exclusionary Fencing*: Silt fencing or other barriers to turtle movement shall be established around the perimeter of the work area within 1,200 feet of the Scott River and shall be inspected/maintained throughout the duration of construction. The interior of the exclusionary zone shall be inspected as part of the pre-construction surveys to ensure that no turtles are trapped within the barriers.

- *Turtle Relocation*: If any life stage of the NWPT (adult, hatchling, or egg) is found and individuals are likely to be killed or injured by work activities, project activities that may harm the species shall be halted within 50 feet of the turtles until the individuals move out of harm's way or until a USFWS-approved biologist can capture and relocate them.

- *Trash Removal*: All trash that could attract predators of the NWPT and all plastics that NWPT could consume or become entangled in shall be removed daily from the project site and disposed of properly.

- *Erosion Control Materials*: Plastic monofilament netting (erosion control matting), loosely woven netting, or similar material in any form shall not be used at the project site because NWPT can become entangled and trapped in them. Any such material found onsite shall be immediately removed by construction personnel. Material utilizing fixed weaves (strands cannot move), polypropylene, polymer or other synthetic materials shall not be use.

- *Nighttime Work*: The project proponent shall conduct project activities no earlier than 30 minutes after sunrise and no later than 30 minutes before sunset. If the Town of Fort Jones determines that nighttime work is necessary, all lighting shall be directed to the work area and shielded to prevent spill over into occupied or assumed occupied habitat outside the work area.

- *Construction Equipment*: No equipment in which NWPT could seek shelter shall be left on site overnight outside of the designated staging areas, defined as those areas that are enclosed with silt fence or some other barrier designed to reasonably prevent wildlife from entering. The project proponent shall cover dirt or sand piles left overnight outside of the designated staging areas with tarps or plastic to prevent NWPT from sheltering in the material. For onsite storage of pipes, conduits and other materials that could provide shelter for NWPT that is not surrounded by NWPT exclusion fencing, an open-top trailer shall be used to elevate the materials above ground. This is intended to reduce the potential for NWPT to climb into the conduits and other materials.

- *Cover Holes and Trenches*: All holes and trenches over 6.0 inches deep shall be covered overnight or escape ramps installed and shall be inspected each morning by a qualified biologist or assistant biologist.

- *Vehicle Speed Limit*: Project-related vehicles shall observe a 15.0 miles per hour speed limit within construction areas, except on County roads, and State and federal highways. Off-road traffic outside of designated and fenced project work areas shall be prohibited.

- *No Pets*: No pets shall be permitted at the project site, to avoid and minimize the potential for harassment, injury, and death of the NWPT.

- *No Herbicides or Insecticides*: No herbicides or insecticides shall be used unless the USFWS determines that with implementation of best management practices (BMPs) that no NWPT are likely to be harmed.

- *Refueling and Vehicle Maintenance*: Refueling and maintenance of vehicles and equipment shall occur within a designated staging area a minimum of 100 feet from riparian habitat or aquatic areas, unless the USFWS approves, and the equipment is stationary and less than 100 feet from aquatic areas.

- *Spill Response*: Prior to the onset of work, the contractor shall have a plan in place for prompt and effective response to any accidental spills. A spill-containment kit shall be present at all times on site. The plan shall include informing all workers of the importance of preventing spills and of the appropriate measures to implement should a spill occur.

- *Vehicle Leak Prevention*: Vehicles and equipment shall be checked daily for leaks, and all vehicular fluid spills will be contained and cleaned up immediately following the procedures noted in the above measure.

Mitigation Measure BIO-2 – Monarch Butterfly

The monarch butterfly is currently proposed for federal listing as Threatened. If the western migratory population of the monarch butterfly is formally listed or remains proposed for listing at the time of construction, the following measures shall be implemented, or an alternative suite of measures recommended by the U.S. Fish and Wildlife Service (USFWS) may be substituted for those presented below.

- The limits of the construction area shall clearly be demarcated with fencing, pin flags, or other means. Construction equipment shall not venture beyond the marked construction boundary. Additionally, known milkweed populations adjacent to the construction area shall be flagged for visibility.

Mitigation Measure BIO-3 – Nesting Migratory Birds

To avoid impacts to nesting birds, and/or raptors, protected under California Fish and Game Code Section 3503 and Section 3503.5, including their nests and eggs, one of the following shall be implemented:

- Vegetation removal and ground-disturbance activities shall occur between September 1st and January 31st when birds are not nesting; or
- If vegetation removal and ground disturbance activities occur during the nesting season, a pre-construction nesting survey shall be conducted by a qualified biologist to identify active nests in and adjacent to the project area.

Surveys shall begin prior to sunrise and continue until vegetation and nests have been thoroughly observed. The survey shall take into account acoustic impacts and line-of-sight project disturbances to determine a sufficient survey radius to maximize observations of nesting birds. A nesting bird survey report should be prepared and, at a minimum, the report should include a description of the area surveyed, date and time of the survey, ambient conditions, bird species observed, a description of any active nests observed, any evidence of breeding behaviors (e.g., courtship, carrying nest materials or food, etc.), and a description of any outstanding conditions that may have impacted the survey results (e.g., weather conditions, excess noise, presence of predators).

The results of the survey shall be submitted electronically to the California Department of Fish and Wildlife (CDFW) upon completion. The survey shall be conducted no more than one week prior to the initiation of construction. If construction activities are delayed or suspended for more than one week after the pre-construction survey, the site shall be resurveyed.

If an active nest is located during pre-construction surveys, a non-disturbance buffer should be established around the nest by a qualified biologist in consultation with CDFW and United States Fish and Wildlife Service to comply with Fish and Game Code Sections 3503 and 3503.5 and the Migratory Bird Treaty Act. Compliance measures may include, but are not limited to, exclusion buffers, sound-attenuation measures, and seasonal work closures based on the known biology and life history of the species identified during the survey, as well as ongoing monitoring by biologists. Nesting bird surveys should be conducted no more than seven days prior to the initiation of construction. If construction activities are delayed or suspended for more than seven days after the pre-construction nesting bird survey, the site should be resurveyed.

Mitigation Measure BIO-4 – Noxious Weed Prevention

The introduction and spread of invasive plant species and noxious weeds shall be avoided or minimized through implementation of the following measures:

- Only certified or verified weed-free erosion control materials, mulch, and seed shall be used during construction activities.
- Import and export of fill material shall be limited to sources that are certified or documented to be free of invasive plant material and noxious weed contamination.
- All construction equipment shall be cleaned of soil, vegetative matter, and debris prior to entering the project site. Equipment shall be washed at a commercial wash facility or otherwise cleaned to prevent the introduction of invasive plant material.

Any equipment found to be contaminated with soil or vegetative material shall be cleaned prior to use on the project site, regardless of prior operating location.

Mitigation Measure CR-1 – Inadvertent Discovery

If cultural resources, such as chipped or ground stone, or bone are inadvertently discovered during ground-disturbance activities, work shall be stopped within 50 feet of the discovery, as required by the California Environmental Quality Act (CEQA; January 1999 Revised Guidelines, Title 14 California Code of Regulations [CCR] Section 15064.5 [f]). Work near the archaeological finds shall not resume until a professional archaeologist, who meets the Secretary of the Interior's Standards and Guidelines, has evaluated the material, and offered recommendations for further action.

Mitigation Measure CR-2 – Human Burial or Human Remains

If in the event that previously unidentified evidence of human burial or human remains are discovered during project construction, work will stop at the discovery location, within 20 meters (66 feet), and any nearby area reasonably suspected to overlie human remains (Public Resources Code, Section 7050.5) the Siskiyou County Coroner must be informed and consulted, per State law. If the coroner determines the remains to be Native American, he or she shall contact the Native American Heritage Commission within 24 hours. The Native American Heritage Commission shall identify the person or persons it believes to be the most likely descendent. The most likely descendent will be given an opportunity to make recommendations for means of treatment of the human remains and any associated grave goods. when the commission is unable to identify a descendant or the descendants identified fail to make a recommendation, or the landowner or his or her authorized representative rejects the recommendation of the descendants and the mediation provided for in subdivision (k) of Section 5097.94, if invoked, fails to provide measures acceptable to the landowner, the landowner or his or her authorized representative shall reinter the human remains and items associated with Native American human remains with appropriate dignity on the property in a location not subject to further and future subsurface disturbance. Work in the area shall not continue until the human remains are dealt with according to the recommendations of the County Coroner, Native American Heritage Commission and/or the most likely descendent have been implemented.

Mitigation Measure HAZ-1 – Hazardous Building Materials Survey and Abatement

Prior to initiation of construction activities that would disturb, remove, modify, or demolish existing piping, structures, coatings, or materials that could contain ACMs or LBP, the Town shall retain qualified environmental professionals to conduct surveys for ACMs and LBP in accordance with applicable California Division of Occupational Safety and Health (Cal/OSHA) regulations, including Title 8, California Code of Regulations Sections 1529 and 1532.1, and other applicable federal, State, and local requirements.

If ACMs, LBP, or other hazardous building materials are identified, all removal, handling, transportation, and disposal activities shall be conducted by appropriately trained and licensed personnel in accordance with applicable Cal/OSHA, California Air Resources Board, U.S. Environmental Protection Agency, and California Department of Toxic Substances Control requirements. Hazardous materials shall be removed, stabilized, or otherwise managed prior to construction activities that could disturb the materials. Removed materials shall be transported and disposed of at facilities authorized to accept such materials in accordance with all applicable regulations.

Construction contractors shall implement appropriate worker protection measures, engineering controls, and dust suppression practices to prevent the release of asbestos fibers, lead-containing dust, or other hazardous materials during removal and construction activities.

Mitigation Measure HAZ-2 – Discovery of Previously Unknown Hazardous Materials

In the event previously unidentified ACMs, LBP, or other suspect hazardous materials are encountered during construction, work in the vicinity of the discovery shall cease immediately. The Town shall retain a qualified environmental professional to evaluate the material and determine appropriate handling, abatement, and disposal requirements. Alternatively, the Town may presume the material to be hazardous and manage it accordingly.

Construction activities in the affected area shall not resume until the material has been properly characterized, removed, or otherwise managed in accordance with applicable federal, State, and local regulations. Any hazardous materials identified during construction shall be handled, transported, and disposed of in accordance with applicable hazardous waste requirements.

Mitigation Measure N-1 – Temporary Construction Noise

The project contractor shall implement the following measures during project construction to minimize temporary noise impacts on nearby sensitive receptors. These requirements shall be included on grading and construction plans and incorporated into construction contract specifications.

- Construction activities shall be limited to the hours between 7:00 a.m. and 7:00 p.m. Monday through Saturday. Construction activities shall not occur on Sundays or recognized holidays. If construction activities are required outside the permitted construction hours, the Town shall provide notice to nearby residents and property owners at least 48 hours in advance describing the nature, location, duration, and anticipated hours of the work.

- All construction equipment, fixed or mobile, shall be equipped with properly operating mufflers and sound-control devices no less effective than those originally installed by the manufacturer. Equipment shall be maintained in accordance with manufacturer specifications.

- Stationary noise-generating equipment, including generators, compressors, pumps, and similar equipment, shall be located as far as practical from occupied residences and other sensitive receptors. When feasible, temporary noise shields, enclosures, or other sound-attenuating measures shall be utilized.

- Construction contractors shall minimize equipment idling times and shall shut off equipment when not in active use, consistent with safety and operational requirements.

- The contractor shall designate a disturbance coordinator or construction manager to respond to noise-related complaints, as feasible. Upon receipt of a noise complaint, the contractor shall investigate the complaint and implement reasonable corrective measures, where feasible, to reduce construction-related noise impacts.

Mitigation Measure N-2 – Construction Vehicle Routing and Access

In addition to the permitted hours of construction activities, project grading and construction plans shall identify construction vehicle access routes and staging areas. The plans shall be subject to review and concurrence by the Town of Fort Jones Public Works Department and shall be implemented by the project contractor throughout the duration of construction activities.

- During all project-related construction activities, construction worker parking, material delivery vehicles, and heavy trucks used for soil, aggregate, equipment, or material hauling shall utilize designated haul routes approved by the Town of Fort Jones. Such vehicles shall avoid travel on local residential streets, including but not limited to Bridge Street.

- Onsite construction access shall be limited to the project access point along Serpa Lane.

- Construction staging, equipment storage, and material stockpiling shall be restricted to the designated construction staging area shown on Figure 2-9, WASTEWATER FACILITY UPGRADES, and shall not occur within public roadways or residential areas.

- The contractor shall post and maintain appropriate signage directing construction traffic to approved access and haul routes and shall inform subcontractors and delivery drivers of the approved routing requirements prior to commencement of construction activities.

Mitigation Measure TCR-1 – Unanticipated Discovery

If any suspected TCRs are discovered during ground-disturbing construction activities, all work shall cease within at least 50 feet of the find. The Town shall invite a Tribal Representative from a California Native American tribe that is traditionally and culturally affiliated with the geographic area to make recommendations about whether or not the discovery represents a TCR (PRC Section 21074) and, if so, to make recommendations for culturally appropriate treatment. The contractor shall implement any measures determined by the Town to be necessary. Work at the discovery location cannot resume until the treatment has been implemented to the satisfaction of the Town of Fort Jones.

Findings

Based upon the review of the information above, implementation of the proposed project, as mitigated, is not anticipated to have a substantial adverse effect on the environment. Therefore, there is no significant impact.

Documentation and References

Refer to Section I through Section XX of this Initial Study.

Section 5 – Compliance with Federal Regulations

This section summarizes the federal environmental laws and regulations that apply to the project and describes the project's compliance with those laws and regulations. The federal regulations addressed in this section are based on guidance from the State Water Resources Control Board (SWRCB) for CEQA-Plus environmental review related to State Revolving Funds (SRF). The SWRCB, as a responsible agency for the project, will consider the following information prior to any SRF authorization.

5.1 Archaeological and Historic Preservation Act

Passed and signed into law in 1974, the Archaeological and Historic Preservation Act (AHPA) amended and expanded the Reservoir Salvage Act of 1960. The AHPA provides for the preservation of historical and archeological data that might otherwise be irreparably lost or destroyed as the result of (1) flooding, the building of access roads, the erection of workmen's communities, the relocation of railroads and highways, and other alterations of the terrain caused by the construction of a dam by any agency of the United States, or by any private person or corporation holding a license issued by any such agency or (2) any alteration of the terrain caused as a result of any federal construction project or federally licensed activity or program.

According to the Advisory Council on Historic Preservation, if a project will affect historic properties that have archeological value, the AHPA may impose additional requirements on an agency. A record search conducted by the Northeast Information Center did not identify any cultural resources, including historic properties, within the APE. Therefore, there are no historic properties within the project area that have archaeological or historic value and the AHPA does not apply to the proposed project.

5.2 Clean Air Act

Regulatory Background

The proposed project area is located in the Town of Fort Jones, Siskiyou County, within the Northeast Plateau Air Basin (NEPAB). Air quality within the project area is regulated by the US Environmental Protection Agency (EPA) and the California Air Resources board (CARB) at the federal and state levels, respectively, and locally by the Siskiyou County Air Pollution Control District (SCAPCD).

At the federal level, EPA implements the national air quality programs. EPA's air quality mandates are drawn primarily from the federal Clean Air Act (CAA), enacted in 1970. The most recent major amendments were made by Congress in 1990. The CAA requires EPA to establish National Ambient Air Quality Standards (NAAQS). EPA has established primary and secondary NAAQS for the following criteria air pollutants: ozone, carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), particulate matter (i.e., respirable particulate matter with an aerodynamic diameter less than or equal to 10 microns [PM_{10}] and fine particulate matter with an aerodynamic diameter less than or equal to 2.5 microns [$PM_{2.5}$]), and lead. The CAA also requires each state to prepare an air quality control plan referred to as a State Implementation Plan (SIP). The CAA Amendments added requirements for states with nonattainment areas to revise their SIPs to incorporate additional control measures to reduce air pollution. Each state's SIP is modified periodically to reflect the latest emissions inventories, planning documents, and rules and regulations of the air basins as reported by their jurisdictional agencies. EPA reviews all state SIPs to check for consistency with the mandates of the CAA and its amendments and to determine whether implementing them will achieve air quality goals. If EPA determines a SIP to be inadequate, a Federal Implementation Plan that imposes additional control measures may be prepared for nonattainment areas. If the state fails to submit an approvable SIP or to implement the plan within the mandated time frame, sanctions may be applied to transportation funding and stationary air pollution sources in the air basins.

On November 30, 1993, EPA promulgated the general conformity regulations, which were established to ensure that federal actions do not cause or contribute to new violations of the NAAQS, do not worsen existing violations of the NAAQS, and do not delay attainment of the NAAQS. These regulations apply to a proposed federal action, except actions covered by federal transportation conformity, in an area designated as a nonattainment or maintenance area with respect to the NAAQS if the total direct and indirect emissions of the relevant criteria pollutant and

precursor emissions caused by the proposed action would be equal to or exceed specified *de minimis* amounts. Thus, requiring the federal agency to make a determination regarding general conformity. The manner in which this regulatory information applies to the proposed project is discussed below.

Affected Environment

EPA designates each county (or portions of counties) within California as attainment, maintenance, or nonattainment based on the area's ability to maintain ambient air concentrations below the applicable NAAQS. Areas are designated as attainment if ambient air concentrations of a criteria pollutant or precursor are below the NAAQS. Areas are designated as nonattainment if ambient air concentrations exceed the NAAQS. Areas previously designated as nonattainment that subsequently demonstrated compliance with the NAAQS are designated as maintenance areas. Siskiyou County is currently designated by EPA as attainment for all criteria pollutants (EPA 2026) (see Table 5-1, ATTAINMENT STATUS).

Table 5-1
ATTAINMENT STATUS

Pollutant	Federal Attainment Classification
Ozone	Attainment
Respirable Particulate Matter (PM_{10})	Attainment
Fine Particulate Matter ($PM_{2.5}$)	Attainment
Carbon Monoxide (CO)	Attainment
Nitrogen Dioxide (NO_2)	Attainment
Sulfur Dioxide (SO_2)	Attainment
Lead (Pb)	Attainment
Source: EPA, 2026.	

As mentioned above, a general conformity determination is required if a federal action results in the generation of air pollutants for which the total of direct and indirect emissions equals or exceeds the *de minimis* criteria. Different *de minimis* levels apply to different locations based on attainment status. Table 5-2, De MINIMIS THRESHOLDS FOR DETERMINING APPLICABILITY OF GENERAL CONFORMITY REQUIREMENTS FOR FEDERAL ACTIONS, shows that no *de minimis* levels apply in Siskiyou County given the County's attainment designation for all NAAQS. It should be noted that because ozone is a secondary pollutant (i.e., it is not emitted directly into the atmosphere, but formed in a photochemical reaction in the atmosphere involving ozone precursors and sunlight), its *de minimis* level is based on the primary emissions of precursor pollutants: oxides of nitrogen (NO_X) and volatile organic compounds (VOCs). If the net emissions of either NO_X or VOCs exceeds the *de minimis* level for ozone, the project is required to prepare an official general conformity determination.

Table 5-2
De MINIMIS THRESHOLDS FOR DETERMINING APPLICABILITY OF GENERAL CONFORMITY REQUIREMENTS FOR FEDERAL ACTIONS

Pollutant	Federal Attainment Classification	General Conformity *De Minimis* Levels (tons per year)
Ozone	Attainment	NA
VOC (an ozone precursor)		
NO_x (an ozone precursor)		
Respirable Particulate Matter (PM_{10})	Attainment	NA
Fine Particulate Matter ($PM_{2.5}$)	Attainment	NA
Carbon Monoxide (CO)	Attainment	NA
Nitrogen Dioxide (NO_2)	Attainment	NA

Pollutant	Federal Attainment Classification	General Conformity *De Minimis* Levels (tons per year)
Sulfur Dioxide (SO_2)	Attainment	NA
Lead (Pb)	Attainment	NA
Source: EPA, 2026.		

Environmental Consequences

As demonstrated above in Table 5-2, the proposed project is located in the Northeast Plateau Air Basin and is designated as attainment for federal criteria pollutants. Therefore, implementation of the proposed project would not result in an exceedance of *de minimis* thresholds for criteria air pollutants and a general conformity determination is not required.

5.3 Coastal Barriers Resources Act

The Coastal Barrier Resources Act (PL 97-348) designated various undeveloped coastal barrier islands, depicted by specific maps, for inclusion in the Coastal Barrier Resources System. Areas designated were made ineligible for direct or indirect federal financial assistance that might support development, including flood insurance, except for emergency life-saving activities. Exceptions for certain activities, such as fish and wildlife research, are provided, and National Wildlife Refuges and other, otherwise protected areas are excluded from the System. The System includes relatively undeveloped coastal barriers along the Atlantic and Gulf coasts, as well as the Great Lakes and Puerto Rico and the Virgin Islands.

The proposed project area and surrounding lands are not located within the Coastal Barrier Resources System; therefore, compliance with this Act is not applicable to the project.

5.4 Coastal Zone Management Act

The Coastal Zone Management Act (PL 92-583), administered by the National Oceanic and Atmospheric Administration Fisheries Service's (NOAA Fisheries') Office of Ocean and Coastal Resource Management, provides for management of the nation's coastal resources and balances economic development with environmental conservation. The Act outlines two national programs, the National Coastal Zone Management Program and the National Estuarine Research Reserve System. The coastal programs aim to balance competing land and water issues in the coastal zone, while estuarine reserves serve as field laboratories to provide a greater understanding of estuaries and how humans impact them. The Act's overall program objectives remain balanced to "preserve, protect, develop, and where possible, to restore or enhance the resources of the nation's coastal zone."

The proposed project area and surrounding lands are not located within California's coastal zone, which generally extends 1,000 yards inland from the mean high tide line; therefore, compliance with this Act is not applicable to the project.

5.5 Endangered Species Act

Pursuant to the federal Endangered Species Act (ESA) (PL 93-205), USFWS and NOAA Fisheries have regulatory authority over federally listed species. Under ESA, a permit to "take" a listed species is required for any federal action that may harm an individual of that species. Take is defined under ESA Section 9 as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct." Under federal regulation, take is further defined to include habitat modification or degradation where it would be expected to result in death or injury to listed wildlife by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering. ESA Section 7 outlines procedures for federal interagency cooperation to conserve federally listed species and designated critical habitat. Section 7(a)(2) requires federal agencies to consult with USFWS and/or NOAA Fisheries to ensure that they are not undertaking, funding, permitting, or authorizing actions likely to jeopardize the continued existence of listed species. No federally listed plant or wildlife species have potential to occur in the project area, therefore, no impacts to federally protected species are expected to occur

(Attachment D, BIOLOGICAL RESOURCES ASSESSMENT). It is anticipated that the EPA will issue a "not likely to adversely affect" determination and request and receive a letter of concurrence from USFWS.

A copy of the Biological Resources Assessment will be provided to USFWS for review and comment.

5.6 Farmland Protection Policy Act

The purpose of the federal Farmland Protection Policy Act (FPPA) of 1981 (Public Law 97-98) is to minimize federal contributions to the conversion of farmland to nonagricultural uses by ensuring that Federal programs are administered in a manner compatible with state government, local government, and private programs designed to protect farmland. The Natural Resources Conservation Service (NRCS) is the agency primarily responsible for implementing the FPPA, which is a voluntary program that provides funds to help purchase development rights to keep productive farmland in agricultural uses. The program provides matching funds to state, local, or tribal government entities and nongovernmental organizations with existing farmland protection programs to purchase conservation easements. Participating landowners agree not to convert the land to nonagricultural uses and retain all rights to the property for future agriculture. A minimum 30-year term is required for conservation easements, and priority is given to applications with perpetual easements.

U.S. Department of Agriculture (USDA) Regulations (7 CFR Part 658) implementing the FPPA requires federal agencies to conduct a farmland conversion impact rating (using USDA Form AD-1006) when a project may convert farmlands to non-agricultural uses. This impact rating should be done when the impacts of a project will affect farmlands in the following categories:

- Prime Farmland – the highest quality land for food and fiber production having the best chemical and physical characteristics for producing;
- Unique farmland – land capable of yielding high value crops such as citrus fruits, olives; and
- Farmlands designated as important by state and local governments, with approval of the Secretary of Agriculture.

Neither the Act nor the regulations apply if:

- The project site does not contain farmland in categories identified above.
- The project is on prime farmland that is already "committed" to urban development or water storage (applies to prime farmland only – refer to 7 CFR 658.2(a)).
- Projects were beyond the planning stage prior to August 6, 1984.
- Project involve grants, loans, or mortgage insurance for purchase or rehabilitation of existing structures.

The Department of Conservation (DOC) Farmland Mapping and Monitoring Program (FMMP) maps and classifies farmland. Classifications are based on a combination of physical and chemical characteristics of the soil and climate that determine the degree of suitability of the land for crop production. A 10-acre portion of the site contains irrigated alfalfa hay production and is mapped as both Unique Farmland and Prime Farmland by the FMMP (see Initial Study Figure 4-1, FMMP CLASSIFICATIONS) (DOC, 2026).

A Farmland Conversion Impact Rating Form (Form AD-1006) was completed in accordance with guidance from the USDA/NRCS. The evaluation determined that the proposed conversion of approximately 9.34 acres of farmland, including 1.79 acres classified as Prime and Unique Farmland, would result in a total FPPA score of 137 points. Pursuant to the Farmland Protection Policy Act regulations (7 CFR Part 658), sites receiving total scores greater than 160 points warrant increased consideration for protection from conversion. Because the project score is below this threshold, the affected farmland is not considered among the highest-priority agricultural lands for protection under the FPPA, although the conversion of farmland remains a factor for consideration in project decision-making.

In an effort to offset the permanent conversion of farmland soils, as part of the decommissioning process, the existing 3.99-acre WWTF will be reclaimed for future agricultural use. Per the NRCS Soil Survey, the existing WWTF shares similar soil classifications as the proposed project. These similar surface soils within the 10-acre annexation area will be preserved as part of facility construction, placed at the decommissioned site, and recontoured to allow farming. Post project construction, prime farmland within the annexation area avoided by the new facility will

continue to be available for agricultural production (2.94-acres) through a recorded deed restriction. With the combined implementation of these minimization measures, the proposed project would offset the conversion of prime farmland.

A copy of the completed Farmland Conversion Impact Rating (Form AD-1006) will be provided to the USDA/NRCS for review and completion of the applicable portions of the form. It is important to note that NRCS does not normally approve or disapprove a project under the FPPA. Rather, NRCS provides farmland classifications and relative farmland value ratings for consideration in the FPPA evaluation process. The FPPA requires the federal agency, or its designated representative, to consider the Farmland Conversion Impact Rating score and potential alternatives when making project decisions involving the conversion of farmland to nonagricultural uses. Completion of Form AD-1006 and review by USDA/NRCS serves as the administrative record demonstrating compliance with the FPPA. The final determination regarding project approval remains the responsibility of the federal agency or designated representative and is not made by USDA/NRCS.

5.7 Fish and Wildlife Conservation Act

The Fish and Wildlife Conservation Act of 1980 (16 USC 2901 et seq.) encourages federal agencies to conserve and promote conservation of non-game fish and wildlife species and their habitats. In addition, the Fish and Wildlife Conservation Act (16 USC 661 et seq.) requires federal agencies undertaking projects affecting water resources to consult with the USFWS and the state agency responsible for fish and wildlife resources whenever the waters of any stream or other body of water are proposed or authorized to be impounded, diverted, the channel deepened, or the stream or other body of water will otherwise be controlled or modified for any purpose whatsoever, including navigation and drainages. The 1988 amendment (Public Law 100-653, Title VIII) to the Fish and Wildlife Conservation Act requires the Secretary of the Interior, through the USFWS, to "identify species, subspecies, and populations of all migratory nongame birds that, without additional conservation actions, are likely to become candidates for listing under the Endangered Species Act of 1973."

The project would not affect or modify any stream or water body; therefore, compliance with this Act is not applicable to the project.

5.8 Floodplain Management

EO 11988, "Floodplain Management" (May 24, 1977), directs federal agencies to issue or amend existing regulations and procedures to ensure that the potential effects of any action it may take in a floodplain are evaluated and that its planning programs and budget requests reflect consideration of flood hazards and floodplain management. The purpose of this directive is "to avoid to the extent possible the long- and short-term adverse impacts associated with the occupancy and modification of floodplains and to avoid direct or indirect support of floodplain development wherever there is a practicable alternative."

As described in this Initial Study, the project area is located within the Scott Valley floor, a hydraulically active alluvial environment associated with the Scott River floodplain system and its tributaries, including Moffett Creek. Portions of the valley floor are mapped by the Federal Emergency Management Agency (FEMA) as within the 100-year floodplain and regulatory floodway, reflecting the area's susceptibility to periodic inundation during high-flow events. According to FEMA Flood Insurance Rate Maps (FIRMs), the project site is located within the regulatory floodway associated with the Scott River and Moffett Creek (FEMA, 2025).

Although portions of the project would be located within the mapped FEMA floodway, the hydraulic analysis confirms that the proposed facilities would not cause a measurable rise in base flood elevations or adversely affect floodplain function. Project components would be elevated, anchored, and designed in accordance with applicable engineering standards to withstand anticipated flood conditions. Ancillary improvements located within or adjacent to the floodplain, including fencing, retaining walls, and related infrastructure, would be designed using standard engineering practices to avoid obstruction of flood flows and to resist flood-related damage.

Implementation of the project would require FEMA review and approval of a Conditional Letter of Map Revision based on Fill (CLOMR-F) prior to placement of fill within the floodway. The CLOMR-F application would be prepared and submitted to FEMA concurrent with project permitting. As a condition of project approval, no grading or fill

placement within the mapped floodway would occur until FEMA has approved the CLOMR-F and all applicable federal, state, and local floodplain management requirements have been satisfied.

Because hydraulic modeling demonstrates no increase in flood elevations or flood hazards and project implementation would be subject to FEMA review and approval, the proposed project would not expose people or structures to a significant risk of loss, injury, or death involving flooding, nor would it substantially alter existing floodplain characteristics.

A copy of the Regulatory Floodway Impact Analysis Report (see Attachment F) will be provided to FEMA for review and concurrence.

5.9 Magnuson-Stevens Fishery Conservation and Management Act

In response to growing concern about the status of United States fisheries, Congress passed the Sustainable Fisheries Act of 1996 (Public Law [PL] 104-297) to amend the Magnuson-Stevens Fishery Conservation and Management Act (PL 94-265), the primary law governing marine fisheries management in the federal waters of the United States. The Magnuson- Stevens Conservation and Management Act, as amended (U.S.C. 180 et seq.), requires that Essential Fish Habitat (EFH) be identified and described in federal fishery management plans (FMPs). Federal action agencies must consult with NOAA Fisheries on any activity which they fund, permit, or carry out, that may adversely affect EFH. NOAA Fisheries is required to provide EFH conservation and enhancement recommendations to the federal action agencies. EFH is defined as those waters and substrates necessary to fish for spawning, breeding, feeding or growth to maturity.

As discussed in Attachment D, BIOLOGICAL RESOURCES ASSESSMENT, wetlands or other jurisdictional waters do not occur within the project site. To minimize potential impacts to surface water and biological resources the project has been relocated approximately 1,700 feet from the Scott River and the siting of the infiltration ponds approximately 200 feet from Moffett Creek. This is a substantial improvement when compared to the location of the Town's existing wastewater treatment facility. During construction activities, the project may result in temporary erosion and sediment may be carried into the drainage system during storm events. In addition, accidental discharges of construction-related fuels, oils, hydraulic fluid, and other hazardous substances could contaminate stormwater flows, resulting in a reduction in stormwater quality onsite or downstream of the project area. The project would disturb approximately 17.5 acres of land, and construction projects disturbing 1 acre or more need to obtain coverage under the State Water Resources Control Board's General Construction Stormwater Permit. The general construction permit requires preparation of a detailed stormwater pollution prevention plan for the construction site that includes BMPs to prevent and control erosion. The general construction permit also requires regular inspections of BMPs before, during, and after storm events, which would prevent discharges to drainage systems that are tributary to fish-bearing streams such as the Sacramento River. Therefore, implementation of the proposed project would not affect fisheries or waters nor the substrates necessary for fisheries.

5.10 Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) (16 U.S.C. Section 703, et seq.), first enacted in 1918, provides for protection of international migratory birds and authorizes the Secretary of the Interior to regulate the taking of migratory birds. The MBTA provides that it shall be unlawful, except as permitted by regulations, to pursue, take, or kill any migratory bird, or any part, nest, or egg of any such bird. The current list of species protected by the MBTA can be found in Title 50 of the Code of Federal Regulations (CFR), Section 10.13 (50 CFR 10.13). The list includes nearly all birds native to the United States.

As discussed in Section IV, BIOLOGICAL RESOURCES, of this Initial Study and in Attachment D, BIOLOGICAL RESOURCES ASSESSMENT, riparian vegetation north of the study area near Moffett Creek has a high potential to support nesting birds, while open lands in the study area could support ground-nesting birds such as killdeer. Should potentially disturbing construction activities (i.e., increased worker activity, high-decibel noise disturbance from grading and excavation) occur during the nesting bird season (between February 1st and September 1st), a qualified biologist will conduct preconstruction surveys for nesting migratory bird species within the vicinity of the project area pursuant to Fish and Game Code Section 3503. The surveys will be conducted before the beginning of

any vegetation removal activities are implemented. If no active nests are found, work may proceed. If an active nest is found, adverse effects to nesting birds will be avoided by establishing appropriate buffers around active nest sites identified during preconstruction nest surveys. This is a standard process to avoid nest abandonment. Buffer size will be determined by a qualified biologist. Factors to be considered for determining buffer size will include presence of natural buffers provided by vegetation or topography, nest height above ground, baseline levels of noise and human activity, species sensitivity, and proposed project activities. No project activity will commence within the buffer areas until a qualified biologist has determined, in coordination with U.S. Fish and Wildlife Service (USFWS) and California Department of Fish and Wildlife (CDFW), the young have fledged, the nest is no longer active, or reducing the buffer would not likely result in nest abandonment.

5.11 National Historic Preservation Act

Federal protection of resources is legislated by (a) the National Historic Preservation Act (NHPA) of 1966 as amended by 16 U.S. Code 470, (b) the Archaeological Resource Protection Act of 1979, and (c) the Advisory Council on Historical Preservation. These laws and organizations maintain processes for determination of the effects on historical properties eligible for listing in the National Register of Historic Places (NRHP). Federal and federally sponsored programs and projects are reviewed pursuant to Section 106 of the NHPA. Section 106 of the NHPA requires federal agencies to consider the effects of proposed federal undertakings on historic properties. NHPA requires federal agencies to initiate consultation with the State Historic Preservation Officer as part of the Section 106 review process.

Determination of Effects

The area of potential effects (APE) has been highly disturbed by agricultural activities and partial use as a construction laydown yard. The potential for the discovery of buried archaeological deposits is considered average. No cultural resources were identified during an intensive field investigation of the APE. An archaeological records search (File Number NE25-351) was completed by staff at the Northeast Information Center (NEIC) in Chico, California. The NEIC indicated that one (1) previously identified cultural resources was known to occur within the APE. This resource, the existing Town of Fort Jones Wastewater Treatment Facility, was evaluated by the SWRCB in 2022 and found to be ineligible for listing on the National Register of Historic Places (NRHP). Therefore, there are no historic properties within the APE and the project would have No Effect on Historic Properties (AnthropologyRx, 2026).

5.12 Sole Source Aquifer

The Safe Drinking Water Act (42 USC Section 300f et seq.) was established to protect the quality of drinking water in the U.S. This law focuses on all waters actually or potentially designed for drinking use, whether from above ground or underground sources.

The Act authorizes EPA to establish minimum standards to protect tap water and requires all owners or operators of public water systems to comply with these primary (health-related) standards. The 1996amendments to the Act require that EPA consider a detailed risk and cost assessment, and best available peer-reviewed science, when developing these standards. State governments, which can be approved to implement these rules for EPA, also encourage attainment of secondary standards (nuisance-related). Under the Act, EPA also establishes minimum standards for state programs to protect underground sources of drinking water from endangerment by underground injection of fluids.

The project and surrounding lands are not located within a sole source aquifer, as designated by EPA Region 9 (EPA, 2026). In addition, Moffett Creek is not designated for drinking use and the project would have no effect on any public water systems or other drinking water sources.

5.13 Wetlands Protection

The purpose of EO 11990 (May 24, 1977) is to "minimize the destruction, loss or degradation of wetlands and to preserve and enhance the natural and beneficial values of wetlands." To meet these objectives, EO 11990 requires federal agencies, in planning their actions, to consider alternatives to wetland sites and limit potential damage if an activity affecting a wetland cannot be avoided. EO 11990 applies to: acquisition, management, and disposition of federal lands and facilities construction and improvement projects which are undertaken, financed, or assisted by federal agencies; and federal activities and programs affecting land use, including but not limited to water and related land resources planning, regulation, and licensing activities.

As discussed in Attachment D, BIOLOGICAL RESOURCES ASSESSMENT, implementation of the proposed project would result in no impacts to federally protected wetlands. Wetlands or other jurisdictional waters do not occur within the project site and the project has been designed to avoid impacts to Moffett Creek.

5.14 Wild and Scenic Rivers Act

The Wild and Scenic Rivers Act (16 USC Section 1271 et seq.) establishes a National Wild and Scenic Rivers System for the protection of rivers with important scenic, recreational, fish and wildlife, and other values. Rivers are classified as wild, scenic, or recreational. The act designates specific rivers for inclusion in the System and prescribes the methods and standards by which additional rivers may be added.

Moffett Creek is immediately north of the site and the Scott River is located approximately 1,700 feet to the west. Neither system is designated as a wild and scenic river; however, Scott River is designated as wild and scenic approximately 5.5 miles west of the project where Shackleford Creek meets the river (BLM et al., 2026).

Section 6 – Alternatives

The following discussion of alternatives has been prepared to satisfy the State Water Resources Control Board (SWRCB) CEQA-Plus requirements applicable to funding under the Clean Water State Revolving Fund (CWSRF) program. The alternatives analysis is provided to comply with these CEQA-Plus requirements and is not required under the California Environmental Quality Act (CEQA) for a project evaluated through a Mitigated Negative Declaration (MND). Accordingly, the alternatives evaluated herein are intended to support the SWRCB environmental review process and provide a comparative assessment of reasonable project alternatives.

6.1 Project Purpose and Need

The existing Fort Jones Wastewater Treatment Facility (WWTF) is regulated by the North Coast Regional Water Quality Control Board (NCRWQCB) under Waste Discharge Requirements (WDR) Order No. R1-2014-0029. The facility has been in operation for more than 70 years and has undergone only limited modifications during that time. As a result, the facility has exceeded its anticipated service life and no longer provides the level of treatment necessary to consistently comply with current regulatory requirements.

Effluent monitoring data indicate that the existing WWTF has experienced periodic exceedances of WDR effluent limitations for biochemical oxygen demand (BOD), total suspended solids (TSS), and settleable solids. To date, the RWQCB has not issued enforcement actions related to these exceedances. The RWQCB has acknowledged the Town's ongoing efforts to plan and design replacement wastewater treatment facilities through the Proposition 1 Grant program and has deferred enforcement while those efforts continue.

Although exceedances of BOD are of concern because they may affect receiving water quality, exceedances of TSS and settleable solids are of less immediate concern given the nature of the existing treatment system. The WWTF consists of wastewater treatment and storage ponds that do not directly discharge to surface waters, allowing suspended and settleable solids to be retained and settle within the pond system. While the accumulation of solids may create long-term sludge management and maintenance challenges, it does not currently represent a substantial water quality concern.

The primary objectives of the proposed project are to provide upgraded wastewater treatment facilities capable of meeting current WDR requirements, improve the reliability and operational efficiency of the Town's wastewater treatment system, and provide long-term wastewater service to existing and future customers within the service area.

6.2 Alternatives Considered

A range of wastewater treatment and disposal alternatives was evaluated during preparation of the Wastewater Facilities Plan (WWFP) to identify feasible approaches capable of meeting the project's purpose and need, regulatory requirements, and long-term wastewater management objectives. The alternatives were developed in coordination with the Town and the NCRWQCB and were evaluated based on engineering feasibility, environmental considerations, operational reliability, regulatory compliance, and cost-effectiveness. Detailed descriptions and engineering analyses of the alternatives are provided in Attachment A. Five alternatives, including the proposed project, were evaluated in detail:

- Alternative 1 – Aeration Addition to Existing System
- Alternative 2 – Biofiltration at Existing Location
- Alternative 3 – Pond Reconfiguration with Aeration at Existing Location with Land Disposal
- Alternative 4 – Pond Reconfiguration with Aeration at Existing Location with Percolation Disposal
- Alternative 5 – New WWTF with Aerated Ponds and Percolation Disposal (proposed project)

The alternatives analysis concluded that Alternative 5 would best satisfy the project objectives by providing a long-term, reliable wastewater treatment and disposal system capable of achieving regulatory compliance, accommodating future operational needs, and reducing environmental and public health risks associated with the

existing facility. Accordingly, Alternative 5 was selected as the proposed project and is evaluated throughout this Initial Study.

6.3 Rejected Alternatives

Alternatives 1 and 2

A WWFP for the Town's existing wastewater treatment facility was completed in January 2018. The WWFP evaluated the condition and deficiencies of the existing wastewater treatment system, identified potential improvements, and analyzed a range of treatment and effluent disposal alternatives. The alternatives were developed based on preliminary coordination with the NCRWQCB.

Following review of the WWFP, NCRWQCB staff determined that the proposed effluent disposal approach evaluated under Alternatives 1 and 2 would not be acceptable. Both alternatives proposed utilizing one of the existing ponds as a percolation/evaporation pond for treated effluent disposal (see Figure 6-1, ALTERNATIVE 1 – AERATION ADDITION TO EXISTING SYSTEM and Figure 6-2, ALTERNATIVE 2 – BIOFILTRATION AT EXISTING LOCATION). The existing ponds are located in close proximity to Moffett Creek, with the distance between the northern edge of the ponds and the south bank of the creek ranging from approximately 40 to 50 feet. Based on site conditions, the NCRWQCB expressed concern that hydraulic connectivity may exist between the unlined ponds and adjacent surface waters, particularly Moffett Creek and could be considered a direct discharge to waters of the United States and requiring coverage under a National Pollutant Discharge Elimination System (NPDES) permit. The NCRWQCB further advised that issuance of a new NPDES permit for discharge to the Scott River watershed would not be consistent with applicable Basin Plan requirements. As a result, Alternatives 1 and 2 were determined to be infeasible from a regulatory standpoint and were eliminated from further consideration.

In response to NCRWQCB concerns, Addendum No. 1 to the WWFP was prepared in 2022 to evaluate additional wastewater disposal options. The addendum retained the core treatment processes proposed under Alternative 1 while assessing alternative effluent disposal strategies designed to increase separation from Moffett Creek and reduce the potential for hydraulic connectivity with nearby surface waters. Two additional alternatives, identified as Alternative 3 and Alternative 4, were subsequently developed and evaluated.

Alternative 3

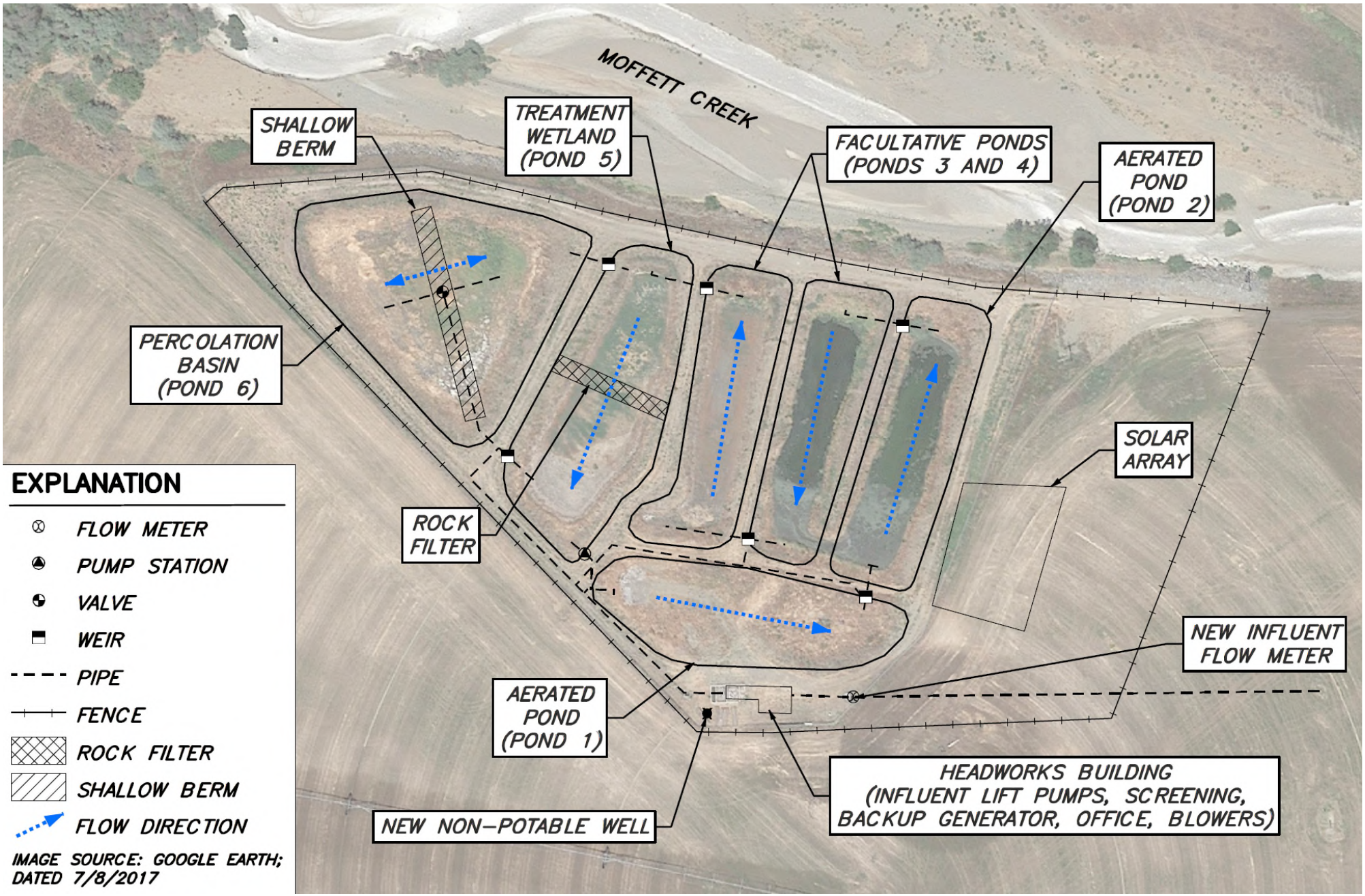
Alternative 3 evaluated treatment of wastewater using an aeration system, with treated effluent conveyed to a forested area located north of the existing wastewater treatment facility for disposal through an overhead sprinkler irrigation system. The alternative was developed to eliminate the need for effluent disposal in ponds located adjacent to Moffett Creek and thereby reduce concerns regarding potential hydraulic connectivity with nearby surface waters (see Figure 6-3, ALTERNATIVE 3 – POND RECONFIGURATION WITH AERATION AT EXISTING LOCATION WITH LAND DISPOSAL, and Figure 6-4, LAND APPLICATION PIPELINE).

Following review of the alternative, the NCRWQCB determined that land application of treated effluent at the proposed disposal location would not be an appropriate wastewater management strategy and indicated that the alternative would not be supported from a permitting perspective. Because implementation of the alternative would not be feasible under applicable regulatory requirements, Alternative 3 was eliminated from further consideration.

Alternative 4

Alternative 4 evaluated reconfiguring the existing wastewater treatment facility site to relocate the treated effluent percolation ponds as far from Moffett Creek as practicable. Under this alternative, the separation distance between the percolation ponds and Moffett Creek would increase from approximately 50 feet to 195 feet. Following preparation of the 2022 Addendum No. 1, Alternative 4 was identified as the preferred alternative and replaced the originally recommended project configuration (see Figure 6-5, ALTERNATIVE 4 – POND RECONFIGURATION WITH AERATION AT EXISTING LOCATION WITH PERCOLATION DISPOSAL).

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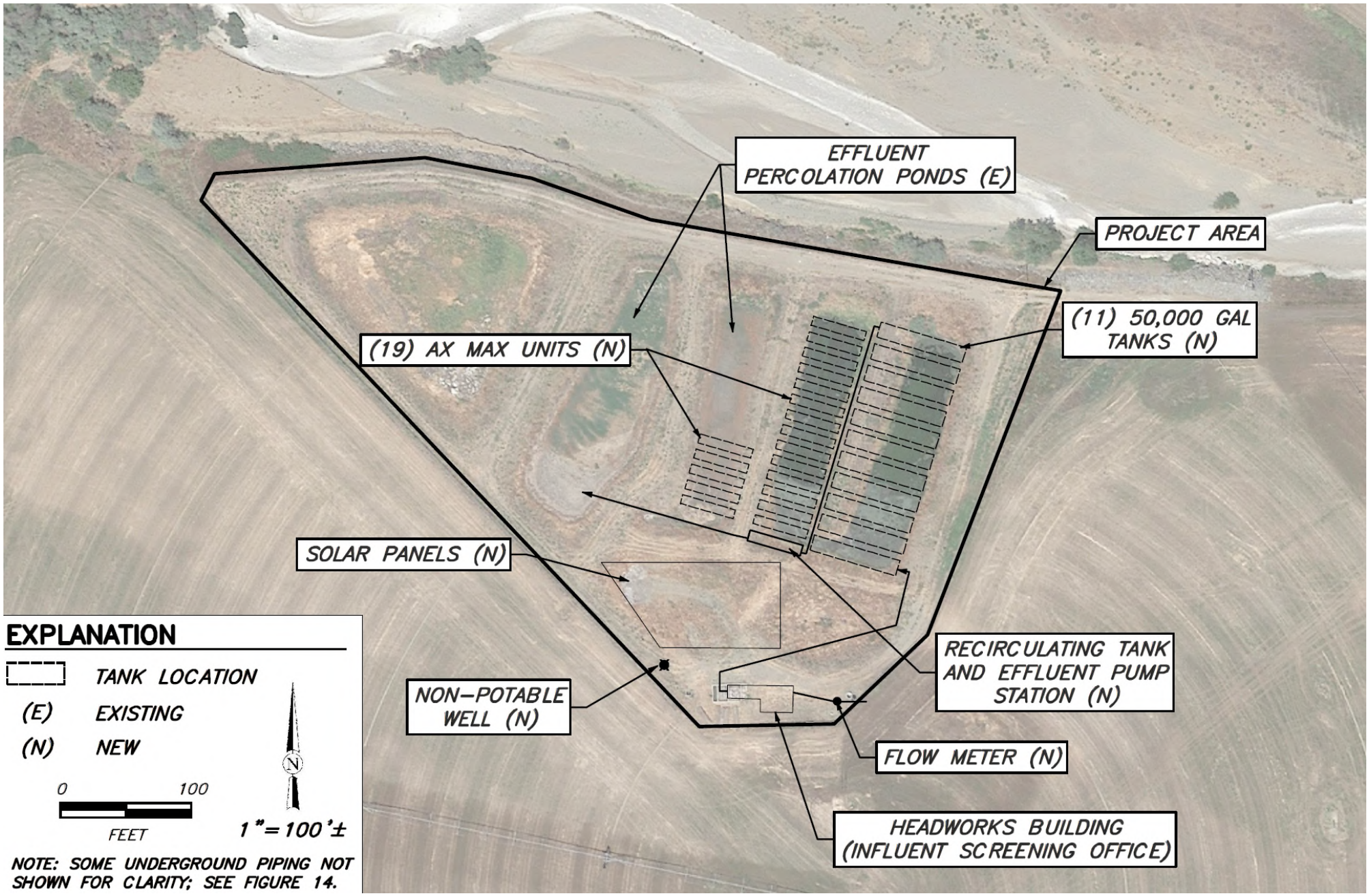


Fort Jones Wastewater Treatment Facility Upgrades
IS/MND

Alternative 1
Aeration Addition to Existing System
July 2026

Figure 6-1

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Fort Jones Wastewater Treatment Facility Upgrades
IS/MND

Alternative 2
Biofiltration at Existing Location
July 2026

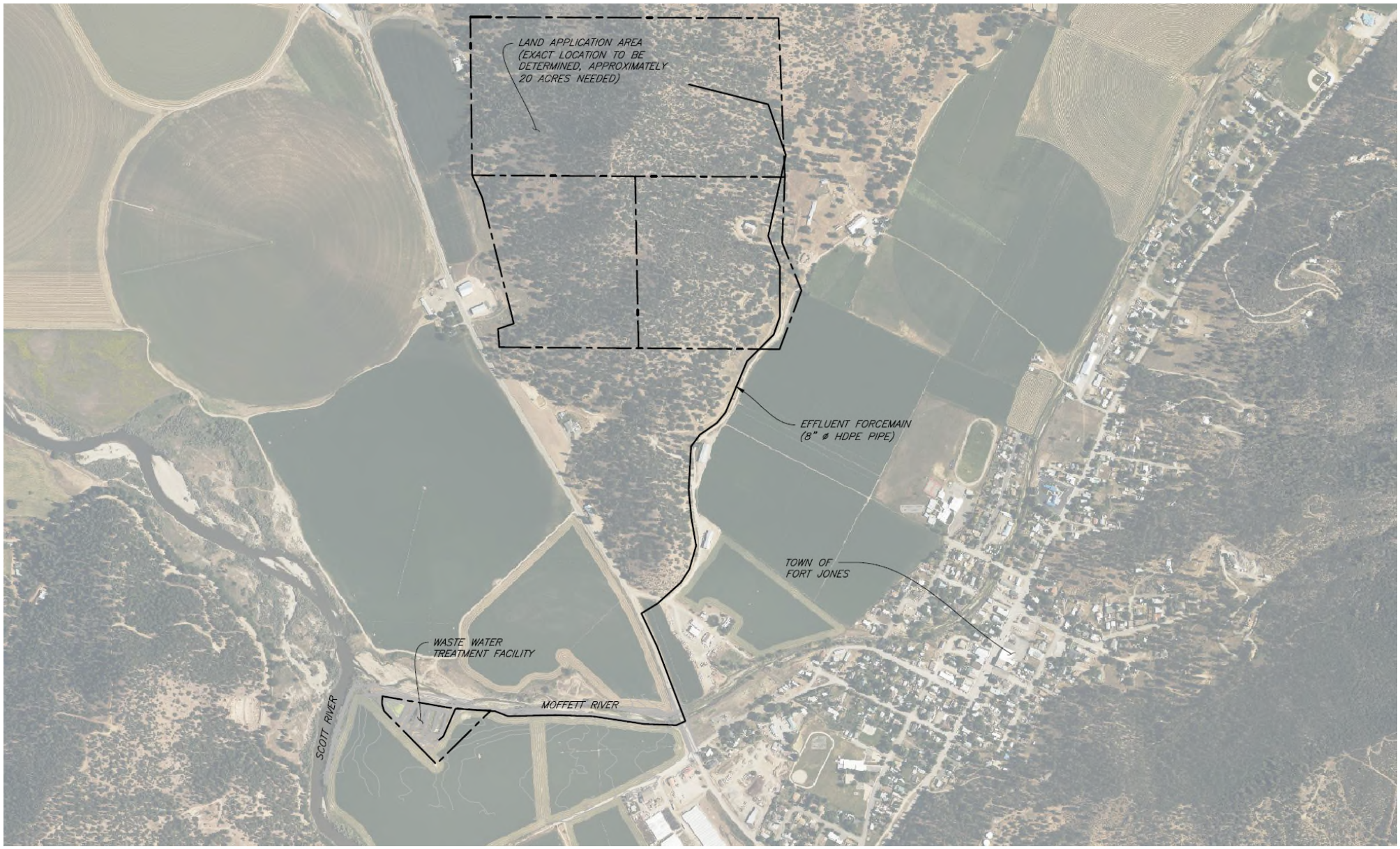
Figure
6-2

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SHN	Fort Jones Wastewater Treatment Facility Upgrades IS/MND	**Alternative 3 - Pond Reconfiguration with Aeration at Existing Location with Land Disposal** July 2026	**Figure** **6-3**

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Fort Jones Wastewater Treatment Facility Upgrades
IS/MND

Alternative 3
Land Application Pipeline
July 2026

Figure
6-4

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Fort Jones Wastewater Treatment Facility Upgrades
IS/MND

Alternative 4 - Pond Reconfiguration with Aeration at Existing Location with Percolation Disposal
July 2026

Figure 6-5

Subsequent project development, however, identified an opportunity to further reduce potential impacts to surface water and biological resources by relocating treatment and disposal facilities to a new site that would provide substantially greater separation from both Moffett Creek and the Scott River. As a result, Alternative 4 was not advanced for implementation, and a new relocated-site alternative (Alternative 5) was developed and evaluated. Alternative 5 was ultimately selected as the preferred project because it would further minimize environmental impacts while continuing to meet the Town's wastewater treatment and disposal objectives. The proposed project reflects Alternative 5 and is supported by the Town Council.

6.4 Comparison of Alternatives

With respect to alternatives, the Clean Water State Revolving Fund (CWSRF) regulations (40 C.F.R. § 35.3140(b)(5)) require:

- Comparative evaluation of project alternatives, including consideration of the beneficial and adverse consequences to the existing environment, the future environment, and any sensitive environmental issues identified through project planning or public participation; and

- Identification of appropriate near-term and long-term measures to avoid, minimize, or mitigate adverse environmental impacts.

In addition, Section III(D)(1)(g) of the State Environmental Review Process (SERP), as administered by the SWRCB, provides that for certain projects evaluated under a MND, it may be appropriate to limit the alternatives analysis to a No Project/No Action Alternative and the proposed project.

As discussed in Section 6.3, the Town previously evaluated multiple wastewater treatment and disposal alternatives and eliminated several from further consideration based on technical, regulatory, and environmental constraints. Given the prior evaluated alternatives and consistent with SERP guidance for MND-level review, the alternatives analysis presented below focuses on the No Project/No Action Alternative and the proposed project. These alternatives provide a reasonable basis for comparing the environmental consequences of implementing or not implementing the proposed project.

No Project/No Action Alternative

DESCRIPTION OF THE ALTERNATIVE

Under the No Project/No Action Alternative, the proposed wastewater treatment facility improvements would not be constructed, and the Town of Fort Jones would continue to operate the existing wastewater treatment facility in its current configuration. Routine operation, maintenance, and minor repairs would continue as necessary to maintain service; however, no major upgrades or replacement of aging treatment infrastructure would occur.

ENVIRONMENTAL CONSEQUENCES

Implementation of the No Project/No Action Alternative would avoid the temporary environmental impacts associated with project construction, including grading, equipment operation, traffic, noise, and air pollutant emissions. In addition, because no new treatment facilities, disposal ponds, pipelines, or related infrastructure would be constructed, the alternative would avoid the permanent conversion of agricultural land and Prime Farmland soils associated with the proposed project. Existing agricultural uses on the project site would continue, and no farmland would be removed from agricultural production.

However, the No Project/No Action Alternative would not address the deficiencies of the existing wastewater treatment system or achieve the project objectives. The existing wastewater treatment facility has been in operation for more than 70 years and has exceeded its anticipated service life. The facility has experienced periodic exceedances of WDR effluent limitations for BOD, TSS, and settleable solids, and continued operation would not improve treatment performance or regulatory compliance.

The No Project/No Action Alternative would also fail to provide a reliable long-term wastewater treatment and disposal solution for the Town. Continued reliance on aging infrastructure would increase the potential for operational failures, higher maintenance costs, and future regulatory compliance challenges. While the NCRWQCB has acknowledged the Town's ongoing efforts to develop replacement facilities and has not pursued enforcement actions, the No Project/No Action Alternative would not resolve the underlying infrastructure and treatment deficiencies.

Although the No Project/No Action Alternative would avoid construction-related impacts and preserve existing agricultural resources, including Prime Farmland soils, it would not meet the fundamental objectives of improving wastewater treatment performance, achieving long-term compliance with applicable WDR requirements, and providing reliable wastewater service to the Town.

Alternative 5: New WWTF with Aerated Ponds and Infiltration Disposal (proposed project)

DESCRIPTION OF THE ALTERNATIVE

The proposed project (identified as Alternative 5 in the 2026 Wastewater Facilities Plan Addendum No. 2) consists of decommissioning the existing WWTF and moving treatment to a new offsite location where a new influent lift station, headworks, and treatment ponds will treat wastewater and the effluent would be disposed of in new evaporation and percolation ponds. Project features include the decommissioning of the existing WWTF, and installing new gravity sewer main piping to the new WWTF location, constructing a new influent pump station, new headworks with influent screening, construction of new aeration, settling, and evaporation/percolation (disposal) ponds, construction of a new recirculation pump station, and construction of a new rock filter. An offsite sewer pump station that serves the commercial area south and southwest of the new WWTF site will also be rehabilitated and a new 3-inch diameter force main will be installed from the existing pump station to a new manhole structure along the new influent sewer main line east of the new WWTF.

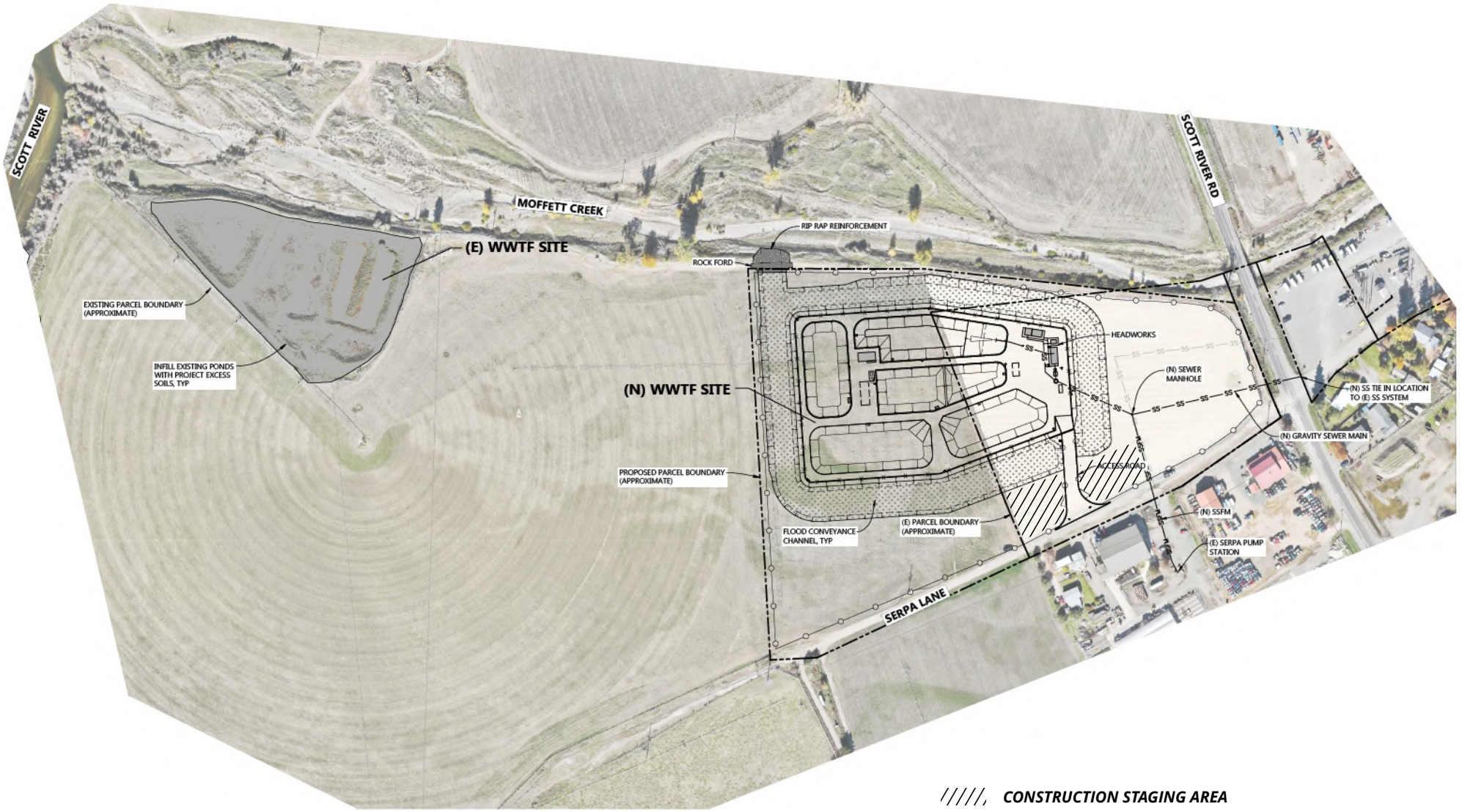
The proposed project will require reconfiguring three existing parcels to consolidate the land capable of supporting a new wastewater treatment facility into one parcel. The new facility is proposed on APN 055-241-010 and APN 055-241-020 (7.5 acres total) within the Fort Jones corporate limits and will require annexing a 10-acre portion of APN 024-030-490 located within unincorporated Siskiyou County. As APN 024-030-490 resides within the County and outside of the Town’s established Sphere of Influence (SOI), the proposed project will require the approval of a SOI amendment and annexation by the Siskiyou County Local Agency Formation Commission (LAFCO) to authorize the boundary change.

The proposed project would require a general plan amendment on the 17.5-acre WWTF relocation parcel from Mobile Home (M-H) to Public Facility (PF). The Public Facility (PF) designation accommodates open space and public lands including schools, parks, and natural areas. Within this designation, other public lands that are typically not available for recreation or public open space (i.e. owned by a public entity or public utility) are considered suitable for public facilities. The Public Facility (PF) land use designation is consistent with all Town zone districts. The proposed project would also require a zone change from Manufactured Homes Park (M-H) (7.5 acres within Fort Jones) and AG-1-B-80/AG-2-B-40 (10 acres of unincorporated Siskiyou County) to the Town’s Manufacturing (M) zone district.

ENVIRONMENTAL CONSEQUENCES

As discussed in each resource section of this Initial Study, the proposed project is consistent with applicable plans, policies, regulations, and standards of the agencies identified in the Environmental Checklist Form. Where potentially significant impacts were identified, mitigation measures have been incorporated to avoid, minimize, or reduce impacts to less than significant levels.

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Fort Jones Wastewater Treatment Facility Upgrades
IS/MND

New WWTF with Aereated Ponds and Percolation Disposal
July 2026

Figure 6-6

The potential for the proposed project to result in direct or indirect environmental effects has been evaluated throughout this document. The analysis determined that implementation of the project could result in impacts related to air quality, agricultural resources, biological resources, cultural resources, hazardous materials, hydrology and water quality, and noise. Mitigation measures have been identified and incorporated into the project to reduce these impacts to less than significant levels. In addition, project design features and compliance with existing federal, state, and local regulations would further avoid or minimize environmental effects.

Compared to previously evaluated alternatives, relocation of the wastewater treatment facility would increase separation from Moffett Creek and the Scott River, thereby reducing the potential for impacts to surface water resources and associated biological resources. Implementation of the project would, however, result in the conversion of agricultural land, including Prime Farmland soils, to public utility use. As discussed in Section II, AGRICULTURE AND FORESTRY RESOURCES, of this Initial Study, the project incorporates mitigation measures that restore and permanently protect agricultural resources, reducing agricultural impacts to less than significant levels.

Accordingly, implementation of the proposed project, together with the identified mitigation measures and compliance with applicable regulatory requirements, would not result in substantial adverse environmental effects, either directly or indirectly. The proposed project would meet the Town's wastewater treatment objectives while reducing all identified environmental impacts to less than significant levels.

6.5 Comparison of Alternatives

The No Project/No Action Alternative would avoid all construction-related impacts associated with development of a new wastewater treatment facility, including temporary impacts related to noise, air quality, traffic, and biological resources. In addition, the No Project/No Action Alternative would avoid the permanent conversion of agricultural land and Prime Farmland soils associated with the proposed project, allowing existing agricultural uses on the project site to continue.

However, the No Project/No Action Alternative would not address the deficiencies of the existing wastewater treatment facility, which has exceeded its anticipated service life and has experienced periodic exceedances of applicable WDRs. Continued reliance on the existing facility would not improve treatment performance, provide long-term regulatory compliance, or ensure reliable wastewater service for the Town. Accordingly, the No Project/No Action Alternative would not meet the project's objectives.

Alternative 5, the proposed project, would replace the aging wastewater treatment facility with a modern treatment and disposal system designed to meet current regulatory requirements and provide reliable long-term wastewater service. The project would relocate treatment and disposal facilities farther from Moffett Creek and the Scott River than previously considered alternatives, reducing the potential for impacts to surface water resources and associated biological resources. The project would meet all identified project objectives and provide a long-term wastewater management solution for the Town.

Implementation of Alternative 5 would result in temporary construction-related impacts and the permanent conversion of agricultural land, including Prime Farmland soils, to wastewater treatment facility uses. However, mitigation measures identified in this Initial Study would reduce all potentially significant environmental impacts to less than significant levels.

Overall, the No Project/No Action Alternative would provide greater protection of agricultural resources by avoiding farmland conversion and would eliminate construction-related impacts. However, it would not achieve the fundamental objectives of the project or address the Town's long-term wastewater treatment needs. Alternative 5 would result in greater environmental disturbance due to construction and farmland conversion but would provide substantial public infrastructure, water quality, and regulatory compliance benefits while reducing all identified environmental impacts to less than significant levels. Therefore, Alternative 5 is the environmentally preferred alternative that best balances environmental protection with achievement of the project's objectives.

Section 7 – Mitigation and Monitoring Program (MMP)

This section contains the proposed Mitigation and Monitoring Program (MMP) for the proposed Fort Jones Wastewater Treatment Facility Upgrades project. The MMP includes a brief discussion of the legal basis for and the purpose of the program, discussion, and direction regarding complaints about noncompliance, a key to understanding the monitoring matrix, and the monitoring matrix itself.

California Public Resources Code Section 21081.6(a)(1) requires public agencies to adopt mitigation monitoring or reporting programs whenever the agencies adopt CEQA Findings in connection with the approval of projects requiring Environmental Impact Reports (EIRs) and whenever agencies adopt Mitigated Negative Declarations (MNDs). This requirement facilitates implementation of all mitigation measures adopted through the California Environmental Quality Act (CEQA) process.

The MMP contained herein is intended to satisfy the requirements of CEQA as they relate to the MND prepared for the proposed project. It is intended to be used by Town staff, participating agencies, project contractors, and mitigation monitoring personnel during implementation of the proposed project. Mitigation is defined by State CEQA Guidelines Section 15370 as a measure that does any of the following:

- Avoids impacts altogether by not taking a certain action or parts of an action.
- Minimizes impacts by limiting the degree or magnitude of the action and its implementation.
- Rectifies impacts by repairing, rehabilitating, or restoring the impacted environment.
- Reduces or eliminates impacts over time by preservation and maintenance operations during the life of the project.
- Compensates for impacts by replacing or providing substitute resources or environments.

Table 7-1, MITIGATION AND MONITORING PROGRAM, below, identifies the mitigation measures proposed for the Fort Jones Wastewater Treatment Facility Upgrades project. The table has four columns that are defined as follows:

- *Mitigation Measure/Condition.* Lists the mitigation measures identified within the MND for a specific impact, along with the number for each measure enumerated in the MND.

- *Timing.* Identifies at what point in time, review process, or phase the mitigation measures will be completed.

- *Enforcement/Monitoring.* References the responsible entity or any other public agency with which coordination is required to satisfy the identified mitigation measure.

- *Verification.* Provides a space to be initialed and dated by the individual designated to verify adherence to a specific mitigation measure.

Any person or agency may file a complaint asserting noncompliance with the mitigation measures associated with the proposed project. The complaint shall be directed to the Town's Administrator in written form, providing specific information on the asserted violation. The Town shall conduct an investigation and determine the validity of the complaint. If noncompliance with a mitigation measure has occurred, the Town shall take appropriate action to remedy any violation. The complainant shall receive written confirmation indicating the results of the investigation or the final action corresponding to the particular noncompliance issue.

Table 7-1
MITIGATION AND MONITORING PROGRAM

Mitigation Measure / Condition	Timing / Implementation	Enforcement / Monitoring	Verification (Date & Initials)
AIR QUALITY			
Mitigation Measure AQ-1 The construction and demolition contractor shall be responsible for implementing Siskiyou County APCD Rule 4.2 and Fugitive Dust Control Measures to reduce the potential generation of fugitive dust during the proposed construction activities. Compliance with these requirements shall be required to minimize dust generation during construction activity. • All active construction areas (for example, parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered a minimum of two times per day during the dry season; • Hydroseed or apply non-toxic soil stabilizers to inactive construction areas; • Dust-generating activities shall be limited during periods of high winds (over 15 mph); • Suspend excavation and grading activity when winds exceed 25 mph; • All haul trucks transporting soil, sand, or other loose material, likely to give rise to airborne dust, shall be covered; • All vehicle speeds shall be limited to 15 miles per hour within the construction area; • Promptly remove earth or other tracked out material from paved streets onto which earth, or other material has been transported by trucking or earth-moving equipment; and • Conduct digging, backfilling, and paving of utility trenches in such a manner as to minimize the creation of airborne dust.	During Construction	Contractor / Town of Fort Jones	
ACRICULTURE AND FORESTRY RESOURCES			
Mitigation Measure AG-1 – Restoration of Existing Wastewater Treatment Facility Upon decommissioning, the Town and project contractor shall ensure restoration of the decommissioned wastewater treatment facility area and make the 3.99-acre site available for agricultural use through preparation and implementation of an Agricultural Soils Restoration Plan. The plan shall include, but not be limited to the following: • *Baseline Agronomic Testing*: Quantitative testing of the topsoils slated for removal within the project impact area shall be performed prior to ground disturbance. This testing will establish baseline metrics for topsoil depth, soil texture, pH, electrical conductivity (EC), organic matter percentage, macro- and micro-nutrient levels, and water infiltration characteristics. • *Soil Horizon Segregation*: Topsoil (A horizon) excavated during project construction shall be stripped separately from underlying subsoils (B and C-horizons) and parent material. These distinct layers shall be preserved exclusively for strategic placement on the decommissioned WWTF site, ensuring the final restored topsoil profile achieves a depth and structural horizon equivalent to adjacent, undisturbed agricultural land with similar surface soils. • *Top Soil Preservation*: Temporarily stockpiled soils shall be protected from wind and water erosion, as well as noxious weed infestation, utilizing Best Management Practices (BMPs). These practices may include physical erosion control blankets, or the establishment of a temporary, non-invasive, sterile cover crop. Stockpiles	Upon decommissioning of existing WWTF	Contractor / Town of Fort Jones	

Table 7-1
MITIGATION AND MONITORING PROGRAM

Mitigation Measure / Condition	Timing / Implementation	Enforcement / Monitoring	Verification (Date & Initials)
shall be physically segregated from construction debris, fuels, and chemical contaminants. • *Mechanical Compaction Mitigation*: Any compacted soils shall be subsoiled to a depth sufficient to alleviate compaction and restore root penetration and water infiltration characteristics comparable to the adjacent agricultural lands. • *Soil Contouring and Post-Placement Nutrient Management*: Placement of preserved topsoil shall occur at slopes generally consistent with adjacent agricultural land to promote efficient drainage. Following placement, soil testing shall be conducted to determine whether soil amendments are necessary to achieve soil productivity reasonably comparable to adjoining agricultural land. Common amendments may include compost, aged manure, gypsum, lime, and commercial fertilizers. • *Biological Stabilization and Tilth Restoration*: Immediately following soil contouring and amendment incorporation, the restored site shall be drilled or hydroseeded with a deep-rooting pasture mix or regionally relevant cover crop. This cover crop shall be utilized to accelerate the restoration of soil aggregate stability, promote biological development, and prevent immediate sheet or rill erosion. Restoration shall result in soil and site conditions capable of supporting agricultural production consistent with characteristics and reasonably comparable to similar adjacent farmland. Final soil testing results and documentation of restoration activities shall be submitted to the Siskiyou County Agricultural Commissioner and the Town Engineer for review and confirmation that the requirements of the Agricultural Soils Restoration Plan have been completed.			
Mitigation Measure AG-2 – Deed Restrictions To ensure the long-term preservation of Prime Farmland soils, prior to operation of the relocated wastewater treatment facility, the Town shall record a deed restriction or other legally enforceable instrument, acceptable to Siskiyou County, restricting the restored 3.99-acre former wastewater treatment facility site and 2.94 acres of annexed Prime Farmland to agricultural uses and prohibiting non-agricultural development. The restriction shall run with the land, be binding upon all current and future owners and successors in interest, and remain in effect in perpetuity unless otherwise approved by Siskiyou County.	Upon operation of the project and completion of restoration activities	Town of Fort Jones	
BIOLOGICAL RESOURCES			
Mitigation Measure BIO-1 – Northwestern Pond Turtle If any ground-disturbing activity is proposed within 1,200 feet of the Scott River and outside of the existing fenced WWTF site, the following measures shall be implemented to ensure that potential impacts to the northwestern pond turtle (NWPT) are avoided or appropriately minimized. The NWPT is currently proposed for federal listing as Threatened, and the U.S. Fish and Wildlife Service (USFWS) may recommend a different suite of measures to protect the turtle. Therefore, alternative measures acceptable to the USFWS may be substituted for those provided below. • *Worker's Environmental Awareness and Protection Training*: A Worker's Environmental Awareness and Protection (WEAP) Training shall be implemented by a USFWS-approved biologist prior to the commencement of construction and to any new crew members prior to beginning work on the jobsite. Upon completion of the program, employees will sign a form stating they attended	Prior to and During Construction	Town of Fort Jones	

Table 7-1
MITIGATION AND MONITORING PROGRAM

Mitigation Measure / Condition	Timing / Implementation	Enforcement / Monitoring	Verification (Date & Initials)

the program and understand all protection measures. The project proponent will maintain a list of all personnel who have successfully completed the education program at the worksite.
• *Pre-Construction Surveys*: A USFWS-approved biologist shall conduct three pre-construction surveys of the project site for NWPT.
  ○ One survey shall be conducted no more than 48 hours before the onset of work activities, ideally when weather conditions are suitable to detect pond turtles.
  ○ Two additional surveys shall be conducted prior to the onset of work activities with at least three days between surveys during suitable weather conditions during the northwestern pond turtle's active season (generally March 1–September 30) when air temperatures regularly exceed 55 degrees Fahrenheit.
• *Exclusionary Fencing*: Silt fencing or other barriers to turtle movement shall be established around the perimeter of the work area within 1,200 feet of the Scott River and shall be inspected/maintained throughout the duration of construction. The interior of the exclusionary zone shall be inspected as part of the pre-construction surveys to ensure that no turtles are trapped within the barriers.
• *Turtle Relocation*: If any life stage of the NWPT (adult, hatchling, or egg) is found and individuals are likely to be killed or injured by work activities, project activities that may harm the species shall be halted within 50 feet of the turtles until the individuals move out of harm's way or until a USFWS-approved biologist can capture and relocate them.
• *Trash Removal*: All trash that could attract predators of the NWPT and all plastics that NWPT could consume or become entangled in shall be removed daily from the project site and disposed of properly.
• *Erosion Control Materials*: Plastic monofilament netting (erosion control matting), loosely woven netting, or similar material in any form shall not be used at the project site because NWPT can become entangled and trapped in them. Any such material found onsite shall be immediately removed by construction personnel. Material utilizing fixed weaves (strands cannot move), polypropylene, polymer or other synthetic materials shall not be use.
• *Nighttime Work*: The project proponent shall conduct project activities no earlier than 30 minutes after sunrise and no later than 30 minutes before sunset. If the Town of Fort Jones determines that nighttime work is necessary, all lighting shall be directed to the work area and shielded to prevent spill over into occupied or assumed occupied habitat outside the work area.
• *Construction Equipment*: No equipment in which NWPT could seek shelter shall be left on site overnight outside of the designated staging areas, defined as those areas that are enclosed with silt fence or some other barrier designed to reasonably prevent wildlife from entering. The project proponent shall cover dirt or sand piles left overnight outside of the designated staging areas with tarps or plastic to prevent NWPT from sheltering in the material. For onsite storage of pipes, conduits and other materials that could provide shelter for NWPT that is not			

Table 7-1
MITIGATION AND MONITORING PROGRAM

Mitigation Measure / Condition	Timing / Implementation	Enforcement / Monitoring	Verification (Date & Initials)
surrounded by NWPT exclusion fencing, an open-top trailer shall be used to elevate the materials above ground. This is intended to reduce the potential for NWPT to climb into the conduits and other materials. • *Cover Holes and Trenches*: All holes and trenches over 6.0 inches deep shall be covered overnight or escape ramps installed and shall be inspected each morning by a qualified biologist or assistant biologist. • *Vehicle Speed Limit*: Project-related vehicles shall observe a 15.0 miles per hour speed limit within construction areas, except on County roads, and State and federal highways. Off-road traffic outside of designated and fenced project work areas shall be prohibited. • *No Pets*: No pets shall be permitted at the project site, to avoid and minimize the potential for harassment, injury, and death of the NWPT. • *No Herbicides or Insecticides*: No herbicides or insecticides shall be used unless the USFWS determines that with implementation of best management practices (BMPs) that no NWPT are likely to be harmed. • *Refueling and Vehicle Maintenance*: Refueling and maintenance of vehicles and equipment shall occur within a designated staging area a minimum of 100 feet from riparian habitat or aquatic areas, unless the USFWS approves, and the equipment is stationary and less than 100 feet from aquatic areas. • *Spill Response*: Prior to the onset of work, the contractor shall have a plan in place for prompt and effective response to any accidental spills. A spill-containment kit shall be present at all times on site. The plan shall include informing all workers of the importance of preventing spills and of the appropriate measures to implement should a spill occur. • *Vehicle Leak Prevention*: Vehicles and equipment shall be checked daily for leaks, and all vehicular fluid spills will be contained and cleaned up immediately following the procedures noted in the above measure.			
Mitigation Measure BIO-2 – Monarch Butterfly The monarch butterfly is currently proposed for federal listing as Threatened. If the western migratory population of the monarch butterfly is formally listed or remains proposed for listing at the time of construction, the following measures shall be implemented, or an alternative suite of measures recommended by the U.S. Fish and Wildlife Service (USFWS) may be substituted for those presented below. • The limits of the construction area shall clearly be demarcated with fencing, pin flags, or other means. Construction equipment shall not venture beyond the marked construction boundary. Additionally, known milkweed populations adjacent to the construction area shall be flagged for visibility.	Prior to Construction	Contractor / Town of Fort Jones	
Mitigation Measure BIO-3 – Nesting Migratory Birds To avoid impacts to nesting birds, and/or raptors, protected under California Fish and Game Code Section 3503 and Section 3503.5, including their nests and eggs, one of the following shall be implemented:	Prior to Construction	Contractor / Town of Fort Jones	

Table 7-1
MITIGATION AND MONITORING PROGRAM

Mitigation Measure / Condition	Timing / Implementation	Enforcement / Monitoring	Verification (Date & Initials)
• Vegetation removal and ground-disturbance activities shall occur between September 1st and January 31st when birds are not nesting; or • If vegetation removal and ground disturbance activities occur during the nesting season, a pre-construction nesting survey shall be conducted by a qualified biologist to identify active nests in and adjacent to the project area. Surveys shall begin prior to sunrise and continue until vegetation and nests have been thoroughly observed. The survey shall take into account acoustic impacts and line-of-sight project disturbances to determine a sufficient survey radius to maximize observations of nesting birds. A nesting bird survey report should be prepared and, at a minimum, the report should include a description of the area surveyed, date and time of the survey, ambient conditions, bird species observed, a description of any active nests observed, any evidence of breeding behaviors (e.g., courtship, carrying nest materials or food, etc.), and a description of any outstanding conditions that may have impacted the survey results (e.g., weather conditions, excess noise, presence of predators). The results of the survey shall be submitted electronically to the California Department of Fish and Wildlife (CDFW) upon completion. The survey shall be conducted no more than one week prior to the initiation of construction. If construction activities are delayed or suspended for more than one week after the pre-construction survey, the site shall be resurveyed. If an active nest is located during pre-construction surveys, a non-disturbance buffer should be established around the nest by a qualified biologist in consultation with CDFW and United States Fish and Wildlife Service to comply with Fish and Game Code Sections 3503 and 3503.5 and the Migratory Bird Treaty Act. Compliance measures may include, but are not limited to, exclusion buffers, sound-attenuation measures, and seasonal work closures based on the known biology and life history of the species identified during the survey, as well as ongoing monitoring by biologists. Nesting bird surveys should be conducted no more than seven days prior to the initiation of construction. If construction activities are delayed or suspended for more than seven days after the pre-construction nesting bird survey, the site should be resurveyed.			
Mitigation Measure BIO-4 – Noxious Weed Prevention The introduction and spread of invasive plant species and noxious weeds shall be avoided or minimized through implementation of the following measures: • Only certified or verified weed-free erosion control materials, mulch, and seed shall be used during construction activities. • Import and export of fill material shall be limited to sources that are certified or documented to be free of invasive plant material and noxious weed contamination. • All construction equipment shall be cleaned of soil, vegetative matter, and debris prior to entering the project site. Equipment shall be washed at a commercial wash facility or otherwise cleaned to prevent the introduction of invasive plant material. Any equipment found to be contaminated with soil or vegetative material shall be cleaned prior to use on the project site, regardless of prior operating location.	During Construction	Contractor / Town of Fort Jones	

Table 7-1
MITIGATION AND MONITORING PROGRAM

Mitigation Measure / Condition	Timing / Implementation	Enforcement / Monitoring	Verification (Date & Initials)
CULTURAL RESOURCES			
Mitigation Measure CR-1 – Inadvertent Discovery If cultural resources, such as chipped or ground stone, or bone are inadvertently discovered during ground-disturbance activities, work shall be stopped within 50 feet of the discovery, as required by the California Environmental Quality Act (CEQA; January 1999 Revised Guidelines, Title 14 California Code of Regulations [CCR] Section 15064.5 [f]). Work near the archaeological finds shall not resume until a professional archaeologist, who meets the Secretary of the Interior's Standards and Guidelines, has evaluated the material, and offered recommendations for further action.	During Construction	Contractor / Town of Fort Jones	
Mitigation Measure CR-2 – Human Burial or Human Remains If in the event that previously unidentified evidence of human burial or human remains are discovered during project construction, work will stop at the discovery location, within 20 meters (66 feet), and any nearby area reasonably suspected to overlie human remains (Public Resources Code, Section 7050.5) the Siskiyou County Coroner must be informed and consulted, per State law. If the coroner determines the remains to be Native American, he or she shall contact the Native American Heritage Commission within 24 hours. The Native American Heritage Commission shall identify the person or persons it believes to be the most likely descendent. The most likely descendent will be given an opportunity to make recommendations for means of treatment of the human remains and any associated grave goods. when the commission is unable to identify a descendant or the descendants identified fail to make a recommendation, or the landowner or his or her authorized representative rejects the recommendation of the descendants and the mediation provided for in subdivision (k) of Section 5097.94, if invoked, fails to provide measures acceptable to the landowner, the landowner or his or her authorized representative shall reinter the human remains and items associated with Native American human remains with appropriate dignity on the property in a location not subject to further and future subsurface disturbance. Work in the area shall not continue until the human remains are dealt with according to the recommendations of the County Coroner, Native American Heritage Commission and/or the most likely descendent have been implemented.	During Construction	Contractor / Town of Fort Jones	
HAZARDS AND HAZARDOUS MATERIALS			
Mitigation Measure HAZ-1 – Hazardous Building Materials Survey and Abatement Prior to initiation of construction activities that would disturb, remove, modify, or demolish existing piping, structures, coatings, or materials that could contain ACMs or LBP, the Town shall retain qualified environmental professionals to conduct surveys for ACMs and LBP in accordance with applicable California Division of Occupational Safety and Health (Cal/OSHA) regulations, including Title 8, California Code of Regulations Sections 1529 and 1532.1, and other applicable federal, State, and local requirements. If ACMs, LBP, or other hazardous building materials are identified, all removal, handling, transportation, and disposal activities shall be conducted by appropriately trained and licensed personnel in accordance with applicable Cal/OSHA, California Air Resources Board, U.S. Environmental Protection Agency, and California Department of Toxic Substances Control requirements. Hazardous materials shall be removed, stabilized, or otherwise managed prior to construction activities that could disturb the materials. Removed materials shall be transported and disposed of at facilities authorized	Prior to and During Construction	Contractor / Town of Fort Jones	

Table 7-1
MITIGATION AND MONITORING PROGRAM

Mitigation Measure / Condition	Timing / Implementation	Enforcement / Monitoring	Verification (Date & Initials)
to accept such materials in accordance with all applicable regulations. Construction contractors shall implement appropriate worker protection measures, engineering controls, and dust suppression practices to prevent the release of asbestos fibers, lead-containing dust, or other hazardous materials during removal and construction activities.			
Mitigation Measure HAZ-2 – Discovery of Previously Unknown Hazardous Materials In the event previously unidentified ACMs, LBP, or other suspect hazardous materials are encountered during construction, work in the vicinity of the discovery shall cease immediately. The Town shall retain a qualified environmental professional to evaluate the material and determine appropriate handling, abatement, and disposal requirements. Alternatively, the Town may presume the material to be hazardous and manage it accordingly. Construction activities in the affected area shall not resume until the material has been properly characterized, removed, or otherwise managed in accordance with applicable federal, State, and local regulations. Any hazardous materials identified during construction shall be handled, transported, and disposed of in accordance with applicable hazardous waste requirements.	During Construction	Contractor / Town of Fort Jones	
NOISE			
Mitigation Measure N-1 – Temporary Construction Noise The project contractor shall implement the following measures during project construction to minimize temporary noise impacts on nearby sensitive receptors. These requirements shall be included on grading and construction plans and incorporated into construction contract specifications. • Construction activities shall be limited to the hours between 7:00 a.m. and 7:00 p.m. Monday through Saturday. Construction activities shall not occur on Sundays or recognized holidays. If construction activities are required outside the permitted construction hours, the Town shall provide notice to nearby residents and property owners at least 48 hours in advance describing the nature, location, duration, and anticipated hours of the work. • All construction equipment, fixed or mobile, shall be equipped with properly operating mufflers and sound-control devices no less effective than those originally installed by the manufacturer. Equipment shall be maintained in accordance with manufacturer specifications. • Stationary noise-generating equipment, including generators, compressors, pumps, and similar equipment, shall be located as far as practical from occupied residences and other sensitive receptors. When feasible, temporary noise shields, enclosures, or other sound-attenuating measures shall be utilized. • Construction contractors shall minimize equipment idling times and shall shut off equipment when not in active use, consistent with safety and operational requirements. • The contractor shall designate a disturbance coordinator or construction manager to respond to noise-related complaints, as feasible. Upon receipt of a noise complaint, the contractor shall investigate the complaint and	During Construction	Contractor / Town of Fort Jones	

Table 7-1
MITIGATION AND MONITORING PROGRAM

Mitigation Measure / Condition	Timing / Implementation	Enforcement / Monitoring	Verification (Date & Initials)
implement reasonable corrective measures, where feasible, to reduce construction-related noise impacts.			
Mitigation Measure N-2 – Construction Vehicle Routing and Access In addition to the permitted hours of construction activities, project grading and construction plans shall identify construction vehicle access routes and staging areas. The plans shall be subject to review and concurrence by the Town of Fort Jones Public Works Department and shall be implemented by the project contractor throughout the duration of construction activities. • During all project-related construction activities, construction worker parking, material delivery vehicles, and heavy trucks used for soil, aggregate, equipment, or material hauling shall utilize designated haul routes approved by the Town of Fort Jones. Such vehicles shall avoid travel on local residential streets, including but not limited to Bridge Street. • Onsite construction access shall be limited to the project access point along Serpa Lane. • Construction staging, equipment storage, and material stockpiling shall be restricted to the designated construction staging area shown on Figure 2-9, WASTEWATER FACILITY UPGRADES, and shall not occur within public roadways or residential areas. • The contractor shall post and maintain appropriate signage directing construction traffic to approved access and haul routes and shall inform subcontractors and delivery drivers of the approved routing requirements prior to commencement of construction activities.	Prio to and During Construction	Contractor / Town of Fort Jones	
TRIBAL CULTURAL RESOURCES			
Mitigation Measure TCR-1 – Unanticipated Discovery If any suspected TCRs are discovered during ground-disturbing construction activities, all work shall cease within at least 50 feet of the find. The Town shall invite a Tribal Representative from a California Native American tribe that is traditionally and culturally affiliated with the geographic area to make recommendations about whether or not the discovery represents a TCR (PRC Section 21074) and, if so, to make recommendations for culturally appropriate treatment. The contractor shall implement any measures determined by the Town to be necessary. Work at the discovery location cannot resume until the treatment has been implemented to the satisfaction of the Town of Fort Jones.	During Construction	Contractor / Town of Fort Jones	

Section 8 – Attachments

Attachment A
Preliminary Engineering Reports

Attachment B
Air Quality & GHG Modeling Outputs

Attachment C
Odor Control Memo

Attachment D
Biological Resources Assessment

Attachment E
Cultural Resources Inventory Report

Attachment F
Regulatory Floodway Impact Analysis Report

Attachment A

Preliminary Engineering Reports

Wastewater Facilities Plan Addendum No. 2, June 2026
Wastewater Facilities Plan, January 2018
Wastewater Facilities Plan Addendum, November 2022

Wastewater Facilities Plan Addendum No. 2

Fort Jones Wastewater Treatment Facility



Prepared for:

Town of Fort Jones

July 2026

525006

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350 Hartnell Avenue, Suite B, Redding, CA 96002-1875

Reference: 525006

July 2, 2026

Joseph Hess
Town of Fort Jones
PO Box 40
Fort Jones, CA 96032

Subject: Wastewater Facilities Plan Addendum No. 2, Fort Jones Wastewater Treatment Facility

Dear Joseph Hess:

Enclosed is the Second Addendum to the 2018 Fort Jones Wastewater Facilities Plan. This addendum updates the Wastewater Facilities Plan with the new Alternative 5 description and assessment that is the basis for the development of the Construction Documents for the new wastewater treatment facility improvements project.

Should you have any questions, please contact me at our Eureka office at (707) 411-8855 or by email.

Sincerely,
SHN

Jacob Rivera, PE
Civil Engineer

Chuck Swanson, PE
Project Engineer

JRR:ame

Enclosure: Wastewater Facilities Plan Addendum No. 2

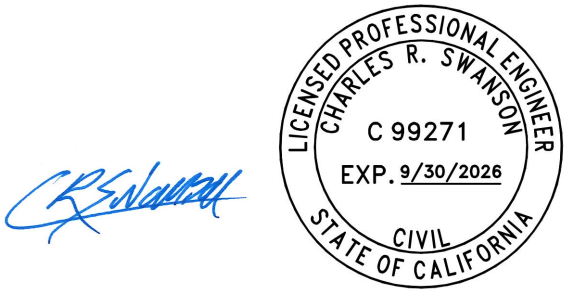
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Wastewater Facilities Plan Addendum No. 2

Fort Jones Wastewater Treatment Facility

Prepared for:

Town of Fort Jones



Chuck Swanson, PE
Project Engineer
signed 7/2/26

Prepared by:

350 Hartnell Avenue, Suite B
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(530) 221-5424

July 2026

QA/QC: MKF

Reference: 525006

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2. 2022 Addendum No. 1 to the WWFP
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Abbreviations and Acronyms

Measurement Units

Term	Definition
ac	acre
ft	feet
gpd	gallons per day
lb/d	pounds per day
Mgal	million gallons
MGD	million gallons per day
mg/L	milligrams per liter
sf	square feet

Additional Terms

Term	Definition
ADF	average daily flow
ADWF	average dry weather flow
APN	Assessor's parcel number
AWWF	average wet weather flow
BOD	biochemical oxygen demand
CLOMR	Conditional Letter of Map Revision
DO	dissolved oxygen
FEMA	Federal Emergency Management Agency
FIRMs	Flood Insurance Rate Maps
HRT	Hydraulic residence time
LOMR	Letter of Map Revision
MMDWF	max monthly dry weather flow
MMWWF	max monthly wet weather flow
MPI	minutes per inch
No.	number
PDAF	peak day average flow
RWQCB	North Coast Regional Water Quality Control Board
SCADA	Supervisory Control and Data Acquisition
TN	total nitrogen
Town	Town of Fort Jones
VOCs	volatile organic compounds
WWFP	Wastewater Facility Plan
WWTF	Wastewater Treatment Facility

1.0 Introduction

This addendum supplements the 2018 Town of Fort Jones (Town) Wastewater Facilities Plan (WWFP; Appendix 1) and the 2022 Addendum No. 1 to the WWFP (Appendix 2).

1.1 Background

The initial 2018 WWFP described the need for the project, the study area, and the existing facilities. These aspects of the 2018 WWFP have not required updating or expanding upon and are, therefore, not addressed in this addendum. Refer to Sections 1–3 of the 2018 WWFP for these matters.

Addendum No. 1 was prepared in 2022 after North Coast Regional Water Quality Control Board (RWQCB) indicated that the recommended percolation option for effluent disposal assessed in the original Alternatives 1 and 2 would not be acceptable due to the proximity of the existing ponds to Moffett Creek. The 2022 Addendum No. 1 assessed two additional alternatives that retained a majority of the treatment process of Alternative 1 with different disposal options.

Alternative 3: Aeration with Land Disposal assessed pumping the treated effluent to a forested plot north of the existing wastewater treatment facility (WWTF) for land disposal through a sprinkler system. This alternative was not feasible due to the RWQCB deeming it not appropriate.

Alternative 4: Aeration with Relocated Disposal Ponds assessed reconfiguring the existing site to have percolation ponds located the furthest distance from Moffett Creek feasible. This alternative increased the distance of the percolation pond to Moffett Creek from approximately 50 feet to 195 feet. The 2022 Addendum No. 1 amended the original recommended alternative to this alternative.

1.2 Purpose

The purpose of this addendum to the 2018/2022 Fort Jones WWFP is to present the analysis of an additional alternative and a new recommended alternative based on discussions with RWQCB and the Town of Fort Jones.

A combination of factors led to the pursuit of the additional alternative presented here. The Town and project team wanted to further minimize potential impacts to surface water by increasing the distance of percolation ponds (referred to as infiltration ponds from hereon) to not only Moffett Creek but also Scott River. Additionally, the Town wanted to capitalize on the opportunity to relocate the entire WWTF when the neighboring landowner expressed interest in selling a portion of the adjoining field.

2.0 Analysis of Additional Alternative

This section presents analysis conducted for the newly proposed Alternative 5: New WWTF with Aerated Ponds and Infiltration Disposal. The focus of this section is the new aspects added to the project due to the selection of a new site. Cost and detailed description are presented in Section 3.0.

2.1 Flows and Loads

Design flow rates have been updated since the 2018 Facility Plan to include daily WWTF influent flow data from January 1, 2023 through June 30, 2025 (Table 2.1).

Table 2.1 Design Flow Rate Summary
Fort Jones WWTF PER Addendum No. 2

Design Flow	Flow Rate (MGD[a])	Suggested Application
Minimum Monthly Flow	0.036	Headworks low flow/minimum velocity
Average Dry Weather Flow	0.046	Dry season recirculation pumping
Average Daily Flow	0.084	Long-term disposal sizing
Max Month Dry Weather Flow	0.086	Dry season infiltration sizing, recirculation pumping, biological treatment
Average Wet Weather Flow	0.124	Wet season recirculation pumping
Max Month Wet Weather Flow	0.318	Wet season infiltration sizing
Peak Day Average Flow	0.627	Primary treatment sizing
Peak Instantaneous Flow	0.941	Headworks and influent pumping peak hydraulic capacity

a. MGD: million gallons per day.

Design pollutant loads have also been updated since the 2018 Facility Plan in accordance with the updated design flow rates (Table 2.2). The existing WWTF is not required to collect influent water quality samples, so there is no record of raw influent wastewater quality. The Town does not have a significant amount of commercial or industrial wastewater producers such that a typical/medium strength biochemical oxygen demand (BOD) of 220 milligrams per liter (mg/L) is appropriate to assume (Metcalf & Eddy, 2014). At the max month dry weather flow (MMDWF) of 0.086 million gallons per day (MGD), the start-up influent loading rate is calculated at 158 pounds per day (lb/d).

Table 2.2 Design Loading Rate Summary
Fort Jones WWTF PER Addendum No. 2

Constituent	2026 Start-up Loading Rate (lb/d[a])	Projected 2056 Loading Rate (lb/d)
Biochemical oxygen demand (BOD)	158	213
Total Nitrogen (N)	25	34

a. lb/d: pounds per day

Raw sanitary wastewater is typically anaerobic and does not contain significant amounts of nitrate and/or nitrite. A majority of nitrogen in raw wastewater is organic and ammonia nitrogen. For this reason, total nitrogen and total Kjeldahl nitrogen may be assumed to be equal for the purposes of estimating influent nitrogen loading. Typical medium-strength total nitrogen (TN) of 35 mg/L is appropriate for the design purposes since the town does not have a significant amount of commercial or industrial wastewater producers (Metcalf & Eddy, 2014). At the MMDWF of 0.086 MGD, the start-up TN loading rate is calculated at 25 lb/d.

The estimated population of the Town is approximately 695 people (2020 U.S. Census). Population growth has been mostly stagnant in Fort Jones over the last 25 years, and the Town representatives do not plan on any future infill development. However, it is prudent to plan for future growth whether it is residential population or commercial growth. Applying a minimal 1% annual growth factor over a

30-year planning horizon adds 275 persons and approximately 55 lb/d of BOD and 9 lb/d of TN to the design loading rates.

2.2 Site Selection

The opportunity to relocate the WWTF to a new site arose when the neighboring landowner expressed interest in selling a portion of the field adjoining the existing facility. The benefits and drawbacks of relocating the WWTF to a new site were thoroughly reviewed and discussed by the Town's consultants (SHN), Town representatives, and the public during a public Town Council meeting. Ultimately, the Town Council voted in favor of relocating the facility to the new site. The site consists of Assessor's parcel number (APN) 055-241-020 and an eastern portion of APN 024-030-490. The two areas will be merged into one legal parcel through a lot line adjustment, and the Town will annex the additional area from APN 024-030-490 into the Town Limits through coordination with the Siskiyou County Local Area Formation Commission. The primary benefits and drawbacks of constructing the new WWTF at the new location are presented below in Table 2.3.

Table 2.3 Benefits and Drawbacks of Selecting the New WWTF Site
Fort Jones WWTF PER Addendum No. 2

Benefits	Drawbacks
1. Allow for increasing distance to sensitive surface waters of Moffet Creek and Scott River	1. Moves facility closer to residential and commercial properties increasing the risk of negative impacts due to foul odors
2. Provide opportunity to design a more robust and effective treatment system with a new site layout	2. Requires amending existing environmental documents and construction permits
3. Reduce complexity during construction by eliminating conflicts with keeping the existing WWTF operational while constructing the new WWTF	3. Increases the complexity of complying with construction in a regulated floodway due to the proximity to existing commercial and residential structures
4. Eliminates challenges with accessing the existing facility during a flood event by eliminating the need to drive along the dirt road adjoining Moffet Creek	
5. Eliminates the long gravity sewer main crossing an agricultural field that is a likely source of infiltration and inflow	
6. Reduces the length of new water main piping to supply potable water to the facility	

The prior preferred alternative included acquisition of some farmland from the adjacent property owner to allow for expansion of the site to accommodate the new design. The same property owner owns the new site such that drawbacks associated with property purchase and lot line adjustments were considered roughly equivalent between the two alternatives.

Construction of a new facility at the existing site would also have required compliance with construction in a regulated floodway such that considerations of complying with these requirements were also considered roughly equivalent between the two alternatives.

Other site options were not considered by the Town due to the opportunity to purchase the newly proposed location and considering the benefits provided by this alternative. Town staff and SHN met with RWQCB representatives to discuss the newly proposed alternative site location, and the RWQCB expressed support for the alternative presented herein.

2.3 Effluent Disposal

The effluent disposal discussions in both the 2018 WWFP and 2022 Addendum No. 1 are still relevant. Disposal through infiltration/evaporation is still the only feasible alternative. See Section 5.2 of the 2018 WWFP and Section 2.2 of the 2022 Addendum No. 1 for the discussion and elimination of other effluent disposal alternatives.

2.3.1 New Site Soil & Infiltration

Previous alternatives were able to leverage the existing facility's historic infiltration performance when designing effluent disposal. The selection of a new site required geotechnical and soils investigations, including infiltration rate testing. This testing was performed in December 2025. Three locations within the planned area for the two new infiltration ponds were tested. The results varied between all three sites, with the slowest infiltration rate of 20 feet per day, which is higher than the necessary rate of 3 feet per day to dispose of the peak day average flow (PDAF). See Appendix 3 for the infiltration data.

2.4 Treatment Process

The treatment process for Alternative 5 remains largely consistent with the processes described for Alternatives 3 and 4 in the 2022 Addendum No. 1:

- Influent headworks and screening
- Aeration in lined ponds
- Disposal in unlined infiltration ponds

Where Alternative 5 deviates from the previous recommended alternative is in removing the nitrification/denitrification unit process and replacing it with a facultative deep zone at the influent to Pond 1 coupled with an effluent recirculating system through the treatment ponds. The additional space available with the new site alternative allows for the design and sizing of the ponds to achieve a moderate level of nitrogen removal. Provisions for future addition of a stand-alone nitrogen removal system are included in the currently proposed alternative in the event it becomes necessary due to increasingly strict effluent limitations by the RWQCB.

Alternative 5 also deviates from the previous alternatives with the inclusion of a rock filter prior to final discharge. The rock filter will be used seasonally during summer months when algae growth in the polishing pond is likely. The rock filter will starve the algae of sunlight causing them to die off and settle on the surfaces of the rock media. The rock filter will be bypassed in the winter when algae growth will be minimal, allowing the organic matter accumulated in the filter during the summer to oxidize, extending the life of the rock filter and reducing maintenance.

The newly proposed Alternative 5 includes provisions for an odor control system at the new headworks to mitigate concerns of potential foul odors at nearby properties. See **Section 3.1 Description** for in-depth discussion about the components of this alternative, along with site plans and figures.

2.5 Flood Modeling

The new site in Alternative 5 is located in the regulated floodway according to the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps (FIRMs). As a result, this project must follow the FEMA Letter of Map Revision (LOMR) process. In order to obtain a LOMR through FEMA, the engineering design team must complete hydraulic flood modeling that shows the project will not cause flood waters to increase at adjacent structures during a 100-year recurrence interval flood event. FEMA's existing hydraulic model for the Scott River Valley has been obtained, and SHN is in the process of completing the required flood modeling. Results of the flood model will be submitted to FEMA in an MT-2 permit application seeking a Conditional Letter of Map Revision (CLOMR) prior to construction. This is to be accomplished by following FEMA guidance and fulfilling all modeling and analysis requirements of the MT-2 application process. See **Section 3.1.1 Site Grading** for how locating within the regulated floodway will impact site development.

3.0 Recommended Alternative

3.1 Description

Under Alternative 5: New WWTF with Aerated Ponds and Infiltration Disposal, the existing facility will be decommissioned after a new facility is constructed with the following features:

- Influent Lift Station
- Headworks
    - Magnetic Flow Meter
    - Auger Screen with Integral Washer Compactor
    - Bypass with Manual Bar Screen
    - Influent Composite Sampler
    - Small office/bathroom
    - Odor control
- Two Aerated Ponds in Series (Ponds 1 and 2)
    - Minimum 2 feet (ft) freeboard
    - Pond 1 deep influent facultative zone with baffle
    - Pond 1 and 2 aeration zones with submerged fine-bubble aeration system, operating depth approximately 8 ft
    - Aeration blowers located between Ponds 1 and 2
    - Pond 2 Effluent recirculating system (to Pond 1 Influent)
    - Geomembrane waterproof liner
    -
    - Discharge structures with level control weirs
- One Settling/Polishing Pond (Pond 3)
    - Minimum 2 ft freeboard
    - Operating water depth approximately 5 ft
    - Geomembrane waterproof liner
    - Discharge structure with level control weir

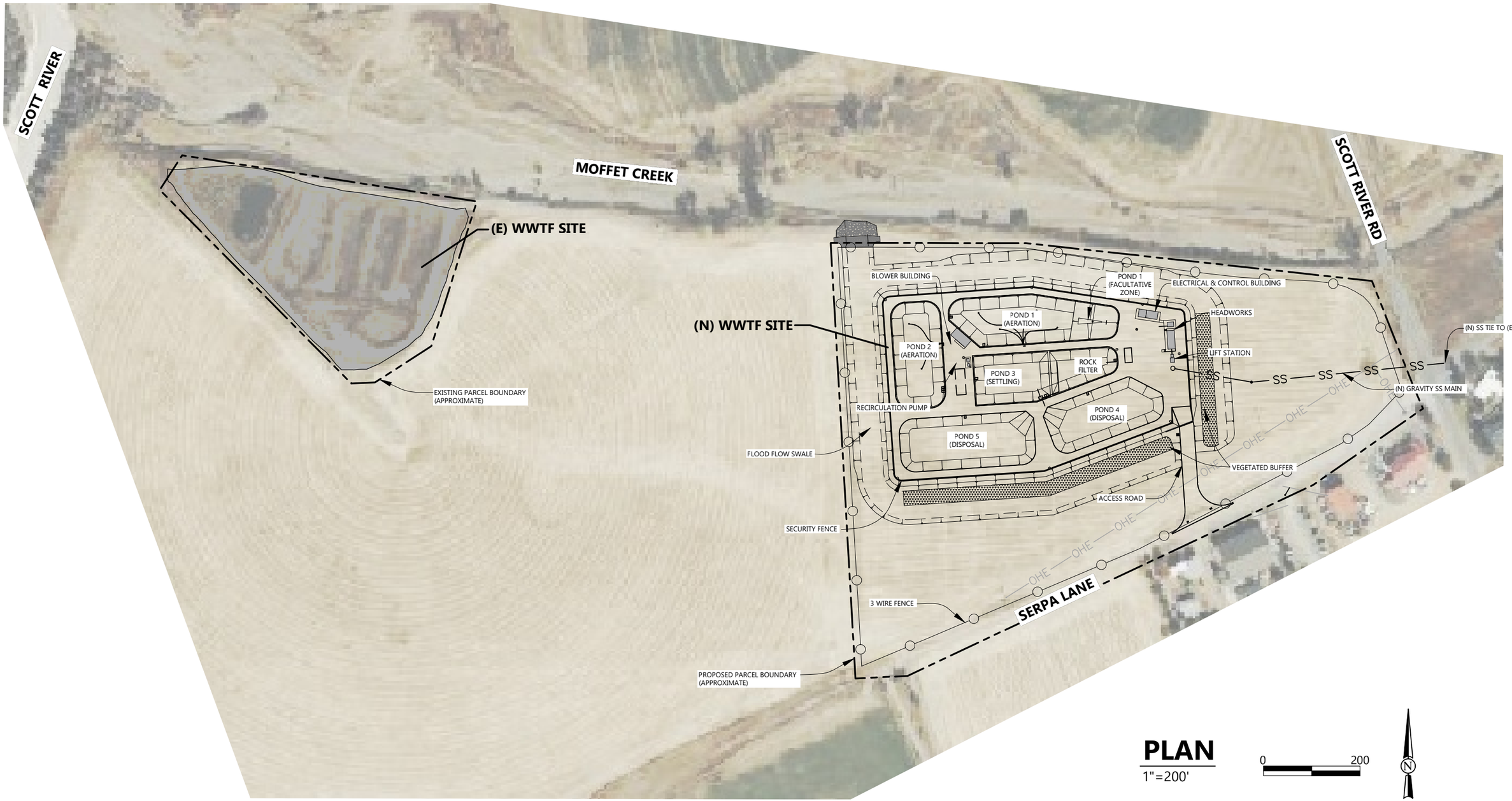
- One Rock Filter
    - Minimum 2 ft freeboard
    - Operating water depth approximately 4 ft
    - Geomembrane waterproof liner
    - Discharge structure with level control weir
- Two Infiltration Disposal Ponds in parallel (Ponds 4 and 5)
    - Flow control weir structures
    - Discharge pipe manifold and valves
    - Pond 4 and 5 maximum operating depth 4 ft
    - Sides lined with concrete for burrowing pest-resistant liner
    - Bottoms unlined for infiltration
- New Supervisory Control and Data Acquisition (SCADA) System
- Groundwater monitoring wells
- New electrical service to WWTF
- New water service to WWTF
- Perimeter planting with irrigation for visual screening and odor control
- Two flood conveyance swales along the WWTP perimeter
- Perimeter security fence with gate
- Outer perimeter slopes lined with concrete burrowing pest-resistant liner

A site plan for this alternative is provided in Figure 1. A schematic process flow diagram is shown in Figure 2.

Design criteria for the various facility components are described in 2018 Facility Plan. The sections below discuss any deviation in design criteria or selection in Alternative 5.

3.1.1 Site Grading

The new site in Alternative 5 is located in the regulated floodway according to the FEMA FIRMs. Treatment processes have to be protected from flooding by raising the site a minimum of 1-foot above the 100-year recurrence interval base flood elevation. The recommended alternative will raise the finished ground elevation of the new WWTF approximately 4 to 4.5 feet above existing ground elevations. Development within the floodway is required to adhere to a “no rise” criteria which stipulates impacts from the new development cannot cause flood waters during a 100-year return interval flood event to increase at adjacent structures above the pre-construction condition. Flood impacts are evaluated using a hydraulic model and the initial model results for the proposed new facility alternative meet the no-rise criteria. The alternative includes flood conveyance swales surrounding part of the facility to prevent flood waters from rising at adjacent structures. The flood conveyance swales are approximately 70-feet wide and vary in depth from approximately 1 to 4 feet with side slopes ranging from 5 to 1 (horizontal to vertical) to 10 to 1.

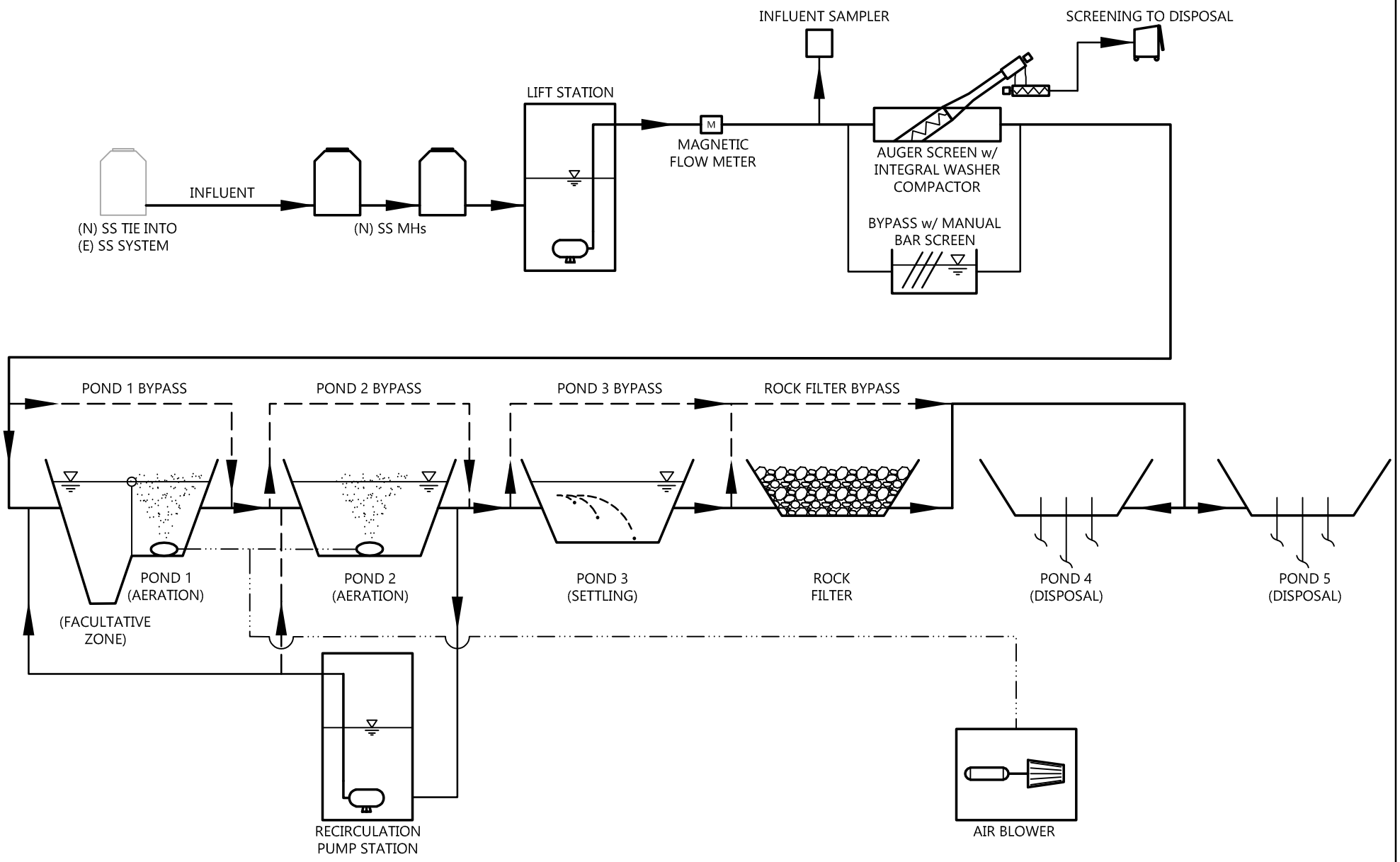


PLAN
1"=200'

0 200

Town of Fort Jones Fort Jones WWTF	**Site Plan** **Alternative 5 - New Site with Aeration & Infiltration** April 2026 - 525006	**Figure** **1**

R:\Redding\2025\525006-Fort-Jones-WWTF-Design\Dwgs\PER-FIG ALT5-SITE, SAVED: 4/21/2026 9:01 AM JRIVERA, PLOTTED: 4/21/2026 9:04 AM, JACOB RIVERA



Town of Fort Jones
Fort Jones WWTF

Process Diagram
Alterantive 5 - New Site with Aeration & Infiltration
April 2026 - 525006

Figure
2

3.1.2 Influent Lift Station & Headworks

The 2018 Facility Plan states the lift station should be located downstream of the influent screens in order to extend the life of the influent pumps. With the necessary depths of the headworks resulting from the gravity collection system and the elevation of the new site, it is infeasible to place the headworks screen upstream of the influent pumps. Considering the current state of sewage pumping technology, this condition is not mandatory. Pumping the unscreened influent to the headworks is the recommended method of lifting the raw influent wastewater into the new treatment system. However, a basket screen will be installed in the manhole located just upstream of the lift station that can remove debris larger than 2 inches.

ODOR CONTROL

Foul odors generated in WWTFs are the result of decomposition of organic human waste, which can release hydrogen sulfide, ammonia, and other volatile organic compounds (VOCs). Compounds that are responsible for foul odors can be hazardous to human life and safety at higher concentrations; however, potential aesthetic and nuisance impacts from foul odors in the vicinity of the proposed Fort Jones WWTF are the concern. Design and construction of the new WWTF needs to account for control and elimination of foul odors that have a reasonable probability of aesthetically negatively impacting neighboring properties and causing nuisances. The new WWTF is proposed to be constructed as far from existing structures as possible within the site boundary allotted for this project while maintaining compliance with the various other design criteria necessary for its construction. While it may not be possible to obtain the optimal buffer distance from nearby structures for natural attenuation of odors, a variety of mitigation strategies and technologies will be employed to reduce odors to the extent practicable.

The influent headworks for the Fort Jones WWTF has the highest potential for odor generation due to the influent pumping and turbulence, open screen channel, and removal of trash and debris with putrescible material. The proposed headworks facility will primarily consist of a channel designed to convey the raw influent wastewater through a mechanical auger screen. The auger screen removes large waste items such as trash and debris from the influent stream. Screenings are washed and compacted through the auger screen and conveyed into an enclosed bagging system for disposal at a landfill offsite.

The headworks channel and screen will be housed within a fully enclosed building equipped with an active ventilation, two-stage odor control system consisting of a biological filter for the first stage and an activated carbon filter for the second stage. The airstream from the exhaust fan will be plumbed through the two-stage odor control system. This style of odor control system can achieve results that meet or exceed 99% reduction in malodorous compounds.

Passive design principles will be employed to mitigate odors from other processes in the plant. The new WWTF design will include vegetative barriers along the south and east boundaries of the facility to act as a filter for fugitive odors. Trees and shrubs have been shown to significantly reduce odors from livestock facilities by absorbing the compounds in plant tissues. Many odor generating compounds are heavier than air such that they tend to travel along the ground when undisturbed. Vegetative barriers create a wind block that forces air up into the atmosphere, creating turbulence that promotes dissipation of odors up away from the ground where sensitive receptors are located.

Odors from WWTFs are typically generated from anaerobic processes or areas where insufficient dissolved oxygen (DO) is available to oxidize odor generating compounds. Areas where high organic loading occurs are particularly problematic if insufficient oxygen and mixing is provided. The new WWTF

design incorporates both active and passive aeration and mixing, efficient hydraulic design, and attention to potential odor-generating processes to reduce or mitigate odor generation within the new facility.

3.1.3 Treatment Ponds

Treatment ponds reduce BOD as well as other contaminants through biological and chemical methods. Given that these biological processes take time to react, the hydraulic residence time (HRT) can be used to gauge proper sizing of treatment ponds.

EPA has provided guidance for the sizing of treatment ponds in a system equipped with partial aeration (EPA, 2011). Standard wastewater kinetic rate equations paired with the HRT are used to estimate treatment efficiency throughout the aerated ponds. The resultant volume of each of the treatment ponds as well as their HRT is shown in Table 3.1.

Table 3.1 Ponds Hydraulic Residency Time for Design Flow Rates
Fort Jones WWTF PER Addendum No. 2

Pond	Volume (Mgal)[a]	ADWF[b]– HRT[c] (days)	MMDWF[d]– HRT (days)	AWWF[e]– HRT (days)	MMWWF[f]– HRT (days)	PDAF[g]– HRT (days)
Deep Influent Facultative Zone	0.31	6.8	3.6	2.5	1.0	0.5
Pond 1 - Aeration	0.91	19.8	10.6	7.3	2.9	1.5
Pond 2 - Aeration	0.92	20.0	10.7	7.4	2.9	1.5
Pond 3 - Settling	0.44	9.5	5.1	3.5	1.4	0.7
Pond 3 – Rock Filter	0.19	4.1	2.2	1.5	0.6	0.3
Total	**2.77**	**60.2**	**32.2**	**22.2**	**8.8**	**4.5**

a. Mgal: million gallons
b. ADWF: average dry weather flow
c. HRT: hydraulic residence time
d. MMDWF: max monthly dry weather flow
e. AWWF: average wet weather flow
f. MMWWF: max monthly wet weather flow
g. PDAF: peak day average flow

The pond sizing displayed above gives sufficient residence time to treat BOD to below 50 mg/L in both summer and winter conditions as shown in Table 3.2.

Table 3.2 BOD Treatment Rates and Efficiency
Fort Jones WWTF PER Addendum No. 2

Season	Influent BOD [a] (mg/L)[b]	Effluent BOD (mg/L)	Treatment Efficiency (%)
Summer	220	14	94
Winter	110	32	71

a. BOD: biochemical oxygen demand
b. mg/L: milligrams per liter

Calculations for each treatment pond can be found in Appendix 4.

3.1.4 Disposal Ponds

Infiltration rates have been established from field tests to be a minimum of approximately 20 feet per day at the disposal pond locations. Evaporation and infiltration rates are expected to keep the pond levels below maximum levels. To reduce earthwork and concrete liner costs, disposal pond depths of 4 feet were selected. Concrete liners will be installed on the banks of the ponds to protect from burrowing pest damage.

Groundwater mounding is a potential concern with respect to infiltration ponds during periods of high groundwater. The existing infiltration ponds have not resulted in groundwater mounding that has caused surfacing of effluent adjacent to the ponds. Soils at the existing site and the new site are very similar and consist primarily of gravels and sands with very high infiltration rates. Site-specific hydraulic parameters used to calculate potential groundwater mounding have not been collected at this time; however, the consistency of the soils at both sites are such that mounding is not anticipated to be a problem. A groundwater study will be conducted over the first few years of operation of the new facility to monitor groundwater conditions to determine if discharge from the new facility is having any negative impacts on groundwater in the vicinity.

3.2 Costs

The capital cost of Alternative 5 is presented in Table 3.3 below. The previous alternatives were assessed in 2018 and 2022, respectively. Post-COVID construction pricing has been heavily influenced by inflation, tariffs, and other market pressures that have significantly increased costs. See Appendix 5 for the breakdown of the capital costs.

Table 3.3 Alternative 5 Capital Cost
Fort Jones WWTF PER Addendum No. 2

Item Description	Estimated Cost
Mobilization	$986,000
Clearing & Grubbing	$15,000
Stormwater Management	$301,000
New Site Earthwork	$5,063,000
Site Paving	$527,000
Headworks	$1,849,000
Pond Lining	$574,000
Pond Control Structures & Yard Piping	$892,000
Aeration System	$420,000
Blower Building	$320,000
Recirculation System	$200,000
Site Electrical	$1,500,000
Groundwater Monitoring Well	$120,000
Existing Tank Abandonment	$35,000
Existing Pond Abandonment Earthwork	$500,000
Construction Subtotal (2026)	**$13,302,000**
Escalation (2028; 6.5% Annual Escalation)	$1,790,000
Construction Total (2028)	$15,092,000

Table 3.3 Alternative 5 Capital Cost
Fort Jones WWTF PER Addendum No. 2

Item Description	Estimated Cost
Contingency (30%)	$4,528,000
Engineering Design (10%)	$1,510,000
Construction Management (15%)	$2,264,000
Planning & Permitting (5%)	$755,000
Administration & Legal (1.5%)	$227,000
Land Purchase (Allowance)	$150,000
Project Total	**$24,526,000**

The annual operations and maintenance cost is presented in Table 3.4. Sludge management for pond systems does not occur on an annual basis. The cost presented is the annualized form of the 20-year dredging and dewatering cost. See Appendix 6 for the breakdown of O&M costs.

Table 3.4 Annual Operation & Maintenance Costs
Fort Jones WWTF PER Addendum No. 2

Item Description	Estimated Cost
Labor	$50,000
Parts & Repair	$1,250
Electrical	$27,530
Screenings Disposal	$1,920
Sludge Management	$6,700
Testing/Reporting	$15,000
Permitting	$33,000
Total	**$135,400**

As with the capital cost, the life cycle present worth cost is greater than previous alternatives due to the previously mentioned economic factors. The same assumptions from the 2018 Facilities Plan below were used in the life cycle cost analysis presented in Table 3.5:

- The planning period is assumed to be 20 years.
- The most recent published real discount rate is from January 2025 at 2.2% (OMB, 2025).
- Typically, a salvage value is assumed for items with useful lives longer than the planning period of 20 years. The calculated value is the remaining value at the end of the planning period using a straight-line depreciation over the useful life. As a conservative measure, no salvage value was included for the alternative.
- Short-lived assets (those with a design life of less than the planning period) are not explicitly included in this analysis; however, any replacement costs are assumed to be covered by the O&M costs.

Table 3.5 Net Present Value of Life Cycle Costs
Fort Jones WWTF PER Addendum No. 2

Cost	Annual Value	Present Value
Operations & Maintenance	$135,400	$2,171,900
Capital	-	$24,526,000
Net Present Value		**$26,697,900**

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Appendix 1
2018 Town of Fort Jones Wastewater Facilities Plan (WWFP)

Wastewater Facilities Plan

Prepared for:

Town of Fort Jones

Funding for this project was provided by a planning grant from the State of California Water Resources Control Board under the Proposition 1-Small Community Wastewater Grant program. Project No. C-06-8192-110, Agreement No. D16-04006.

SHN Engineers & Geologists

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January 2018
516035.200

CONSULTING ENGINEERS & GEOLOGISTS, INC.
350 Hartnell Avenue, Suite B • Redding, CA 96002-1875 • Phone 530/221-5424 • info@shn-engr.com

Reference: 516035.200

January 2, 2018
Mr. Jim Cook
Community Development On-Call
PO Box 1432
Weaverville, CA 96093

Subject: **Wastewater Facilities Plan, Town of Fort Jones, California**
Proposition 1-Small Community Wastewater Grant Program
Project No. C-06-8192-110, Agreement No. D16-04006

Dear Mr. Cook:

Attached is the final Wastewater Facilities Plan for the Town of Fort Jones. This final document incorporates comments received from the Town of Fort Jones, the State Water Resources Control Board and internal SHN comments and edits that make minor corrections. We have also addressed the issue of inaccurate flow measurements which was discovered after submission of the draft Wastewater Facilities Plan.

This Facilities Plan will be used to direct the development of appropriate environmental documentation for the selected alternative and will be used as a basis of the Rate Study, which is a separate deliverable for this project.

Both electronic and hard copies of this document will be forwarded to the Town of Fort Jones for their use in current and future planning and operations.

Should you have any questions, please contact me at our Redding offices at (530) 221-5424.

Sincerely,

SHN Engineers & Geologists

Mark S. Chaney
Principal-Regional Manager
Project Manager

Anders Rasmussen, PE
Project Engineer

MSC:msc

Enclosures: Town of Fort Jones Wastewater Facilities Plan
c.w/encl.: Ken Smith, Town of Fort Jones Public Works

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Reference: 516035.200

Wastewater Facilities Plan

Prepared for:

Town of Fort Jones



signed 1/4/2018
exp 6/30/2018

Prepared by:

Engineers & Geologists
350 Hartnell Avenue, Suite B
Redding, CA 96002

January 2018

Funding for this project was provided by a planning grant from the State of California Water Resources Control Board under the Proposition 1-Small Community Wastewater Grant program. Project No. C-06-8192-110, Agreement No. D16-04006.

PROP 1
GOVERNOR EDMUND G. BROWN JR.
WATER BOND 2014

QA/QC: SKD

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Abbreviations and Acronyms

gpcd	gallons per capita day
gpd	gallons per day
lb/day	pounds per day
mg/L	milligrams per liter
MGD	million gallons per day
ppcd	pounds per capita per day
ppd	pounds per day

ADF	average daily flow
ADWF	average dry weather flow
AWWF	average wet weather flow
BOD	biochemical oxygen demand
I/I	infiltration and inflow
LAFCo	Siskiyou County Local Agency Formation Commission
MBBR	Moving Bed Bioreator
NA	not applicable
NAVD 88	North American Vertical Datum, 1988
NH_3-N	ammonia as nitrogen
NPDES	National Pollutant Discharge Elimination System
O&M	operations and maintenance
PDAF	peak day average flow
RWQCB	North Coast Regional Water Quality Control Board
SHN	SHN Engineers & Geologists
SSES	sanitary sewer evaluation survey
SSOs	sanitary sewer overflows
SWRCB	California State Water Resources Control Board
TKN	total Kjeldahl nitrogen
TSS	total suspended solids
USGS	United States Geological Survey
WDR	Waste Discharge Requirements
WWTF	wastewater treatment facility

1.0 Introduction

1.1 Background

The Town of Fort Jones maintains and operates a wastewater treatment system and associated collection and conveyance systems that serve the Town of Fort Jones in the Scott Valley located in Siskiyou County, California (**Figure 1**). The existing wastewater treatment facility (WWTF) is in need of upgrades as described in this wastewater facilities plan. Funding for this plan has been provided by the California State Water Resources Control Board (SWRCB) under a Proposition 1 Wastewater Planning Grant.

The Fort Jones WWTF is regulated by the North Coast Regional Water Quality Control Board (RWQCB) under Waste Discharge Requirements (WDR) Order No. R1-2014-0029.

The Fort Jones WWTF is located at the confluence of Moffett Creek and Scott River (**Figure 2**). The WWTF was constructed in the 1930s and consists of a primary Imhoff settling tank followed by unlined facultative ponds that discharge via percolation and evaporation.

1.2 Need for Project

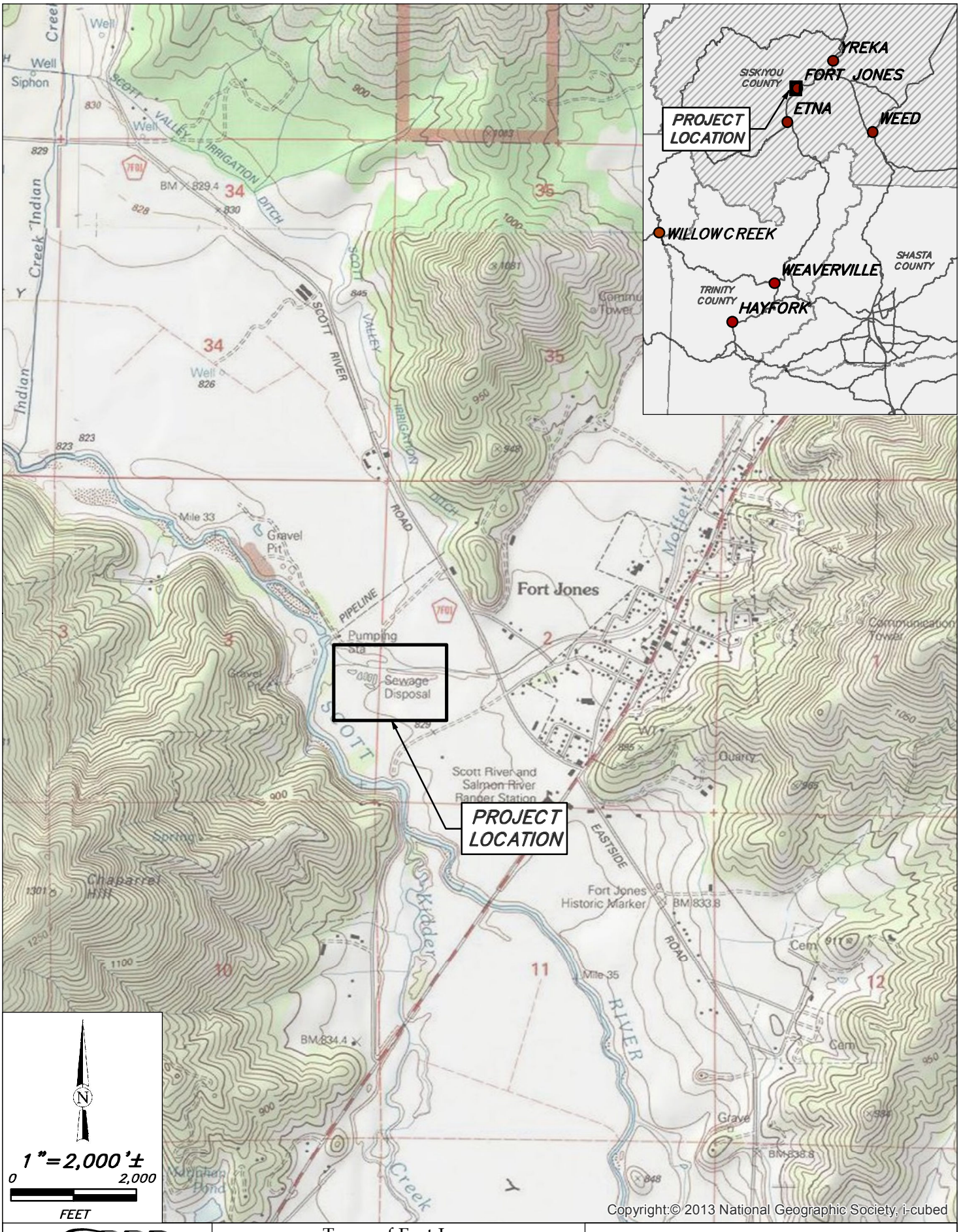
Effluent water quality has often not met WDR requirements for biochemical oxygen demand (BOD), total suspended solids (TSS) and settleable solids. An improved treatment process would help the Town meet the effluent requirements. This Facility Plan reviews alternatives for improving the WWTF.

The Regional Water Quality Control Board (RWQCB) has not issued any enforcement actions against the Town of Fort Jones for failure to not meet these effluent limitations. The RWQCB has recognized that the Town has been working on developing a new facility design as part of the Proposition 1 Grant project, and has not taken enforcement action at this time.

While BOD is a concern, and one that will be addressed with facility improvements outlined in the Facilities Plan, TSS and settleable solids are less of a concern for the existing facility. Both TSS and settleable solids are less of a concern because the existing WWTF is a pond system that does not have direct discharge to surface waters, and the ponds allow solids to settle out in the ponds. While this may have long-term issues for sludge management, it is not a significant concern for water quality.

The existing facility has been in operation for over 70 years with minimal modifications. The Town has, and continues to employ, wastewater treatment staff (including a wastewater facility operator) who provides routine operations, maintenance and repairs. The existing facility is past its current life expectancy, yet still provides a reasonable level of treatment. There is no evidence that poor maintenance is the reason for the project.

The project objectives are to provide improved treatment to bring the Town into compliance with current WDR requirements.



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SHN Consulting Engineers & Geologists, Inc.	Town of Fort Jones Wastewater Facilities Plan Fort Jones, California	Project Location Map SHN 516035.200
	December 2017 | FP_Fig1_Location	Figure 1

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IMAGE SOURCE: GOOGLE EARTH; DATED 7/8/2017

SHN Consulting Engineers & Geologists, Inc.

Town of Fort Jones
Wastewater Facilities Plan
Fort Jones, California

Fort Jones Wastewater
Treatement Facility Site Map
SHN 516035.200

December 2017 | FP_Fig2_WWTF | Figure 2

1.3 Concurrent Studies

The following studies are being performed concurrently under the same grant funding:

1. Sanitary Sewer Evaluation Survey (completed 2017)
2. Environmental Studies
3. Hydrogeologic Study
4. Rate Study
5. Income Survey

An Alternative Analysis has been completed and is included as Section 8 of this document. Information from the alternative analysis will be used in the preparation of the environmental document upon selection of the alternative for this project. This Wastewater Facility Plan will be included as an appendix to the environmental document.

2.0 Study Area Characteristics

2.1 Location

The Fort Jones WWTF is located west of the Town at the confluence of Moffett Creek and the Scott River (**Figure 2**), near the north end of the Scott Valley in Siskiyou County, California.

2.2 Population

Based on a population and growth assessment conducted by the Siskiyou County Local Agency Formation Commission (LAFCo), the current population of Fort Jones is approximately 672 people with a projected annual growth rate of 0.32 percent (LAFCo, 2011). Based on this assessment, the projected 2037 and 2057 populations in Fort Jones would be approximately 717 people and 764 people, respectively. The Fort Jones wastewater service area is the same as the Town's borders; that is, the entire population within the Town limits is served by the Town's wastewater system currently and will be so in the future.

The Town's wastewater system has 366 customers and serves primarily residential customers. There are 18 commercial customers, which comprises 5% of the customers. The system also serves two schools, one Cal Fire station, and one US Forest Service complex.

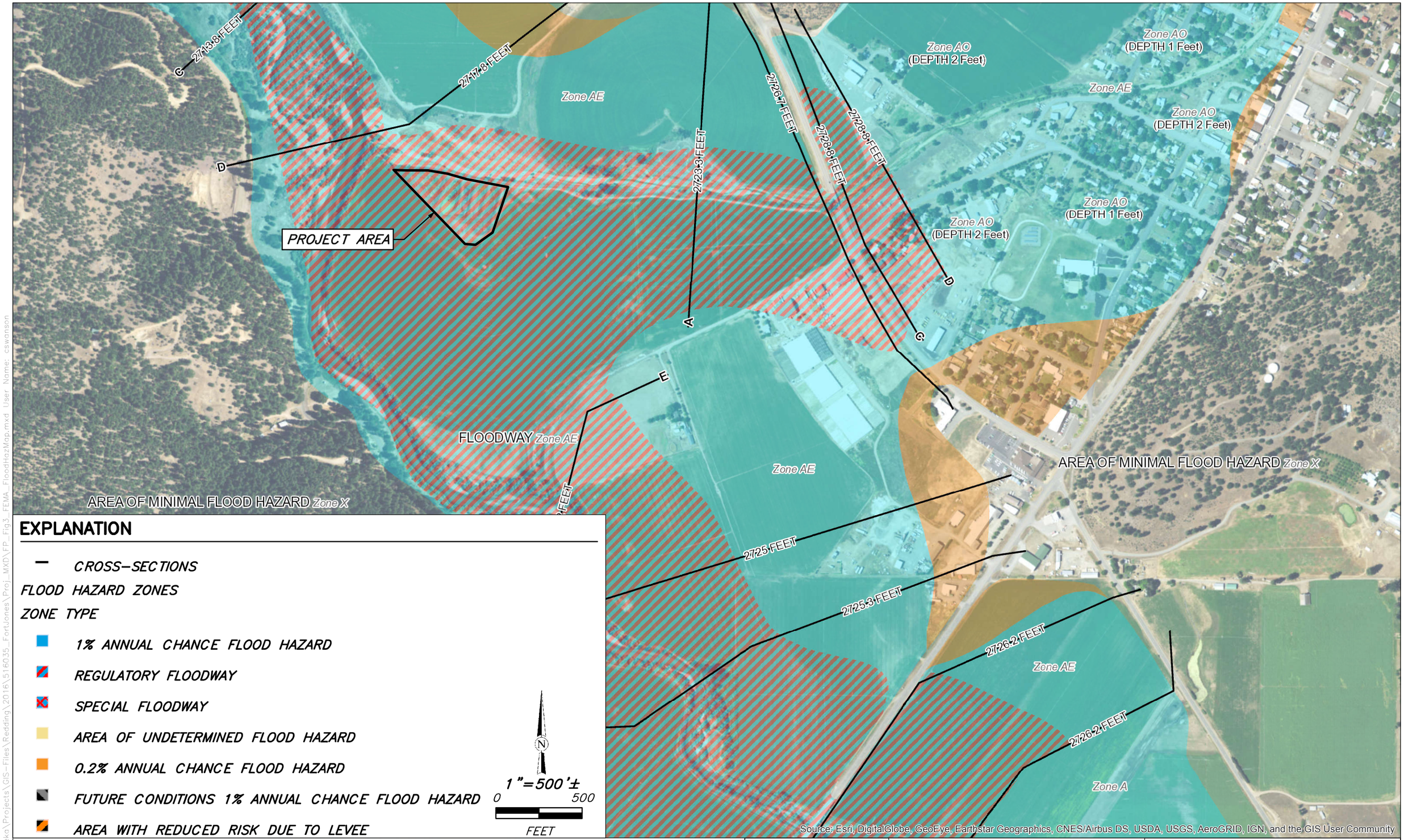
2.3 Climate

The climate of the vicinity is characterized by cold freezing winters and hot, dry summers, with an average daily maximum temperature of 67.1° F. Average daily temperatures range from a low of approximately 23°F in January to 91° F in July. Fort Jones is located approximately 2,500 feet above sea level (North American Vertical Datum, 1988 [NAVD 88]) in the northern end of the Scott Valley.

The greatest precipitation generally occurs in the month of December, with an average rainfall of 4.00 inches. The least amount of rainfall occurs in July, with an average of 0.40 inches. The wet weather season is considered to be November through April, and the dry weather season is considered to be May through October. Average annual precipitation is approximately 20.47 inches per year. Snowfall occurs throughout the wet season, with an annual average of 19.5 inches per year. The greatest snowfall occurs in the month of January, with an average of 7.7 inches.

2.4 Hydrology

The Fort Jones WWTF is located in the 100-year floodplain and the regulatory floodway of the Scott River and Moffett Creek (**Figure 3**).



EXPLANATION

- CROSS-SECTIONS

FLOOD HAZARD ZONES

ZONE TYPE

- 1% ANNUAL CHANCE FLOOD HAZARD
- REGULATORY FLOODWAY
- SPECIAL FLOODWAY
- AREA OF UNDETERMINED FLOOD HAZARD
- 0.2% ANNUAL CHANCE FLOOD HAZARD
- FUTURE CONDITIONS 1% ANNUAL CHANCE FLOOD HAZARD
- AREA WITH REDUCED RISK DUE TO LEVEE

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1"=500'±

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Consulting Engineers & Geologists, Inc.

Town of Fort jones Wastewater Facilities Plan Fort Jones, California		FEMA Flood Hazard Map SHN 516035
September 2017	FP_Fig3_FEMA_FloodHazMap	Figure 3

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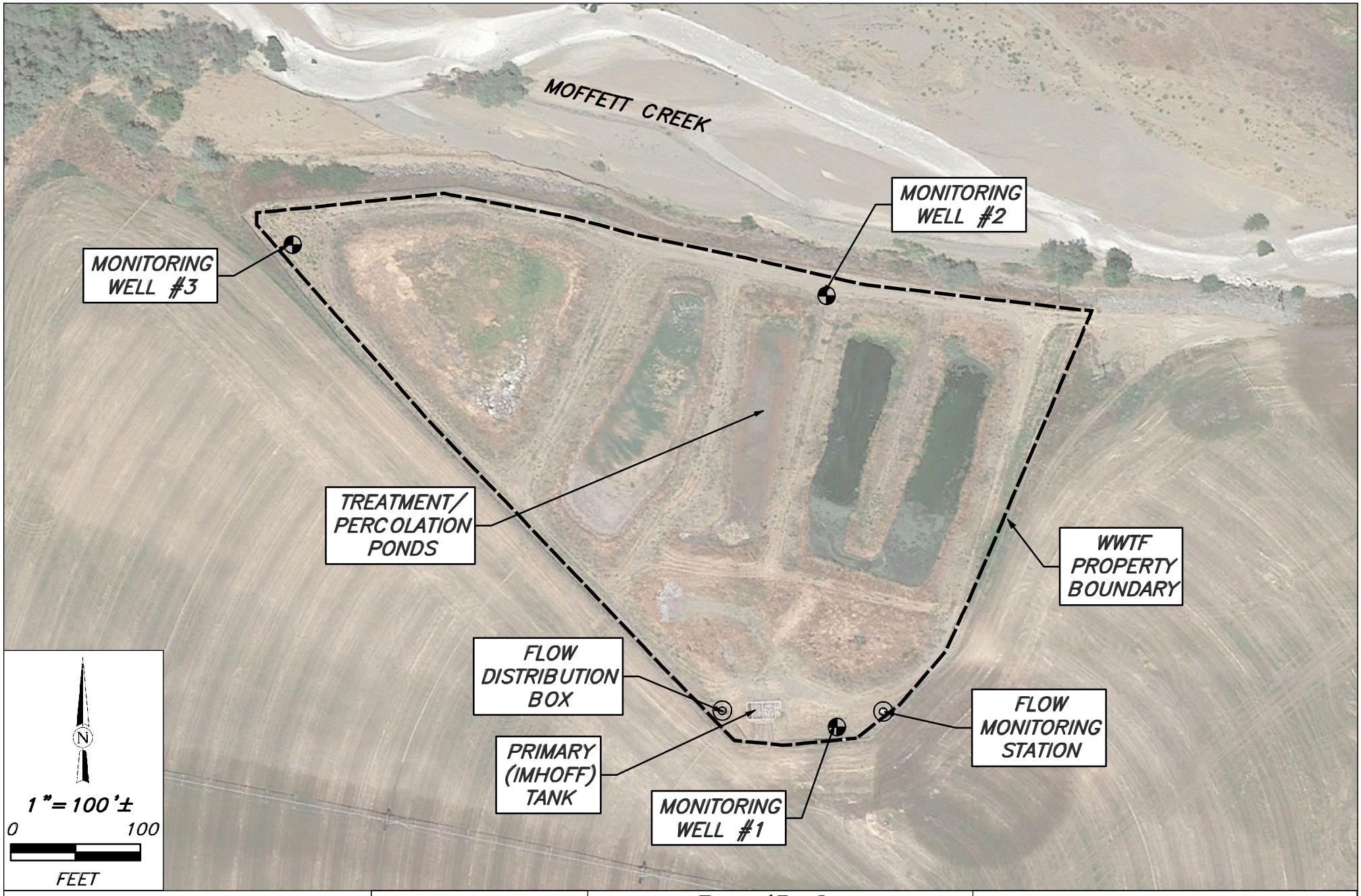


IMAGE SOURCE: GOOGLE EARTH; DATED 7/8/2017

SHN Consulting Engineers & Geologists, Inc.

Town of Fort Jones
Wastewater Facilities Plan
Fort Jones, California

Existing Wastewater Facility Layout
SHN 516035.200

December 2017 | FP_Fig4_WWTF_Layout | Figure 4

3.0 Existing Facilities

3.1 Overall System

The Town of Fort Jones' WWTF consists of an influent flow meter, a primary Imhoff Tank, followed by treatment/disposal ponds. Three groundwater monitoring wells were installed in 2017 around the treatment ponds to monitor groundwater quality. The facility is located near the confluence of Moffett Creek and the Scott River (**Figure 4**). The existing WWTF was constructed in the 1930s. The following sections provide detail of each of the major items at the WWTF.

3.2 Influent Flow Meter

As flow enters the WWTF property, it passed through a flow meter. The influent flow meter is an open channel Palmer-Bowlus flume with an ultrasonic sensor that reads the flow depth. The depth is translated to a flow rate. The flume sits in the bottom of a precast concrete manhole riser section (**Figure 5**). Data is collected electronically by a Sigma 950 data logger located in a weather proof box next to the flow meter (Figure 6). The flow meter apparatus is powered by batteries, which are recharged using solar panels.

The flow meter was installed by Town staff in 2014 and is in good condition. However, during development of the final wastewater facilities plan, data was further reviewed and it has been determined that this flow meter is not measuring flows correctly as further discussed in **Section 4.1**, despite efforts to calibrate it. The Town is currently investigating options for an additional flow meter to verify flows. An allowance for replacement of the Palmer-Bowlus flow meter is included in the WWTF upgrade alternatives.



Figure 5. Influent ultrasonic flow meter and Palmer-Bowlus flume.



Figure 6. Flow meter data logger.

3.3 Primary Imhoff Tank

Raw wastewater enters the primary Imhoff tank to remove solids, fats, oil, and grease. The tank consists of concrete sides with a sloped bottom to settle solids for periodic removal. Floating solids as well as fats, oil, and grease are captured by baffles located along the tank's long axis. The tank is covered with wooden planks that are removed periodically for tank maintenance. Currently, solids, including a floating sludge blanket, are removed using a backhoe and placed in the adjacent storage pond. Photos of the existing Imhoff tank are shown in **Figure 7** and **Figure 8**.



Figure 7. Primary Imhoff Tank (cover in place).

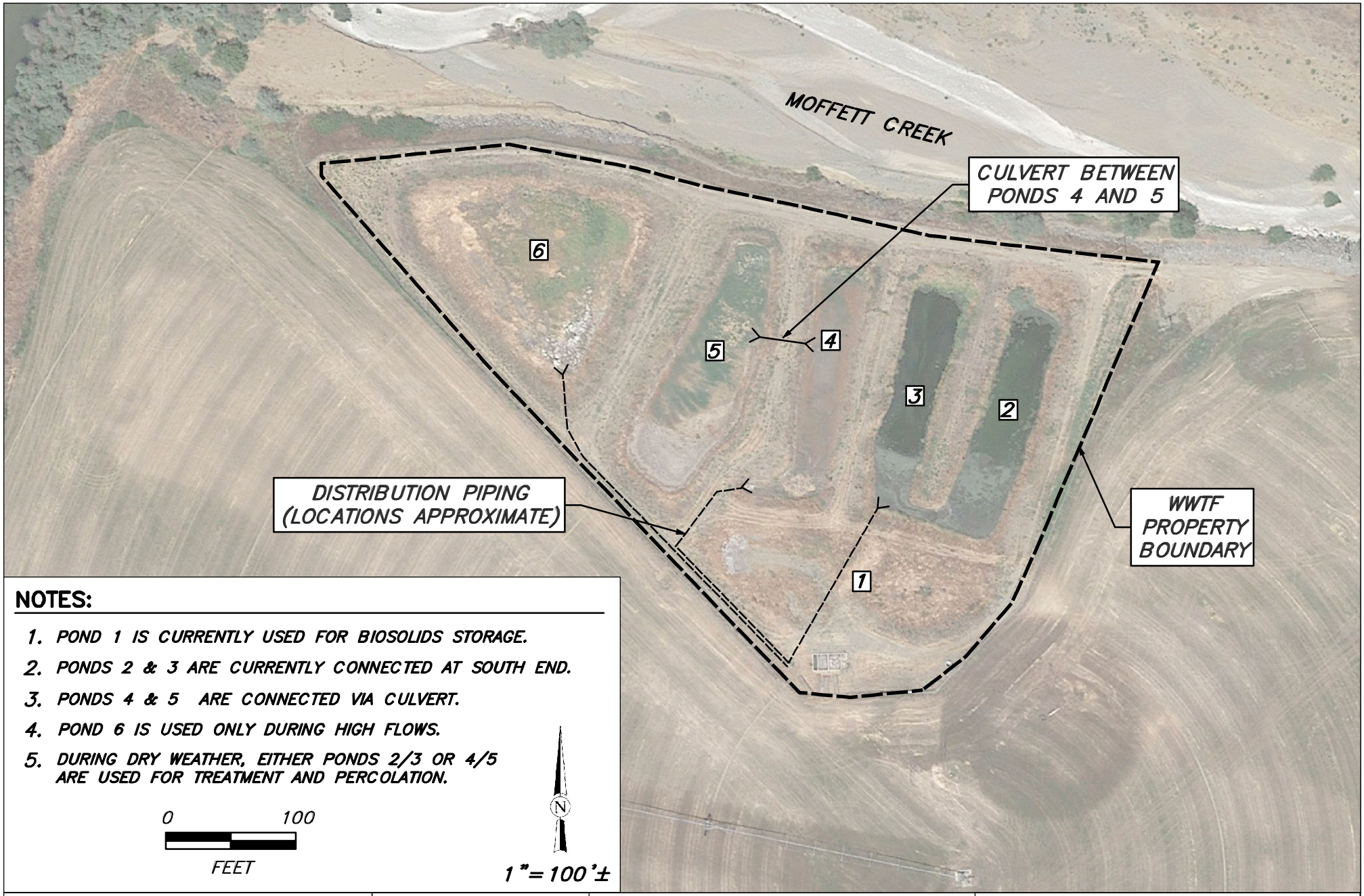


Figure 8. Primary Imhoff Tank (cover removed).

3.4 Treatment/Disposal Ponds

The WWTF has six ponds (**Figure 9**) that take up most of the space on the 2.6-acre fenced grounds. Pond 1 currently has two cells and is used for disposal of sludge from the primary tank. Ponds 2, 3, 4, and 5 are used for treatment and disposal of the wastewater during most of the year. Pond 6 can be used for treatment and disposal as well, but is generally used only during high flow events. All ponds are unlined. Ponds 2 and 3 act as one U-shaped pond with a large opening in the embankment between the two at the

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NOTES:

1. POND 1 IS CURRENTLY USED FOR BIOSOLIDS STORAGE.
2. PONDS 2 & 3 ARE CURRENTLY CONNECTED AT SOUTH END.
3. PONDS 4 & 5 ARE CONNECTED VIA CULVERT.
4. POND 6 IS USED ONLY DURING HIGH FLOWS.
5. DURING DRY WEATHER, EITHER PONDS 2/3 OR 4/5 ARE USED FOR TREATMENT AND PERCOLATION.

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1" = 100'±

IMAGE SOURCE: GOOGLE EARTH; DATED 7/8/2017

SHN Consulting Engineers & Geologists, Inc.

Town of Fort Jones
Wastewater Facilities Plan
Fort Jones, California

Existing Treatment/Percolation Ponds
SHN 516035.200

December 2017 | FP_Fig9_WWTF_Ponds | Figure 9

south end. Ponds 4 and 5 are interconnected with a culvert through the embankment located approximately midway along the embankment.

Discharge from the primary tank flows to a distribution box that includes three manually operated slide gates. From this box, flow can be directed to either Pond 3, 4, or 6. The distribution box is shown in **Figure 10.**



Figure 10. Flow distribution box.

The treatment ponds are unlined ponds with constructed embankments. Each pond is approximately eight feet deep. During the dry weather season, only one set of ponds (either Pond 2/3 or Pond 4/5) is typically used for treatment and percolation. Standing water in the utilized pond is approximately two to three feet deep.

During the wet weather season, due to infiltration and inflow (I/I), all six ponds may be used. The water level in each pond is influenced by the water level in the adjacent Moffett Creek, located along the northern edge of the WWTF site.

Ground squirrels are prevalent in the area and have created burrow tunnels in the embankments above the water lines. To date, there have not been any embankment failures or tunnel flooding as a result of these rodent tunnels.

Treated wastewater mostly percolates into the underlying soils with some loss to evaporation.

3.5 Monitoring Wells

Three groundwater monitoring wells were installed near the treatment ponds. The locations are shown in **Figure 4**. One well was installed upgradient of the ponds, and two are located downgradient of the ponds.

4.0 Wastewater Characterization

4.1 Existing and Projected Flows

The Fort Jones WWTF serves residential and commercial customers in the Town of Fort Jones. The community is primarily residential, but also includes two schools, government buildings and several commercial establishments.

Analysis of wastewater flows at the Town of Fort Jones WWTF was conducted using flow data measured by a Palmer-Bowlus flume flow meter which was installed in July 2014. This analysis has been presented in the Sanitary Sewer Evaluation Survey (SSES) submitted to the Town of Fort Jones and the State of California Water Resources Control Board (SWRCB) in August 2017 (SHN, 2017). This analysis was also presented in the Draft Facilities Plan submitted to the SWRCB in September 2017.

In October 2017 it was determined that the existing flow meter at the WWTF was reading low based on comparison to water usage and informal flow tests conducted at the WWTF. Average daily indoor winter potable water usage is about 90,000 gallons per day (gpd)[1], while the average dry weather flow (ADWF) for wastewater was determined to be 45,000 gpd. The water system customers are the same as the wastewater system customers with the exception of one or two residences, per the Town staff. The ratio of the measured average dry weather wastewater flow to measured indoor potable water use is 50%, which is outside of the expected range of 70%-85%. This would indicate that either the wastewater flow meter or the potable water meter, or both, are not reading correctly. The Town has indicated that the potable water meter has been calibrated and was found to be reading correctly.

When the wastewater flow meter was installed, Town staff calibrated the meter and subsequent review showed that the meter was calibrated according to manufacturer instructions. Flow readings, including seasonal fluctuations, appeared to be consistent with the previously reported flows from the Fort Jones wastewater staff. During additional evaluation of the data during the development of the facilities plan, it became clear that the flow meter was not recording correct values, despite calibration. While it is not entirely clear why the flow meter is not reading correctly, it may be difficult to get accurate readings at low flows.

Town staff conducted a bucket test, using a five-gallon bucket and timing the filling of the bucket. The calculated flows were compared with the flow meter readings at the time of the test to determine what discrepancies existed. Based on this rudimentary test, it was determined that the flow meter was reading about 25% lower than the measured flow rate from the meter.

SHN determined that there was insufficient data to provide a correction factor to the flow readings, without conducting more testing and evaluations through another year of wastewater flows. Without a correction factor, proposed upgrades to the WWTF would be undersized when using the historical flow data. To allow for the calculations of appropriate facility equipment and pond sizing, SHN used an alternate method of determining the design flows for existing and future conditions based on published unit data as described in the following sections.

[1] Indoor potable water use data provided by the Town of Fort Jones Public Works staff.

4.1.1 Design Flows

Design flows for existing and future conditions were determined using published values, since, as described in **Section 4.1**, there was insufficient confidence in the flow measurements taken at the Fort Jones WWTF. Published unit values came primarily from Metcalf & Eddy (1991), which is a reference book commonly used in wastewater treatment plant design. Unit flow values and peaking factors used for this analysis are presented in **Table 1**. Additional information is presented in **Appendix C**.

Table 1
Unit Values and Peaking Factors[1]
Fort Jones Wastewater Facilities Plan

Description	Value
Per Capita Wastewater Flow, gpcd[2]	100
Peak Day Peaking Factor	3.6
Peak Month Peaking Factor	2

1. Source: Metcalf & Eddy (1991)
2. gpcd: gallons per capita per day

Per capita dry weather wastewater flows typically range from 80-120 gallons per capita per day (gpcd) for medium to large sized systems, while smaller systems can be less (Metcalf & Eddy, 1991). A value of 100 gpcd was chosen to be able to provide a reasonably conservative estimate of average dry weather flow (ADWF) and account for any I/I that may occur during the dry weather season. Average dry weather flow is defined as the average influent flow during the months of May through October.

The peaking factors for Peak Day (3.6) and Peak Month (2) are typical values according to Metcalf & Eddy (1991), for situations similar to those at Fort Jones. The Peak Day flow is used to size various unit processes in order to maintain a minimum level of wastewater treatment during peak flows. Peak Month flow is used to check the sizing of the percolation pond to minimize the risk of overflows. None of the treatment alternatives investigated required the use of other flows, such as peak hour or low flows. The peaking factors are applied to the ADWF.

Applying the population numbers presented in **Section 2.2** and the unit factors above, the current (year 2017) ADWF, Peak Day, and Peak Month flows were calculated to be 67,200 gallons per day (gpd), 242,000 gpd, and 4,030,000 gallons per month, respectively. These values as well as those for the 2037 and 2057 future conditions are presented **Table 2**. Full calculations are presented in **Appendix C**.

Table 2 Design Inflow Summary Fort Jones Wastewater Facilities Plan			
Inflow Type	**2017 Inflow**	**2037 Inflow**	**2057 Inflow**
ADWF[1] (gpd[2])	67,200	71,700	76,400
Peak Day (gpd)	242,000	258,000	275,000
Peak Month (gallons/month)	4,030,000	4,300,000	4,580,000
1. ADWF: average dry weather flow 2. gpd: gallons per day			

4.1.2 Inflow and Infiltration (I/I)

Surface water inflow and groundwater infiltration into sewer collection systems are typically the major causes of high flows through the collection and treatment systems. High flows can result in sanitary sewer overflows (SSOs), decreased treatment efficiency, and permit violations. The Fort Jones collection system and WWTF has experienced significant I/I based on staff observations and flow measurements at the WWTF. Due to the lack of confidence in the flow measurements at the WWTF (as described earlier), only qualitative information can be gathered from the flow data. Despite having I/I in the collection system, no SSOs have occurred.

The flow data at the WWTF (**Appendix B**) appear to indicate that very little I/I occurs during individual precipitation events. The majority of the I/I occurs when Moffett Creek has a high stage and manholes and pipes near Moffett Creek experience some level of submergence, causing significant I/I. Repairs to the collection system described in the Sanitary Sewer Evaluation Survey (SHN, 2017) are assumed to reduce the peak day and peak month flows to within those values presented in this report based on published peaking factors.

4.2 Wastewater Loadings

A mass loading analysis was performed for several constituents at the Fort Jones WWTF, including: biochemical oxygen demand (BOD), total suspended solids (TSS), total Kjeldahl nitrogen (TKN), and ammonia as nitrogen (NH_3-N). There were five sampling events with available analytical data from October 2014 to December 2015 for the influent sampling location. These data are presented in **Table 3**.

Table 3
Sampling Data Summary
Fort Jones Wastewater Facilities Plan

Date	BOD[2] (mg/L)[3]	TSS[5] (mg/L)	TKN[6] (mg/L)	NH_3-N[7] (mg/L)
10/29/2014	211	186	63	36
12/22/2014	280	127	59	43
3/16/2015	212	338	56	33
9/2/2015	83	100	42	40
12/21/2015	258	192	36	23
Average	209	189	51	35

1. MGD: million gallons per day
2. BOD: biochemical oxygen demand (5-day, 20°C)
3. mg/L: milligrams per liter
4. lb/day: pounds per day
5. TSS: total suspended solids
6. TKN: total Kjeldahl nitrogen
7. NH_3-N: ammonia as nitrogen

BOD is the most important constituent when sizing the alternatives investigated for Fort Jones. The average BOD value was calculated as 209 milligrams per liter (mg/L). Evaluation of this data indicates that the measurement on September 2, 2015 (83 mg/L) was likely an anomaly due to its very low value when compared with the other measured BOD values; the average BOD excluding the 9/2/2015 measurement is 240 mg/L. A typical published value for medium strength domestic wastewater is 220 mg/L (Metcalf & Eddy, 1991). For the purposes of facility sizing, the BOD concentration during ADWF was assumed to be 220 mg/L. Using the ADWF presented in **Table 2**, the daily BOD loadings (in pounds per day) during ADWF periods are calculated as 123 pounds per day (lb/day) in 2017, 132 lb/day in 2037, and 140 lb/day in 2057.

During peak flows, BOD loadings generally stay the same, since little organic material enters the collection due to I/I. If a constant BOD mass loading is assumed during peak days, then the BOD concentration would be between 60-70 mg/L. As a conservative approach, the BOD concentration during peak day flows is assumed to be 110 mg/L, that is, diluted by a factor of 0.5.

4.3 Wastewater Effluent Quality

Wastewater effluent limitations are provided by the RWQCB through the current WDR Order (**Appendix A**). These limitations are presented in **Table 4.**

Table 4
Effluent Limitations[1]
Fort Jones Wastewater Facilities Plan

Parameter	Units	Effluent Limitations			
		Average Monthly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Biochemical Oxygen Demand (BOD) (5-day @ 20°C)	mg/L[2]	50	80	--[3]	--
Total Suspended Solids (TSS)	mg/L	50	80	--	--
pH	Standard units	--	--	6.0	9.0
Settleable Solids	ml/L[4]	0.1	0.2	--	--

1. From Order No. R1-2014-0029 (Appendix A)
2. mg/L: milligrams per liter
3. --: No limitations identified by WDR
4. ml/L: milliliters per liter

5.0 Alternatives Analysis

5.1 General

In response to the RWQCB's concerns about potential impact to groundwater by the percolated discharge from the Fort Jones WWTF, SHN reviewed alternatives to improve the level of treatment. The alternatives which were developed and analyzed needed to keep the wastewater treatment facility at or below a Class 2 Facility as defined by California State Code Title 23, Division 3, Chapter 26 at the request of Town staff. A Class 2 Facility requires a Grade II Operator to oversee the WWTF.

The existing WWTF is a Class 1 Facility, and the Town has indicated that they are willing to upgrade to a Class 2 Facility/Grade II Operator if needed. Upgrading to a Class 3 Facility/Grade III Operator could prove problematic for the Town in finding appropriately licensed staff to operate the WWTF due to its remote location, small population and small annual operations budget.

SHN reviewed different effluent disposal options along with different treatment options as described in the following sections. The treatment options generally use the existing facility with little, if any, need for additional land acquisition. A complete relocation of the WWTF was determined to be cost prohibitive, and was not considered further. In addition, consolidation with another treatment facility was not investigated since the nearest treatment facility is the City of Etna, over 15 miles south of Fort Jones.

In order to keep the upgraded WWTF to a Class 2 Facility/Grade II Operator or below, the treatment alternatives investigated were (1) to add aeration to the existing ponds and (2) to change the treatment process to biofiltration. Other packaged treatment systems, including moving bed bioreactors (MBBR), were reviewed but not investigated further due to the increased complexity that would result in a higher classification of system and needed operator.

Non-potable water will be needed for facility maintenance. Therefore, a non-potable groundwater well and associated water supply system is included in both alternatives.

The Town has expressed interest in including solar panels to the project to offset power costs. Solar panels have therefore been included in each alternative.

5.2 Effluent Disposal

5.2.1 Overview

Prior to developing and analyzing treatment alternatives, it is important to determine the alternatives for disposal of the treated effluent. Since the Town does not currently have a direct discharge to a water body requiring a National Pollutant Discharge Elimination System (NPDES) permit, SHN recommends the Town continue with a disposal option that does not require a new NPDES permit. These options include the existing percolation/evaporation method, land application (irrigation), or subsurface disposal. The following sections discuss each alternative.

5.2.2 Percolation/Evaporation

The existing WWTF currently disposes of effluent mostly via percolation with some loss to evaporation. Percolation is an effective way to dispose of effluent, provided it does not degrade the underlying aquifers or adjacent water bodies.

Based on estimated percolation rates of approximately 0.67 inches per hour (in/hr) (see **Appendix C**), , there is sufficient capacity in Pond 6 to handle the peak month flow This would allow for upgraded treatment processes to be installed in the other existing ponds to treat the wastewater to required permit levels prior to percolation.

5.2.3 Land Application

Treated wastewater effluent can be land applied as irrigation water. There are restrictions on what crops can be irrigated, buffer areas along the field edges based on the level of wastewater treatment provided, and access restrictions. A field adjacent to the Fort Jones WWTF is used for growing alfalfa, which is an ideal crop for reuse water.

Groundwater is not scarce in the Scott Valley, so reuse water is of little value to farmers and other water users. The Town would likely incur additional costs to provide incentive for reuse of the treated effluent. Given that percolation is a more cost effective approach to effluent disposal, this alternative was not pursued further.

5.2.4 Subsurface Disposal

Another alternative for effluent disposal is via subsurface leach fields using a pressurized system of leach lines with emitters to dispose of treated wastewater underground. This method is being used effectively by the City of Yreka, California, which is located approximately 20 miles northeast of Fort Jones. Such a system for Fort Jones would require a number of zones, each with separate valves and pumps.

This alternative would require land acquisition and add to operations and maintenance (O&M) costs. Given that sufficient percolation capacity is available in the existing system, preference was given to that option. For this reason, this alternative was not pursued further.

5.2.5 Recommended Effluent Disposal Alternative

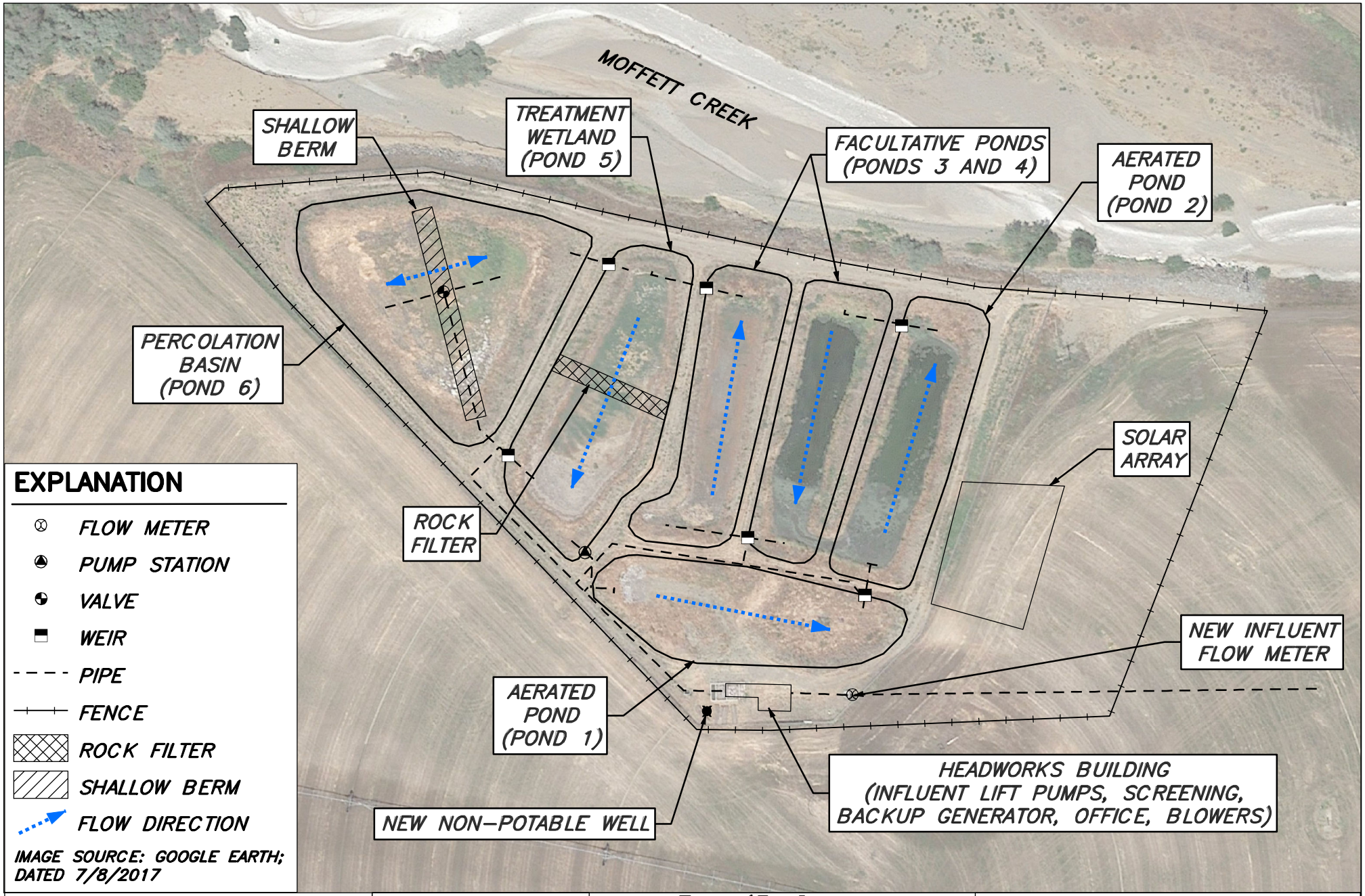
The recommended effluent disposal alternative is percolation and evaporation using the existing Pond 6 (or other ponds if available as discussed under each alternative). This disposal alternative will be applied to all of the treatment alternatives discussed in the following sections.

5.3 Alternative 1: Aeration Addition to Existing System

5.3.1 Description

The first alternative for modifying the existing pond system to increase treatment capacity includes the following components (please refer to **Figure 11** for the following site layout and **Figure 12** for the process diagram):

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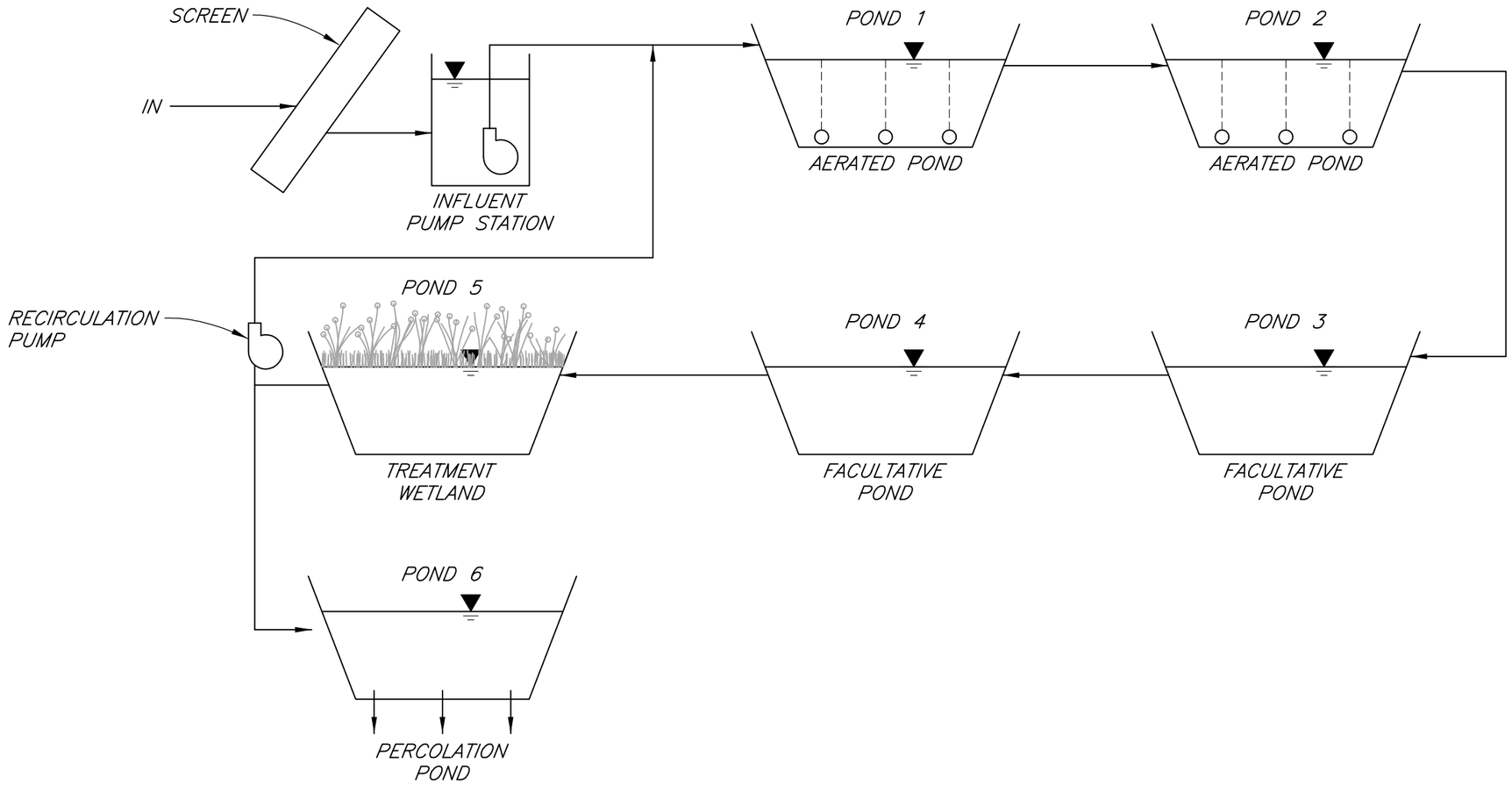
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Consulting Engineers & Geologists, Inc.

Town of Fort Jones
Wastewater Facilities Plan
Fort Jones, California

Alternative 1: Enhanced Pond System
Site Layout
SHN 516035

December 2017 | FP_Fig11_Alt1 | Figure 11



Consulting Engineers & Geologists, Inc.	Town of Fort Jones Wastewater Facilities Plan Fort Jones, California	Alternative 1 Flow Diagram SHN 516035
	September 2017 | 516035-FLOW-DIAG	Figure 12

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- Headworks
  - Building with headworks, influent pump station, blowers, backup power generator, and small work/storage space
  - New flow meter
  - Mechanical screen including screenings washing and dewatering
  - Redundant manual bar rack
  - Influent lift station
  - Backup generator
- 2 Aerated Ponds in Series (Ponds 1 and 2)
  - Deepen ponds to 10 ft (8 ft water depth, 2 ft free board)
  - Geomembrane liner with geofabric underlayment
  - Submerged aeration system
- Two (2) Facultative Ponds in Series (Ponds 3 and 4)
  - Deepen ponds to 10 ft (8 ft water depth, 2 ft free board)
  - Geomembrane liner with geofabric underlayment
- Treatment Wetland (Pond 5)
  - Lined with 6 in of bentonite clay
  - Planted with bulrush
  - Course rock filter across middle of wetland
- Percolation Pond (Pond 6)
- Non-potable groundwater well and associated non-potable water supply system
- New electrical service
- Solar Array

The following sections include an evaluation of the design criteria used to select these systems.

5.3.1.1 Influent Screening

The Fort Jones WWTP currently has no screening. The addition of a mechanical influent screen will protect the proposed influent pump station, increasing its life expectancy, reducing operation and maintenance, and simplifying removal of trash and debris by automatically bringing it to grade and placing it in a trash receptacle for disposal. Due to the freezing weather in Fort Jones during the winter, headworks equipment should be located inside to prevent icing damage to equipment, system failures, and reduce operation and maintenance.

Mechanical influent screen designs include bar screens, spiral screens, and drum screens to remove trash and debris collected on the screen. The removed solids are placed into a dumpster or trash can for disposal. A spiral screen or drum screen is recommended for the Fort Jones WWTF. These screens are preferred due to the low flow volume and low loading of screenable solids. These screens also have the advantage of having a variable pitched auger that will compress the screenings and return a large volume of wastewater back into the wastewater stream thereby resulting in drier screenings for disposal. The drier the screenings, the less odors are produced. Screenings can be washed and further compacted if needed, however this is not anticipated to be needed at Fort Jones.

Spiral and drum screens often include internal washers such that a single unit provides screening, washing, and dewatering. Conveyors can also be added to these units if necessary to deliver screenings to a dumpster located away from the influent channel. These units typically require more maintenance as rags

and wipes can become wrapped around the spiral shaft, however, the spiral screens are typically less expensive than the bar screens.

A redundant influent screen system is necessary to provide continuity during equipment maintenance, repair, or failure. A manual bar rack in a parallel channel will provide redundancy for the mechanical influent screen, and can be cleaned using a rake if necessary.

5.3.1.2 Influent Lift Station

Wastewater currently enters the treatment system approximately one foot below grade. The water surface elevation decreases as it flows through the system due to head loss and elevation differences between ponds. The proposed system will increase the ground surface elevation and head loss, requiring more head to maintain gravity flow through the ponds. An influent lift station will be required to generate the additional head required. To extend the life of the influent pumps, the lift station should be located downstream of the influent screens.

Influent pumps capable of handling the harsh and corrosive environment of raw wastewater are necessary. Grinder pumps will provide additional solids breakdown reducing the amount of time required by the biological system to reduce the oxygen demand of this material. Pumps should be capable of handling the peak instantaneous influent flow to the facility with redundancy.

Peak flows are projected to decrease due to repair and replacement of the sewer system that will result in decreased I/I. Design peak daily average flows are currently 0.242 MGD while the projected PDAF in 2057 (the 40-year design horizon) is 0.275 MGD. Instantaneous flow data are not available, therefore a peak instantaneous flow rate of 2 MGD has been selected for design purposes; this is 8.3 times the 2017 design PDAF and 7.3 times the projected 2057 PDAF. The peak instantaneous flow primarily affects the design of the headworks because short-term peak flows are equalized naturally to a large degree in the ponds.

5.3.1.3 Backup Power Generator

A backup power generator will provide power to electrical equipment during power outages providing security and continuity of treatment. The generator should be capable of handling peak loads with all equipment running simultaneously.

5.3.1.4 Pond Depth

Fort Jones has 5 existing ponds between 7-10 feet deep; **Table 5** provides the existing and proposed pond depths and volumes. The Regional Water Board requires wastewater ponds maintain 2 feet of freeboard at all times limiting the Fort Jones ponds to 5-8 feet of operational water depth. Of the 5 existing ponds, the last pond (Pond 6) is the deepest, and is reserved for infiltration/disposal, with the remaining treatment ponds limited to approximately 7-10 feet of total depth (5-8 feet of operational water depth). Six feet of water depth is sufficient for an aerobic pond but will provide limited anaerobic digestion of solids as occurs in a facultative pond. Facultative ponds are typically a minimum of 6-8 feet deep, and anaerobic digestion of settled solids reduces solids removal frequency.

Changing pond depths will require additional earth work. However, existing sludge accumulated in the ponds requires removal prior to installing new liners (discussed further in the next section). New liners will also require cleaning, grubbing, and minor grading of ponds, incurring additional earthwork costs. Extra

material excavated from the ponds can be used to widen and increase the height of the dikes Biosolids must be removed from the bottom of the ponds prior to installation of a synthetic liner to prevent settling of the pond bottom as the organic matter decomposes, which could cause the liner to move or tear from its anchor trenches. The organic biosolids may also produce gasses as the material decomposes over time, which could cause bubbles to form under the liners and the liners to float. The added cost of extra earthwork to deepen the ponds once the equipment is already onsite to remove biosolids is expected to be minimal compared to the advantages gained of more pond volume and depth for treatment.

The full water depth of the ponds (6 ft) will be diminished over time as solids accumulate. Sludge removal is expected to be costly in terms of time and money since the proposed synthetic liners will likely require the ponds be dredged instead of scraped with a loader or other piece of wheeled machinery (this is discussed further in the next section). Therefore it is recommended that pond depth be increased. Increasing pond depth will allow longer intervals between solids removal as well as more operational flexibility in controlling water depth and mitigating peak flows.

Table 5
Existing and Proposed Pond Volume Estimates
Fort Jones Wastewater Facilities Plan

Pond Number	Existing Average Depth (Feet)	Proposed Average Depth (Feet)	Existing Volume[1] (mg^2)	Proposed Volume (mg)
Pond 1	NA[3]	10	NA	0.58
Pond 2	7	10	0.90	0.51
Pond 3		10		0.42
Pond 4	8	10	0.42	0.42
Pond 5	10	10	0.31	0.33
Pond 6	10	10	1.21	1.21
Totals	NA	NA	2.83	3.46

1. Water volumes assume 2 feet of freeboard in ponds
2. mg: million gallons
3. NA: not applicable

5.3.1.5 Pond Liner

The Fort Jones ponds are currently not lined and infiltrate directly into the ground. Ponds can be lined with natural bentonite clay, or a variety of synthetic membranes. Bentonite clay liners are typically 1-2 ft thick, which in this case would consume a large amount of the volume of the ponds, requiring additional excavation and building up of the dikes to maintain a suitable pond depth. Given the existing layout of the ponds and side slope of the dikes (2:1 horizontal to vertical), increasing the depth results in a diminishing return in terms of volume, making the choice to build up or excavate down more costly than it is worth. For these reasons, lining the aerated ponds with clay has been omitted from further consideration.

Synthetic membranes, while very low volume compared with clay liners, are also relatively delicate. They cannot be driven on, which means operators cannot drive equipment into the ponds to clean them out. Solids removal will most likely need to consist of dredging while there is still water in the ponds. This will

minimize wear on the liners while maintaining enough water in the ponds to keep the liners from floating if the groundwater happens to rise above the bottom of the ponds while they are emptied.

Synthetic liners require subgrade preparation to prevent sharp or uneven objects from damaging the liner. If the subgrade material is too sharp or uneven, the liners may be damaged. Subgrade preparation may consist of simple grading if the native material is sufficiently clean and smooth, or it can consist of spreading a layer of sand, or a geofabric supplied by the manufacturer can be used instead. Decomposition of organic matter in the subsurface soils may produce gasses that could cause the liners to float, potentially damaging the liners. It may be necessary to install gas venting systems beneath the liners to allow gasses to escape without forming a bubble.

5.3.1.6 Pond Aeration

An initial evaluation of influent BOD loading to the Fort Jones WWTP indicates that BOD loading exceeds recommended areal loading rates. The recommended areal loading rates for facultative ponds in areas with winter water temperatures between 32-59° F are 20-40 lb/ac/d, with loading on the first cell limited to 35 lb/ac/d (Reed, Crites, and Middlebrooks, 1995). Influent BOD loading to the facility for the year 2057 is projected to be approximately 140 lb/d, resulting in an areal loading rate of 467 lb/ac/d to Pond 1, and 128 lb/ac/d when distributed over all four ponds (**Table 6**). Additional oxygen supply will be necessary to prevent the ponds from going anaerobic, resulting in potential discharge violations and objectionable odors.

Table 6
Areal Pond Loading Rates Year2057
Fort Jones Wastewater Facilities Plan

Description	Area (acres)	Areal BOD[1] Loading (lb/ac/d)[2]
Maximum Recommended Areal Loading Rate for Facultative Ponds [3]	NA[4]	40
Fort Jones Ponds 1-4	1.10	128
Fort Jones Pond 1	0.30	467

1. BOD: biochemical oxygen demand
2. lb/ac/d: pounds per acre per day
3. Reed, Crites, and Middlebrooks. (1995). Natural Systems for Waste Management and Treatment.
4. NA: not applicable

Adding aeration to a pond system is a common method of increasing the capacity for BOD removal via mechanical oxygenation and mixing. Aeration for mixing uses more power than aeration strictly for oxygenation because power in excess of the oxygen demand is supplied to move water and promote mixing. Mixing increases the contact between microbes and oxygen that promotes BOD removal. All aeration systems provide some level of mixing; however a complete mixed system uses much more energy and oxygen than partially mixed systems. Complete mixed systems are similar to activated sludge and often require some degree of recirculation of waste activated sludge to maintain the microbe concentrations and residence time to take advantage of as much of the energy used for aeration and mixing as possible. Complete mixed systems are more costly and complicated to operate than partially mixed systems and have been omitted from further consideration for these reasons. The remaining discussion of pond aerators focuses on partially mixed systems.

Partially mixed aeration systems utilize varying degrees of aeration and mixing energy. The first distinction is made between surface aerators and submerged aerators. Surface aerators typically consist of a motor, shaft, and propeller mounted to a floating raft. The propeller extends into the water from the motor via a drive shaft. These aerators agitate the water surface, either pulling air into the water and driving it downward, or pulling water up and spraying it out from the water surface. Aerators that spray water above the water surface are problematic in freezing climates as the water spray will freeze as it comes into contact with the freezing air and create piles of ice on the water surface. These systems are excluded from further consideration for this reason as Fort Jones often experiences freezing weather in the winter. Downward driving surface aerators are discussed in more detail below.

Submerged aeration systems range from aeration only, with very little mixing energy, to aeration with significant mixing energy. The distinction between aeration and mixing is made based on the size of the bubbles produced by the aerators. Large bubbles, often called course-bubble systems, generate more mixing and less aeration compared with fine-bubble systems pumping the same volume of air. Strictly course-bubble systems are typically used where mixing is required, such as activated sludge or complete mix systems. In enhanced pond systems such as Fort Jones, oxygenation is the primary goal, and added mixing energy is secondary, thus strictly coarse-bubble systems are not considered for further evaluation in this report.

The following types of aeration systems have been selected for further evaluation and comparison, and are further discussed below:

- Downward driving surface aeration
- Fine-bubble submerged aeration
- Combination fine-bubble and course-bubble submerged aeration

Downward Driving Surface Aeration

Surface aerators have the advantage of being relatively self-contained units that are highly reliable and require very little maintenance or operational effort. A power line is run to the floating aerator rafts from shore, and the rest of the equipment is contained on the raft. The systems are also relatively simple, consisting of a motor attached to a drive shaft and propeller. Each aerator can also be easily controlled individually, or in zones, to control oxygen levels where it is needed without aerating the entire system, to reduce energy costs.

Disadvantages of surface aerators include lower energy and oxygen transfer efficiency. Surface aerators use a lot of energy for mixing as opposed to aeration when compared with submerged aeration systems. The floating aerators generate more noise than submerged aeration systems that use enclosed blowers.

Fine-Bubble Submerged Aeration

Fine-bubble aerators have the advantage of high oxygen transfer efficiency because they supply minimal mixing energy. The reduced energy supplied for aeration makes these systems more energy efficient compared with surface aerators or course-bubble systems. Another advantage over the surface aerators are that all electrical and mechanical parts such as the blowers are contained indoors out of the elements, reducing hazards associated with placing electricity in water, and protecting mechanical components from the elements. Submerged diffuser maintenance is simple, requiring periodic membrane cleaning or replacement.

Disadvantages of submerged aeration systems include the potential for diffuser fouling which can reduce efficiency over time with fouling (oxygen transfer and energy efficiency). Fine-bubble systems also do not provide any mixing energy, which reduces treatment efficiency compared with surface aerators or systems that incorporate course-bubble aeration in addition to fine-bubble aeration.

Combined Fine-Bubble and Course-Bubble Submerged Aeration

Submerged aeration systems that incorporate both fine-bubble and course-bubble aeration have similar advantages to fine-bubble aeration systems with the added benefit of mixing from course bubble diffusers. These systems may provide increased treatment efficiency over fine-bubble only systems. By providing mixing, oxygen is transmitted to a larger volume of water near the diffuser.

Integrated fine- and course-bubble aeration systems also have similar disadvantages to fine-bubble only systems, except the added mixing energy requires more energy per unit of oxygen supplied from the course-bubble mixing energy. Individual manufacturer design determines the appropriate depth and flow conditions that may be advantageous to adding course-bubble diffusers to a treatment system.

5.3.1.7 Facultative Ponds

The initial partial mixed, aerated ponds (Ponds 1 and 2), are followed by two facultative ponds in series (Ponds 3 and 4). The relatively high rate of oxidation provided by the aerated cells will reduce BOD concentrations enough to allow the following cells to act as passive systems. The quiescent facultative ponds will allow solids to settle, provide anaerobic solids digestion in the deep anaerobic zones, and continue to reduce BOD concentrations without the need for additional aeration.

5.1.3.8 Treatment Wetland

Following the facultative ponds, a vegetated treatment wetland (Pond 5) is proposed to provide additional solids, BOD, and nutrient removal. Treatment wetlands are typically 3-4 ft deep and fully vegetated with an emergent aquatic vegetation such as hardstem bulrush (*Schoenoplectus acutus*). Once established, bulrush is a resilient wetland species that prevents excessive algae growth, reducing TSS concentrations. As suspended solids and other particulate matter are removed, a significant source of BOD is also removed with the organic matter.

Bulrush stems have a high surface area to volume ratio creating a natural media for biofilm growth. During the spring and summer growing season when the receiving waters are most sensitive to nutrient pollution, the biofilm and the plants decrease BOD and nutrient concentrations.

During the winter, bulrush go dormant, decreasing the rate of BOD removal, however, the dormant vegetation continues to act as a solids filter to reduce TSS and particulate BOD concentrations. The layer of dormant vegetation also acts as an insulating layer between the freezing air, snow, and water, creating favorable conditions for biological treatment when open air treatment ponds decrease in the rate of biological activity.

Treatment wetlands create anaerobic conditions due to the high amount of organic matter and relative limitation of oxygen supply. This creates ideal conditions for denitrification, the biological conversion of nitrate-nitrogen to nitrogen gas. The aerated ponds and facultative ponds are not currently proposed to

supply enough oxygen for nitrification; however, nitrification may occur to some extent depending on variations in loading conditions. Additional aeration can also be added to the facultative ponds in the future to increase nitrification. In this case, the treatment wetland will provide an area for nitrogen removal through denitrification.

It should be noted that treatment wetlands generate a significant amount of biomass, accumulating not only nutrients from the wastewater, but also fixing carbon from the atmosphere. This biomass must be managed in order to prevent the system from becoming overloaded, at which point the degradation of accumulated organic matter begins to release BOD and nutrients from the internal load. The exact amount of time required before vegetation removal is necessary is not well documented; however, it is estimated to be in the range of 10-20 years after startup. Vegetation removal can be accomplished using a long-reach excavator in strips across the wetland, and the vegetation can either be dried and placed in a landfill, or composted for disposal elsewhere following the appropriate testing and regulatory approvals. Strip removal should be spaced to allow the empty spaces to fill back in from the existing wetland plants following removal.

Following initial planting of the treatment wetland it can take 2-3 years for the plants to reach maturity and provide full treatment benefits. A rock filter consisting of course rock placed across the width of the wetland approximately half-way through will provide surface area and minimal filtration for solids and BOD removal during the startup period as well as throughout the life of the wetland.

A clay liner is proposed for the bottom of the treatment wetland because the plants will require a soil medium to grow in initially. A synthetic liner will not be conducive to backfilling with soil for planting. A clay liner of approximately 6 in should be sufficient to prevent complete infiltration and drying out of the wetland. Material excavated from the other ponds during construction including dried biosolids and suitable soil, can be placed in the treatment wetland to provide a medium for planting the bulrush initially. A clay liner is also less fragile such that when excavating vegetation in the future, if the excavator comes into contact with the clay liner, it will not require expensive repair or replacement.

Over time, the plants will provide their own growing medium and may begin to float on the water surface in a thick mat of their own roots and tubers. For this reason, the water depth in the wetland should be limited to 3 ft with a maximum water depth of 4 ft.

Vegetated treatment wetlands can create vector problems such as mosquitoes due to still water sitting between plants. A vector control program may be necessary to reduce the potential for spreading of mosquito borne illnesses. Vector control can be accomplished with a non-toxic (to humans) naturally occurring bacteria called *Bacillus thuringiensis* subspecies *israelensis*, commonly known as BTI. BTI is contained in a number of EPA approved mosquito control products that are approved for residential, commercial, and agricultural settings used for control of mosquitoes, blackflies, and fungus gnats (EPA, 2017).

5.1.3.9 Solids Handling

The ponds will require periodic sludge removal and the treatment wetland will require periodic vegetation removal. The accumulation rate of solids in a facultative pond depends on many factors and is not easily predicted. It is recommended that staff monitor and record sludge depths annually as well as ammonia levels in the ponds to determine if excess sludge buildup is affecting treatment performance. In similar facilities, sludge removal can be as infrequent as every 20-40 years. It is anticipated that sludge removal

from the aerated and facultative ponds at Fort Jones will not require sludge removal at less than 20- or 30-year intervals. Sludge removal can be performed by pumping the pond bottom using a floating dredge followed by dewatering using a portable dewatering system. The solids are removed and sent to a landfill or other acceptable land application, and the water returned to the ponds. For this type of sludge removal and dewatering method, sludge drying beds are not necessary.

Sludge that accumulates in the percolation pond could affect the percolation rate and should, therefore, be removed on a more frequent basis. Operations staff should remove accumulated solids in the bottom of the percolation pond on an annual basis. The percolation pond should be designed to have two cells separated by a short wall or berm through the middle. During the summer months when the weather is hot and dry and low wastewater flows occur, one side would be isolated from effluent and allowed to dry fully. The berm would need to be only about one to two feet high.

The dried sludge in the percolation pond would be removed manually with a rake or with a tractor using a scraper attachment. Use of a tractor is not preferred as it may result in compaction of the underlying material, thereby decreasing percolation rates. If a tractor is used, caution should be exercised and the resulting percolation rate monitored.

5.1.3.10 Non-Potable Water System

Non-potable water is needed to provide for washing of screening equipment and other facility maintenance. Since the water does not need to be potable, the water can come from one of two sources: (1) recycled effluent and (2) groundwater. SHN recommends a non-potable groundwater well located on site to provide a consistent water supply to meet the facility maintenance needs. Such a system would consist of the following items:

- Non-potable groundwater well;
- Submersible well pump;
- Bladder tank (to maintain pressure);
- Associated distribution piping and hose bibs; and
- Associated electrical supply and controls.

5.1.3.11 Solar Array

A solar array is proposed to offset the energy cost of aerating the ponds, pumping influent, operating a mechanical screen, and other miscellaneous energy uses. The major energy consumer is expected to be the aeration system which may run continuously consuming an estimated 6.4 kW. Over the course of one year, with one blower running continuously, it would consume approximately 56,000 kWh. At 18 cents per kWh, the blower will consume approximately $10,000 per year of electricity. A 50 kW solar array will generate approximately 77,000 kWh per year in Fort Jones according to an online National Renewable Energy Research Laboratory (NREL) solar resource estimating tool (NREL, 2017), completely offsetting the energy use from the blower. A 50 kW solar array in Fort Jones will need to be approximately 7,500 sf (NREL, 2017). Based on a national estimate for solar system installation published by NREL in 2016 of $4/W, a 50 kW system would cost approximately $200,000 installed. The excess energy can be placed back into the electrical grid and used to offset other operational costs through net metering.

5.3.2 Cost Estimates

Estimated project capital costs for this alternative are presented in **Table 7**. Annual O&M costs are provided in **Table 8**.

Table 7
Engineer's Opinion of Probable Cost for Alternative 1
Enhanced Pond Treatment System
Fort Jones Wastewater Facilities Plan

Item	Description	Unit	Quantity	Unit Cost	Subtotal
1	Earthwork	LS[1]	1	$570,000	$570,000
2	Biosolids Disposal	LS	1	$90,000	$90,000
3	Pond Lining	LS	1	$200,000	$200,000
4	Pond Aeration System	LS	1	$160,000	$160,000
5	Headworks/Office Building	SF[2]	800	$250	$200,000
6	Influent Pump Station	LS	1	$100,000	$100,000
7	Influent Screening	LS	1	$152,000	$152,000
8	Influent Screening Channel	LS	1	$40,000	$40,000
9	Backup Generator	LS	1	$60,000	$60,000
10	Pond Effluent Control Structure	EA[3]	5	$40,000	$200,000
11	Distribution Pipe	LF[4]	1,700	$100	$170,000
12	Wetland Recirculation Pump	EA	1	$5,000	$5,000
13	14' flat bottom boat	EA	1	$5,000	$5,000
14	Treatment Wetland Planting	LS	1	$50,000	$50,000
15	Solar Array	LS	1	$200,000	$200,000
16	SCADA System	LS	1	$38,000	$38,000
17	Site Electrical	LS	1	$100,000	$100,000
18	Land Acquisition	LS	1	$50,000	$50,000
19	Influent Flow Meter	LS	1	$20,000	$20,000
20	Mobilization (12%)	LS	1	$289,000	$289,000
				Construction Subtotal	$2,699,000
				Contingency (30%)	$810,000
				Total Construction	**$3,509,000**
				Facilities Planning	$0
				Facilities Design (20%)	$702,000
				Administration and Legal (4%)	$140,000
				Total Project	**$4,351,000**

1. LS: lump sum
2. SF: square feet
3. EA: each
4. LF: lineal foot

Table 8 Engineer's Opinion of Annual Wastewater Operational Costs for Alternative 1 Enhanced Pond Treatment System	
Description	**Item Cost**
Labor	$30,800
Cell Phone Service	$360
Trash Service	$480
Electrical costs	$20,591
Sludge Hauling	$4,400
Percolation Pond Scarification	$2,200
Wetland Vegetation Management	$1,650
Contingency (10%)	$6,048
Repair/replacement reserve (10%)	$6,048
Annual O&M Costs	**$72,578**

5.3.3 Alternative Pros and Cons

Table 9 summarizes the pros and cons for Alternative 1.

Table 9 Pros and Cons for Alternative 1 Enhanced Pond Treatment System	
Pros	**Cons**
Low O&M costs with few moving parts	High capital costs
Passive treatment system requiring minimal operator attention	Seasonal effluent quality variation with temperature and vegetation changes
Increasing dike elevation increases flood resilience	Since in floodplain, possible adverse impacts during flood events to electrical and controls equipment
Long life expectancy	Requires periodic dredging of ponds and vegetation removal from wetland
Potential for additional nitrogen removal with increased aeration	Vector control program required

5.4 Alternative 2: Biofiltration

5.4.1 Description

A biofiltration treatment system provides secondary level wastewater treatment by applying untreated wastewater to a bed of sand, gravel, or engineered media where bacteria are in a fixed film attached to the media. The process is preceded by primary treatment that consists of septic and flow equalization tanks to remove settleable and floatable solids. A portion of the flow is recirculated through the filter.

Most biofiltration systems come as packaged treatment units from vendors. For this alternative, SHN reviewed the Advantex AX-Max biofiltration units manufactured by Orenco Systems, Inc. (www.orenco.com), located in Sutherlin, Oregon. The Orenco Advantex system has been approved by the State of California and is found in many installations throughout California at both the residential and community levels.

This alternative includes the following elements based on the design criteria presented in Section 4:

- Influent flow meter;
- Headworks, including solids screening and building enclosure;
- Eleven buried 50,000-gallon septic and equalization tanks;
- Recirculating tank;
- Nineteen buried or semi-buried AX-Max 300 units;
- Percolation pond (use existing Ponds 4, 5 and/or 6);
- Non-potable groundwater well and associated non-potable water supply system;
- New electrical service;
- Associated piping, pumps, controls, and other appurtenances; and,
- Optional solar panels to offset power costs.

A proposed layout of the Alternative Biofiltration system is presented in **Figure 13** with a Flow Diagram presented in **Figure 14**. Solar panels could be placed in any of the unused areas.

Some of the items included in this alternative, such as the headworks (influent screening and associated building) and non-potable water system, are the same as in Alternative 1, and the reader is referred to the discussion in the previous section for additional information about these items.

5.4.1.1 Headworks

The wastewater enters the WWTF and passes through the new flow meter. Solids are then screened at the headworks, which consists of a spiral or drum screen housed in a small building. Solids are screened and placed in a small trash receptacle with weekly removal.

5.4.1.2 Primary Tanks

After the headworks, the wastewater flows into eleven buried 50,000-gallon primary tanks operated in series. This provides for at least two days of residence time (based on a maximum day flow of 275,000 gallons) prior to going to the AX-Max biofiltration units, which allows for settling of solids that pass through the headworks.

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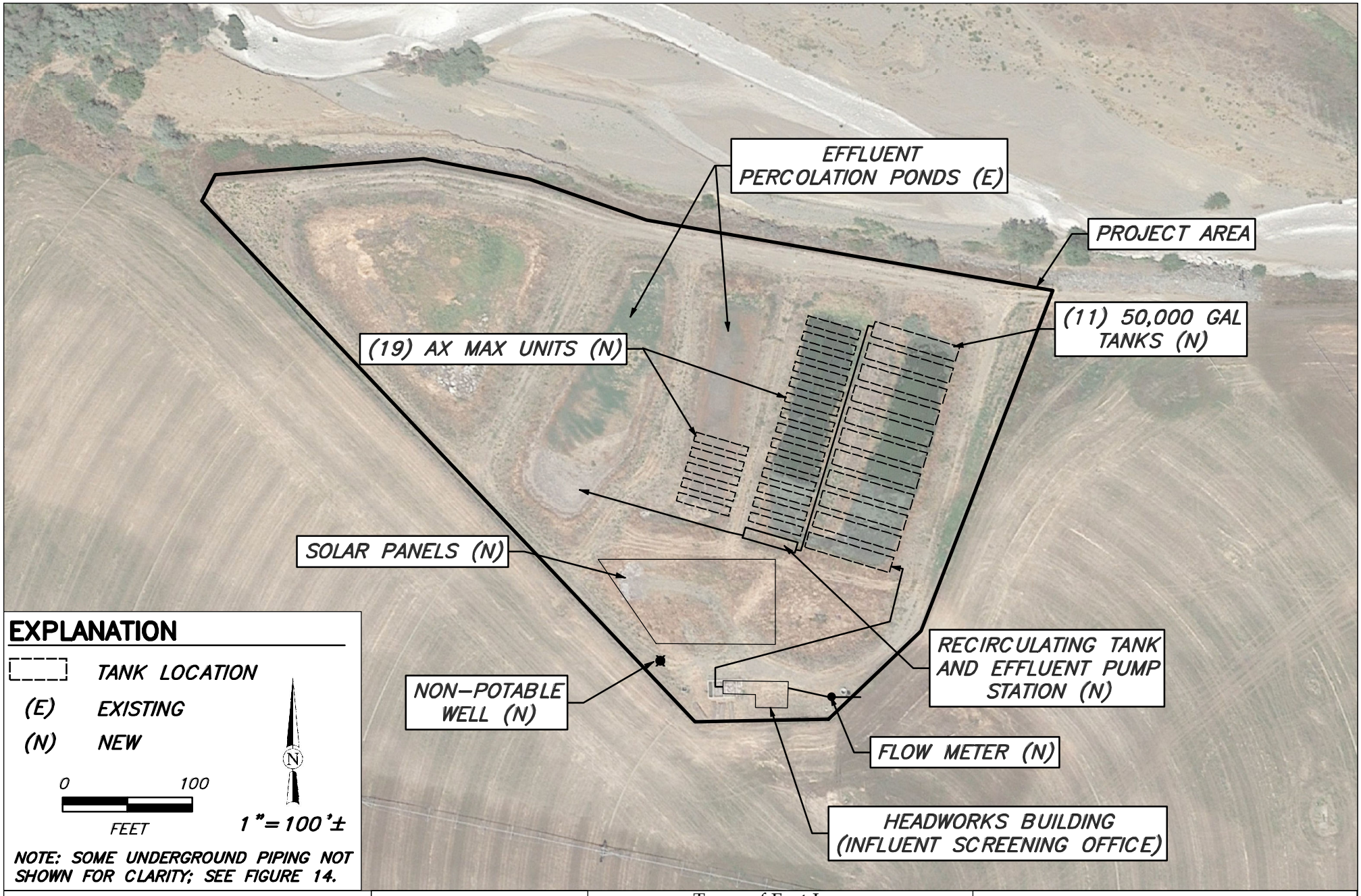


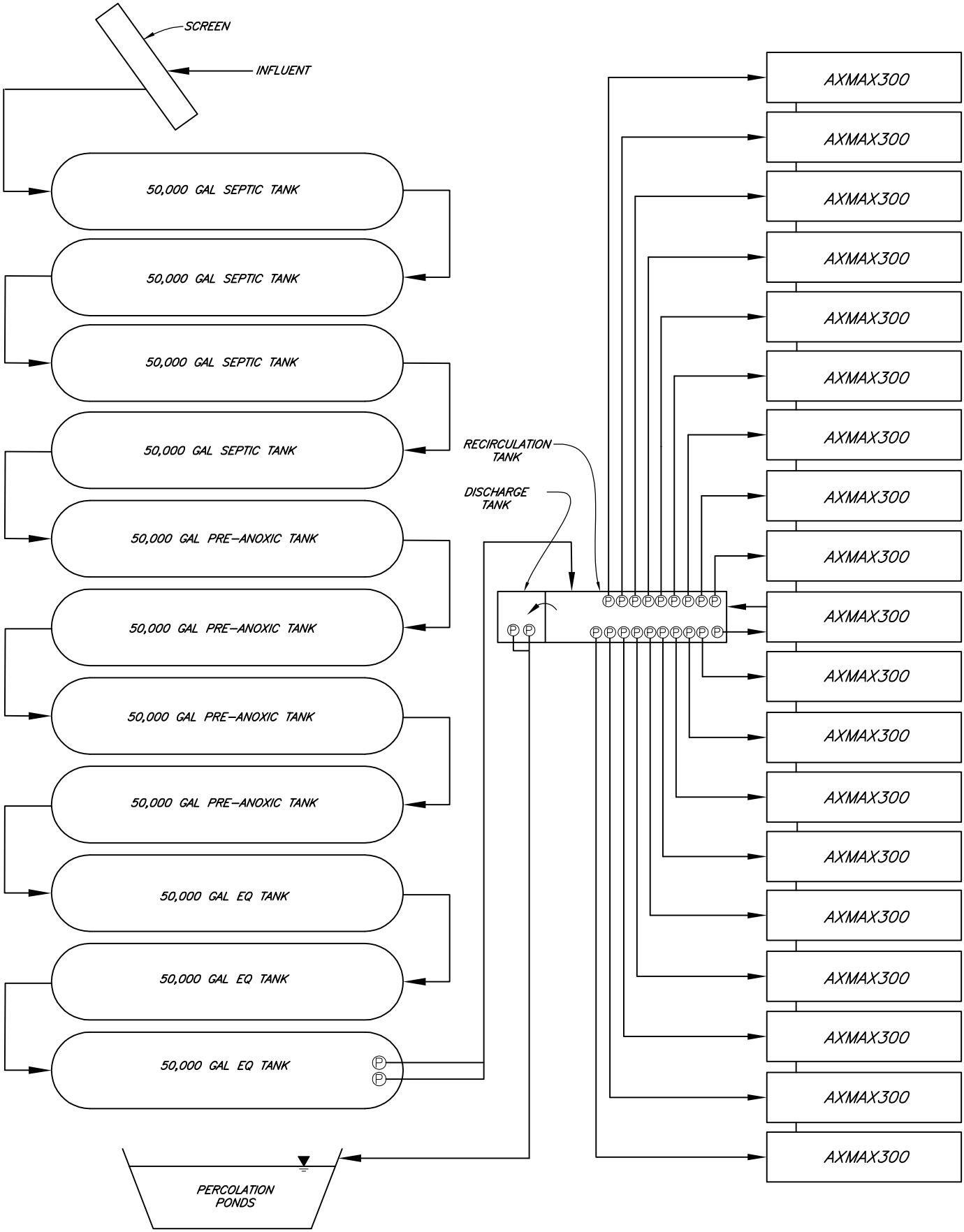
IMAGE SOURCE: GOOGLE EARTH; DATED 7/8/2017

Consulting Engineers & Geologists, Inc.

Town of Fort Jones
Wastewater Facilities Plan
Fort Jones, California

Alternative 2: Biofiltration Site Layout
SHN 516035.200

December 2017 | FP_Fig13_Alt2_Site | Figure 13



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Consulting Engineers & Geologists, Inc.	Town of Fort Jones Wastewater Facilities Plan Fort Jones, California	Alternative 2 Flow Diagram SHN 516035
	December 2017 | 516035-FLOW-DIAG	Figure 14

5.4.1.3 Biofiltration Units

Pumps located in the last primary tank then pump the wastewater to a distribution/recirculating tank. Wastewater is then pumped to the 19 AX-Max biofiltration units in a manner set by the manufacturer to allow for sufficient recirculation, which is necessary to provide sufficient secondary (biological) treatment. After the wastewater has been sufficiently treated, flow enters an effluent tank located adjacent to the recirculation tanks. The treated effluent is then pumped to the discharge point in one of the ponds for percolation.

5.4.1.4 Effluent Percolation

Due to the smaller footprint of this alternative, ponds 4, 5, and 6 would be available for percolation. The unused ponds would likely remain in place to minimize unnecessary capital costs.

5.4.1.5 Solids Handling

Accumulated solids in the primary tanks are not expected to require frequent removal. An interval of 10-20 years between sludge removal is anticipated. The biofiltration units generally do not generate sludge that requires removal. Accumulated solids in the percolation ponds should be removed on a regular basis to maintain proper percolation in the same way as described in more detail under Alternative 1.

5.4.1.6 Non-Potable Water System

The non-potable water system for this alternative is the same as that described for Alternative 1.

5.4.2 Cost Estimates

Estimated project capital costs for this alternative are presented in **Table 10**, with annual O&M costs provided in **Table 11**.

Table 10 Engineer's Opinion of Probable Project Cost for Alternative 2 Biofiltration		
Item	**Description**	**Total Cost**
1	Influent Flow Meter	$20,000
2	Influent Screening	$152,000
3	Influent Screening Channel	$33,000
4	Influent Screen Building	$75,000
5	Orenco Primary/Secondary Treatment System	$6,151,000
6	Site Work	$100,000
7	Electrical	$100,000
8	Standby Generator	$60,000
9	SCADA System	$38,000
10	Decommission Primary Tank and Distribution Box	$20,000
11	Solar Array	$200,000
12	Mobilization (12%)	$810,000
	Subtotal	$7,759,000
	Contingency (30%)	$2,328,000
	Total Construction	**$10,087,000**
	Facilities Planning	$0
	Facilities Design (20%)	$2,017,000
	Administration, Legal (4%)	$403,000
	Total Project	**$12,507,000**

Table 11 Engineer's Opinion of Annual Wastewater Operational Costs for Alternative 2 Biofiltration	
Description	**Item Cost**
Labor	$25,600
Cell Phone Service	$600
Trash Service	$480
Electrical costs	$15,621
Primary Sludge Removal and Hauling	$1,667
Repair/Replacement	$29,906
Contingency (10%)	$7,387
Annual O&M costs	**$81,261**

5.4.3 Alternative Pros and Cons

Table 12 summarizes the pros and cons for this alternative.

Table 12
Pros and Cons for Alternative 2 Biofiltration

Pros	Cons
Reduced footprint over Alternative 1	High capital costs
Passive treatment system requiring minimal operator attention	Since in floodplain, possible adverse impacts during flood events to electrical and controls equipment
Produces high quality effluent	Requires periodic pumping of the primary tanks, based on solids loading
Few moving parts	Higher energy costs

6.0 Selection of an Alternative

6.1 Life Cycle Cost Analysis

A life cycle present worth cost analysis was used to compare the alternatives, and consists of the following notes:

- The planning period is assumed to be 20 years;
- The most recent published real discount rate is from December 2017 and is 0.5% (OMB, 2017);
- Typically, a salvage value is assumed for items with useful lives longer than the planning period of 20 years; the calculated value is the remaining value at the end of the planning period using a straight-line depreciation over the useful life; as a conservative measure, no salvage measure was included for either alternative; and
- Short-lived assets (those with a design life of less than the planning period) are not explicitly included in this analysis; however, any replacement costs are assumed to be covered by a repair/replacement reserve that is included as part of the O&M costs.

The net present value (NPV) is calculated as the sum of capital costs (construction and non-construction) plus the present work of the uniform series of annual operations and maintenance minus the present worth of the salvage value (which is assumed zero). The NPV for each alternative is presented in **Table 13**.

Table 13
Net Present Value of Life Cycle Costs by Alternative

	Alternative 1 (Aeration)		**Alternative 2 (Biofiltration)**	
	Annual Value	**Present Value**	**Annual Value**	**Present Value**
Operations & Maintenance	$72,578	$1,378,069	$81,261	$1,542,937
Capital	--	$4,351,000	--	$12,507,000
Net Present Value	**--**	**$5,729,069**	**--**	**$14,049,937**

Alternative 1 has the lowest Net Present Value, just under half of Alternative 2. Further, the capital cost for Alternative 2 is 2.5 times that of Alternative 1. This indicates that there is significant enough difference to suggest that Alternative 1, Aeration, is the least-cost alternative. Alternative 1 is therefore recommended.

6.2 Non-Monetary Factors

There are no non-monetary factors that would significantly factor into the decision of which alternative to choose.

7.0 Recommended Alternative

The recommended alternative based on the Net Present Value Analysis is Alternative 1, Aeration. SHN recommends that the Town pursue design and construction funding based on the costs presented in **Section 5**.

8.0 Alternative Analysis

As part of the development of this project, and the development of the Wastewater Facilities Plan, the Town of Fort Jones and SHN analyzed several alternatives that could have provided wastewater treatment facility upgrades to meet the Town's need. A wide range of feasible alternatives were considered, that also included the "No Action or No Project" alternative. After careful evaluation of the wide range of alternatives, two action alternatives were considered appropriate and reasonable for possible implementation at the Fort Jones WWTF. Those action alternatives are:

- Alternative 1-Aeration Addition to the Existing System.
- Alternative 2-Biofiltration

Both of the technical details of the alternatives have been discussed within this report. Please refer to **Section 5.3** (Alternative 1) and **Section 5.4** (Alternative 2) for technical details of each alternative. In addition to the technical aspects of these alternatives an analysis of potential environmental impacts has been developed. The potential impacts for each of the three alternatives are provided below. A full environmental analysis will be prepared as a separate stand-alone document to comply with the State of California Environmental Quality Act (CEQA) requirements, analyzing the Proposed Project (Alternative 1).

8.1 Alternative 1-Aeration Addition to the Existing System

Development of this alternative would reconfigure the existing wastewater treatment facility, generally within the existing footprint of the current site. Work would consist of re-grading the existing wastewater treatment ponds and installing aeration piping, geomembrane liners in several ponds, water flow control structures and piping. Development of a new headworks building will contain pumps, motors and backup generators. A new solar array will be installed to generate power for the facility. About 1.5 acres of adjacent land would be acquired for project development.

Development of Alternative 1 is on previously disturbed lands and will not impact any listed species of plant or animal; no consultation with the US Fish and Wildlife Service is required. No wetlands are located at the project site; therefore there will be no impact. Surface waters will not be affected by the project, and grading activities will comply with the General Construction Permit requirements for grading and erosion control.

Adjacent agricultural lands are non-prime and uses proposed by the project, including the acquisition of these non-prime agricultural lands are considered a compatible land use. Removal of these lands from the agricultural land base of Siskiyou County is not considered significant.

Evaluations of the site by a qualified archaeologist (meeting the Secretary of the Interiors guidelines) have confirmed that there are no pre-historic or historic cultural sites. Excavations by the project could impact

buried and unknown cultural sites, and mitigation measures have been developed that would be a part of project development and construction contracts, to protect these sites, if found.

8.2 Alternative 2-Biofiltration

This alternative would be developed exclusively within the existing footprint of the Fort Jones WWTF. It consists of installation of a series of treatment tanks within the footprint of the existing disposal ponds. A new headworks building would be constructed that would house the electrical equipment and other mechanical equipment required to operate the system.

Development of Alternative 2 is within the boundary of the previously disturbed WWTF and will not impact any listed species of plant or animal; no consultation with the US Fish and Wildlife Service is required. No wetlands are located at the project site; therefore there will be no impact. Surface waters will not be affected by the project, and grading activities will be of limited size and will not require a General Construction Permit. Standard construction erosion control best management practices will be employed providing adequate protections.

Evaluations of the site by a qualified archaeologist (meeting the Secretary of the Interiors guidelines) have confirmed that there are no pre-historic or historic cultural sites. Excavations by the project are within previously excavated areas of the WWTF and are not expected to impact any buried cultural sites. However, buried and unknown cultural resources could exist at the site and mitigation measures to protect these sites, should they be found, would be required.

8.3 No Action/No Project Alternative

The No Action/No Project Alternative would not develop upgrades to the Fort Jones WWTF. There would be no grading, no expansion of the project onto adjacent non-prime agricultural lands, and no impacts to cultural resources. The existing facility would remain as-is, which disposes of wastewater effluent through evaporation/percolation ponds; the WWTF does not discharge to Moffett Creek or the Scott River, and is not subject to regulation under the National Pollution Discharge Elimination System (NPDES).

The development of this alternative would have potential impacts to groundwater quality from the incomplete treatment of residential wastewater at the Fort Jones WWTF. The existing treatment system is antiquated and cannot meet current effluent limitations for the protection of water quality prescribed by the California North Coast Regional Water Quality Control Board. Implementation of this alternative would likely exacerbate impacts to groundwater and would likely cause increased impacts over time. If the No Action/No Project Alternative is selected, then the Town would continue to produce wastewater effluent that would be in violation of the applicable Waste Discharge Requirements for the facility.

9.0 References

California State Water Resources Control Board, 2007. *Small Community Wastewater Grant Program Guidelines*. Sacramento, CA: SWRCB.

Metcalf & Eddy, 1991. *Wastewater Engineering: Treatment, Disposal, and Reuse, 3rd Ed.*, edited by G. Tchobanoglous, F. Burton. McGraw-Hill, Inc.

SHN Engineers & Geologists, 2017. *Sanitary Sewer Evaluation Survey.*

Siskiyou County Local Area Formation Commission, 2011. *Draft Municipal Services Review Report for the Town of Fort Jones, CA. Yreka, CA:LAFCo.*

U.S. Office of Management and Budget (OMB), 2017. *Guidelines and Discount Rates for Benefit-Cost Analysis of Federal Programs, OMB Circular No. A-94, Appendix C.*

www.whitehouse.gov/omb/circulars_a094/a94_appx-c.html, accessed on December 29, 2017.

A

Waste Discharge Requirements

CALIFORNIA
Water Boards

EDMUND G. BROWN JR.
GOVERNOR

MATTHEW RODRIQUEZ
SECRETARY FOR
ENVIRONMENTAL PROTECTION

North Coast Regional Water Quality Control Board

July 3, 2014

Mr. Ken Smith
Director of Public Works
Town of Fort Jones
Fort Jones, CA 96032

Dear Mr. Smith:

Subject: Transmittal of Adopted Waste Discharge Requirements for the Town of Fort Jones

File: Town of Fort Jones Wastewater Treatment Plant
WDID No. 1A81157OSIS

Enclosed is Waste Discharge Requirements (WDRs) Order No. R1-2014-0029 for the Town of Fort Jones Wastewater Treatment Facility, adopted by the Regional Water Board on June 19, 2014.

Additional copies of the Order can be obtained from the Regional Water Board office or from the Regional Water Board website at:
http://water100.waterboards.ca.gov/rb1/adopted_orders/index.asp.

Please contact Roy O'Connor of the Regional Water Board staff at (707) 576-2670 if you have any questions.

Sincerely,

Matthias St. John
Executive Officer

140703_RRO_ef_FortJones_Transmittal

Enclosures: Adopted Waste Discharge Requirements Order No. R1-2014-0029

Certified - Return Receipt Requested

cc: Bill Navarre, Siskiyou County Health Department, 806 South Main Street, Yreka, CA 96097
Mark Chaney, SHN Consulting Engineers, 350 Hartnell Avenue, Suite B, Redding, CA 96002

ORDER No. R1-2014-0029
WDID No. 1A81157OSIS

WASTE DISCHARGE REQUIREMENTS FOR THE TOWN OF FORT JONES WASTEWATER TREATMENT FACILITY

SISKIYOU COUNTY

The following Permittee is subject to waste discharge requirements as set forth in this Order:

Table 1. Permittee Information

Permittee	The Town of Fort Jones
Name of Facility	The Town of Fort Jones Wastewater Treatment Facility
Facility Address	Scott River Road
	Fort Jones, CA 96032

The discharge by the Town of Fort Jones from the discharge point identified below is subject to waste discharge requirements as set forth in this Order:

Table 2. Discharge Location

Discharge Point	Effluent Description	Discharge Point Latitude	Discharge Point Longitude	Receiving Water
001	Treated Municipal Wastewater	N 41° 36' 19"	W 122° 51' 33"	Groundwater

IT IS HEREBY ORDERED, that Order No. 98-1 is rescinded upon the effective date of this Order except for enforcement purposes, and, in order to meet the provisions contained in division 7 of the Water Code (commencing with section 13000) and regulations adopted thereunder, the Permittee shall comply with the requirements in this Order.

I, Matthias St. John, Executive Officer, do hereby certify that this Order with all attachments is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, North Coast Region, on June 19, 2014.

Matthias St. John, Executive Officer

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Attachment B – Monitoring and Reporting Program B-1
Attachment C – Fact Sheet C-1

I. FACILITY INFORMATION

The following Permittee is subject to waste discharge requirements as set forth in this Order:

Table 3. Facility Information

Permittee	The Town of Fort Jones
Name of Facility	The Town of Fort Jones Wastewater Treatment Facility
Facility Address	Scott River Road Fort Jones, CA 96032 Siskiyou County
Facility Contact, Title, and Phone	Ken Smith, Director of Public Works, (530) 468-2281
Mailing Address	P.O. Box 40, Fort Jones, CA 96032
Type of Facility	Publicly Owned Treatment Works (POTW)
Facility Design Flow	0.060 million gallons per day (mgd) Average Dry Weather Flow (ADWF)

II. FINDINGS

The California Regional Water Quality Control Board, North Coast Region (hereinafter Regional Water Board), finds:

A. **Basis and Rationale for Requirements.** The Regional Water Board developed the requirements in this Order based on information submitted as part of the Permittee's application for permit renewal, monitoring data submitted during the term of the Permittee's previous Order, and other available information. The Fact Sheet (Attachment C) contains facility information, legal authorities, and rationale for Order requirements. The Fact Sheet is hereby incorporated into this Order and constitutes part of the Findings for this Order. Attachments A and B are also incorporated into this Order.

B. **Background and Facility Description.** The Town of Fort Jones (hereinafter Permittee) is currently discharging pursuant to Waste Discharge Requirements Order No. 98-1. The Permittee submitted a Report of Waste Discharge (ROWD), dated March 20, 2014, and applied for renewal of waste discharge requirements to discharge up to 0.060 mgd of treated wastewater from the Town of Fort Jones Wastewater Treatment Facility (WWTF), hereinafter Facility. Additional background information, including a description of the existing and proposed Facility, is included in the Fact Sheet.

C. **California Environmental Quality Act (CEQA).** The discharges covered under this permit are exempt as an existing facility.

D. Notification of Interested Parties. The Regional Water Board has notified the Permittee and interested agencies and persons of its intent to prescribe Waste Discharge Requirements for the discharge and has provided them with an opportunity to submit their written comments and recommendations.

E. Consideration of Public Comment. The Regional Water Board, in a public meeting, heard and considered all comments pertaining to the discharge.

III. DISCHARGE PROHIBITIONS

A. The discharge of any waste not disclosed by the Permittee or not within the reasonable contemplation of the Regional Water Board is prohibited.

B. Creation of pollution, contamination, or nuisance as defined by section 13050 of the Water Code is prohibited.

C. The discharge of untreated or partially treated waste (receiving a lower level of treatment than described in Attachment C, I.C) from anywhere within the collection, treatment, or disposal system is prohibited.

D. Any sanitary sewer overflow (SSO) that results in a discharge of untreated or partially treated wastewater to (a) waters of the State, (b) groundwater, or (c) land that creates pollution, contamination, or nuisance as defined in Water Code section 13050 (m) is prohibited.

E. The discharge of waste to land that is not owned by or under agreement to use by the Permittee is prohibited, except for use for fire suppression as provided in title 22, sections 60307 (a) and (b) of the California Code of Regulations.

F. The discharge of waste at any point not described in Table 2 or authorized by a permit issued by the State Water Board or another Regional Water Board is prohibited.

G. The discharge of waste to the Scott River and its tributaries is prohibited.

H. The average daily dry weather flow of waste through the treatment plant shall not exceed 0.060 mgd. Compliance with this prohibition shall be measured continuously at Monitoring Location EFF-001, calculated daily and averaged over a calendar month.

I. Discharges of waste that violate any narrative or numerical water quality objective that are not authorized by waste discharge requirements or other order or action by the Regional or State Water Board are prohibited.

J. The discharge of septage or other bulk high-strength wastes is prohibited.

IV. EFFLUENT LIMITATIONS

A. Final Effluent Limitations – Discharge Point 001

The Permittee shall maintain compliance with the following effluent limitations at Discharge Point 001, with compliance measured at Monitoring Location EFF-001 as described in the Monitoring and Reporting Program.

Table 4. Final Effluent Limitations – Discharge Point 001

Parameter	Units	Effluent Limitations				
		Average Monthly[1]	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Biochemical Oxygen Demand (5-day @ 20°C)	mg/L	50	--	80	--	--
Total Suspended Solids	mg/L	50	--	80	--	--
pH	std units	--	--	--	6.0	9.0
Settleable Solids	ml/L	0.1	--	0.2	--	--

V. DISCHARGE SPECIFICATIONS

A. Objectionable Odor. Objectionable odor originating at the facility shall not be perceivable beyond the limits of the wastewater treatment and disposal areas.

B. Public Contact. Public contact with wastewater shall be precluded or controlled through such means as fences and signs, or other acceptable alternatives.

C. Pond Freeboard. Pond freeboard in the wastewater treatment or storage ponds shall never be less than two feet as measured vertically from the water surface to the lowest point of overflow.

D. Vector Control. The Facility and effluent disposal areas shall be managed to prevent the breeding of mosquitoes.

E. Dissolved Oxygen. Waste ponded within the percolation/evaporation ponds shall not have a dissolved oxygen content of less than 1.0 mg/l.

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[1] The arithmetic mean of all samples collected in a calendar month, calculated as the sum of all samples in a calendar month divided by the number of samples. If only one sample is collected in a calendar month, that sample result will constitute the monthly average and daily maximum results for the purpose of determining compliance with effluent limitations.

VI. SOLIDS DISCHARGE SPECIFICATIONS

A. Sludge Storage, Disposal, and Handling Requirements

1. Sludge, as used in this Order, means the solid, semisolid, and liquid residues removed during primary, secondary, or advanced wastewater treatment processes. Solid waste refers to grit and screenings generated during preliminary treatment.

2. All collected sludges and other solid waste removed from liquid wastes shall be removed from screens, sumps, ponds, and tanks as needed to ensure optimal plant operation and disposed of in accordance with applicable federal and State regulations.

3. Sludge or biosolids that are disposed of in a municipal solid waste landfill or used as daily landfill cover shall meet the applicable requirements of 40 CFR 258. In the annual self-monitoring report, the Permittee shall report the amount of sludge placed in a landfill and the landfill(s) which received the sludge or biosolids.

4. The Permittee shall take all reasonable steps to prevent and minimize any sludge use or disposal in violation of this Order that may adversely affect human health or the environment.

5. Solids and sludge treatment, storage, and disposal or reuse shall not create a nuisance, such as objectionable odors or flies, and shall not result in groundwater contamination.

6. Solids and sludge treatment and storage sites shall have facilities adequate to divert surface water runoff from adjacent areas, to protect the boundaries of the site from erosion, and to prevent drainage from the treatment and storage site. Adequate protection is defined as protection from at least a 100-year storm.

7. The discharge of sewage sludge and solids shall not cause waste material to be in a position where it is, or can be, conveyed from the treatment and storage sites and deposited in waters of the State.

VII. RECEIVING WATER LIMITATIONS

A. Groundwater Limitations

1. The collection, treatment, storage, and disposal of wastewater shall not cause or contribute to a statistically significant degradation of groundwater quality unless a technical evaluation is performed that demonstrates that any degradation that could reasonably be expected to occur, after implementation of all regulatory requirements and reasonable best management practices, will

not violate groundwater quality objectives or cause impacts to beneficial uses of groundwater.

2. The collection, treatment, storage and disposal of the treated wastewater shall not cause or contribute to levels of chemical constituents in groundwater that exceed the levels specified in title 22, Division 4, Chapter 15, Article 4, section 64435 of the California Code of Regulations or listed in Table 3-2 of the Basin Plan.

3. The collection, treatment, storage and disposal of the treated wastewater shall not cause or contribute to levels of radionuclides in groundwater in excess of the limits specified in title 22, Division 4, Chapter 15, Article 5, section 64443 of the California Code of Regulations.

4. The collection, treatment, storage, and disposal of wastewater shall not cause groundwater to contain taste- or odor-producing substances in concentrations that cause nuisance or adversely affect beneficial uses.

5. In groundwater used or potentially used for domestic and municipal supply (MUN), the collection, treatment, storage and disposal of the treated wastewater shall not cause the median concentration of coliform organisms over any 7-day period to exceed 1.1 MPN per 100 milliliters or 1 colony per 100 milliliters.

VIII. GENERAL PROVISIONS

Failure to comply with provisions or requirements of this Order, or violation of other applicable laws or regulations governing discharges from this facility, may subject the Permittee to administrative or civil liabilities, criminal penalties, and/or other enforcement remedies to ensure compliance. Additionally, certain violations may subject the Permittee to civil or criminal enforcement from appropriate local, state, or federal law enforcement entities. The Permittee shall comply with the following provisions:

A. **Availability.** A copy of this Order and the associated Monitoring and Reporting Program shall be maintained at the Facility and be available at all times to operating personnel.

B. **Enforcement.** The Permittee shall implement the project as described in this Order. Violation of any requirements contained in this Order subject the Permittee to enforcement action, including civil liability, under the Water Code.

C. **Severability**. Provisions of these waste discharge requirements are severable. If any provision of these requirements is found invalid, the remainder of these requirements shall not be affected.

D. **Sanitary Sewer Overflows.** On May 2, 2006, the State Water Board adopted State Water Board Order No. 2006-0003-DWQ, Statewide General WDRs for Sanitary Sewer Systems. Order No. 2006-0003-DWQ requires that all public agencies that currently own or operate sanitary sewer systems apply for coverage under the General WDRs by November 2, 2006. On February 20, 2008, the State Water Board adopted Order No. WQ-2008-0002-EXEC Adopting Amended Monitoring and Reporting Requirements for Statewide General Waste Discharge Requirements for Sanitary Sewer Systems. The Permittee shall maintain coverage under, and shall be subject to the requirements of Order Nos. 2006-0003-DWQ and WQ-2008-0002-EXEC and any future revisions thereto for operation of its wastewater collection system. In addition to compliance with Statewide General WDRs for Sanitary Sewer Systems, the Permittee shall comply with the following:

1. The Permittee shall take all feasible steps to stop spills and sanitary sewer overflows (SSOs) as soon as possible. All reasonable steps should be taken to collect spilled material and protect the public from contact with wastes or waste-contaminated soil or surfaces.

2. The Permittee shall report orally and in writing to the Regional Water Board staff all SSOs and unauthorized spills of waste. Spill notification and reporting shall be conducted in accordance with the Monitoring and Reporting Program.

E. **Operation and Maintenance.** The Permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) that are installed or used by the Permittee to achieve compliance with this Order. Proper operation and maintenance includes adequate laboratory control and appropriate quality assurance procedures. This provision requires the operation of backup or auxiliary facilities or similar systems that are installed by a Permittee only when necessary to achieve compliance with the conditions of this Order.

The Permittee shall maintain an updated Operation and Maintenance Manual (O&M Manual) for the Facility. The Permittee shall update the O&M Manual, as necessary, to conform to changes in operation and maintenance of the Facility. The O&M Manual shall be readily available to operating personnel on-site. The O&M Manual shall include the following:

1. A Facility table of organization showing the number of employees, duties and qualifications, and plant attendance schedules (daily, weekends and holidays, part-time, etc.). The description should include documentation that the

personnel are knowledgeable and qualified to operate the treatment facility so as to achieve the required level of treatment at all times.

2. A detailed description of safe and effective operation and maintenance of treatment processes, process control instrumentation, and equipment.
3. A description of laboratory and quality assurance procedures.
4. All process and equipment inspection and maintenance schedules.
5. Description of safeguards to assure that, should there be reduction, loss, or failure of electric power, the Permittee will be able to comply with requirements of this Order.
6. A description of preventive (fail-safe) and contingency (response and cleanup) plans for controlling accidental discharges, and for minimizing the effect of such events. These plans shall identify the possible sources (such as loading and storage areas, power outage, waste treatment unit failure, process equipment failure, tank and piping failure) of accidental discharges, untreated or partially treated waste bypass, and polluted drainage.

F. **Change in Discharge.** The Permittee shall promptly report to the Regional Water Board any material change in the character, location, or volume of the discharge. New ponds associated with the treatment and or storage of wastewater or treated effluent shall be constructed in a manner that protects groundwater. The Permittee shall submit design proposals for new wastewater storage ponds to the Regional Water Board Executive Officer for review prior to construction and demonstrate that the pond complies with the Water Code and title 27 of the California Code of Regulations. Pond design and operation plan must include features and best management practices (BMPs) to protect groundwater and prevent exceedances of groundwater quality objectives.

G. **Change in Ownership.** In the event of any change in control or ownership of land or waste discharge facilities presently owned or controlled by the Permittee, the Permittee shall notify the succeeding owner or operator of existence of this Order, and the status of the Permittee's annual fee account; a copy of which shall be forwarded to the Regional Water Board.

H. **Vested Rights.** This Order does not convey any property rights of any sort or any exclusive privileges. The requirements prescribed herein do not authorize the commission of any act causing injury to persons or property, nor protect the Permittee from liability under federal, state, or local laws, nor create a vested right for the Permittee to continue the waste discharge.

I. **Monitoring and Reporting.** The Permittee shall comply with the Monitoring and Reporting Program and any modifications to these documents as specified by the

Regional Water Board Executive Officer. Chemical, bacteriological, and bioassay analyses shall be conducted at a laboratory certified for such analyses by the State Department of Public Health and shall conform to State Department of Public Health guidelines. The Permittee shall comply with the MRP in Attachment B of this Order and any future revisions thereto.

J. Records Retention. The Permittee shall maintain records of all monitoring information, including calibration and maintenance records and all strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this Order, and records of all data used to complete the application for this Order, for a period of at least three (3) years from the date of the sample, measurement, report or application. This period may be extended by request of the Regional Water Board Executive Officer.

K. Signatory Requirements. All Report of Waste Discharge applications submitted to the Regional Water Board shall be signed by a principal Executive Officer, ranking elected official, or responsible corporate officer.

1. For purposes of this provision, a responsible corporate officer means:

a. A president, secretary, treasurer, or vice president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision making functions for the corporation; or

b. The manager of one or more manufacturing, production, or operating facilities employing more than 250 persons or having gross annual sales or expenditures exceeding $25 million (in second quarter 1980 dollars), if authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures.

2. Reports required by this Order and other information requested by the Regional Water Board may be signed by a duly authorized representative provided:

a. The authorization is made in writing by a person described in paragraph (a) of this provision;

b. The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity such as the position of plant manager, operator of a well or a well field, superintendent, position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters for the entity; and

c. The written authorization is submitted to the Regional Water Board prior to or together with any reports, information, or applications signed by the authorized representative.

3. Any person signing a document under paragraph (a) or (b) of this provision shall make the following certification:

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted, is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

L. Inspections. The Permittee shall permit authorized staff of the Regional Water Board the following:

1. Entrance to the premises in which treatment, collection or management of waste occurs, where an effluent source is located or in which any records required by this Order are kept;
2. Access to inspect and copy any monitoring equipment or records required for compliance with terms and conditions of this Order; and
3. Access to sample any discharge or monitoring location associated with the Facility.

M. Noncompliance. In the event the Permittee is unable to comply with any of the conditions of this Order due to breakdown of waste treatment equipment, accidents caused by human error or negligence, or other causes such as acts of nature, the Permittee shall notify the Regional Water Board Executive Officer by telephone as soon as it or its agents have knowledge of the incident and confirm this notification in writing within five (5) business days of the telephone notification. The written notification shall include pertinent information explaining reasons for the noncompliance and shall indicate the steps taken to correct the problem and the dates thereof, and the steps being taken to prevent the problem from recurring.

N. Revision of Requirements. The Regional Water Board will review this Order periodically and may revise requirements when necessary.

O. **Operator Certification.** Supervisors and operators of wastewater treatment plants shall possess a certificate of appropriate grade in accordance with title 23, California Code of Regulations, section 3680. The State Water Board may accept experience in lieu of qualification training. In lieu of a properly certified wastewater treatment plant operator, the State Water Board may approve use of a water treatment plant operator of appropriate grade certified by the State Department of Health Services where water reclamation is involved.

P. **Adequate Capacity.** If the Permittee's wastewater treatment plant will reach capacity within 4 years, the Permittee shall notify the Regional Water Board. A copy of such notification shall be sent to appropriate local elected officials, local permitting agencies, and the press. Factors to be evaluated in assessing reserve capacity shall include, at a minimum, (1) comparison of the wet weather design flow with the highest daily flow, and (2) comparison of the average dry weather design flow with the lowest 30-day flow. The Permittee shall demonstrate that adequate steps are being taken to address the capacity problem. The Permittee shall submit a technical report to the Regional Water Board showing how flow volumes will be prevented from exceeding capacity, or how capacity will be increased, within 120 days after providing notification to the Regional Water Board, or within 120 days after receipt of Regional Water Board notification, that the Facility will reach capacity within 4 years. The time for filing the required technical report may be extended by the Regional Water Board. An extension of 30 days may be granted by the Executive Officer, and longer extensions may be granted by the Regional Water Board itself (title 23, Cal. Code of Regs., section 2232).

Q. **Special Studies, Technical Reports, and Additional Monitoring Requirements.** A Hydrogeologic Study is required to determine the fate and transport of pollutants in discharges of treated wastewater associated with the discharge location. Regional Water Board staff require additional information and testing for the proposed treated effluent disposal location and methodology. Further information is necessary to ensure that disposal methods will not result in detectable wastewater constituents in Moffett Creek and the Scott River, and will not result in violation of groundwater quality standards, and to determine the ability of the disposal area to accommodate projected wastewater flows.

We are requiring submittal of a workplan for a hydrogeologic investigation. The workplan proposal shall be designed to investigate:

1. Current and projected depths of the disposal area;
2. Site specific lithologic profile;
3. Depth to groundwater, including seasonal variations;

4. Seasonal groundwater gradients;
5. Calculated capacity of areal soils to accommodate current and projected wastewater flows; and
6. Concentration gradients of targeted wastewater constituents measured at various points extending away from the disposal area, towards Moffett Creek and the Scott River.

Information developed in accordance with implementation of an approved investigation workplan shall be summarized in a subsequent report, which models the fate and transport of wastewater pollutant disposal. The workplan shall be submitted within 6 months of permit adoption. The subsequent summary report of work shall be submitted within 24 months of workplan approval.

IX. COMPLIANCE DETERMINATION

Compliance with the effluent limitations contained in section IV of this Order will be determined as specified below.

A. Average Monthly Effluent Limitation (AMEL)

The arithmetic mean of all samples collected in a calendar month, calculated as the sum of all samples in a calendar month divided by the number of samples. If only one sample is collected in a calendar month, that sample result will constitute the monthly average and daily maximum results for the purpose of determining compliance with effluent limitations.

If the average of daily discharges over a calendar month exceeds the AMEL for a given parameter, this will represent a single violation, though the Permittee will be considered out of compliance for each day of that month for that parameter (e.g., resulting in 31 days of non-compliance in a 31-day month). If only a single sample is taken during the calendar month and the analytical result for that sample exceeds the AMEL, the Permittee will be considered out of compliance for that calendar month. The Permittee will only be considered out of compliance for days when the discharge occurs. For any one calendar month during which no sample (daily discharge) is taken, no compliance determination can be made for that calendar month.

B. Average Weekly Effluent Limitation (AWEL)

If the average (or when applicable, the median determined by subsection B above for multiple sample data) of daily discharges over a calendar week exceeds the AWEL for a given parameter, this will represent a single violation, though the Permittee will be considered out of compliance for each day of that week for that

parameter, resulting in 7 days of non-compliance. If only a single sample is taken during the calendar week and the analytical result for that sample exceeds the AWEL, the Permittee will be considered out of compliance for that calendar week. The Permittee will only be considered out of compliance for days when the discharge occurs. For any one calendar week during which no sample (daily discharge) is taken, no compliance determination can be made for that calendar week.

C. Maximum Daily Effluent Limitation (MDEL)

If a daily discharge (or when applicable, the median determined by subsection B, above, for multiple sample data of a daily discharge) exceeds the MDEL for a given parameter, the Permittee will be considered out of compliance for that parameter for that 1 day only within the reporting period. For any 1 day during which no sample is taken, no compliance determination can be made for that day.

D. Instantaneous Minimum Effluent Limitations

If the analytical result of a single grab sample is lower than the instantaneous minimum effluent limitation for a parameter, the Permittee will be considered out of compliance for that parameter for that single sample. Non-compliance for each sample will be considered separately (e.g., the results of two grab samples taken within a calendar day that both are lower than the instantaneous minimum effluent limitation would result in two instances of non-compliance with the instantaneous minimum effluent limitation).

E. Instantaneous Maximum Effluent Limitations

If the analytical result of a single grab sample is higher than the instantaneous maximum effluent limitation for a parameter, the Permittee will be considered out of compliance for that parameter for that single sample. Non-compliance for each sample will be considered separately (e.g., the results of two grab samples taken within a calendar day that both exceed the instantaneous maximum effluent limitation would result in two instances of non-compliance with the instantaneous maximum effluent limitation).

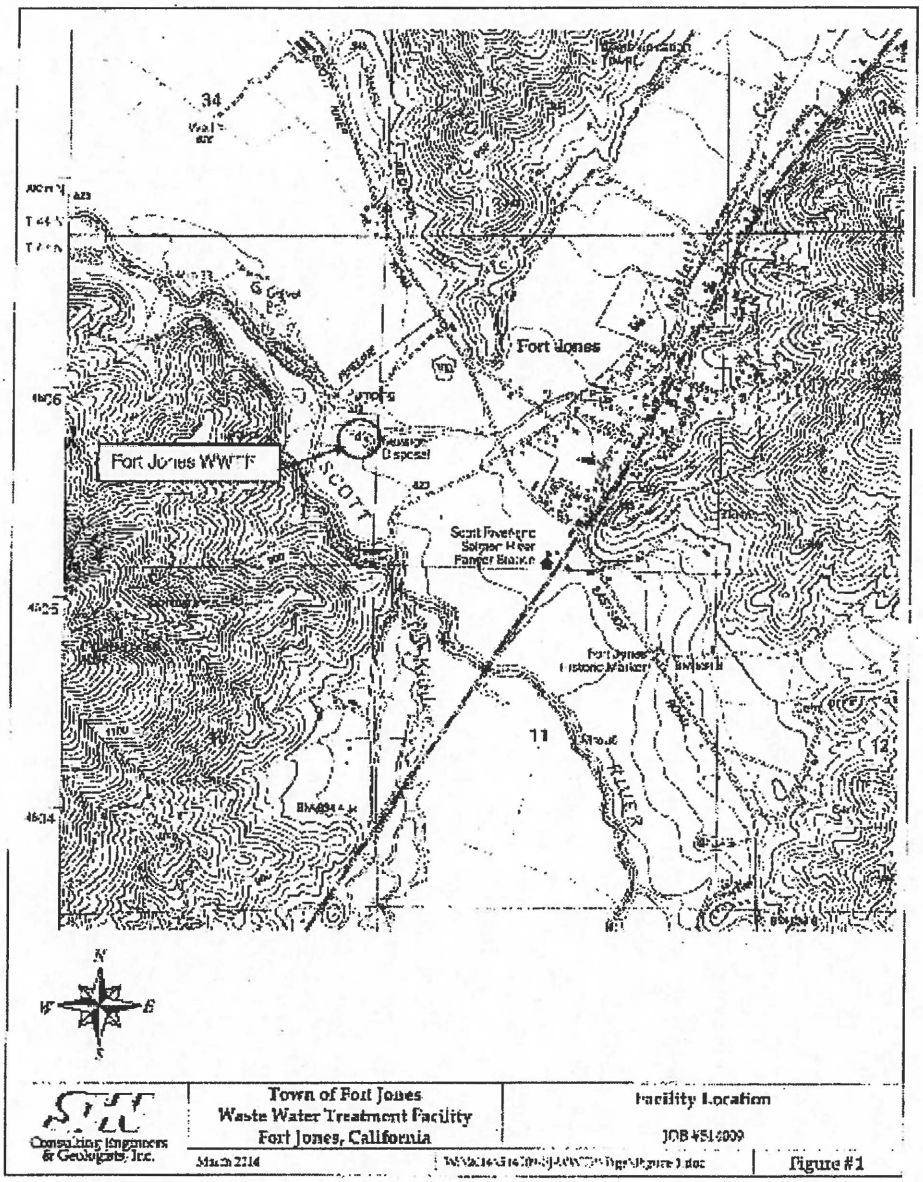
F. Bacteriological Limitations

1. Median. The median is the central tendency concentration of the pollutant. The data set shall be ranked from low to high, ranking the ND concentrations lowest, DNQ determinations next, followed by quantified values. The order of the individual ND and DNQ determinations is not important. The median value is determined based on the number of data points in the data set. If the data set has an odd number of data points, then the median is the middle value. If the data set has an even number of data points, the median is the average of

the two middle values, unless one or both points are ND or DNQ, in which case the median value shall be the lower of the two middle data points. DNQ is lower than a detected value, and ND is lower than DNQ.

2. Compliance with the 7-day median will be determined as a rolling median during periods when sampling occurs more frequently than weekly. During periods when sampling is weekly, this requirement shall apply to each weekly sample.

ATTACHMENT A – FACILITY MAP



ATTACHMENT B – MONITORING AND REPORTING PROGRAM

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ATTACHMENT B – MONITORING AND REPORTING PROGRAM (MRP)

California Water Code sections 13267 and 13383 authorize the Regional Water Quality Control Board (Regional Water Board) to require technical and monitoring reports. This MRP establishes monitoring and reporting requirements, which implement California regulations.

I. GENERAL MONITORING PROVISIONS

A. Composite samples may be taken by a proportional sampling device approved by the Executive Officer or by grab samples composited in proportion to flow. In compositing grab samples, the sampling interval shall not exceed 1 hour.

B. If the Permittee monitors any pollutant more frequently than required by this Order, using test procedures as specified in this Order, the results of this monitoring shall be included in the calculation and reporting of the data submitted in the monthly and annual self-monitoring reports.

C. Laboratories analyzing monitoring samples shall be certified by the California Department of Public Health (DPH; formerly the Department of Health Services), in accordance with the provision of Water Code section 13176, and must include quality assurance/quality control data with their reports.

D. Compliance and reasonable potential monitoring analyses shall be conducted using commercially available and reasonably achievable detection limits that are lower than the applicable effluent limitation. If no minimum level (ML) value is below the effluent limitation, the lowest ML shall be selected as the reporting level (RL).

II. MONITORING LOCATIONS

The Permittee shall establish the following monitoring locations to demonstrate compliance with the effluent limitations, discharge specifications, and other requirements in this Order:

Table B-1. Monitoring Station Locations

Discharge Point Name	Monitoring Location Name	Monitoring Location Description
--	INT-001	Internal monitoring location prior to discharge to percolation ponds.
--	MW-XX	Monitoring wells located at perimeter of treatment ponds and percolation ponds.

III. EFFLUENT MONITORING REQUIREMENTS

A. Monitoring Location EFF-001

1. When discharging at Discharge Point 001, the Permittee shall monitor treated effluent at Monitoring Location EFF-001 as follows:

Table B-2. Effluent Monitoring – Monitoring Location EFF-001

Parameter	Units	Sample Type	Minimum Sampling Frequency
Flow (Mean Daily)	mgd	Meter	Continuous
pH	std units	Grab	Quarterly
Dissolved Oxygen	mg/L	Grab	Quarterly
Biochemical Oxygen Demand (5-day @ 20°C)	mg/L	Grab	Quarterly
Total Suspended Solids	mg/L	Grab	Quarterly
Nitrogen, Total (as N)	mg/L	Grab	Quarterly
Title 22 Pollutants[2]	µg/L	Grab	1x / 3 Years

IV. RECEIVING WATER MONITORING REQUIREMENTS

A. Groundwater Monitoring

1. The Permittee shall monitor groundwater in the groundwater monitoring wells as follows:

Table B-3. Groundwater Monitoring – Monitoring Wells

Parameter	Units	Sample Type	Minimum Sampling Frequency
Depth to Groundwater	0.01 feet	Grab	2x / Year
Total Coliform Organisms	MPN/100 mL	Grab	2x / Year
Nitrogen, Total (as N)	mg/L	Grab	2x / Year

[2] Title 22 Pollutants refers to those chemical constituents specified in Table 3-2 of the Basin Plan and/or constituents for which Maximum Contaminant Levels (MCLs) have been established in title 22, Division 4, Chapter 15, Articles 4 and 5.5 of the California Code of Regulations.

V. REPORTING REQUIREMENTS

A. Self-Monitoring Reports (SMRs)

1. Effective June 2, 2014, all regulatory documents, data, correspondence, or other materials should be submitted to the Regional Water Board via e-mail to NorthCoast@waterboards.ca.gov or on disk (CD or DVD) in a Portable Document Format (PDF) file in lieu of paper-sourced documents. The guidelines for electronic submittal of documents can be found on the Regional Water Board website at http://www.waterboards.ca.gov/northcoast.

2. The Permittee shall submit quarterly SMRs including the results for all monitoring specified in this MRP. If the Permittee monitors any pollutant more frequently than required by this Order, the results of this monitoring shall be included in the calculations and reporting of the data submitted in the SMR.

3. All monitoring results shall include complete laboratory data sheets for each analysis and be submitted in conjunction with the quarterly SMR on the first day of the second month following the quarter. Annual summary reports shall be submitted by March 1st each year.

4. Monitoring periods for all required monitoring shall be completed according to the following schedule:

Table B-4. Monitoring Periods and Reporting Schedule

Sampling Frequency	Monitoring Period Begins On	Monitoring Period
Continuous	June 19, 2014	All
Daily	June 19, 2014	(Midnight through 11:59 PM) or any 24-hour period that reasonably represents a calendar day for purposes of sampling.
Monthly	June 19, 2014	1st day of calendar month through last day of calendar month
Quarterly	June 19, 2014	January through March April through June July through September October through December
2X / Year	June 19, 2014	June and December
Annually	June 19, 2014	January 1 through December 31
1x / 3 Years	June 19, 2014	January 1 through December 31

5. **Reporting Protocols.** The Permittee shall report with each sample result the applicable ML, the RL and the current MDL, as determined by the procedure in Standard Methods.

   The Permittee shall report the results of analytical determinations for the presence of chemical constituents in a sample using the following reporting protocols:

   a. Sample results greater than or equal to the reported ML shall be reported as measured by the laboratory (i.e., the measured chemical concentration in the sample).

   b. Sample results less than the RL, but greater than or equal to the laboratory's MDL, shall be reported as "Detected, but Not Quantified," or DNQ. The estimated chemical concentration of the sample shall also be reported.

   For the purposes of data collection, the laboratory shall write the estimated chemical concentration next to DNQ as well as the words "Estimated Concentration" (may be shortened to "Est. Conc."). The laboratory may, if such information is available, include numerical estimates of the data quality for the reported result. Numerical estimates of data quality may be percent accuracy (+ a percentage of the reported value), numerical ranges (low to high), or any other means considered appropriate by the laboratory.

   c. Sample results less than the laboratory's MDL shall be reported as "Not Detected," or ND.

   d. Permittees are to instruct laboratories to establish calibration standards so that the ML value (or its equivalent if there is differential treatment of samples relative to calibration standards) is the lowest calibration standard. At no time is the Permittee to use analytical data derived from extrapolation beyond the lowest point of the calibration curve.

6. **Self-Monitoring Reports.** The Permittee shall submit self-monitoring reports (SMRs) in accordance with the following requirements:

   a. The Permittee shall arrange all reported data in a tabular format. The data shall be summarized to clearly illustrate whether the facility is operating in compliance with interim and/or final effluent limitations. The Permittee is not required to duplicate the submittal of data that is entered in a tabular format within CIWQS. When electronic submittal of data is required and CIWQS does not provide for entry into a tabular format within the system, the Permittee shall electronically submit the data in a tabular format as an attachment.

b. The Permittee shall attach a cover letter to the SMR. The information contained in the cover letter shall clearly identify:

i. Facility name and address;

ii. WDID number;

iii. Applicable period of monitoring and reporting;

iv. Violations of the WDRs (identified violations must include a description of the requirement that was violated and a description of the violation);

v. Corrective actions taken or planned; and

vi. The proposed time schedule for corrective actions.

c. SMRs must be submitted to the Regional Water Board, signed and certified as required by the General Provisions, to the email address: Northcoast@waterboards.ca.gov.

B. Other Reports

1. Annual Report. The Permittee shall submit an annual report to the Regional Water Board for each calendar year. The report shall be submitted by March 1st of the following year. The report shall, at a minimum, include the following:

a. Monitoring Data Summaries. Both tabular and, where appropriate, graphical summaries of the monitoring data and disposal records from the previous year. If the Permittee monitors any pollutant more frequently than required by this Order, using test procedures approved under section Part 136 or as specified in this Order, the results of this monitoring shall be included in the calculation and report of the data submitted in the SMR.

b. Compliance Reporting. A comprehensive discussion of the Facility's compliance (or lack thereof) with all effluent limitations and other WDRs, and the corrective actions taken or planned, which may be needed to bring the discharge into full compliance with the Order.

c. Sanitary Sewer System Reporting. The Permittee shall submit, as part of its annual report to the Regional Water Board, a description of the Permittee's activities within the sanitary sewer system over the previous calendar year. The report shall contain:

i. A description of any change in the local legal authorities enacted to implement the Sewer System Management Plan (SSMP).

ii. A summary of the SSOs that occurred in the past year. The summary shall include the date, location of overflow point, affected receiving water (if any), estimated volume, and cause of the SSO, and the names and addresses of the responsible parties as well as the names and addresses of the property owner(s) affected by the SSO.

iii. A summary of compliance and enforcement activities during the past year. The summary shall include fines, other penalties, or corrective actions taken as a result of the SSO. The summary shall also include a description of public participation activities to involve and inform the public.

iv. Documentation that all feasible steps to stop and mitigate impacts of SSOs have been taken.

C. Spills and Overflows Notification

1. All spills, unauthorized discharges, and SSOs equal to or in excess of 1,000 gallons or any size spill or SSO that results in a discharge to a drainage channel or a surface water:

   a. As soon as possible, **but not later than two (2) hours** after becoming aware of the discharge, the Permittee shall notify the California Emergency Management Agency (Cal EMA), the local health officer or directors of environmental health with jurisdiction over affected water bodies or land areas, and the Regional Water Board.[3]

      Information to be provided verbally to the Regional Water Board includes:

      i. Name and contact information of caller;
      ii. Date, time and location of spill occurrence;
      iii. Estimates of spill volume, rate of flow, and spill duration;
      iv. Surface water bodies impacted, if any;
      v. Cause of spill;
      vi. Cleanup actions taken or repairs made; and
      vii. Responding agencies.

[3] The contact number for spill reporting for Cal EMA is (800) 852-7550. The contact number of the Regional Water Board during normal business hours is (707) 576-2220. After normal business hours, spill reporting to Cal EMA will satisfy the 2 hour notification requirement for the Regional Water Board.

b. As soon as possible, but **not later than twenty-four (24) hours** after becoming aware of a discharge, the Permittee shall submit to the Regional Water Board a certification that Cal EMA and the local health officer or directors of environmental health with jurisdiction over affected water bodies or land areas have been notified of the discharge. For the purpose of this requirement, "certification" means a Cal EMA certification number and, for the local health department, name of local health staff, department name, phone number and date and time contacted.

c. **Within five (5) business days**, the Permittee shall submit a written report to the Regional Water Board office. The report must include all available details related to the cause of the spill and corrective action taken or planned to be taken, as well as copies of reports submitted to other agencies.

i. Information provided in the verbal notification;

ii. Other agencies notified by telephone;

iii. Detailed description of cleanup actions and repairs taken; and

iv. Description of actions that will be taken to minimize or prevent future spills. In the cover letter of the SMR, the Permittee shall include a brief written summary of the event and any additional details related to the cause or resolution of the event, including, but not limited to results of any water quality monitoring conducted.

2. All spills, unauthorized discharges, and sanitary sewer overflows (SSOs) less than 1,000 gallons that do not reach a drainage channel or a surface water:

a. As soon as possible, but **not later than twenty-four (24) hours** after becoming aware of the discharge, the Permittee shall notify the Regional Water Board and provide the applicable information in requirement 1.a of this section.

b. In the cover letter of the SMR, the Permittee shall include a written description of the spill event.

3. The Spills and Overflows Notification requirements are necessary for the protection of water quality. The Regional Water Board shall use this data to help prevent future spills and overflows and to coordinate with the local health agencies.

ATTACHMENT C – FACT SHEET

FACILITY INFORMATION

A. Background

The Town of Fort Jones (hereinafter Permittee) is currently discharging pursuant to Waste Discharge Requirements Order No. 98-1. The Permittee submitted a Report of Waste Discharge (ROWD), on March 20, 2014, and applied for renewal of waste discharge requirements to discharge up to 0.060 mgd of treated wastewater from the Town of Fort Jones Wastewater Treatment Facility (hereinafter Facility) to land owned by the Permittee.

B. General Facility Information

The Permittee owns and operates a wastewater collection, treatment, and disposal facility that provides sewerage service to the Town. The wastewater system has 342 connections, of which 3 are restaurants. There are no significant industrial users.

C. Existing Wastewater Treatment and Reclamation Facility

The Permittee owns and operates a wastewater treatment and disposal system comprised of a gravity collection system, Imhoff tank, and percolation/evaporation ponds. The Facility has six percolation/evaporation ponds for effluent disposal.

The collection system consists of a conventional gravity collection system with two small lift stations which transport wastewater to the Imhoff tank. Wastewater from the Imhoff tank flows to a 2.6-acre pond system for treatment and disposal.

Attachment A provides a map of the area around the Facility.

II. FINDINGS

A. Legal Authorities. This Order serves as Waste Discharge Requirements (WDRs) for discharges to land issued pursuant to section 13263 of the California Water Code (Water Code).

B. Basin Plan. As required by Water Code section 13263(a), these WDRs are crafted to implement the Water Quality Control Plan for the North Coast Region (Basin Plan), and in so doing, the Regional Water Board has taken into consideration the beneficial uses to be protected, the water quality objectives (both numeric and narrative) reasonably required for that purpose, other (including previous) waste discharges, the need to prevent nuisance, and the provisions of Water Code section 13241. The Basin Plan contains implementation plans and policies for protecting waters of the basin. The Basin Plan implements State Water Resources Control Board (State Water Board) Resolution No. 88-63, which established state policy that all waters, with certain exceptions, should be considered suitable or potentially suitable for municipal or domestic supply.

Thus, beneficial uses applicable to area groundwater within the Scott Valley Hydrologic Subarea of the Scott River Hydrologic Area to be protected are as follows:

1. Municipal and Domestic Supply (MUN)
2. Agricultural Water Supply (AGR)
3. Industrial Service Supply (IND)
4. Industrial Process Supply (PRO)
5. Groundwater Recharge (GWR)
6. Freshwater Replenishment (FRSH)

The beneficial uses applicable to Moffett Creek and the Scott River within the Scott Valley Hydrologic Subarea of the Scott River Hydrologic Area to be protected are as follows:

1. Municipal and Domestic Supply (MUN)
2. Agricultural Water Supply (AGR)
3. Industrial Service Supply (IND)
4. Industrial Process Supply (PRO)
5. Groundwater Recharge (GWR)
6. Freshwater Replenishment (FRSH)
7. Navigation (NAV)
8. Hydropower Generation (POW)
9. Water Contact Recreation (REC-1)
10. Non-Contact Water Recreation (REC-2)
11. Commercial and Sport Fishing (COMM)
12. Cold Freshwater Habitat (COLD)
13. Wildlife Habitat (WILD)
14. Rare, Threatened, or Endangered Species (RARE)

15. Migration of Aquatic Organisms (MIGR)

16. Spawning, Reproduction, and/or Early Development (SPWN)

17. Aquaculture (AQUA)

C. **California Water Code.** The California Water Code (Water Code) establishes the authority for the Regional Water Board to establish water quality objectives, impose discharge prohibitions, and prescribe waste discharge and reclamation requirements. Water Code section 13241 requires each regional board to "establish such water quality objectives in water quality control plans as in its judgment will ensure the reasonable protection of beneficial uses and the prevention of nuisance [...]." The control of pollutants discharged is established through effluent limitations and other requirements in Waste Discharge Requirement permits. Water Code section 13243 provides that "A regional board, in a water quality control plan or in waste discharge requirements, may specify certain conditions or areas where the discharge of waste, or certain types of waste, will not be permitted. Water Code section 13260 et seq establishes regulations associated with the prescription of waste discharge requirements and Water Code Chapter 7 (section 13500 et seq) establishes regulations associated with the prescription of reclamation requirements.

It is the Regional Water Board's intent that this Order shall ensure attainment of water quality standards, applicable water quality objectives, and protection of beneficial uses of receiving waters. This Order therefore requires the Permittee to comply with all prohibitions, effluent limitations, discharge specifications, receiving water limitations, standard provisions, and monitoring and reporting requirements. The Order further prohibits discharges from causing violations of water quality objectives or causing conditions to occur that create a condition of nuisance or water quality impairment in receiving waters as a result of the discharge.

D. **California Code of Regulations (CCR).** The discharge authorized herein and the treatment and storage facilities associated with the discharge are exempt from the requirements of title 27, CCR, section 20005 et seq. The exemption, pursuant to section 20090(b) of title 27, allows for the exemption of discharges of wastewater if;

1. The applicable Regional Board has issued WDRs;
2. The discharge is in compliance with the applicable water quality control plan (Basin Plan); and
3. The wastewater does not need to be managed as a hazardous waste.

E. **Antidegradation Policy.** The State Water Board established California's antidegradation policy in State Water Board Resolution No. 68-16. Resolution No. 68-16 requires that existing quality of waters be maintained unless degradation is justified based on specific findings. The Regional Water Board's Basin Plan implements, and incorporates by

reference, the State antidegradation policy. The permitted discharge is consistent with the provisions of State Water Board Resolution No. 68-16, Statement of Policy with Respect to Maintaining High Quality of Waters in California. This project consists of the operation or minor alteration of an existing facility which involves minimum change in use beyond that previously existing.

The Permittee is in the process of developing a pretreatment and self-monitoring program. This program will require each commercial establishment to maintain and provide the Permittee with records of interceptor monitoring, maintenance and cleaning activities.

Attachment B of this Order requires ongoing groundwater monitoring for nitrogen and coliform to ensure that concentrations of pollutants will not adversely impact beneficial uses.

This Order is consistent with the maximum benefit to people of the State because: (i) it allows continued operation of an existing wastewater treatment system; and (ii) it requires monitoring of surface and groundwater impacts or potential impacts from disposal of treated wastewater.

F. Endangered Species Act. This Order does not authorize any act that results in the taking of a threatened or endangered species or any act that is now prohibited, or becomes prohibited in the future, under either the California Endangered Species Act (Fish and Game Code sections 2050 to 2097). The Permittee is responsible for meeting all requirements of the applicable Endangered Species Act.

G. Monitoring and Reporting. Water Code sections 13267 and 13383 authorize the Regional Water Board to require technical and monitoring reports. The Monitoring and Reporting Program establishes monitoring and reporting requirements to implement federal and State requirements. This Monitoring and Reporting Program is provided in Attachment B. The Executive Officer of the Regional Water Board is delegated the authority to modify the Monitoring and Reporting Program, as determined appropriate to protect water quality.

14_0029_FortJones_WDR

B

Flow Analysis Using Flow Meter Readings

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Technical Memorandum #1

Reference:	516035.200
Date:	**December 20, 2017**
To:	**Ken Smith, Town of Fort Jones**
Copy to:	**File**
From:	**Anders Rasmussen, PE, Chuck Swanson, EIT**
Subject:	**Fort Jones Wastewater Flow Analysis from Flow Measurements**

Analysis of wastewater flows at the Town of Fort Jones' Wastewater Treatment Facility (WWTF) was conducted using flow data measured by a Palmer-Bowlus flume flow meter which was installed in July 2014. This analysis has been presented in the Sanitary Sewer Evaluation Survey (SSES) submitted to the Town of Fort Jones and the State of California Water Resources Control Board (SWRCB) in August 2017. This analysis was also presented in the Draft Facilities Plan submitted to the SWRCB in September 2017.

In October 2017 it was determined that the existing flow meter at the WWTF was reading low based on comparison to water usage and informal flow tests conducted at the WWTF. Average daily indoor winter potable water usage is about 90,000 gallons per day (gpd), while the average dry weather flow (ADWF) for wastewater was determined to be 45,000 gpd. The water system customers are the same as the wastewater system customers with the exception of one or two residences, per the Town staff. The daily flows represent a ratio of 50% between wastewater production and indoor potable water use, which is outside of the expected range of 70%-85%.

When the flow meter was installed, Town staff calibrated the meter. Subsequent review showed that the meter was calibrated correctly. While it is not entirely clear why the flow meter is not reading correctly, it may be difficult to get accurate readings at low flows.

Town staff conducted a bucket test using a five-gallon bucket and timing the filling of the bucket. The calculated flows were compared with the flow meter readings at the time of the test. It was determined that the flow meter was reading about 25% low at that flow rate. Not other tests have been conducted.

The purpose this technical memorandum is to present and preserve the flow analysis conducted using the flow meter data. While a different method has been used for design flows for the WWTF (refer to the Final Facilities Plan), the analysis shown herein is useful for qualitative understanding of relative inflow and infiltration (I/I) impacts, especially as related to external factors such as precipitation and river stage.

The following sections present the analysis using the flow meter data.

1 Existing and Projected Flows

The Fort Jones WWTF serves residential and commercial customers in the Town of Fort Jones. The community is primarily residential, but also includes two schools, government buildings and several commercial establishments.

The existing and projected influent flows and I/I are described in the following sections.

1.1 WWTF Influent Flow Analysis

Base Sanitary Flow is the minimum average monthly dry season influent flow during the months of May through October. Based on the analysis of average monthly flow data for July 2014 through October 2016, the Base Sanitary flow is approximately 0.039 million gallons per day (MGD), or 39,000 gallons per day (gpd). Refer to Table 1.

Average Dry Weather Flow (ADWF) is the average influent flow during the months of May through October. Based on analysis of the dry weather season average daily flow data for July 2014 through October 2016, the ADWF is approximately 0.045 MGD. According to the Waste Discharge Requirements for the Fort Jones WWTF (Appendix A), the ADWF through the WWTF is limited to 0.060 MGD. The current ADWF is approximately 75% of the limit.

Average Daily Flow (ADF) is the average of the calendar year average daily flow rates. Based on the analysis of average daily flow data for January 2015 through December 2016, the ADF is approximately 0.056 MGD.

Average Wet Weather Flow (AWWF) is the average influent flow during the months of November through May. Based on analysis of the wet weather season data for November 2015 through April 2017, the AWWF is approximately 0.116 MGD. This flow rate is the average of two wet season flows; three seasons were available, however, the 2014-2015 wet season was indicative of drought conditions resulting in low wet season flows and was excluded from the average.

The per capita AWWF at the projected 2017 population of 672 people (LAFCo, 2011) is 173 gallons per capita day (gpcd); 53 gpcd greater than the SWRCB recommendation of 120 gpcd (SWRCB, 2007).

Peak Day Average Flow (PDAF) is the highest observed average daily flow. Based on daily plant flow data from July 2014 through May 2017, the PDAF is 0.485 MGD.

Table 1 includes a summary of the flow statistics for influent flows for the Fort Jones WWTF.

Table 1
Influent Flow Summary
Fort Jones Sanitary Sewer Evaluation Survey

Flow Statistic	Influent Flow Rate (MGD)[1]
Base Sanitary Flow	0.039
Average Dry Weather Flow (ADWF)	0.045
Average Daily Flow (ADF)	0.056
Average Wet Weather Flow (AWWF)	0.116
Peak Day Average Flow (PDAF)	0.485

1. MGD: million gallons per day

1.2 Inflow and Infiltration (I/I)

Surface water inflow and groundwater infiltration into sewer collection systems are typically the major causes of high flows through the collection and treatment systems. High flows can result in sanitary sewer overflows (SSOs), decreased treatment efficiency, and permit violations. An analysis of total wet weather rainfall and maximum monthly wet weather flow at the WWTF over the previous three wet seasons (defined as November through April) indicates that I/I is a significant problem in the Fort Jones collection system (Figure 1). During the most recent wet season (2016-2017), above-normal rainfall resulted in a peak day average flow rate of approximately 375,000 gpd. However, even with the high flows, no SSO's have occurred.

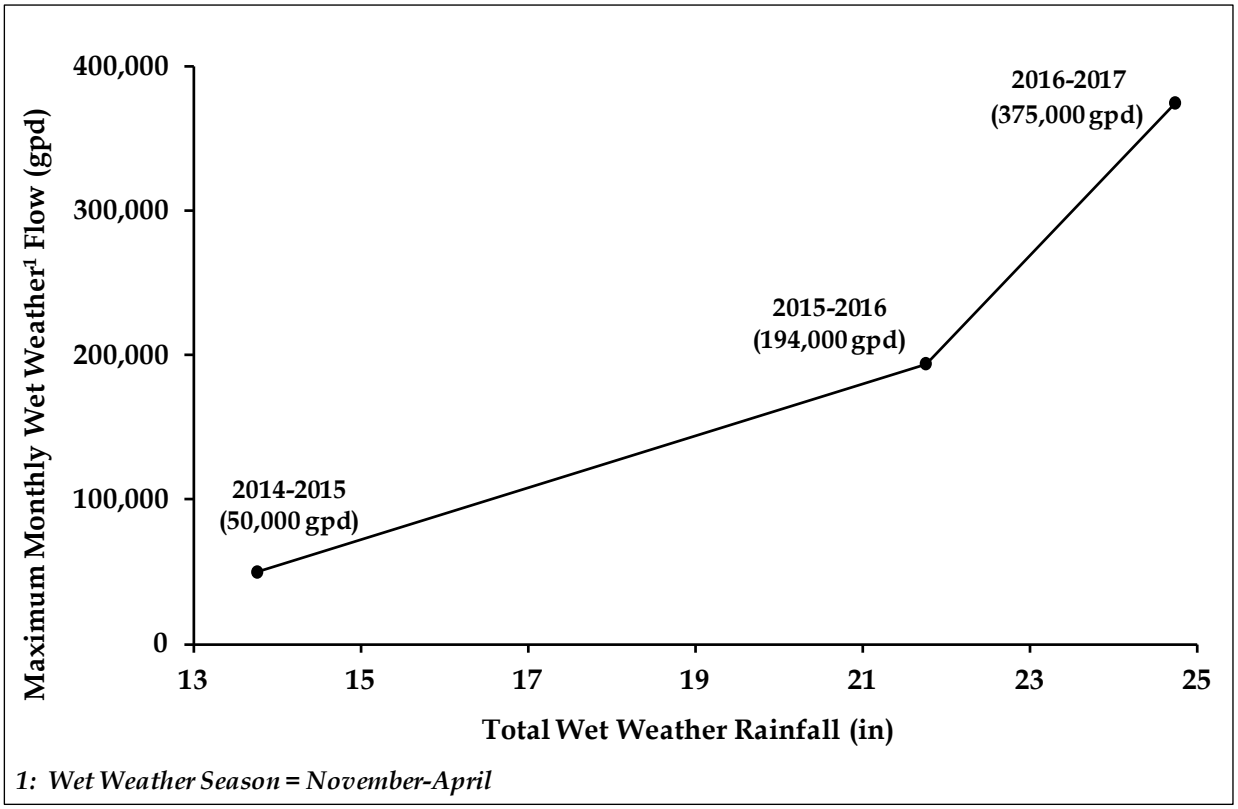


Figure 1. Wet Season Rainfall and WWTF Influent Flow for Fort Jones

1.2.1 Inflow

Inflow is rainfall that enters the sewer system through manhole lids, rain gutters and downspouts on buildings connected directly to the sewer, as well as sumps and other systems used to pump rainwater directly into the sewer illegally. If a system has high inflow, flow rates at the WWTF will increase sharply following rainfall events. Figure 2 shows the Fort Jones WWTF daily average influent flow and local daily rainfall.

Spikes in the influent flow at the WWTF do not show a close correlation with large daily rainfall events. Rainfall that occurred during the winter of 2014-2015, and early winters of 2016 and 2017 did not result in high flows at the WWTF, indicating that inflow is not a significant problem in the Fort Jones collection system. Higher flows in the spring of 2016 and 2017 were likely due to groundwater infiltration. These higher flows are likely due to the longer sustained rainfall that had more of an influence on shallow groundwater levels. Sustained rainfall is more likely to result in saturation of the ground and rising groundwater.

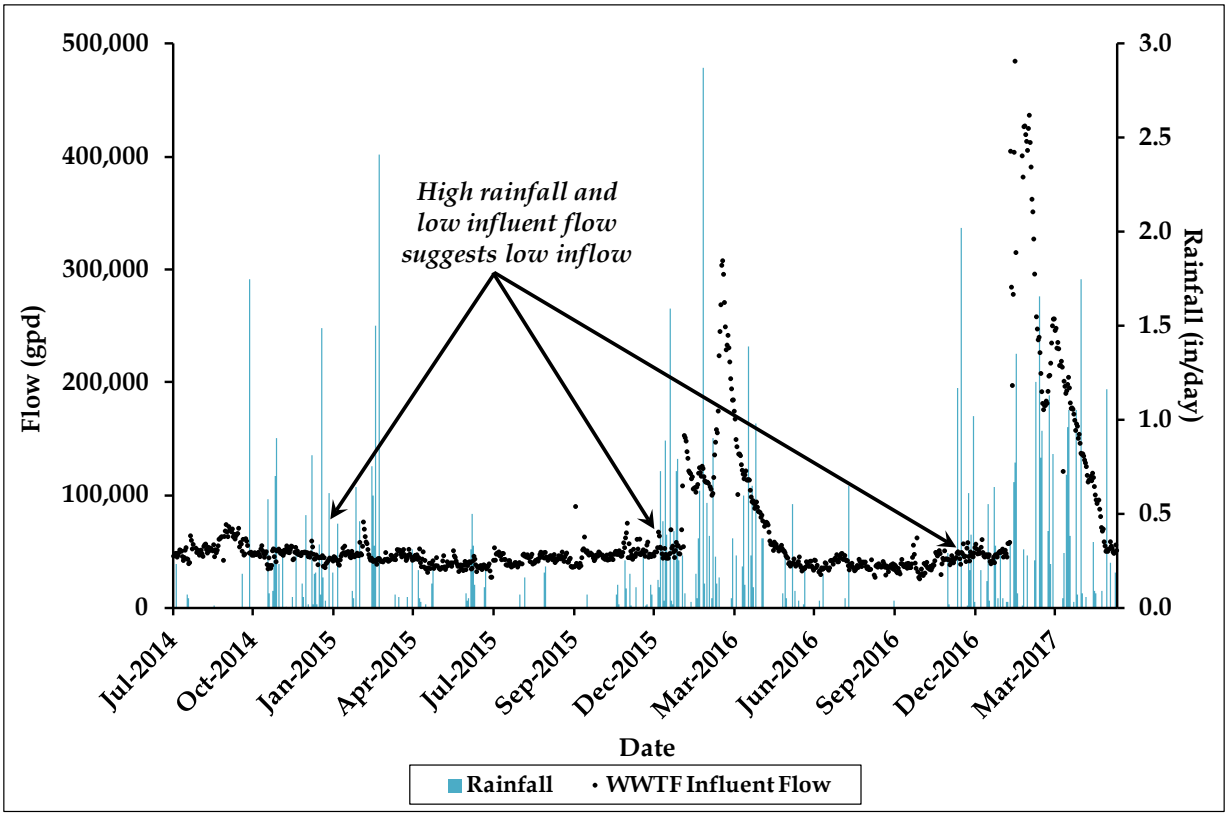


Figure 2. Daily Rainfall and WWTF Influent Flow for Fort Jones

1.2.2 Infiltration

Infiltration is groundwater that enters the sewer collection system through cracks, breaks, and joints in laterals and sewer mains. Infiltration increases in leaky sewer systems when groundwater rises above the level of the sewer mains. The lower portions of the Fort Jones collection system is next to Moffett Creek which rises seasonally due to rainfall and snowmelt. Soils in the region tend to be rocky and very well drained such that shallow groundwater and river stage are closely connected. No data are available for the water levels in Moffett Creek; however, there is a United States Geological Survey (USGS) gauging station on the Scott River approximately 10 miles downstream of where Moffett Creek enters at Fort Jones (USGS gauging station 11519500). There are also insufficient groundwater elevation data near Fort Jones to compare shallow groundwater elevation changes with respect to daily influent flow increases at the Fort Jones WWTF.

Analysis of stage data for the Scott River gauging station compared with influent flow data for the Fort Jones WWTF indicate that when river stage (and therefore shallow groundwater) rises above a certain threshold, influent flows increase significantly (Figure 3). This indicates that the Fort Jones collection system has a significant infiltration problem. Groundwater infiltration is expected to be worse in the parts of the collection system closer to Moffett Creek because that is the lowest portion of the collection system where shallow groundwater is closest to the surface. Moffett Creek is a tributary to the Scott River and likely recedes before the Scott River; this may explain why influent flows at the WWTF decreased prior to the

decline of water levels in the Scott River in the spring of 2016 and 2017. Sharp increases in influent flows during 2016 and 2017 also correspond with sustained higher water levels in the Scott River indicating that groundwater may also have been higher during those years. Influent flows did not increase during the sharp spike in river stage during early 2015, indicating that infiltration correlates with sustained high water levels in the river.

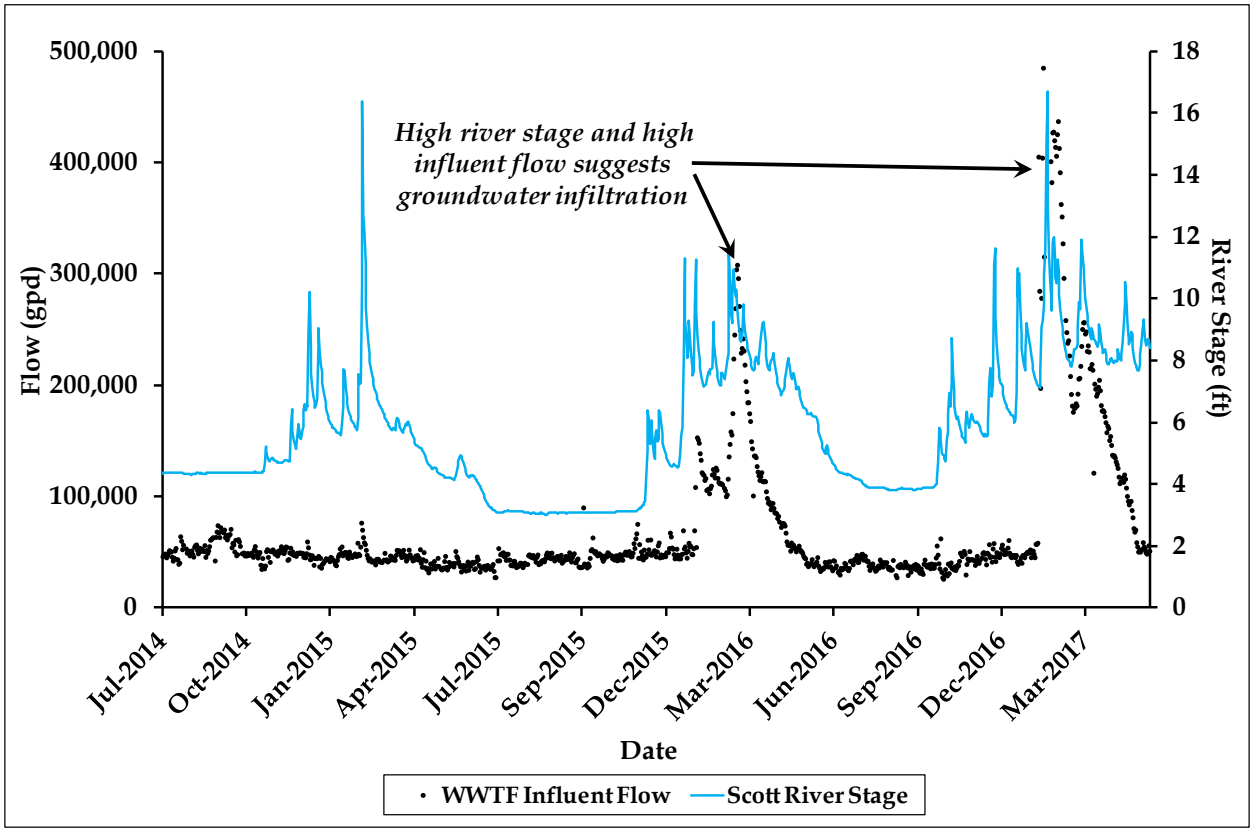


Figure 3. Daily Scott River Stage and WWTF Influent Flow for Fort Jones

1.2.3 Estimated I/I Flows

An amount of I/I was estimated for two periods when high influent flow was observed at the WWTF between February and May in 2016 and 2017. The shaded blocks in Figure 4 indicate the periods during which high flow was observed and average daily I/I was calculated. The estimated base sanitary flow (39,395 gpd) was subtracted from the daily average influent flow measured at the WWTF to determine daily I/I. The average I/I estimates for the 2016 and 2017 high flow periods are 100,000 gpd and 180,000 gpd, respectively.

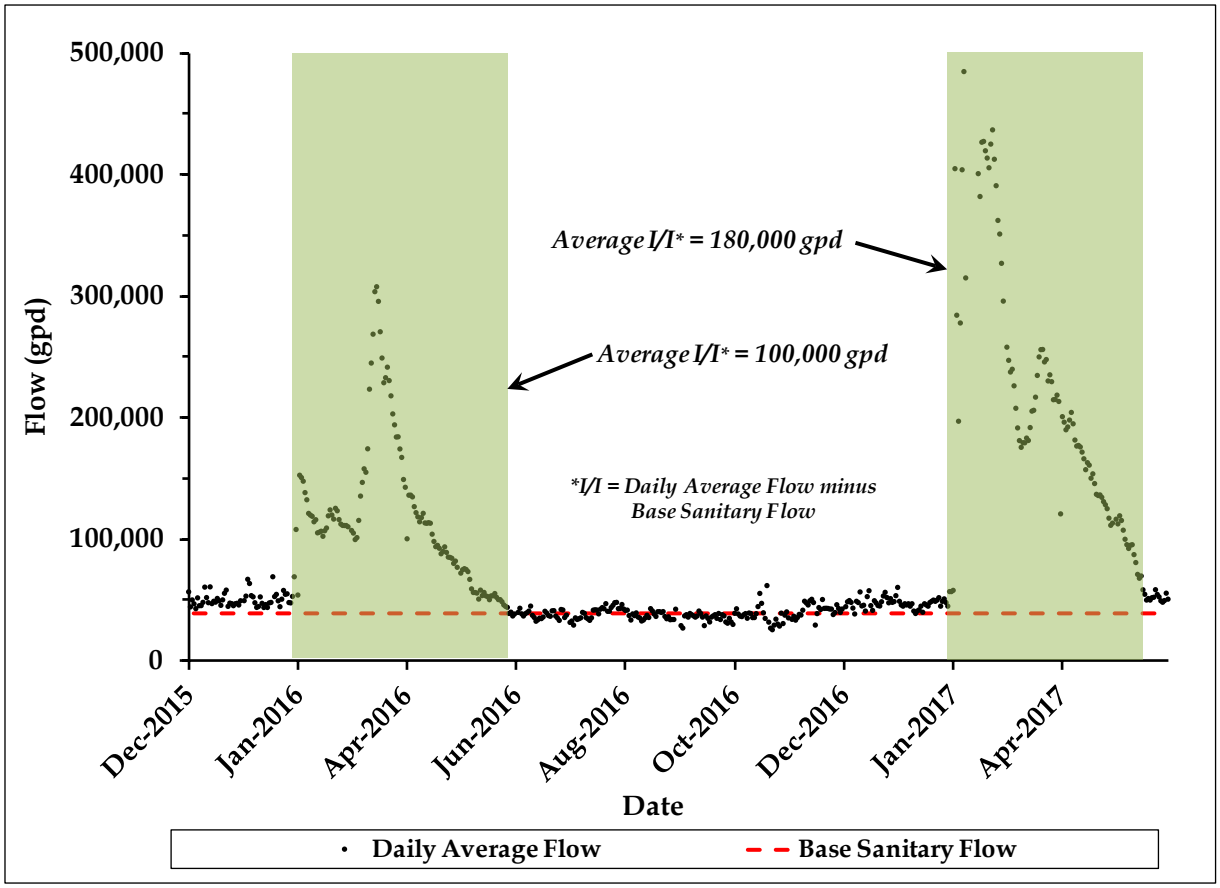


Figure 4. Inflow and Infiltration Estimate for Fort Jones

1.3 Projected Flows

1.3.1 Projected Base Sanitary Flow

The current estimated base sanitary flow at the WWTF (39,395 gpd) and the 2017 estimated population of 672 provide a current base sanitary flow of approximately 59 gallons per capita day (gpcd). The projected populations for years 2037 and 2057 are 717 and 764, respectively, based on a population growth rate of 0.32 percent (LAFCo, 2011). Therefore, the projected base flows for 2037 and 2057 are 0.042 MGD and 0.045 MGD, respectively.

1.3.2 Projected I/I Flows

The current I/I flows for each type of flow was calculated by subtracting the base sanitary flow from the total inflow (Table 2). In the sanitary sewer evaluation survey (SSES), SHN recommended that Fort Jones implement Rehabilitation Method 2: mainline and lateral to edge of right-of-way improvements, which was estimated to reduce I/I by 40-60% for the segments of pipe that are replaced or repaired (SHN, 2017). These system improvements would account for about 70% of the whole system; however, it is likely that the majority of the I/I is entering through these areas identified as high priority for repair or replacement. For the purpose of estimating projected high flow I/I flows, it is assumed that the system improvements will decrease total I/I by approximately 50%.

Table 2
Infiltration and Inflow Summary
Fort Jones Wastewater Facilities Plan

Inflow Type	Current Condition Inflow MGD[1]	Current Condition I/I[2] MGD	Post Repairs I/I MGD
Base Sanitary	0.039	NA[3]	NA
ADWF[4]	0.045	0.006	0.003
ADF[5]	0.056	0.016	0.008
AWWF[6]	0.116	0.077	0.039
PDAF[7]	0.427	0.387	0.194

1. MGD: million gallons per day
2. I/I: infiltration and inflow
3. NA: not applicable
4. ADWF: average dry weather flow
5. ADF: average daily flow
6. AWWF: average wet weather flow
7. PDAF: peak day average flow

1.3.2 Projected Inflows

The post-repair inflows were calculated by adding the current base sanitary flow (0.039 MGD) to the estimated post repairs I/I for each flow type. The future flows were then projected by determining the per capita flow and extrapolating it for the projected population increases for the years 2037 and 2057. The projected flows for each flow type are presented in Table 3.

Table 3
Projected Inflow Summary
Fort Jones Wastewater Facilities Plan

Inflow Type	Current Condition Inflow (MGD)[1]	Post Repairs 2017 Inflow MGD	2037 Inflow MGD	2057 Inflow MGD
Base Sanitary	0.039	0.039	0.042	0.045
ADWF[2]	0.045	0.042	0.045	0.048
ADF[3]	0.056	0.048	0.051	0.054
AWWF[4]	0.116	0.078	0.083	0.089
PDAF[5]	0.427	0.233	0.249	0.265

1. MGD: million gallons per day
2. ADWF: average dry weather flow
3. ADF: average daily flow
4. AWWF: average wet weather flow
5. PDAF: peak daily average flow

2 Wastewater Loadings

A mass loading analysis was performed for several constituents at the Fort Jones WWTF, including: biochemical oxygen demand (BOD), total suspended solids (TSS), total Kjeldahl nitrogen (TKN), and ammonia as nitrogen (NH_3-N). There were five sampling events with available analytical data and corresponding flow rate data from October 2014 to December 2015 for the influent sampling location. The loading rates were calculated for each of these days and an average was obtained (Table 4).

Table 4
Current Mass Loading Analysis Summary
Fort Jones Wastewater Facilities Plan

Date	Flow Rate	BOD[2]		TSS[5]		TKN[6]		NH_3-N[7]	
	MGD[1]	mg/L[3]	lb/day[4]	mg/L	lb/day	mg/L	lb/day	mg/L	lb/day
10/29/2014	0.045	211	80	186	70	63	24	36	13
12/22/2014	0.046	280	108	127	49	59	23	43	16
3/16/2015	0.052	212	91	338	145	56	24	33	14
9/2/2015	0.045	83	31	100	37	42	16	40	15
12/21/2015	0.056	258	120	192	89	36	17	23	11
Average	0.049	209	86	189	78	51	21	35	14

1. MGD: million gallons per day
2. BOD: biochemical oxygen demand
3. mg/L: milligrams per liter
4. lb/day: pounds per day
5. TSS: total suspended solids
6. TKN: total Kjeldahl nitrogen
7. NH_3-N: ammonia as nitrogen

The future mass loading rates for BOD, TSS, TKN, and HN_3-N were estimated by determining the per capita loading rate, and extrapolating the current data for the projected populations in years 2037 and 2057. Results of this analysis are presented in Table 5.

Table 5
Projected Mass Loading Analysis Summary
Fort Jones Facilities Plan

Year	Units	BOD[1]	TSS[2]	TKN[3]	NH_3-N[4]
2017	ppd[5]	86	78	21	14
	ppcd[6]	0.13	0.12	0.03	0.02
2037	ppd	92	83	22	15
2057	ppd	98	89	23	16

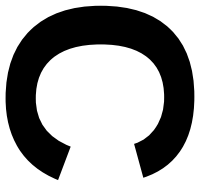
1. BOD: biochemical oxygen demand
2. TSS: total suspended solids
3. TKN: total Kjeldahl nitrogen
4. NH_3-N: ammonia as nitrogen
5. ppd: pounds per day
6. ppcd: pounds per capita per day

3 References

California State Water Resources Control Board. (2007). *Small Community Wastewater Grant Program Guidelines*. Sacramento, CA: SWRCB.

SHN Engineers & Geologists. (2017). *Sanitary Sewer Evaluation Survey.*

Siskiyou County Local Area Formation Commission. (2011). *Draft Municipal Services Review Report for the Town of Fort Jones, CA. Yreka, CA:LAFCo.*



Calculations

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Whereas the existing Palmer-Bowlus flow meter at the Fort Jones WWTF has been determined to be reading incorrectly with no reliable correction factor, determine design values based on published typical values.

Reference: Metcalf & Eddy, 1991. *Wastewater Engineering: Treatment, Disposal, Reuse, 3rd Ed.*

	2017	*2037*	*2057*	
Estimated population:	672	717	764	persons; See Note 1
Assumed unit flow:	100	100	100	gpcd; See Note 2
Total ADWF:	67,200	71,700	76,400	gal/day (gpd)

Peaking Factors:

Peak Day:	3.6	Typical (range of 2-5 per Metcalf & Eddy, Table 14-2)
Peak Month:	2	Range of 1.2-2 per Metcalf & Eddy (Table 14-2)

Peak Flow rates:

	2017	*2037*	*2057*	
Peak Day:	242,000	258,000	275,000	gpd; See Note 3
Peak Month:	4,030,000	4,300,000	4,580,000	gal/month; See Note 4

BOD Concentration:

Available influent data from five samples during 2014-2015 (see Table 4 in Facilities Plan text).
Note one sample (9/2/2015) appears to be an anomoly.

Avg BOD of all five samples:	209	mg/L	
Avg BOD excl 9/2/15 sample:	240	mg/L	

Typical value per Metcalf & Eddy (Table 3-16) for medium strength domestic wastewater is 220 mg/L

Use for design:	**220**	mg/L	during ADWF conditions
Peak Day conc for design:	**110**	mg/L	See Note 5

BOD Loading:

Design ADWF BOD concentration:	220	mg/L	
Daily BOD Load:	123	lb/day	using ADWF
Peak Day BOD concentration:	61	mg/L	See Note 5

Check using published values
Per Metcalf & Eddy (Table 5-4), typical BOD range is 0.13-0.26 lb/capita/day.
Per Steve Donovan, typical BOD range is 0.15-0.20 lb/capita/day

Assume:	0.2	lb BOD/capita/day	
Daily BOD Load:	134	lb/day	See Note 6
Peak Day BOD concentration:	67	mg/L	See Note 5

Notes:

1. Siskiyou LAFCO, 2011. *Draft Municipal Services Review Report for Town of Fort Jones* ; 0.32% growth rate
2. Typical range is 80-120 gal/capita/day for medium to large sized systems per Metcalf & Eddy. Small systems can be less. This value represents a conservative typical value.
3. Peak day used to size primary tanks for Alterantive 2, Biofiltration. Rounded to nearest 1,000.
4. Peak month used to verify percolation area requirements. Rounded to nearest 10,000.
5. Assuming same daily mass loading during peak day flow, peak day BOD conc is between 60-70 mg/L; for design value, assume factor of 0.5 dilution for peak day BOD to be conservative (110 mg/L).
6. Upper end assumed to be conservative and account for non-residential loads.

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Check: Can pond 6 percolate enough to meet maximum monthly flow rate?

Peak monthly flow:	4,580,000	gal/month	See Note 1
Percolation pond area:	25,000	ft^2	See Note 2

Percolation Needed:

$$\frac{4{,}580{,}000}{25{,}000} = 0.82 \ \frac{ft}{day}$$

$$= 0.41 \ \frac{in}{hr}$$

Expected Percolation:

1.34	ft/day	See Note 3
0.67	in/hr	

0.82 < 1.34 Okay

Notes:

1. From calcs on Wastewater Design Criteria spreadsheet.
2. From calcs on Pond Wetland BOD Model spreadsheet, rounded to nearest 1,000.
3. From calcs on Pond Wetland Calcs spreadsheet.

Aerated Pond Oxygen and Power Requirements
Fort Jones Wastewater Facilities Plan

Power Requirements for Aeration	Units	Value
Peak Month Flow	MGD[1]	0.15
Peak Month Influent BOD	mg/L[2]	110
	lb/d[3]	140
Effluent BOD	mg/L	50
	lb/d	64
BOD Removal Required	lb/d	76
Conversion, BOD to Oxygen Demand[4]	lb O_2/lb BOD[5]	1.5
Actual Oxygen Requirement	lb O_2/d	115
Aeration Power Requirement for Porous Diffusers[4]	hp/Mgal[6]	15
Aerated Volume (Ponds 1 and 2)	Mgal	1.1
Aeration Power	hp	17

1. MGD: million gallons per day
2. mg/L: milligrams per liter
3. lb/d: pounds per day
4. WEF, 1998. *Design of Municipal Wastewater Treatment Plants: Volume* 2. 4th Ed. Alexandria, VA:WEF
5. lb O_2/lb BOD: pounds of oxygen per pound of biochemical oxygen demand
6. hp/Mgal: horsepower per million gallons

Opinion of Probable Project Cost
Alternative 1: Enhanced Pond Treatment System
Fort Jones Wastewater Facilities Plan

Item	Description	Units	Quantity	Unit Cost	Total Cost	Comments
1	Earthwork	LS	1	$570,000	$570,000	incl. trenching for new liner placement
2	Biosolids Disposal	LS	1	$90,000	$90,000	only hauling and disposal cost, excavation incl. in earthwork
3	Pond Lining	LS	1	$200,000	$200,000	incl. geomembrane pond liners and clay wetland liner
4	Pond Aeration System	LS	1	$160,000	$160,000	2 aerated ponds; incl. 2-15hp blowers
5	Headworks/Office Building	SF	800	$250	$200,000	
6	Influent Pump Station	LS	1	$100,000	$100,000	2 MGD peak capacity
7	Influent Screening	LS	1	$152,000	$152,000	Mechanical screen with manual screen backup/high flow
8	Influent Screening Channel	LS	1	$40,000	$40,000	
9	Backup Generator	LS	1	$60,000	$60,000	
10	Pond Effluent Control Structure	EA	5	$40,000	$200,000	downward opening, self-contained aluminum framed slide gate
11	Distribution Pipe	LF	1,700	$100	$170,000	
12	Wetland Recirculation Pump	EA	1	$5,000	$5,000	20 gpm submersible pump
13	14' flat bottom boat	EA	1	$5,000	$5,000	
14	Treatment Wetland Planting	LS	1	$50,000	$50,000	
15	Solar Array	LS	1	$200,000	$200,000	
16	SCADA System	LS	1	$38,000	$38,000	
17	Site Electrical	LS	1	$100,000	$100,000	
18	Land Acquisition	LS	1	$50,000	$50,000	approx 0.6 ac of adjacent farm land
19	Influent Flow Meter	LS	1	$20,000	$20,000	
20	Mobilization (12%)	LS	1	$289,000	$289,000	
				Subtotal:	$2,699,000	
				Contingency (30%):	$810,000	
				Total Construction:	***$3,509,000***	
				Facilities Design (20%):	$702,000	
				Administration and Legal (4%):	$140,000	
				Total Project:	***$4,351,000***	

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Alternative 1, Enhanced Pond System on Existing Footprint
Additional detail for capital construction line items

Item No.: 1 **Earthwork**

See "Fort Jones_Pond-Wetland Analysis.xlsx" for estimation of quantities

Clearing and Grubbing	$20,000		allowance
Demo existing structures	$25,000		allowance
Dry Biosolids in Pond Bottoms			
Bulldozer and Operator	$1,000	/hr	
Rip pond bottoms	2	hr/d	
Number of Days	8	d	
Biosolids Drying Subtotal	$16,000		
Excavation	$30.00	/CY	Foster Ave Submittals
Volume	10,500	CY	increase pond depths to 10'
Excavation Subtotal	$315,000		
Pond grading for liner placement	$0.64	/SF	Bluelake Dike Repair Submittals
Ponds 1-4 Plan Area and Dike-Top Surface Area (12' wide)	110,000	SF	
Pond grading Subtotal	$70,400		
Anchor Trench for liner placement			
Trench/backfill rate	25	ft/hr	estimate
Length	2,200	FT	
Time (x2, trench then backfill)	22.0	days	
Operator/excavator	$2,000	/d	
Trench/backfill total	$44,000		
Compaction Total (trench x 2)	$88,000		
Anchor Trench Subtotal	$132,000		
lineal cost	*$60*	*/LF*	
Total Earthwork	**$562,400**		

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Item No.: 2 **Biosolids Disposal**

Anderson Landfill Disposal Costs

See "Fort Jones_Pond-Wetland Analysis.xlsx" for estimation of quantities

Disposal fees based on Personal Communication with landfill manager 8/30/17

Volume	2,500	CY	
Density	1,200	lb/CY	approximate
Mass	1,500	tons	
Low Unit Price	30	/ton	for reusable sludge
High Unit Price	38	/ton	for non-reusable sludge
Low Cost	$45,000		
High Cost	$57,000		

Local Hauling		
End Dump	50	CY
Volume	2,500	CY
Loads	50	loads
round trip	4	hr
load/unload	2	hr
time	300	hrs
unit price	$110	/hr
Subtotal	$33,000	

Total Biosolids Disposal **$90,000**

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Item No.: 3 **Pond Liner**

Layfield Cost Estimate	8/16/2017		
EL 7050HD Liner			
10oz NW Geotextile under liner			
2 boots per pond			
incl sales tax and freight			
Geomembrane Liner	$243,000	LS	incl. underlayment geotextile and installation
Pond Area	75,000	SF	included Pond 5 wetland
Unit Price	$3.24	/SF	
Revised Pond Area	55,800	SF	w/o Pond 5 wetland
Geomembrane Subtotal	$180,792	LS	
Wetland Clay Liner			
Area	20,000	SF	
Clay Depth	0.5	FT	
Volume	370	CY	
Unit Price	$5.75	/ton	per Tim Louie, quarry owner
Density	1	ton/CY	per Tim Louie, quarry owner
Unit Price	$5.75	/CY	
Clay Material Subtotal	$2,130		
Clay hauling			
End Dump Capacity	50	CY	
Dump Loads	8	loads	
Round trip time	2	hr/load	
Loading/Unloading Time	2	hr/load	
Haul time	32	hr	
Haul unit price	$110	/hr	
Clay Hauling Subtotal	$3,520		
Clay spreading and grading			
Area	20,000	SF	
Unit Price	$0.64	/SF	Bluelake Dike Repair Submittals
Grading Subtotal	$12,800		
Clay Liner Subtotal	$18,450		
Total Liner	**$199,242**		

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Item No.: 4 **Submerged Aeration System**

Nexom cost estimate	8/30/2017		
OptAer Aeration System		$106,400	
includes blowers			
HDPE lateral piping			
diffusers with precast weights			
lateral support hardware and anchors, self-tensioning lateral anchor assemblies			
2-15hp blowers with outdoor enclosures			
inspection, startup, commissioning, training, shipping			
Installation		$12,000	3 workers for 3 days, plus 1 small loader
Buried Header Pipe		$20,000	200' of HDPE @ $100/ft
misc valves & hardware		$15,000	allowance
Total Aeration		**$153,400**	

Item No.: 5 **Headworks/Office Building**

unit price incl electrical, concrete foundation, access doors, and air exchange
sized to fit headworks screen channels and washer/compactor, pump station, generator, blowers, and office

Item No.: 6 **Influent Pump Station**

peak capacity based on approximately 4x current peak day average of 0.43 MGD
pumps must handle average and low flow conditions

Item No.: 7 **Influent Screening**

Raketec estimate	7/28/2017	
Multiple Rake Screen	$64,672	Raketec DI500
Manual Barscreen	$10,000	allowance
Water Level Sensors (2)	$1,282	Siemens Echomax XRS-5 Ultrasonic Transducer
Subtotal	$75,954	
Installation	$75,954	
Total Screen	**$151,908**	

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Item No.: 8 **Influent Screening Channel**

two parallel channels

Channel Length	16	FT
Channel Width	3	FT
Channel Depth	4	FT
Wall Thickness (8 in)	0.67	FT
Concrete Volume	11.5	CY
fos (15%)	13.2	CY
Concrete Cost	$1,000	/CY
Total Concrete	$13,175	
Influent slide gates (2)	$20,000	allowance
Total Screen Channel	**$33,175**	

Item No.: 9 **Backup Generator**

Based on cost estimates completed for the Tulelake Water System Improvements project

Item No.: 10 **Pond Effluent Control Structures**

JW Wood Estimate		8/16/2017
Weir	$9,285.71	12"x24" Waterman aluminum frame slide gate weir Self-contained B-209 6061 Al T6 gate 304 SS rising stem mounted to geared yoke
Precast Concrete Weir Box	$10,000	
Floating effluent decanter	$10,000	
Installation	$10,000	allowance
Total Pond Effluent Control	**$39,286**	

Item No.: 11 **Distribution Piping**

Pipe lengths estimated using ArcMap

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Item No.: 12 **Wetland Recirculation Pump**

Pump	$1,000	20 gpm, 0.5 hp
Wiring and Controls	$1,500	allowance
Installation	$2,500	allowance
Total Recirc Pump	**$5,000**	

Item No.: 13 **14' Flat Bottom Work Boat**

http://directboats.com/14x44wejonbo.html

Item No.: 14 **Wetland Planting**

Plant Spacing	2	FT
Area	20,000	SF
Count	5,000	
Unit Price	$4.00	
Plants Subtotal	$20,000	
Planting and Labor	$25,000	allowance
Total Wetland Planting	**$45,000**	

Item No.: 15 **Solar Array**

Installed Cost	$4.00	$/Watt	https://www.nrel.gov/docs/fy17osti/67639.pdf
Array Power	50	kW	http://pvwatts.nrel.gov/pvwatts.php
Total Solar Array	**$200,000**		

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Item No.: 16 **SCADA System**

Onsite HMI	$5,000	allowance
Portland Engineering estimate for Scotia, CA 8/28/17		
Cellular Communication System	$10,000	
UL508a-listed industrial control panel housing the following:		
Cellular Modem, Coax and Antenna		
Power Distribution and Protection Circuitry		
Detailed Design Submittals including Control Panel Shop Drawings		
Project Management and Installation Support		
Cellular Telemetry System Administration and Modem Configuration		
Hardwired Autodialer Configuration		
Onsite Testing, Startup and Operator Training		
Operation and Maintenance Manuals		
Remote Access VPN	$3,000	
Industrial SCADA PC	$10,000	
Software-based Autodialer System	$4,250	*add-on for Industrial PC*
Historical Database	$5,250	*add-on for Industrial PC*
Total SCADA System	**$37,500**	

Item No.: 17 **Site Electrical**

New Service	$25,000	
Site Electrical	$75,000	allowance
Total Electrical	**$100,000**	

Item No.: 18 **Property**

Allowance	$50,000

include:

lot subdivision
survey record
surveying
property purchase
title fees

Operation and Maintenance Cost Estimate
Alternative 1: Enhanced Pond Treatment System
Fort Jones Wastewater Facilities Plan

Item	Description	Annual O&M Cost	Comments (see attached sheets for additional info)
1	Labor, licensed operator	$ 30,800	
2	Cell phone service	$ 360	for SCADA and alarms
3	Trash service	$ 480	For screenings at influent pump station
4	Electrical costs	$ 20,591	Assumed purchased power; does not account for onsite solar
5	Sludge handling	$ 4,400	Assume dredge Ponds 1-4 every 10 years
6	Perc pond scarification	$ 2,200	Assume scarify 1/2 the perc pond every year
7	Wetland vegetation management	$ 1,650	Assumes partial removal after 20 years
8	Contingency (10%)	$ 6,048	
9	Repair/replacement reserve (10%)	$ 6,048	
	Annual O&M costs:	$ 72,578	

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Alternative 1, Enhanced Pond System on Existing Footprint
Additional detail for capital construction line items

Item No.: 1 Labor, licensed operator

Notes:
1. Grade II Operator required
2. Additional hrs/month is contingency for emergency and miscellaneous tasks

Hourly rate	$50.00
hrs/wk	10
Add't hrs/mon	8
Annual Cost	$30,800

Item No.: 2 Cell phone service

Single phone service for alarms

Monthly fee	$30	data plan only
Annual Cost	$360	

Item No.: 3 Trash service

Trash service to collect screenings from influent screen

Weekly service	$40	per month
Annual Cost	$480	

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Item No.: 4 **Electrical costs**

Notes:
1. Assumed rate of: $0.18 per kWh
2. 1 hp= 0.746 kW
3. Costs do not account for any offsets from solar power generated onsite.

Influent Pumps

pump power	5.0	hp	
	3.7	kW	
peak flow	*2.0*	*MGD*	
avg flow	*0.045*	*MGD*	
avg:peak flow	*0.023*		
avg pump power	*0.08*	*kW*	approximate
daily runtime	24	hr/d	
annual runtime	8,760	hr/yr	
annual energy use	735	kWh	
Annual Cost	$132.33		

Influent Screen

screen power	0.75	hp	
	0.56	kW	
daily runtime	6	hr/d	
annual runtime	2,190	hr/yr	
annual energy use	1,225	kWh	
Annual Cost	$220.55		

Wetland Recirc Pump

pump power	0.5	hp	
	0.37	kW	
annual runtime	3,600	hr/yr	5 months per year
annual energy use	1,342	kWh	
Annual Cost	$241.61		

Blowers

blower power	17.0	hp	
	12.7	kW	
annual runtime	8,760	hr/yr	
annual energy use	111,094	kWh	
Annual Cost	$19,997	$/yr	

Total $20,591 $/yr

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Item No.: 5 Sludge Handling

Notes:
1. Assume outside contractor to operate dredge and equipment
2. Assume all sludge pumped to drying beds

Daily labor rate	$3,000	3 laborers
Daily equipment rate	$1,000	incl dredge, sludge pump, and hoses
Days to dredge	10	Ponds 1-4
Dredge Frequency	10	years
Subtotal	$4,000	
mob (10%)	$400.0	
Annual Cost	$4,400	

Item No.: 6 Peroclation Pond Scarification

Notes:
1. Assume outside contractor to operate ripper or excavator

Daily labor rate	$1,000	1 operator
Daily equipment rate	$1,000	1 ripper or excavator
Days to scarify	1	
Frequency	1	
Subtotal	$2,000	
mob (10%)	$200.0	
Annual Cost	$2,200	

Item No.: 7 Wetland Vegetation Management

Notes:
1. Assume outside contractor to operate excavator and dumptruck
2. Assume all vegetation dewatered and composted in drying beds for land application
3. this assumes all veg is removed all at once, but in reality it should be removed a little each year and allowed to grow back to minimize impacts to treatment

Daily labor rate	$1,000	1 operator
Daily equipment rate	$2,000	incl long reach excavator and dump truck
Days to remove veg	10	
Removal Frequency	20	years
Subtotal	$1,500	
mob (10%)	$150.0	
Annual Cost	$1,650	

Opinion of Probable Project Cost
Town of Fort Jones
Alternative 2: Orenco Biofiltration

Item	Description	Units	Quantity	Unit Cost	Total Cost
1	Influent Flow Meter	LS	1	$ 20,000	$ 20,000
2	Influent Screening	LS	1	$ 151,908	$ 152,000
3	Influent Screening Channel	LS	1	$ 33,175	$ 33,000
4	Influent Screen Building	SF	300	$ 250	$ 75,000
5	Orenco Primary/Secondary Treatment System	LS	1	$ 6,150,791	$ 6,151,000
6	Site Work	LS	1	$ 100,000	$ 100,000
7	Electrical	LS	1	$ 100,000	$ 100,000
8	Standby Generator	LS	1	$ 60,000	$ 60,000
9	SCADA System	LS	1	$ 38,000	$ 38,000
10	Decommission Existing Primary Tank and Distribution Box	LS	1	$ 20,000	$ 20,000
11	Solar Array	LS	1	$ 200,000	$ 200,000
12	Mobilization (12%)	LS	1	$ 809,880	$ 810,000
				Subtotal:	$ 7,759,000
				Contingency (30%):	$ 2,328,000
				Total Construction:	***$ 10,087,000***
				Engineering Design (20%)	$ 2,017,000
				Administration, Legal (4%)	$ 403,000
				Total Project:	***$ 12,507,000***

Total Cost column rounded to nearest $1,000.

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Alternative 2, Orenco Biofiltration System
Additional detail for capital construction line items

Notes: 1. Pipe costs assumed at $10 per LF per inch of diameter unless noted otherwise.
2. 20% added to vendor costs to account for contractor markup.

Item No.: 1 Influent Flow Meter

New influent flow meter allowance: $20,000
Includes installation.

Item No.: 2 Influent Screening

Raketec estimate	7/28/2017	from Erwan Ouattara, Aqualitec
Multiple Rake Screen	$64,672	Raketec DI500
Water Level Sensors (2)	$1,282	Siemens Echomax XRS-5 Ultrasonic Transducer
Manual Bar Screen	$10,000	
Subtotal	$75,954	
Installation	$75,954	
Total Screen	**$151,908**	

Note: Spiral screens and drum screens (recommended) are less costly; use this as budget value.

Item No.: 3 Influent Screening Channel

two parallel channels		
Channel Length	16	FT
Channel Width	3	FT
Channel Depth	4	FT
Wall Thickness (8 in)	0.67	FT
Concrete Volume	11.5	CY
fos (15%)	13.2	CY
Concrete Cost	$1,000	/CY
Total Concrete	$13,175	
Influent slide gates (2)	$20,000	allowance
Total Screen Channel	**$33,175**	

Item No.: 4 Influent Screen Building

Building to house influent screen. Trash receptable to be located outside.

Assume 15 ft x 20 ft:	300	SF	
Assume unit cost at:	$250	per SF	Unit cost accounts for small size and remote location.

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Alternative 2, Orenco Biofiltration System
Additional detail for capital construction line items, cont'd

Item No.: 5 Orenco Primary/Secondary Treatment System

From estimate provided by Chris Hartman of Pace Supply, Chico, CA
Estimate includes the following items:

Primary and Equalization Tanks		$ 1,768,550	
AdvanTex Treatment System, 8 AX-Max Units		$ 2,291,883	
Delivery		$ 141,350	
Installation		$ 1,949,008	See note 1
	Subtotal	$ 6,150,791	

Notes: 1. Used "High" (40% of material) from estimate + 20% for prevailing wage premium.
2. Sales tax not included in material costs, but assumed covered in contingencies.

Item No.: 6 Site Work

Site work consists of the following items (quantities are grossly estimated):

	Unit	Quantity	Unit Price	Subtotal	See Note
Biosolids removal	LS	1	$ 20,000	$ 20,000	1
Fill	CY	1,500	$ 30	$ 45,000	2
Site Piping	LF	500	$ 50	$ 25,000	3
Misc Excavation & Backfill	LS	1	$ 10,000	$ 10,000	4
			Subtotal:	$ 100,000	

Notes: 1. Based on removing biosolids in impacted area, assumed at ~20% of Alt 1 cost.
2. Fill in area around the AX-Max units, which will be placed in one of the extg ponds.
3. Piping between primary tanks, between AX-Max units, and for effluent discharge.
4. Earthwork associated with headworks.

Item No.: 7 Electrical

New Service	$25,000	Based on similar recent projects
Site Electrical	$75,000	allowance for all conduits, wiring, and elect equip (except generator)
Total	$100,000	

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Alternative 2, Orenco Biofiltration System
Additional detail for capital construction line items, cont'd

Item No.: 8 Standby Generator

Based on cost estimates completed for the Tulelake Water System Improvements project
Use: $60,000

Item No.: 9 SCADA System

Orenco units come with telemetry-ready control panels.
Assume similar to Alternative 1 needed for full system (see Alternative 1 calculations for detail).

Alt 1 cost: $38,000

Item No.: 10 Decommission Existing Primary Tank and Distribution Box

Removal of the existing Imhoff Tank and flow distribution box
Materials to be disposed of by contractor in landfill
Assume: $20,000 allowance for this work.

Item No.: 11 Solar Array

Installed Cost	$4.00	$/Watt	https://www.nrel.gov/docs/fy17osti/67639.pdf
Array Power	50	kW	http://pvwatts.nrel.gov/pvwatts.php
Total Solar Array	**$200,000**		

Array size based on size proposed for Alternative 1. Additional space for more arrays is available.
Additional arrays not assumed for cost estimate.

Item No.: 12 Mobilization (12%)

Mobilization assumed at 12% of all other construction line items.

Opinion of Annual WWTF Operation and Maintenance Costs
Alternative 2: Orenco Biofiltration
Town of Fort Jones

Item	Description	Annual O&M Cost	Comments (see attached sheets for additional info)
1	Labor, licensed operator	$ 25,600	
2	Cell phone service	$ 600	for alarms
3	Trash service	$ 480	For screenings
4	Electrical costs	$ 15,621	Assumed purchased power; does not account for onsite solar
5	Primary sludge removal and hauling	$ 1,667	Assume sludge removal every 15 years
6	Repair/replacement	$ 29,906	
7	Contingency (10%)	$ 7,387	
	Annual O&M costs:	$ 81,261	

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Operations Cost Details for all alternatives

Item No.: 1 Labor, licensed operator

Hourly rate	$50.00	Full cost of staff time (wage + benefits)
Hrs/wk	8	
Add'l hrs/mon	8	
Annual labor cost	$25,600	

Notes: 1. Grade II Operator required
2. Additional hrs/month is contingency in case of emergency need

Item No.: 2 Cell phone service

Single phone service for alarms

Monthly: $50 from Chris Hartman, Pace Supply
Annual : $600

Item No.: 3 Trash service

Trash service to collect screenings from influent screen

Weekly service @ $40 per month
Annual cost: $480
10
550000

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		UPDATED	12/29/2017

Operations Cost Details for all alternatives

Item No.: 4 Electrical costs

Notes: 1. Assumed rate of: $0.18 per kWh
2. 1 hp = 0.746 kW
3. Orenco system (pumps, AX-Max units, etc.) electrical costs from Chris Hartman, Pace Supply
4. Costs do not account for any offsets from solar power generated onsite.

Influent Screen

Pump power:	0.75	hp
Run time:	6.00	hrs/day
Daily cost:	$0.60	
Annual cost:	$221	

Orenco System

Annual cost:	$15,400	from Chris Hartman, Pace Supply

Total

Annual cost:	$15,621	

Item No.: 5 Primary sludge removal and hauling

Applies to primary and equalization tanks (total of 11 50,000-gal tanks)
Assumes sludge pumping and onsite dewatering with subsequent solids disposal

Pump out frequency:	15	yrs
Allowance for sludge removal:	$25,000	
Annualized cost:	$1,667	

Item No.: 6 Repair/replacement

Orenco System:	$24,906	From Chris Hartman, Pace Supply
All other items:	$5,000	Allowance for reserve for other items (influent screen, etc.)
Total:	$29,906	

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Present value analysis
WW Facility Plan
Town of Fort Jones

Data mostly from other spreadsheets

Discount rates from OMB Circular A-94 Appendix C Dec 2017

Duration	20	years
Nominal rate	2.5%	
Real rate	0.5%	

	Alt 1 (Aeration)		Alt 2 (Biofiltration)	
	Value	**NPV**	**Value**	**NPV**
O&M (annual)	$ 72,578	$ 1,378,069	$ 81,261	$ 1,542,937
Salvage (future value)	$ -	$ -	$ -	$ -
Capital		$ 4,351,000		$ 12,507,000
Total Net Present Value		**$ 5,729,069**		**$ 14,049,937**

Appendix 2
2022 Addendum No. 1 to the WWFP

Wastewater Facilities Plan Addendum

Fort Jones Wastewater Treatment Facility



Prepared for:

Town of Fort Jones

November 2022

516035

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Phone: (530) 221-5424 **Email:** info@shn-engr.com **Web:** shn-engr.com
350 Hartnell Avenue, Suite B, Redding, CA 96002-1875

Reference: 516035.200

November 4, 2022

Karl Drexel
Town of Fort Jones
11960 East Street
Fort Jones, CA 96032
Email: karl@kdmanagement.us

Subject: Fort Jones Revised Wastewater Facilities Plan Addendum

Dear Karl Drexel:

Please find attached a revised addendum to SHN's 2018 "Wastewater Facilities Plan." This addendum presents additional alternatives that address the concerns raised by the North Coast Regional Water Quality Control Board (RWQCB) regarding the alternatives presented in the 2018 "Wastewater Facilities Plan." One of these alternatives (Alternative 3) has been discussed with the RWQCB with the submittal of a previous draft of this addendum, as discussed in the text. We present an additional alternative (Alternative 4) based on recent discussion with the RWQCB.

Please review and let us know if you have any questions or comments. If acceptable, please forward to Roy O'Connor at the RWQCB and Gurleen Bhatia at SWRCB-DFA for their review.

I can be reached at (541) 827-7855 or arasmussen@shn-engr.com.

Respectfully submitted,

SHN

Anders Rasmussen

Anders H. Rasmussen, PE
Regional Principal/Senior Civil Engineer

AHR:ahr

Enclosure: Wastewater Facilities Plan Revised Draft Addendum

\\Redding\Projects\2016\516035-FJ-WWTF\200-Facility-Plan\PUBS\rpts\20221104-FortJones-WWFP-Addendum.docx

Wastewater Facilities Plan Addendum

Fort Jones Wastewater Treatment Facility

Prepared for:
Town of Fort Jones

Funding for this project was provided by a planning grant from the State of California Water Resources Control Board under the Proposition 1-Small Community Wastewater Grant program. Project No. C-06-8192-110, Agreement No. D16-04006.

Prepared by:

350 Hartnell Avenue, Suite B,
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REGISTERED PROFESSIONAL ENGINEER
ANDERS H. RASMUSSEN
No. 58184
CIVIL
STATE OF CALIFORNIA

Anders H. Rasmussen
Signed 11/4/2022

November 2022

QA/QC: AHR AHR
Reference: 516035.200

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Abbreviations and Acronyms

Units of Measure

Term	Definition
ft	feet
gal/mon	gallons per month
gpd	gallons per day
MG	million gallons
mg/L	milligrams per liter

Other Terms

Term	Definition
BODL	biochemical oxygen demand
DFA	Division of Financial Assistance
HDPE	high-density polyethylene
HRT	hydraulic residence time
NPDES	National Pollutant Discharge Elimination System
NRCS	Natural Resources Conservation System
O&M	Operations and Maintenance
OWTS	Onsite Wastewater Treatment System
PVC	polyvinyl chloride
RWQCB	North Coast Regional Water Quality Control Board
SCADA	Supervisory Control and Data Acquisition
SMR	self-monitoring report
SWRCB	State Water Resource Control Board
Town	Town of Fort Jones
TSS	total suspended solids
WWFP	wastewater facilities plan
WWTF	wastewater treatment facility

1.0 Introduction

1.1 Background

A wastewater facilities plan (WWFP) for the Town of Fort Jones's (Town's) wastewater treatment facility (WWTF) was completed in January 2018 by SHN. The WWFP provided analysis of the existing system and its deficiencies along with an alternatives analysis and recommended alternative. The alternatives evaluated were based on initial discussions with the North Coast Regional Water Quality Control Board (RWQCB).

After review of the WWFP by technical staff at the RWQCB, the RWQCB indicated that a percolation option for effluent disposal as identified under Alternatives 1 and 2 in the WWFP would not be acceptable. Under those alternatives, the proposed effluent disposal (percolation/evaporation) pond was using one of the existing ponds which is located too close to Moffett Creek. It is suspected that there is hydraulic connectivity between the existing unlined treatment ponds and the adjacent water bodies, specifically Moffett Creek. The distance from the northern edge of the existing ponds to the south bank of Moffett Creek varies from approximately 40 feet (ft) to 50 ft. The previously proposed solutions would likely have required a National Pollution Discharge Elimination System (NPDES) permit since the effluent disposal location could be considered a direct discharge. No new NPDES permits are allowed along the Scott River in accordance with the Basin Plan, according to the RWQCB.

1.2 Purpose

The purpose of this addendum to the 2018 WWFP is to address the request by the RWQCB for additional alternatives analysis with a new recommended alternative that presents an effluent disposal option acceptable to the RWQCB, based on discussions with RWQCB staff. No changes were made to the basis of design as presented in the 2018 WWFP.

2.0 Analysis of Additional Alternative

2.1 General

The 2018 Facilities Plan recommended Alternative 1, which included the following key features:

- Addition of aeration to two of the existing ponds;
- Use of two of the existing ponds for additional facultative treatment;
- Lining of all ponds except the percolation pond;
- New headworks to include screening and influent pump station;
- New electrical service and backup generator;
- Treatment wetland; and
- Percolation basin in the last existing pond.

This alternative was significantly less expensive than Alternative 2, Biofiltration. As a result, and since there were no objections to the treatment process from the RWQCB, the approach to the new alternatives was to use the Alternative 1 treatment process as a basis with a change to the effluent disposal method and/or location. Some enhancements to the Alternative 1 treatment process have

been made to simplify the process as discussed in each of the new alternatives. The following sections (2.2 and 2.3) discuss analysis of some sub-alternatives that were evaluated as part of the alternatives development.

2.2 Effluent Disposal

2.2.1 General

The RWQCB is requiring land disposal for the effluent from the Fort Jones WWTF. As discussed in the 2018 WWFP, subsurface disposal is not feasible due to the potential for rodents causing damage to the system as well as creating open flow pathways (burrowing tunnels) that would reduce the effectiveness of this disposal method. Three options were investigated: (1) farmland irrigation, (2) forested land irrigation, and (3) relocated evaporation/percolation ponds.

2.2.2 Farmland Irrigation

Farmland irrigation can only occur during the crop growing season. This option would require additional storage ponds to store winter flows. This is used in many locations as an effluent disposal method where the crop can be sold to offset the operational costs of the system. There are restrictions on the type of crops that can be grown using treated effluent, depending on the quality. As mentioned in the 2018 WWFP, the Scott Valley has readily available groundwater supplies, which in turn causes recycled water to be of little value to farmers, especially given that using recycled water would restrict crop use.

The Town could purchase irrigable land for storage ponds and an irrigation system. In this instance, the Town would either (1) operate the irrigation system with Town staff and contract with a farmer to harvest a fodder crop or (2) contract with a farmer to operate the irrigation system.

2.2.3 Forest Land Irrigation

2.2.3.1 Description

Forested land irrigation is an option that can be conducted nearly year-round, except during short periods when the ground might be frozen. Treated effluent is pumped to a forested area with sufficient vegetation to allow for spray irrigation without surface runoff. Year-round discharge allows for minimal effluent storage needs. Based on the regional climate and available forested land nearby, this the preferred option.

The details of the forested land application system will depend on the location of the system. A number of potential properties suitable were identified for this purpose. The system would consist of several pressure zones where the effluent irrigation could be rotated on a weekly basis.

Based on potential available properties and zoning requirements, the Town would likely purchase a 40- to 80-acre parcel. One potential property has been identified and is discussed under Alternative 3.

2.2.3.2 Design Basis

The United States Environmental Protection Agency (EPA) published a fact sheet (EPA 832-F-02-012, September 2002) entitled “Slow Rate Land Treatment.” In that fact sheet, the following design criteria are presented:

- Application rate: 0.5 to 4 inches per week
- Soil depth: at least 2 to 5 feet
- Soil permeability: 0.06 to 2.0 inches per hour

According to NRCS soils data (See Appendix 1), the soil in the potential application sites is primarily Marpa-Kinkel-Boomer, cool complex, 15 to 50 percent slopes, which has soil depths of 1.6 to more than 5 feet and saturated hydraulic conductivities of 0.20 to 1.98 inches per hour. Percolation tests have not been performed at these sites, but based on the published hydraulic conductivities, these sites appear to be conducive to forested irrigation.

An application rate of 2 inches per week was assumed for the design of the system. For the average dry weather flow of 67,200 gallons per day (gpd), an area of 8.7 acres is needed, while for the peak month (4,030,000 gallons per month [gal/mon], or 134,400 gpd), an area of 17.3 acres is needed. This is only for application area and does not include buffer zones or area for growth. Detailed calculations are presented in Appendix 2.

In review of the available land and zoning, parcels in the area that would be suitable for effluent disposal are 40 to 80 acres in size and would likely not be available for partitioning due to zoning. This parcel size would be sufficient for effluent disposal to allow for various factors, such as growth, buffer zones, and variation in application rates if needed. The sprinkler irrigation system would be placed at the upper elevations of the respective property to allow additional buffer before the downstream property line.

An effluent sprinkler system covering 26 acres would be installed, with 13, 2-acre zones to allow for adequate rotation of effluent disposal. This option is the basis for Alternative 3, which is discussed in Section 2.4.

2.2.4 Relocated Disposal Ponds

2.2.4.1 Description

A third option for effluent disposal is to use the percolation/evaporation method of Alternative 1 as shown in the 2018 WWFP but relocated to be further away from both Moffett Creek and the Scott River. As discussed earlier, the existing system and Alternative 1 disposes of effluent within 40-50 feet of Moffett Creek, and, with a suspected hydraulic connectivity between Moffett Creek and the ponds, disposal this close to Moffett Creek is not acceptable to the RWQCB.

Locating the disposal ponds to a suitable location requires a balance of sufficient distance from Moffett Creek and the Scott River and minimizing distance from the existing treatment facility to reduce operational costs. Consideration must also be made with respect to current property line configurations and land use of nearby properties as well as willingness to sell. Lastly, location of potable water wells also needs to be considered, since minimum distances from potable wells are required. Based on these factors, adjacent and nearby properties were evaluated based on these parameters, and, after discussion with Town staff and property owners, it was determined to locate the disposal ponds as close to the existing treatment facility as possible. Additional property immediately adjacent to the east of the existing WWTF property is being acquired, providing additional space for the upgraded WWTF.

The SWRCB does not have requirements or design guidelines for disposal ponds with respect to distance from surface water bodies that are directly applicable to the Fort Jones project. However, the SWRCB does have an Onsite Wastewater Treatment System (OWTS) Policy dated June 12, 2019 (https://www.waterboards.ca.gov/water_issues/programs/owts/docs/owts_policy.pdf), which provides requirements for onsite subsurface disposal (leach fields) for systems less than 10,000 gallons per day. The OWTS policy requires that a subsurface disposal system shall be at least 100 feet from springs and flowing surface water bodies.

Percolation from a surface disposal pond can be considered similar to subsurface disposal used by onsite systems. Therefore, the OWTS policy can be used as guidance. For this project, the guidance of 100 feet from a water body (Moffett Creek) was doubled to 200 feet as a conservative measure. In looking at reconfiguring the existing WWTF ponds to accommodate a disposal pond, it was concluded that disposal ponds could be placed on the southern portion of the existing site. The reason for the minimum distance of 100 feet from flowing water surface bodies is not stated in the OWTS policy document; however, it was reasoned that doubling that distance for the Fort Jones WWTF disposal ponds to 200 feet from Moffett Creek would provide additional buffer to protect water quality.

According to NRCS soils data (see Appendix 1), the soil in the vicinity of the WWTF is an Atter very gravelly sandy loam with a saturated hydraulic conductivity of 5.95 to 19.98 inches per hour. The depth to ground water was determined during installation of the monitoring wells to be approximately 11 feet. However, it should be noted that this likely represents a groundwater mound of unknown thickness under the existing treatment ponds. Depth to groundwater in the surrounding area has not been field verified but is estimated to be at least 10 feet based on cursory review of online data for wells in the Scott Valley.

Based the OWTS policy, it appears there is sufficient depth to groundwater from the bottom of the proposed disposal ponds. The disposal ponds are proposed to be 6 feet deep, leaving approximately 5 feet to the groundwater elevation that was encountered during monitoring well installation. The OWTS policy states that a minimum of 5 feet of depth to groundwater is required for the assumed infiltration rate of 1 inch per hour, with the note that OWTS systems covered by this policy do not have the level of treatment as proposed for the Fort Jones WWTF.

The treatment process will include nitrogen removal which improves the effluent water quality. See Section 2.3 for additional information.

2.2.4.2 Design Basis

Percolation tests have not been performed for this disposal site, so an estimated infiltration rate of 1 inch per hour was used as a basis for sizing the disposal ponds. As discussed in the 2018 Facilities Plan, the design flowrates used were 67,200 gpd, 242,000 gpd, and 4,030,000 gal/month for average dry weather flow, peak day flow, and peak month flow. For reference the average annual daily flow rate from 2014-2018 flow data was 66,000 gpd. An average daily flow of 67,200 gpd would require a percolation area of 0.103 acres, excluding evaporation and assuming a percolation rate of one inch per hour.

2.3 Treatment Process

The treatment process for Alternative 1 was reviewed and some simplifying modifications were made for this alternative. Also, an engineered nitrogen removal unit process was added to the treatment process in response to concerns from the RWQCB. The most significant changes from Alternative 1 include the following:

- Elimination of Pond 1 to be used for storage or solar panels.
- Combination of Ponds 2 and 3 and Ponds 4 and 5 into two larger ponds.
- Lining of Pond 6 and using it for effluent storage.
- Renumbering of the ponds to simplify labeling.
- Addition of an engineered nitrification/denitrification unit process.

The goal of the aerated pond treatment system is to meet effluent limits of 30 milligrams per liter (mg/L) biochemical oxygen demand (BOD) and 30 mg/L total suspended solids (TSS).

Nitrogen has been of concern due to impacts to human and environmental health especially in the form of ammonia and nitrate. SHN reviewed the last several years (2017-2020) of monitoring well water quality data (from the submitted Self-Monitoring Reports) and found that all measured total nitrogen values except one in Monitoring Well #2 were below 10 mg/L. Monitoring Well #2 is immediately downgradient of the ponds and is located along the property fence between the existing ponds and Moffett Creek. Selected Self-Monitoring Reports (SMRs) are presented in Appendix 3. All SMRs can be obtained from the RWQCB.

In order to improve the water quality of the effluent being percolated, an engineered nitrification/denitrification unit process will be added. The nitrogen removal unit being contemplated is either the Nitrox+D by Triplepoint Environmental or the BioPorts by Nexom. Both are moving bed bioreactors (MBBRs) and consistently nitrify all ammonia and remove nitrates to less than 3 mg/L.

2.4 Alternative 3: Aeration with Land Disposal

2.4.1 Description

Under Alternative 3, Aeration with Land Disposal, the existing facultative percolation ponds are converted to lined aeration ponds and treated effluent is disposed of on forested land through a sprinkler system. This alternative includes the following features:

- Headworks
    - New ultrasonic flow meter
    - Mechanical helical screw screen or vertical rake screen including screenings washing and dewatering
    - Redundant manual bar rack
    - Influent lift station
    - Backup generator
    - Small building to house equipment and to provide small work/storage space.
- Two Aerated Ponds in Series (Ponds 1 and 2)
    - Reconfiguration of existing ponds with minor regrading
    - Deepen ponds to 10 ft (8 ft water depth, 2 ft free board)
    - Geomembrane liner with geofabric underlayment
    - Submerged aeration system, such as the Mars Aerators by Triple Point Environmental, with a blower located in the headworks building or a separate building next to the headworks.
    - Overflow structures with weirs to adjust water levels as needed
    - Pond volumes of approximately 1 million gallons each
    - Approximate hydraulic residence time (HRT) of 30 days during average dry weather flows with as low as 15 days during peak wet weather months.

- One Effluent Storage Pond (Pond 3)
    - Existing westernmost pond with minor grading modifications
    - Geomembrane liner with geofabric underlayment
- Effluent Pump Station
    - Package pump station
    - Flow meter
- Effluent force main
        - Exact discharge location to be determined
        - Approximately 8,000 linear feet in length assumed
        - 8-inch diameter polyvinyl chloride (PVC) or high-density polyethylene (HDPE) pipe
        - Pipe will run along public roads to reduce need for easements
- New forested land for effluent disposal
- Sprinkler system
- New SCADA system
- Non-potable groundwater well and associated non-potable water supply system
- New electrical service at the WWTF

A site plan of the WWTF for this alternative is provided in Figure 1. A schematic process flow diagram is shown in Figure 2. A potential alignment of the effluent force main (pending determination of final effluent disposal property) is shown in Figure 3.

Land acquisition for this alternative has two components. The first is a 0.6-acre parcel adjacent to the existing WWTF. While not as crucial as it for Alternative 1 in the 2018 WWFP, it does provide for additional equipment storage and/or solar panels, which can be used to offset electrical costs. The second component is the forested land for effluent disposal. It is assumed that the parcel purchased will be 80 acres in size due to the sizes of available properties in the area.

2.4.2 Costs

The estimated project cost for Alternative 3 is estimated at $5,761,000 (Table 1). Many of the cost items are the same as, or very similar to, the costs presented in the 2018 WWFP. For the common items listed in the 2018 WWFP, costs have been escalated to account for recent high inflation by 15%. Details are provided in Appendix 4.

Funding caps for small communities from the SWRCB-DFA are at $6,000,000, of which $500,000 has already been spent for the current planning grant. This project will stay within the small community wastewater funding cap.

Estimated operations and maintenance (O&M) costs are presented in Table 2. This alternative will require a Grade II operator, which is assumed to be a Town public works employee. Operator time for this alternative has been increased over Alternative 1 in the 2018 WWFP due to the additional



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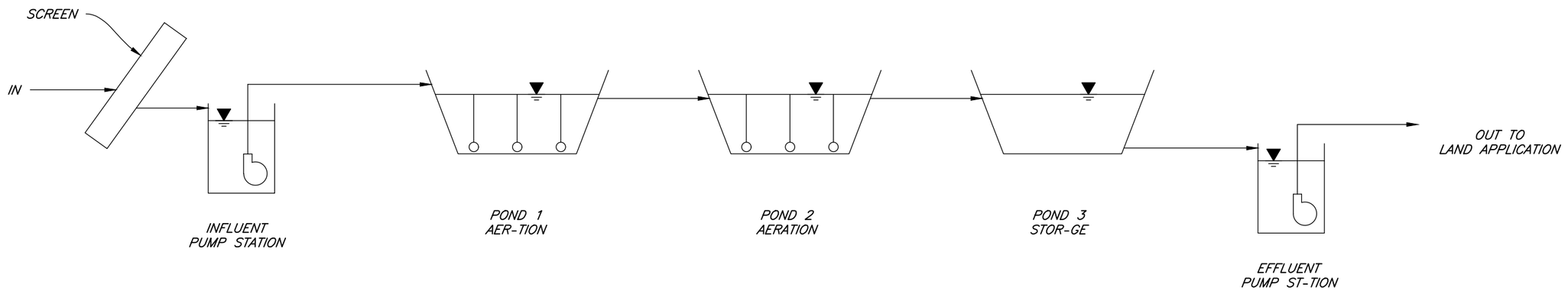
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Town of Fort Jones
Wastewater Facilities Plan
Fort Jones, California

Alternative 3 Aeration with Land Disposal
Site Layout
SHN 516035

March 2021 | 516035-FJ-WWTF-SITE-2 | Figure 1

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SHN	Town of Fort Jones Wastewater Facilities Plan Fort Jones, California		Alternative 3 Process Flow Diagram SHN 516035
	March 2021	516035-FJ-WWTF-SITE-2	Figure 2

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Town of Fort Jones Wastewater Facilities Plan Fort Jones, California		Alternative 3 Land Application Pipeline SHN 516035
March 2021	516035-FJ-WWTF-SITE-2	Figure 3

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responsibility for the forested irrigation system. Additional operational assumptions include the following:

- Supervisory Control and Data Acquisition (SCADA) system includes annual software maintenance costs;
- sludge removal in the ponds is expected at no less than 20 years;
- no solar power offsets to electrical costs, which are assumed at $0.20 per kilowatt-hour; and
- reserves will cover operating reserve and short-lived asset replacement reserve.

Estimated operating costs are just over $110,000 per year, mostly from labor and electrical costs. Additional detail can be found in Appendix 5.

Table 1. Estimated Project Costs for Alternative 3, Aeration with Land Disposal Wastewater Facilities Plan Addendum, Town of Fort Jones, CA

Item Description[a]	Estimated Cost
Earthwork	$340,000
Biosolids Disposal	$117,000
Pond Lining	$205,000
Pond Aeration System	$168,000
Headworks/Blower/Office Building	$276,000
Influent Pump Station	$345,000
Influent Screening System and Channel	$221,000
Backup Generator	$92,000
Pond Effluent Control Structure	$115,000
14 ft Flat Bottom Boat	$6,000
SCADA System	$44,000
Site Electrical	$115,000
Influent Flow Meter	$23,000
Effluent Pump Station	$345,000
Nonpotable Well	$9,000
Effluent Force Main	$453,000
Effluent Sprinkler System	$109,000
Access Road	$23,000
Mobilization (12%)	$361,000
Construction Subtotal	$3,367,000
Contingency (30%)	$1,010,000
Total Construction	**$4,377,000**
Land Acquisition[b]	$334,000
Engineering and Permitting (20%)	$875,000
Administration and Legal (4%)	$175,000
Total Project	**$5,761,000**

a. See Appendix 4 for additional details.
b. 0.6 acres adjacent to WWTF and 80 acres for effluent disposal; see text for additional discussion.

Table 2. Estimated Operational Costs for Alternative 3, Aeration with Land Disposal Wastewater Facilities Plan Addendum, Town of Fort Jones, CA

Item Description[a]	Annual O&M[b] Costs
Labor, licensed operator	$46,400
Cell/SCADA[c] System	$1,900
Trash Service	$500
Electrical Costs	$40,900
Sludge Handling	$2,200
Operating Reserve (10%)	$9,200
Short Lived Asset Reserve (10%)	$9,200
Annual O&M Costs	**$110,300**

a. See text and Appendix 5 for additional detail
b. O&M: operations and maintenance
c. SCADA: Supervisory Control and Data Acquisition

2.5 Alternative 4: Aeration with Relocated Disposal Ponds

2.5.1 Description

Under Alternative 4, Aeration with Relocated Disposal Ponds, the existing facultative percolation ponds reconfigured and converted to lined aeration ponds with the treated effluent is disposed of on site in a location as far away from Moffett Creek as possible on the existing property. This alternative includes the following features:

- Headworks
  - New ultrasonic flow meter
  - Mechanical helical screw screen or vertical rake screen including screenings washing and dewatering
  - Redundant manual bar rack
  - Influent lift station
  - Backup generator
  - Small building to house equipment and to provide small work/storage space.
- Two Aerated Ponds in Series (Ponds 1 and 2)
  - Reconfiguration of existing ponds with major regrading
  - Deepen ponds to 10 ft (8 ft water depth, 2 ft free board)
  - Geomembrane liner with geofabric underlayment
  - Submerged aeration system, such as the Mars Aerators by Triple Point Environmental, with a blower located in the headworks building or a separate building next to the headworks
  - Overflow structures with weirs to adjust water levels as needed
  - Pond volumes of approximately 1 to 2 million gallons (MG) each (as shown Pond 1 is 1 MG, Pond 2 is 2 MG, but can be revised during final design).

    - Approximate hydraulic residence time (HRT) of 44 days during average dry weather flows with as low as 22 days during peak wet weather months.
- Two Effluent Disposal Ponds
    - One is redundant and can be used during high winter flows.
    - Minimum bottom area of 0.103 acres for each pond (see Section 2.2.4.2).
- New SCADA system
- Non-potable groundwater well and associated non-potable water supply system.
- New electrical service at the WWTF
- New engineered nitrification/denitrification system

A site plan of the WWTF for this alternative is provided in Figure 4. A schematic process flow diagram is shown in Figure 5.

2.5.2 Construction Sequencing

Special consideration for construction sequencing is needed since wastewater treatment must continue during construction of the upgraded facility. While detailed sequencing will be developed during final design, key sequencing elements include using one of the existing ponds while the other ponds are reconfigured and then transition treatment to the new ponds while the final pond is reconstructed.

2.5.3 Costs

The estimated project cost for Alternative 4 is estimated at $5,422,000 (Table 3). Many of the cost items are the same as, or very similar to, the costs presented in the 2018 WWFP. For the common items listed in the 2018 WWFP, costs have been generally escalated to account for recent high inflation by 15% unless noted otherwise. Details are provided in Appendix 4.

Estimated operations and maintenance (O&M) costs are presented in Table 3. This alternative will require a Grade II operator, which is assumed to be a Town public works employee. Additional operational assumptions include the following:

- Supervisory Control and Data Acquisition (SCADA) system includes annual software maintenance costs;
- Sludge removal in the ponds is expected at no less than 20 years;
- No solar power offsets to electrical costs which are assumed at $0.20 per kilowatt-hour;
- Reserves will cover operating reserve and short-lived asset replacement reserve.

Estimated operating costs are just under $209,500 per year, mostly from engineered nitrification/denitrification chemicals, labor, and electrical costs. Additional detail can be found in Appendix 5.

MOFFETT CREEK

2718.66
2718.00
2715
2710
2708.00
POND 1
(AERATION)
12" PIPE
(TYP)
2718.49
2715
2710
POND 2
(AERATION)
2708.00
2718.63
EXISTING FENCE
ELEVATION
CONTROL
WEIR (TYP)
195'
2718.00
NITRIFICATION/DENITRIFICATION
ADDITIONAL FILL REQUIRED
SEE NOTE 3
PROPERTY LINE
2718.00
2718.00
2715
2716.76
RELOCATED FENCE
BLOWER
BUILDING
10.0%
POND 3
(DISPOSAL)
2715
8.3%
POND 4
(DISPOSAL)
FUTURE
DISPOSAL
POND
DRIVABLE RAMP
(TYP)
2712.00
2712.00
INFLUENT FROM
SERVICE AREA
2718.00
INFLUENT PUMP
STATION
NON-POTABLE WELL
HEADWORKS BUILDING
(WITH OFFICE)

NOTES:

1. PONDS 1 AND 2 ARE LINED.
2. PONDS 3 AND 4 ARE UNLINED.
3. BRING UP TO GRADE AT 2718.00 WITH 15' MINIMUM AROUND NITRIFICATION/DENITRIFICATION FOOTPRINT. APPROXIMATELY 200 CUBIC YARDS OF FILL.

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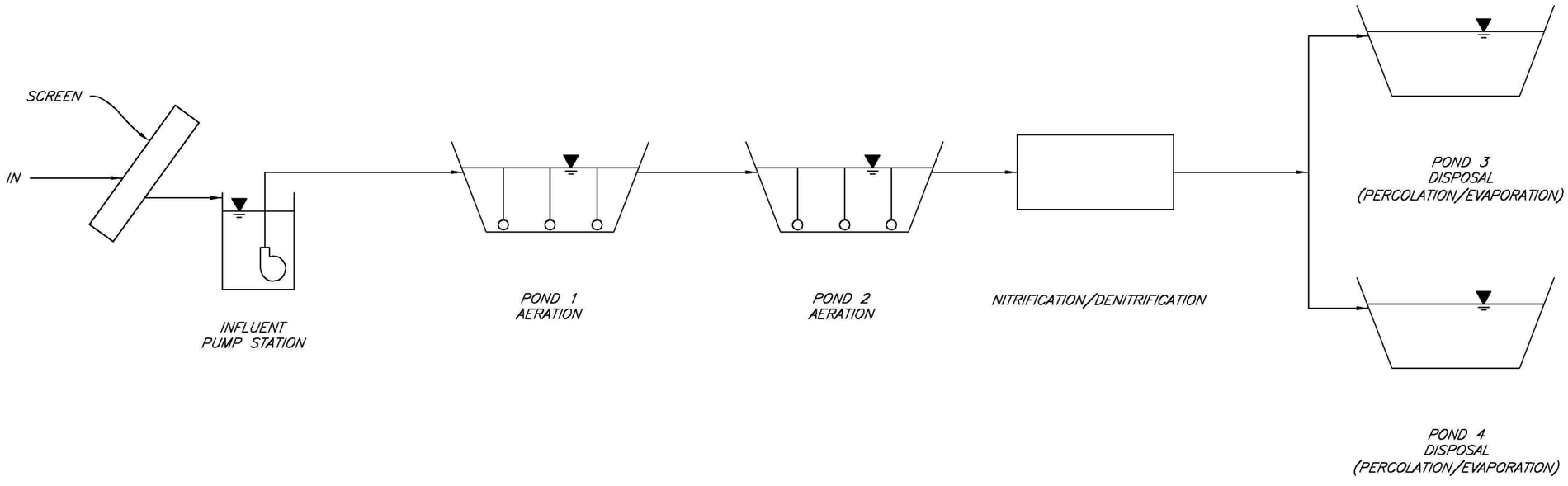
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Town of Fort Jones
Wastewater Facilities Plan
Fort Jones, California

Alternative 4: Aeration with Relocated Disposal Ponds
SHN 516035

August 2022 | 516035-FJ-WWTF-SITE_RECOVERED_08092022 | Figure 4

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	Town of Fort Jones Wastewater Facilities Plan Fort Jones, California	Alternative 4 Process Flow Diagram SHN 516035
	August 2022 | 516035-FJ-WWTF-SITE	Figure 5

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Table 3. Estimated Project Costs for Alternative 4, Aeration with Relocated Disposal Ponds Wastewater Facilities Plan Addendum, Town of Fort Jones, CA

Item Description[a]	Estimated Cost
Earthwork	$490,000
Biosolids Disposal	$117,000
Pond Lining	$273,000
Pond Aeration System	$168,000
Headworks/Blower/Office Building	$300,000
Influent Pump Station	$350,000
Influent Screening System and Channel	$221,000
Backup Generator	$80,000
Pond Effluent Control Structure	$115,000
14 ft Flat Bottom Boat	$6,000
SCADA System	$44,000
Engineered Nitrification/Denitrification System	$638,000
Site Electrical	$115,000
Influent Flow Meter	$23,000
Nonpotable Well	$30,000
Mobilization (12%)	$356,000
Construction Subtotal	$3,326,000
Contingency (30%)	$998,000
Total Construction	**$4,324,000**
Land Acquisition[b]	$60,000
Engineering and Permitting (20%)	$865,000
Administration and Legal (4%)	$173,000
Total Project	**$5,422,000**

a. See Appendix 4 for additional detail
b. 0.6 acres adjacent to WWTF; see text for additional discussion

Table 4. Estimated Operational Costs for Alternative 4, Aeration with Relocated Disposal Ponds Wastewater Facilities Plan Addendum, Town of Fort Jones, CA

Item Description[a]	Annual O&M[b] Costs
Labor, licensed operator	$46,400
Cell/SCADA[c] System	$1,900
Trash Service	$500
Electrical Costs	$46,100
Nitrification/Denitrification	$77,400
Sludge Handling	$2,200
Operating Reserve (10%)	$17,500
Short Lived Asset Reserve (10%)	$17,500
Annual O&M Costs	**$209,500**

a. See text and Appendix 5 for additional detail
b. O&M: operations and maintenance
c. SCADA: Supervisory Control and Data Acquisition

3.0 Net Present Value Analysis

A Net Present Value Analysis was not performed since the recommended alternative has been chosen based on non-monetary factors, mainly the acceptability of the effluent disposal method to the RWQCB.

4.0 Recommended Alternative

Based on discussion with the RWQCB, Alternative 4, Aeration with Relocated Disposal Ponds and an engineered nitrification/denitrification system, is the recommended alternative, with an estimated project cost of $5,422,000.

NRCS Soil Survey

1

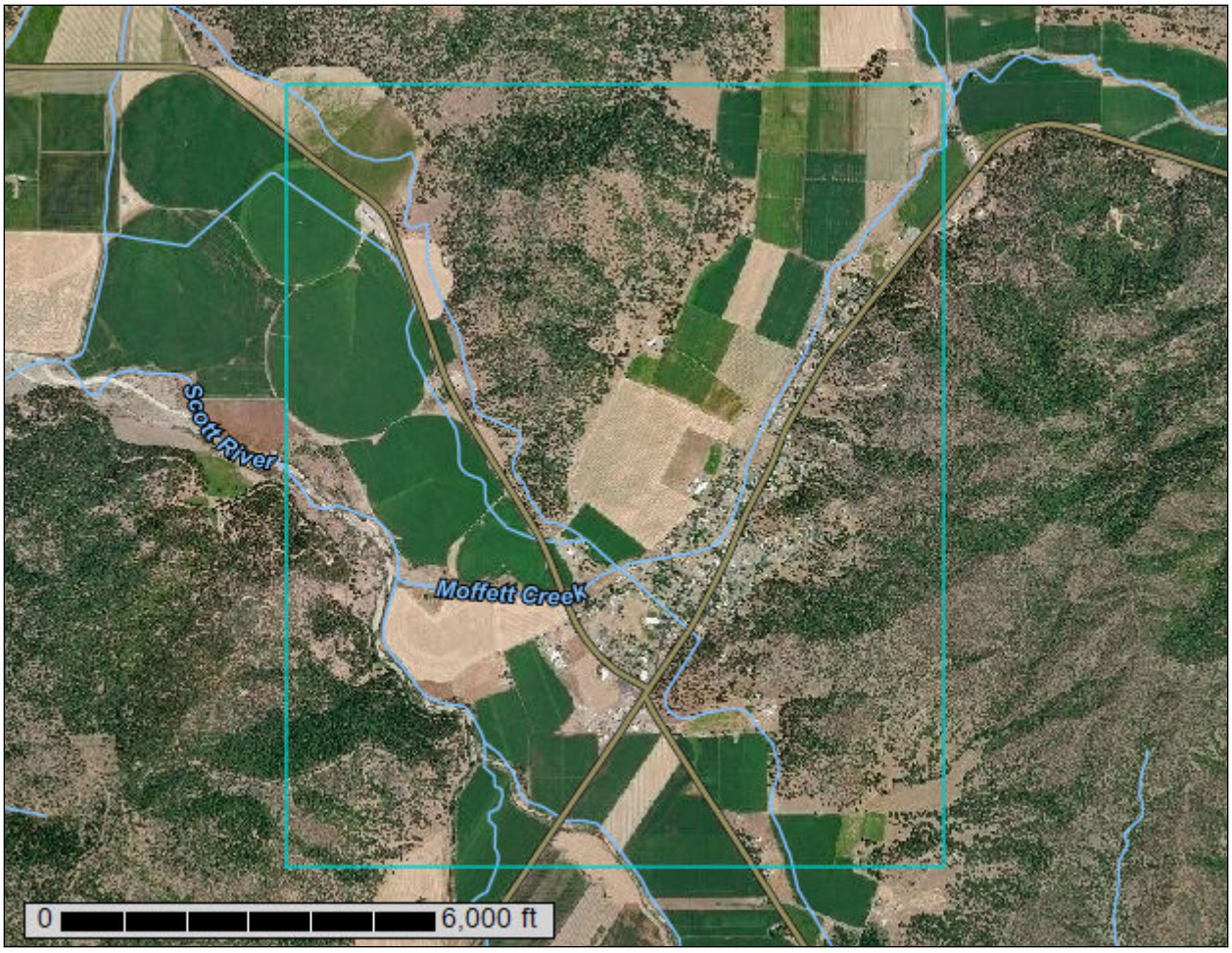
United States Department of Agriculture

NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for Siskiyou County, California, Central Part



November 21, 2019

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

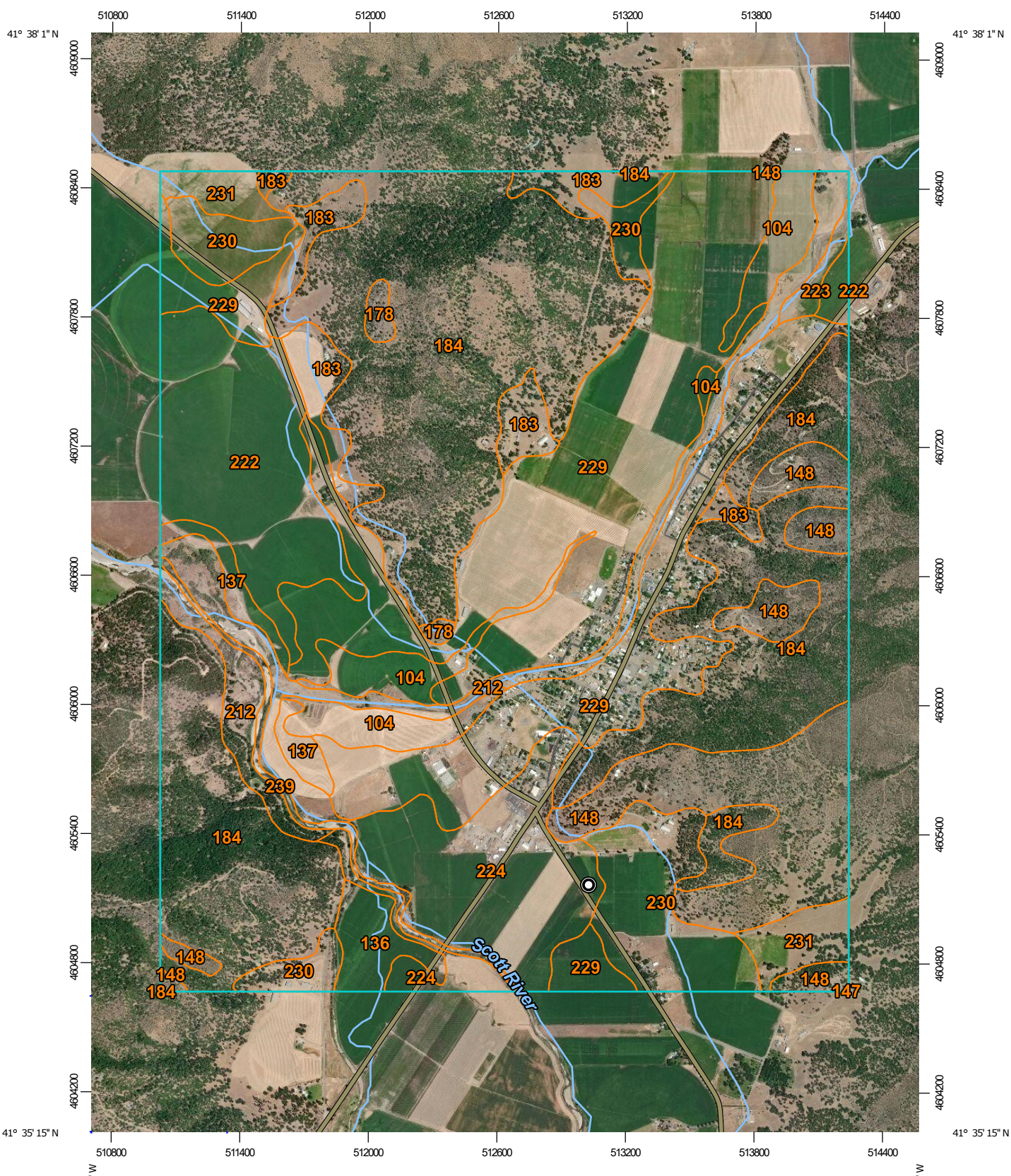
After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report
Soil Map



Map Scale: 1:24,900 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 350 700 1400 2100

Feet: 0 1000 2000 4000 6000

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 10N WGS84

MAP LEGEND

Area of Interest (AOI)

- Area of Interest (AOI)

Soils

- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features

- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features

- Streams and Canals

Transportation

- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background

- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Siskiyou County, California, Central Part
Survey Area Data: Version 11, Sep 16, 2019

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Oct 18, 2013—Aug 14, 2017

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
104	Atter very gravelly sandy loam, 0 to 5 percent slopes	108.8	3.6%
136	Diyou loam	35.2	1.2%
137	Diyou loam, drained	30.9	1.0%
147	Duzel gravelly loam, 9 to 15 percent slopes	0.0	0.0%
148	Duzel-Jilson-Facey complex, 15 to 50 percent slopes	244.6	8.1%
178	Lithic Xerorthents-Rock outcrop complex, 0 to 65 percent slopes*	11.0	0.4%
183	Marpa-Kinkel-Boomer, cool complex, 5 to 15 percent slopes	105.1	3.5%
184	Marpa-Kinkel-Boomer, cool complex, 15 to 50 percent slopes	944.6	31.1%
212	Riverwash	148.6	4.9%
222	Settlemeyer loam, 0 to 2 percent slopes	210.1	6.9%
223	Settlemeyer loam, drained, 2 to 5 percent slopes	11.5	0.4%
224	Settlemeyer variant silt loam	204.0	6.7%
229	Stoner gravelly sandy loam, 0 to 2 percent slopes	728.8	24.0%
230	Stoner gravelly sandy loam, 2 to 5 percent slopes	179.7	5.9%
231	Stoner gravelly sandy loam, 5 to 15 percent slopes	53.3	1.8%
239	Water	20.8	0.7%
Totals for Area of Interest		**3,037.2**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the

characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered

practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Siskiyou County, California, Central Part

104—Atter very gravelly sandy loam, 0 to 5 percent slopes

Map Unit Setting

National map unit symbol: hdmw
Elevation: 2,800 to 3,200 feet
Mean annual precipitation: 16 to 30 inches
Mean annual air temperature: 50 to 52 degrees F
Frost-free period: 100 to 150 days
Farmland classification: Not prime farmland

Map Unit Composition

Atter and similar soils: 85 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Atter

Setting

Landform: Alluvial fans
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from igneous, metamorphic and sedimentary rock

Typical profile

H1 - 0 to 18 inches: very gravelly sandy loam
H2 - 18 to 60 inches: stratified very cobbly sand to very cobbly loamy sand

Properties and qualities

Slope: 0 to 5 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Somewhat excessively drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): High to very high (5.95 to 19.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: Rare
Frequency of ponding: None
Available water storage in profile: Very low (about 2.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4s
Hydrologic Soil Group: A
Hydric soil rating: No

Minor Components

Stoner

Percent of map unit: 5 percent
Hydric soil rating: No

Riverwash

Percent of map unit: 3 percent
Landform: Drainageways
Hydric soil rating: Yes

Unnamed

Percent of map unit: 2 percent
Landform: Depressions
Hydric soil rating: Yes

136—Diyou loam

Map Unit Setting

National map unit symbol: hdnx
Elevation: 2,000 to 4,000 feet
Mean annual precipitation: 18 inches
Mean annual air temperature: 50 to 52 degrees F
Frost-free period: 125 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Diyou and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Diyou

Setting

Landform: Flood plains
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from mixed

Typical profile

H1 - 0 to 11 inches: loam
H2 - 11 to 60 inches: stratified sandy loam to clay loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Somewhat poorly drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)
Depth to water table: About 24 to 36 inches
Frequency of flooding: Occasional
Frequency of ponding: None

Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water storage in profile: High (about 9.5 inches)

Interpretive groups
Land capability classification (irrigated): 3w
Land capability classification (nonirrigated): 3w
Hydrologic Soil Group: C
Ecological site: WET MEADOW (R021XE139CA)
Hydric soil rating: Yes

Minor Components

Eros
Percent of map unit: 5 percent
Landform: Basin floors
Hydric soil rating: Yes

Settlemeyer variant
Percent of map unit: 4 percent
Landform: Flood plains
Hydric soil rating: Yes

Stoner
Percent of map unit: 4 percent
Hydric soil rating: No

Riverwash
Percent of map unit: 2 percent
Landform: Drainageways
Hydric soil rating: Yes

137—Diyou loam, drained

Map Unit Setting
National map unit symbol: hdny
Elevation: 2,000 to 4,000 feet
Mean annual precipitation: 18 inches
Mean annual air temperature: 50 to 52 degrees F
Frost-free period: 95 to 130 days
Farmland classification: Prime farmland if irrigated and drained

Map Unit Composition
Diyou and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Diyou

Setting
Landform: Flood plains
Landform position (two-dimensional): Summit

Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from igneous, metamorphic and sedimentary rock

Typical profile

H1 - 0 to 11 inches: loam
H2 - 11 to 60 inches: stratified sandy loam to clay loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Somewhat poorly drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)
Depth to water table: About 36 to 60 inches
Frequency of flooding: Rare
Frequency of ponding: None
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water storage in profile: High (about 9.5 inches)

Interpretive groups

Land capability classification (irrigated): 2w
Land capability classification (nonirrigated): 3w
Hydrologic Soil Group: C
Ecological site: WET MEADOW (R021XE139CA)
Hydric soil rating: Yes

Minor Components

Esro

Percent of map unit: 4 percent
Landform: Basin floors
Hydric soil rating: Yes

Settlemeyer variant

Percent of map unit: 4 percent
Landform: Flood plains
Hydric soil rating: Yes

Stoner

Percent of map unit: 4 percent
Hydric soil rating: No

Riverwash

Percent of map unit: 2 percent
Landform: Drainageways
Hydric soil rating: Yes

Unnamed

Percent of map unit: 1 percent
Landform: Depressions
Hydric soil rating: Yes

147—Duzel gravelly loam, 9 to 15 percent slopes

Map Unit Setting

National map unit symbol: hdp8
Elevation: 2,200 to 5,000 feet
Mean annual precipitation: 18 inches
Mean annual air temperature: 46 degrees F
Frost-free period: 125 days
Farmland classification: Not prime farmland

Map Unit Composition

Duzel and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Duzel

Setting

Landform: Mountains
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Mountainflank
Down-slope shape: Concave
Across-slope shape: Convex
Parent material: Residuum weathered from metamorphic rock

Typical profile

H1 - 0 to 13 inches: gravelly loam
H2 - 13 to 30 inches: gravelly loam, gravelly clay loam
H2 - 13 to 30 inches: very gravelly loam, very gravelly clay loam
H3 - 30 to 38 inches: weathered bedrock
H3 - 30 to 38 inches:
H4 - 38 to 42 inches:

Properties and qualities

Slope: 9 to 15 percent
Depth to restrictive feature: 20 to 40 inches to paralithic bedrock
Natural drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: Moderate (about 7.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: C
Ecological site: GRAVELLY LOAM (R005XD074CA)

Hydric soil rating: No

Minor Components

Hilt

Percent of map unit: 5 percent
Hydric soil rating: No

Marpa

Percent of map unit: 5 percent
Hydric soil rating: No

Facey

Percent of map unit: 3 percent
Hydric soil rating: No

Rock outcrop

Percent of map unit: 2 percent
Hydric soil rating: No

148—Duzel-Jilson-Facey complex, 15 to 50 percent slopes

Map Unit Setting

National map unit symbol: hdp9
Elevation: 2,200 to 5,000 feet
Mean annual precipitation: 16 to 20 inches
Mean annual air temperature: 43 to 48 degrees F
Frost-free period: 125 days
Farmland classification: Not prime farmland

Map Unit Composition

Duzel and similar soils: 40 percent
Jilson and similar soils: 30 percent
Facey and similar soils: 20 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Duzel

Setting

Landform: Mountains
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Mountainflank
Down-slope shape: Concave
Across-slope shape: Convex
Parent material: Residuum weathered from metamorphic rock

Typical profile

H1 - 0 to 13 inches: gravelly loam
H2 - 13 to 30 inches: gravelly loam, gravelly clay loam
H2 - 13 to 30 inches: very gravelly loam, very gravelly clay loam
H3 - 30 to 38 inches: weathered bedrock

H3 - 30 to 38 inches:
H4 - 38 to 42 inches:

Properties and qualities

Slope: 15 to 50 percent
Depth to restrictive feature: 20 to 40 inches to paralithic bedrock
Natural drainage class: Well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: Moderate (about 7.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: C
Ecological site: GRAVELLY LOAM (R005XD074CA)
Hydric soil rating: No

Description of Jilson

Setting

Landform: Mountains
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Mountainflank
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Residuum weathered from metamorphic rock

Typical profile

H1 - 0 to 3 inches: gravelly loam
H2 - 3 to 14 inches: gravelly loam, gravelly clay loam
H2 - 3 to 14 inches: unweathered bedrock
H3 - 14 to 18 inches:

Properties and qualities

Slope: 15 to 50 percent
Depth to restrictive feature: 10 to 20 inches to lithic bedrock
Natural drainage class: Well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: Low (about 3.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: D
Ecological site: SHALLOW GRAVELLY LOAM (R005XD076CA)
Hydric soil rating: No

Description of Facey

Setting

Landform: Mountains
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Mountainflank
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Residuum weathered from metamorphic rock

Typical profile

H1 - 0 to 10 inches: loam
H2 - 10 to 59 inches: clay loam, loam
H2 - 10 to 59 inches: unweathered bedrock
H3 - 59 to 63 inches:

Properties and qualities

Slope: 15 to 50 percent
Depth to restrictive feature: 40 to 60 inches to lithic bedrock
Natural drainage class: Well drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: Very high (about 15.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: C
Ecological site: LOAMY (R005XD033CA)
Hydric soil rating: No

Minor Components

Hilt

Percent of map unit: 4 percent
Hydric soil rating: No

Rock outcrop

Percent of map unit: 3 percent
Hydric soil rating: No

Rubble land

Percent of map unit: 3 percent
Hydric soil rating: No

178—Lithic Xerorthents-Rock outcrop complex, 0 to 65 percent slopes*

Map Unit Setting

National map unit symbol: hdq8
Elevation: 2,000 to 6,000 feet
Mean annual precipitation: 20 to 50 inches
Mean annual air temperature: 48 to 52 degrees F
Frost-free period: 50 to 125 days
Farmland classification: Not prime farmland

Map Unit Composition

Lithic xerorthents and similar soils: 40 percent
Rock outcrop: 30 percent
Minor components: 29 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Lithic Xerorthents

Setting

Landform: Mountains
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Mountainflank
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Residuum weathered from igneous, metamorphic and sedimentary rock

Typical profile

H1 - 0 to 15 inches: variable
H2 - 15 to 19 inches: bedrock

Properties and qualities

Slope: 0 to 65 percent
Percent of area covered with surface fragments: 2.0 percent
Depth to restrictive feature: 8 to 20 inches to lithic bedrock
Natural drainage class: Excessively drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to very high (0.06 to 20.12 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: D

Hydric soil rating: No

Description of Rock Outcrop

Setting

Landform: Mountains
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Mountainflank
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Igneous, metamorphic and sedimentary rock

Typical profile

H1 - 0 to 4 inches: unweathered bedrock

Properties and qualities

Slope: 0 to 65 percent
Depth to restrictive feature: 0 to 4 inches to lithic bedrock
Natural drainage class: Excessively drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Very low (0.00 in/hr)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8s
Hydric soil rating: No

Minor Components

Unnamed

Percent of map unit: 14 percent
Hydric soil rating: No

Rubble land

Percent of map unit: 10 percent
Hydric soil rating: No

Riverwash

Percent of map unit: 5 percent
Landform: Drainageways
Hydric soil rating: Yes

183—Marpa-Kinkel-Boomer, cool complex, 5 to 15 percent slopes

Map Unit Setting

National map unit symbol: hdqf
Elevation: 2,500 to 5,000 feet
Mean annual precipitation: 35 inches
Mean annual air temperature: 48 degrees F
Frost-free period: 125 days
Farmland classification: Not prime farmland

Map Unit Composition

Marpa and similar soils: 30 percent
Kinkel and similar soils: 25 percent
Boomer and similar soils: 20 percent
Minor components: 25 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Marpa

Setting

Landform: Mountains
Landform position (two-dimensional): Summit, shoulder
Landform position (three-dimensional): Upper third of mountainflank
Down-slope shape: Concave
Across-slope shape: Convex
Parent material: Residuum weathered from metamorphic rock

Typical profile

H1 - 0 to 14 inches: gravelly loam
H2 - 14 to 30 inches: very gravelly clay loam, very gravelly sandy clay loam
H2 - 14 to 30 inches: unweathered bedrock
H3 - 30 to 34 inches:

Properties and qualities

Slope: 5 to 15 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Natural drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: Low (about 4.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: C
Hydric soil rating: No

Description of Kinkel

Setting

Landform: Mountains
Landform position (two-dimensional): Shoulder, summit
Landform position (three-dimensional): Upper third of mountainflank
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Residuum weathered from metamorphic rock

Typical profile

H1 - 0 to 9 inches: very gravelly loam
H2 - 9 to 60 inches: very gravelly loam, very gravelly sandy loam
H2 - 9 to 60 inches:

Properties and qualities

Slope: 5 to 15 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: Moderate (about 8.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: B
Hydric soil rating: No

Description of Boomer

Setting

Landform: Mountains
Landform position (two-dimensional): Shoulder, summit
Landform position (three-dimensional): Upper third of mountainflank
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Residuum weathered from metamorphic rock

Typical profile

H1 - 0 to 10 inches: gravelly loam
H2 - 10 to 53 inches: gravelly sandy clay loam, gravelly clay loam
H2 - 10 to 53 inches: weathered bedrock
H3 - 53 to 57 inches:

Properties and qualities

Slope: 5 to 15 percent
Depth to restrictive feature: 40 to 60 inches to paralithic bedrock
Natural drainage class: Well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: Very high (about 13.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: C
Hydric soil rating: No

Minor Components

Rock outcrop

Percent of map unit: 10 percent
Hydric soil rating: No

Etsel

Percent of map unit: 5 percent
Hydric soil rating: No

Kindig

Percent of map unit: 5 percent
Hydric soil rating: No

Neuns

Percent of map unit: 5 percent
Hydric soil rating: No

184—Marpa-Kinkel-Boomer, cool complex, 15 to 50 percent slopes

Map Unit Setting

National map unit symbol: hdqg
Elevation: 2,500 to 5,000 feet
Mean annual precipitation: 35 inches
Mean annual air temperature: 48 degrees F
Frost-free period: 110 to 140 days
Farmland classification: Not prime farmland

Map Unit Composition

Marpa and similar soils: 30 percent
Kinkel and similar soils: 25 percent
Boomer and similar soils: 20 percent
Minor components: 23 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Marpa

Setting

Landform: Mountains
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Mountainflank
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Residuum weathered from metamorphic rock

Typical profile

H1 - 0 to 14 inches: gravelly loam
H2 - 14 to 30 inches: very gravelly clay loam, very gravelly sandy clay loam
H2 - 14 to 30 inches: unweathered bedrock
H3 - 30 to 34 inches:

Properties and qualities

Slope: 15 to 50 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock

Natural drainage class: Well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: Low (about 4.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: C
Hydric soil rating: No

Description of Kinkel

Setting

Landform: Mountains
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Mountainflank
Down-slope shape: Concave
Across-slope shape: Convex
Parent material: Residuum weathered from metamorphic rock

Typical profile

H1 - 0 to 9 inches: very gravelly loam
H2 - 9 to 60 inches: very gravelly loam, very gravelly sandy loam
H2 - 9 to 60 inches:

Properties and qualities

Slope: 15 to 50 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: Moderate (about 8.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: B
Hydric soil rating: No

Description of Boomer

Setting

Landform: Mountains
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Mountainflank
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Residuum weathered from metamorphic rock

Typical profile

H1 - 0 to 10 inches: gravelly loam
H2 - 10 to 53 inches: gravelly sandy clay loam, gravelly clay loam
H2 - 10 to 53 inches: weathered bedrock
H3 - 53 to 57 inches:

Properties and qualities

Slope: 15 to 50 percent
Depth to restrictive feature: 40 to 60 inches to paralithic bedrock
Natural drainage class: Well drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: Very high (about 13.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: C
Hydric soil rating: No

Minor Components

Rock outcrop

Percent of map unit: 14 percent
Hydric soil rating: No

Etsel

Percent of map unit: 3 percent
Hydric soil rating: No

Kindig

Percent of map unit: 3 percent
Hydric soil rating: No

Neuns

Percent of map unit: 3 percent
Hydric soil rating: No

212—Riverwash

Map Unit Setting

National map unit symbol: hdrc
Elevation: 700 to 2,900 feet
Mean annual precipitation: 8 to 15 inches
Mean annual air temperature: 46 to 52 degrees F

Frost-free period: 110 to 180 days
Farmland classification: Not prime farmland

Map Unit Composition
Riverwash: 75 percent
Minor components: 24 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Riverwash

Setting
Landform: Drainageways, flood plains
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from igneous, metamorphic and sedimentary rock

Typical profile
H1 - 0 to 60 inches: stratified extremely gravelly coarse sand to gravelly sand

Interpretive groups
Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8w
Hydric soil rating: Yes

Minor Components

Diyou
Percent of map unit: 14 percent
Landform: Flood plains
Hydric soil rating: Yes

Rock outcrop
Percent of map unit: 5 percent
Hydric soil rating: No

Unnamed
Percent of map unit: 5 percent
Hydric soil rating: No

222—Settlemeyer loam, 0 to 2 percent slopes

Map Unit Setting
National map unit symbol: hdrp
Elevation: 2,000 to 4,000 feet
Mean annual precipitation: 15 inches
Mean annual air temperature: 50 degrees F
Frost-free period: 125 days
Farmland classification: Not prime farmland

Map Unit Composition

Settlemeyer and similar soils: 85 percent
Minor components: 9 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Settlemeyer

Setting

Landform: Flood plains
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from igneous, metamorphic and sedimentary rock

Typical profile

H1 - 0 to 10 inches: loam
H2 - 10 to 66 inches: stratified fine sandy loam to clay

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Poorly drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)
Depth to water table: About 0 inches
Frequency of flooding: Occasional
Frequency of ponding: Frequent
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water storage in profile: Moderate (about 8.0 inches)

Interpretive groups

Land capability classification (irrigated): 6w
Land capability classification (nonirrigated): 6w
Hydrologic Soil Group: C/D
Ecological site: WET MEADOW (R021XE139CA)
Hydric soil rating: Yes

Minor Components

Stoner

Percent of map unit: 3 percent
Hydric soil rating: No

Diyou

Percent of map unit: 2 percent
Landform: Drainageways
Hydric soil rating: Yes

Esro

Percent of map unit: 2 percent
Landform: Basin floors
Hydric soil rating: Yes

Riverwash

Percent of map unit: 2 percent
Landform: Flood plains
Hydric soil rating: Yes

223—Settlemeyer loam, drained, 2 to 5 percent slopes

Map Unit Setting

National map unit symbol: hdrq
Elevation: 2,000 to 4,000 feet
Mean annual precipitation: 15 inches
Mean annual air temperature: 50 degrees F
Frost-free period: 125 days
Farmland classification: Not prime farmland

Map Unit Composition

Settlemeyer and similar soils: 85 percent
Minor components: 9 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Settlemeyer

Setting

Landform: Flood plains
Landform position (two-dimensional): Shoulder, summit
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from igneous, metamorphic and sedimentary rock

Typical profile

H1 - 0 to 10 inches: loam
H2 - 10 to 66 inches: stratified fine sandy loam to clay

Properties and qualities

Slope: 2 to 5 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Poorly drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)
Depth to water table: About 0 to 24 inches
Frequency of flooding: Occasional
Frequency of ponding: Frequent
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water storage in profile: Moderate (about 8.0 inches)

Interpretive groups

Land capability classification (irrigated): 3w
Land capability classification (nonirrigated): 6w
Hydrologic Soil Group: C/D
Ecological site: WET MEADOW (R021XE139CA)
Hydric soil rating: Yes

Minor Components

Stoner

Percent of map unit: 3 percent
Hydric soil rating: No

Diyou

Percent of map unit: 2 percent
Landform: Drainageways
Hydric soil rating: Yes

Esro

Percent of map unit: 2 percent
Landform: Basin floors
Hydric soil rating: Yes

Riverwash

Percent of map unit: 2 percent
Landform: Flood plains
Hydric soil rating: Yes

224—Settlemeyer variant silt loam

Map Unit Setting

National map unit symbol: hdrr
Elevation: 2,000 to 3,000 feet
Mean annual precipitation: 18 inches
Mean annual air temperature: 50 degrees F
Frost-free period: 125 days
Farmland classification: Not prime farmland

Map Unit Composition

Settlemeyer variant and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Settlemeyer Variant

Setting

Landform: Alluvial fans
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear

Parent material: Alluvium derived from igneous, metamorphic and sedimentary rock

Typical profile

H1 - 0 to 19 inches: silt loam
H2 - 19 to 68 inches: clay loam, clay, silty clay loam
H2 - 19 to 68 inches: stratified gravelly loam to gravelly clay loam
H2 - 19 to 68 inches:
H3 - 68 to 80 inches:

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Poorly drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 0 to 18 inches
Frequency of flooding: Occasional
Frequency of ponding: Frequent
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water storage in profile: Very high (about 25.1 inches)

Interpretive groups

Land capability classification (irrigated): 3w
Land capability classification (nonirrigated): 3w
Hydrologic Soil Group: C/D
Ecological site: WET MEADOW (R021XE139CA)
Hydric soil rating: Yes

Minor Components

Unnamed

Percent of map unit: 10 percent
Landform: Flood plains
Hydric soil rating: Yes

Unnamed

Percent of map unit: 5 percent
Hydric soil rating: No

229—Stoner gravelly sandy loam, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: hdrx
Elevation: 2,000 to 4,000 feet
Mean annual precipitation: 18 inches
Mean annual air temperature: 50 degrees F
Frost-free period: 125 days
Farmland classification: Prime farmland if irrigated

Map Unit Composition

Stoner and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Stoner

Setting

Landform: Alluvial fans
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from igneous rock

Typical profile

H1 - 0 to 12 inches: gravelly sandy loam
H2 - 12 to 36 inches: gravelly sandy loam, gravelly loam
H2 - 12 to 36 inches: very gravelly loam, very gravelly sandy loam
H3 - 36 to 60 inches:
H3 - 36 to 60 inches:

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: Moderate (about 8.7 inches)

Interpretive groups

Land capability classification (irrigated): 2s
Land capability classification (nonirrigated): 3s
Hydrologic Soil Group: B
Ecological site: GRAVELLY COARSE LOAMY (R021XE168CA)
Hydric soil rating: No

Minor Components

Bonnet

Percent of map unit: 5 percent
Hydric soil rating: No

Dotta

Percent of map unit: 5 percent
Hydric soil rating: No

Diyou

Percent of map unit: 3 percent
Landform: Flood plains
Hydric soil rating: Yes

Riverwash

Percent of map unit: 2 percent
Landform: Drainageways
Hydric soil rating: Yes

230—Stoner gravelly sandy loam, 2 to 5 percent slopes

Map Unit Setting

National map unit symbol: hdry
Elevation: 2,000 to 4,000 feet
Mean annual precipitation: 18 inches
Mean annual air temperature: 50 degrees F
Frost-free period: 125 days
Farmland classification: Prime farmland if irrigated

Map Unit Composition

Stoner and similar soils: 85 percent
Minor components: 12 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Stoner

Setting

Landform: Alluvial fans
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from igneous rock

Typical profile

H1 - 0 to 12 inches: gravelly sandy loam
H2 - 12 to 36 inches: gravelly sandy loam, gravelly loam
H2 - 12 to 36 inches: very gravelly loam, very gravelly sandy loam
H3 - 36 to 60 inches:
H3 - 36 to 60 inches:

Properties and qualities

Slope: 2 to 5 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: Moderate (about 8.7 inches)

Interpretive groups

Land capability classification (irrigated): 2e
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: B
Ecological site: GRAVELLY COARSE LOAMY (R021XE168CA)
Hydric soil rating: No

Minor Components

Bonnet

Percent of map unit: 5 percent
Hydric soil rating: No

Dotta

Percent of map unit: 5 percent
Hydric soil rating: No

Riverwash

Percent of map unit: 2 percent
Landform: Drainageways
Hydric soil rating: Yes

231—Stoner gravelly sandy loam, 5 to 15 percent slopes

Map Unit Setting

National map unit symbol: hdrz
Elevation: 2,000 to 4,000 feet
Mean annual precipitation: 18 inches
Mean annual air temperature: 50 degrees F
Frost-free period: 125 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Stoner and similar soils: 85 percent
Minor components: 12 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Stoner

Setting

Landform: Alluvial fans
Landform position (two-dimensional): Summit, backslope, shoulder
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from igneous rock

Typical profile

H1 - 0 to 12 inches: gravelly sandy loam
H2 - 12 to 36 inches: gravelly sandy loam, gravelly loam
H2 - 12 to 36 inches: very gravelly loam, very gravelly sandy loam

H3 - 36 to 60 inches:
H3 - 36 to 60 inches:

Properties and qualities

Slope: 5 to 15 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: Moderate (about 8.7 inches)

Interpretive groups

Land capability classification (irrigated): 3e
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: B
Ecological site: GRAVELLY COARSE LOAMY (R021XE168CA)
Hydric soil rating: No

Minor Components

Bonnet

Percent of map unit: 5 percent
Hydric soil rating: No

Dotta

Percent of map unit: 5 percent
Hydric soil rating: No

Riverwash

Percent of map unit: 2 percent
Landform: Flood plains
Hydric soil rating: Yes

239—Water

Map Unit Composition

Water: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

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Forest Irrigation Calculations

2

CONSULTING ENGINEERS & GEOLOGISTS, INC.
803 Main Street, Suite 401
Klamath Falls, OR 97601
Tel. 541/827-7855

JOB	516035		
SHEET NO.	1	OF	1
CALC'ED BY	AHR	DATE	11/25/2019
CHECKED BY		DATE	
		updated	3/12/2021

Determine the area of forested land needed to dispose of Ft. Jones' treated wastewater effluent.

Relevant data:

1 .Secondary treatment will be performed

2. Design flow data from 2018 PER:

ADWF: 67,200 gpd

Peak Month: 4,030,000 gal/mon

134,400 gpd

Note: 2017 design flows used since no significant changes in population has occurred.

3. Application Rate: 2 inches/week

Source: EPA832-F-02-012, Sept 2002 (design criteria: 0.5-4 inches/week)

Calculation:

Convert flow in gpd to ac-in/wk

ac-in/wk = flow gpd * 7 d/wk * (1 cu ft / 7.48 gal) * (1 ac / 43,560 sq ft) * (12 in/ft)

Determine acreage needed based on application rate listed above

Area (ac) = flow (ac-in/wk) / application rate (in/wk)

Design Flow	Area (ac)
ADWF	8.7
Peak Month	17.3

A 40-80 acre parcel will provide adequate land for effluent disposal.

This size parcel is minimum available in disposal area. See report text for additional info.

Recommend peak month area plus 50% for irrigation to allow for rotation of disposal area.

Irrigation area = 1.5 * 17.3 ac = 25.95 ac, say 26 acres.

Self-Monitoring Reports

3

Second Quarter 2017
Self Monitoring Report

The Town of Fort Jones
Wastewater Treatment Facility
Fort Jones, California
Order No. R1-2014-0029

Prepared for:

The Town of Fort Jones

Consulting Engineers & Geologists, Inc.

350 Hartnell Avenue, Suite B
Redding, CA 96002-1875
530-221-5424

July 2017
514009

CONSULTING ENGINEERS & GEOLOGISTS, INC.
350 Hartnell Ave., Ste B, Redding, CA 96002-1875 • 530-221-5424 • FAX: 530-221-0135 • reddinginfo@shn-engr.com

Reference: 514009

July 15, 2017

Mr. Roy O'Connor
North Coast Regional Water Quality Control Board
5550 Skylane Blvd., Suite A
Santa Rosa, CA 95403

Subject: Second Quarter 2017 Self Monitoring Report
Town of Fort Jones Wastewater Treatment Facility
Order No. R1-2014-0029

Dear Mr. O'Connor:

At the request of the Town of Fort Jones, SHN Consulting Engineers & Geologists, Inc. is providing you with this Second Quarter 2017 self monitoring report for the Fort Jones Wastewater Treatment Facility. This report has been prepared in accordance with the requirements of the Waste Discharge Requirements (WDR) and as stipulated in Attachment B-Monitoring and Reporting Program (MRP), of the Order. The facility information is located below:

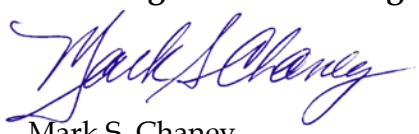
Facility Information	
Facility Name and Address	The Town of Fort Jones Wastewater Treatment Facility Scott River Road, Fort Jones, CA 96032
WDID	1A81157OSIS
Monitoring/Reporting Period	April, May and June 2017 (2nd Quarter 2017)
Violations of the WDR	Settleable Solids exceeded the monthly average limit concentrations during the reporting period.
Corrective Actions Taken/Planned	No corrective action to settleable solids can be taken until a new treatment system is constructed.
Corrective Action Time Schedule	The Town is currently preparing preliminary engineering designs for a new wastewater treatment system to provide corrective action for the deficiencies noted.

Information contained in this report was collected by the Town of Fort Jones wastewater treatment staff, with analytical results developed by Basic Laboratory of Redding, California a State Certified Laboratory (California ELAP Cert #1677 and #2718).

If you have any questions, please call me at (530) 221-5424 or Ken Smith at the Town of Fort Jones at (530) 468-2281.

Sincerely,

SHN Engineers & Geologists



Mark S. Chaney
Project Manager

MSC:llc

Enclosure: 2nd Quarter 2017 Self Monitoring Report
c. w/Encl: Mr. Ken Smith, Town of Fort Jones

Reference: 514009

Second Quarter 2017
Self Monitoring Report

Town of Fort Jones
Wastewater Treatment Facility
Order No. R1-2014-0029

Prepared for:

Town of Fort Jones

Prepared by:

Engineers & Geologists
350 Hartnell Avenue, Suite B
Redding, CA 96002-1875
530-221-5424

July 2017

QA/QC: AR__

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Abbreviations and Acronyms

gpm	gallons per minute
mg	million gallons
mgd	million gallons per day
mg/l	milligrams per liter
ml/l/hr	milliliters per liter per hour
ADWF	Average Daily Dry Weather Flow
BGS	Below Ground Surface
BOD	Biochemical Oxygen Demand
C	Celsius
DO	Dissolved Oxygen
DP-001	Discharge Point Location
EFF-001	Effluent Monitoring Location
I&I	Inflow & Infiltration
INT-001	Internal Monitoring Location
MPN/100 ml	Most Probable Number per 100 milliliters
MW-1	Monitoring Well Location
N	Nitrogen
NA	Not Analyzed
ND	Non Detect
NL	No Limitation Identified
NR	Not Required
NS	Not Sampled
SHN	SHN Engineers & Geologists
SMR	Self Monitoring Report
SSO	Sanitary Sewer Overflow
TSS	Total Suspended Solids
WDR	Waste Discharge Requirements

1.0 Introduction

This report presents the results of wastewater treatment plant flows and effluent monitoring activities for the second quarter of 2017, at the Town of Fort Jones wastewater treatment facility (Order No. R1-2014-0029). The site is located on Scott River Road, Fort Jones, California. Refer to Figure 1. Flow data and effluent sampling was collected and performed by Town of Fort Jones wastewater staff with SHN Engineers & Geologists (SHN) developing the report on behalf of the Town of Fort Jones.

2.0 Monitoring Locations

2.1 Internal Monitoring Locations

An internal monitoring location has been established to collect effluent samples prior to disposal in existing percolation ponds. This internal monitoring location has been designated as INT-001. Refer to Figure 2 for a depiction of the location. At this time, the Monitoring Effluent (EFF-001) location and the Discharge Point (DP-001) are collocated at the same point.

2.2 Monitoring Well Locations

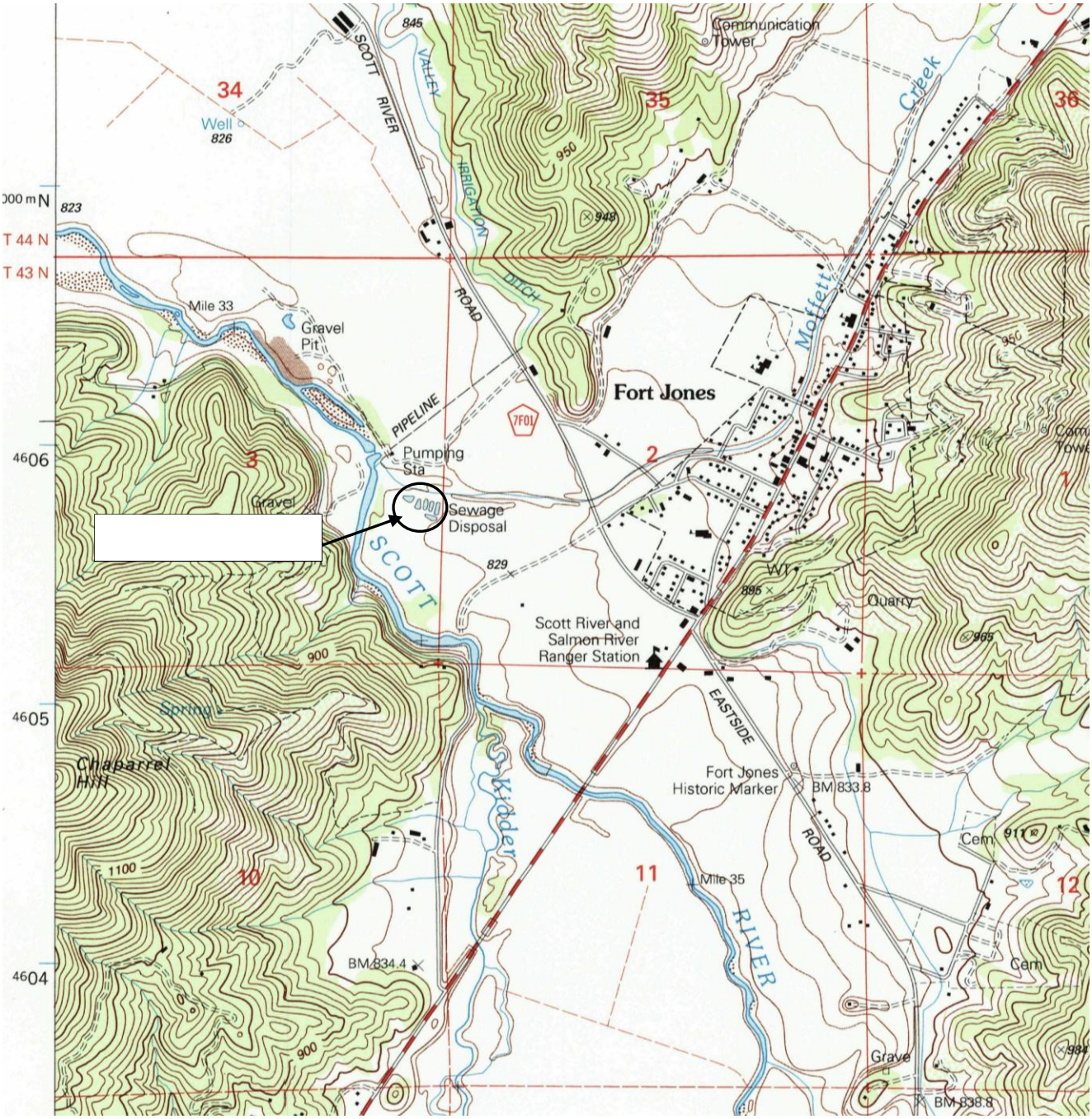
Monitoring wells were installed on April 18 and 19, 2017. A total of three (3) monitoring wells were installed, designated as Monitoring Well-1 (MW-1) which is the up-gradient well, and MW-2 and MW-3 down gradient wells. Refer to Figure 2 for a depiction of the locations. Personnel from SHN oversaw monitoring well installation. Monitoring wells were later developed by SHN on May 31, 2017 in preparation for groundwater sampling.

3.0 Effluent Monitoring

Wastewater effluent is sampled and analyzed at EFF-001 as required by the WDR. Effluent monitoring was conducted to acquire data for the constituents stipulated in the Order, and are summarized below. Additional constituents were also analyzed and are included in the results.

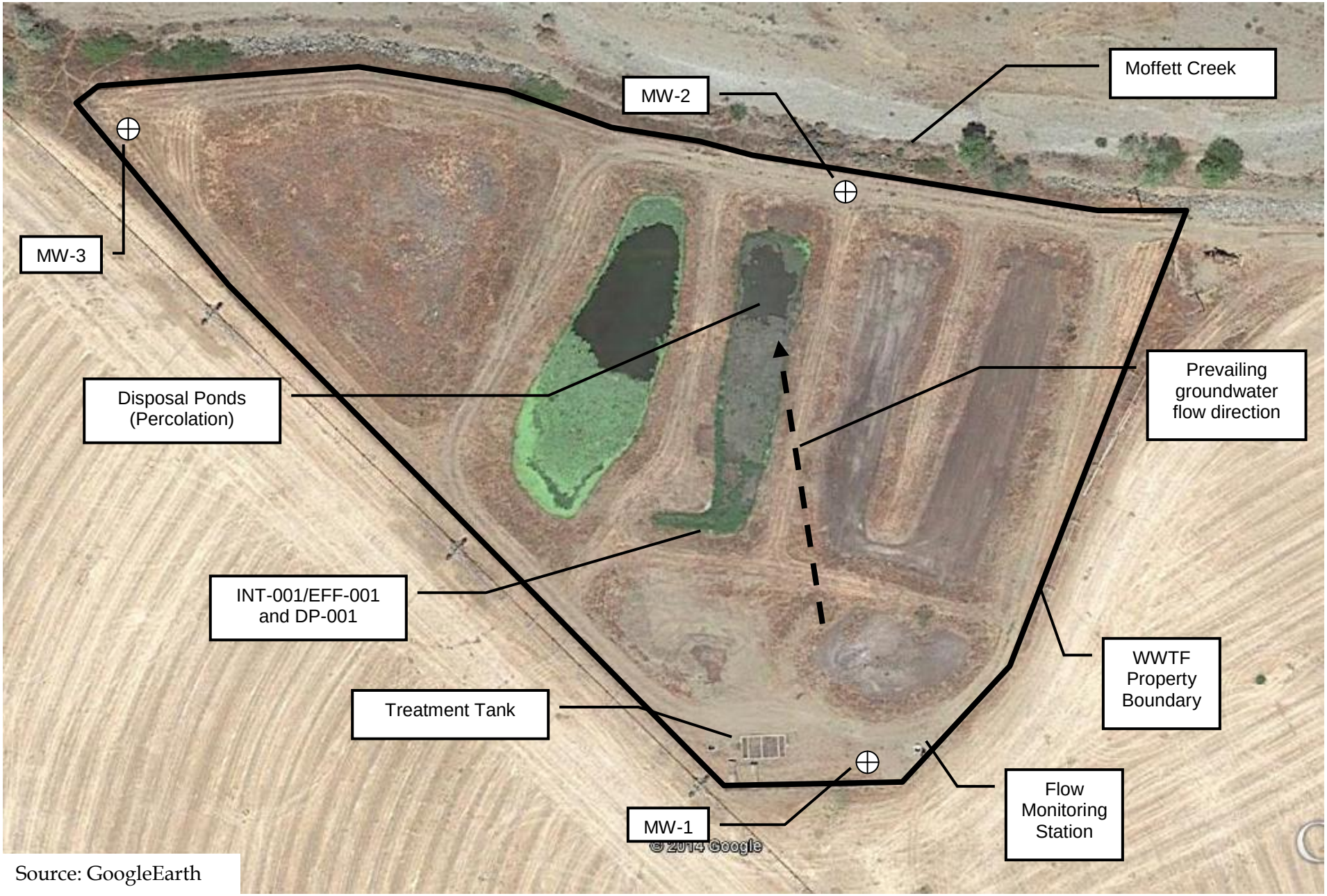
- Flow (mean daily)
- pH
- Dissolved Oxygen
- Biochemical Oxygen Demand (5-day at 20 C)
- Total Suspended Solids
- Settleable Solids
- Nitrogen, Total (N)
- Title 22 Pollutants (sampled once every three years, will be completed in 2017)

The Town of Fort Jones collected flow measurements and sampled the effluent with Basic Laboratory of Redding, California a State Certified Laboratory (California ELAP Cert #1677 and #2718) conducting laboratory analysis for the constituents listed above.



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Consulting Engineers & Geologists, Inc.	**Town of Fort Jones** **Waste Water Treatment Facility** **Fort Jones, California**	**Site Location Map** JOB #514009	
	March 2014	W:\2014\514009-FJ-WWTP\Figs\Figure 1.doc	Figure **#1**



Source: GoogleEarth

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Consulting Engineers & Geologists, Inc.

Town of Fort Jones
Waste Water Treatment Facility
Fort Jones, California

Effluent/Discharge Point and Monitoring Well Locations
INT-001/EFF-001/DP-001
MW-1, MW-2, MW-3
JOB #514009

July 2017 | W:\2014\514009-FJ-WWTP\Figs\Figure 2-Revised1.1.doc | Figure **#2**

3.1 Wastewater Flow Data

Influent wastewater flow data is collected at a permanent flow monitoring station installed prior to wastewater entering the existing treatment tank. Data is collected continuously with minimum and maximum daily values tabulated, and monthly summaries calculated for minimum, maximum and average gallons per minute and total gallons. Flow data are provided in Appendix A. Table 1 provides a summary of the monthly flow data.

As noted in the data, flows recorded during the reporting period showed a reducing volume trend heading into summer, with flows of 0.158 mgd, 0.074 mgd and 0.044 mgd for the months of April, May and June, respectively.

Table 1
Influent Wastewater Flow Data
2nd Quarter 2017
Town of Fort Jones Wastewater Facility, Fort Jones, California

Month	Instantaneous Maximum (gpm[1]/mgd[2])	Instantaneous Minimum (gpm/mgd)	ADWF[3] (mgd)	Total Monthly (mg[4])
April	177.414/0.255	56.192/0.081	0.158	4.749
May	121.605/0.175	8.811/0.013	0.074	2.289
June	92.293/0.133	5.562/0.008	0.044	1.332

1. gpm: gallons per minute
2. mgd: million gallons per day
3. Average Dry Weather Flow, corresponds to Mean Daily Flow in Town data sheets
4. mg: million gallons

3.2 Effluent Analytical Results

Table 2 summarizes the laboratory analytical results for the wastewater samples collected at the facility for the monitoring period. Analytical results are found in Appendix B. Those results show that all constituents of concern were within WDR limits, with the exception of settleable solids which had a measured value of 0.2 mg/l, exceeding the monthly maximum limit. A summary of Other Constituents Analyzed are provided in Table 3. While not required for analysis, this information is useful in determining overall wastewater characteristics for future treatment design alternatives.

Table 2
Wastewater Analytical Results, May 30, 2107
2nd Quarter 2017
WDR Constituents and Limitations
Town of Fort Jones Wastewater Facility, Fort Jones, California

Sample Location	BOD[1] (mg/l)[2]		TSS[3] (mg/l)		pH (pH Units)		Settleable Solids (ml/l/hr)[4]		DO[5] (mg/l)		N-Total[6] (mg/l		Title 22
	Measured	Limitations	Measured	Limitations	Measured	Limitations	Measured	Limitations	Measured	Limitations	Measured	Limitations	
Effluent[7]	**29**	**50/80[8]**	**17.0**	**50/80**	**8.10**	**6.0-9.0**	**0.2**	**0.1/0.2[9]**	**8.2**	**1.0[10]**	**16.1**	**NL[11]**	**NS[12]**

1. Biochemical Oxygen Demand (5-day at 20 C)
2. mg/l: milligrams/liter
3. Total Suspended Solids
4. ml/l/hr: milliliters/liter/hour
5. Dissolved Oxygen
6. Nitrogen, Total (N)
7. Effluent: This location is also identified as Monitoring EFF-001 and Discharge Point 001 in the WDR
8. 50/80: Monthly Average/Maximum Daily limitations
9. 0.01/0.02: Monthly Average/Maximum Daily limitations
10. Limitation is the minimum level NS: not sampled
11. NL: No Limitation identified for constituent in WDR
12. NS: not sampled

Table 3
Wastewater Analytical Results, May 30, 2017
2nd Quarter 2017
Other Constituents Analyzed
Town of Fort Jones Wastewater Facility, Fort Jones, California

Sample Location	Alkalinity[1] (mg/l)[2]	Bicarbonate (mg/l)	Ammonia[3] (mg/l)
Effluent[4]	**253**	**309**	**10.6**

1. Alkalinity as CaCO3
2. mg/l: milligrams/liter
3. Ammonia as N (nitrogen)
4. Effluent: This location is also identified as Monitoring EFF-001 and Discharge Point 001 in the WDR

4.0 Receiving Water Monitoring

4.1 Groundwater Monitoring

Groundwater monitoring wells were installed in the 2nd Quarter 2017 and were then monitored during the same period. Monitoring wells (MW) are designated MW-1, 2, and 3 with their locations displayed on Figure 2. Groundwater sampling was conducted on June 15 and 16, 2017 with samples transported by SHN personnel under Chain-of-Custody to Basic Lab in Redding, California, for analysis. Laboratory analysis was conducted within the specified time periods required for the constituents being analyzed. Information and analytical data consists of:

- Depth to Groundwater
- Nitrogen, Total (N)
- Nitrate + Nitrite as N
- Total Coliform Organisms

Nitrate + Nitrite is not a required constituent for analysis in the WDR, but was selected to help in determining potential contaminants for use in the separate wastewater treatment facility design process. Analytical results from the monitoring well samples are shown in Table 4, with results provided in Appendix B.

Table 4
Groundwater Sample Analytical Results, June 16, 2017
2nd Quarter 2017
Town of Fort Jones Wastewater Facility, Fort Jones, California

Sample Location	Depth to Groundwater (Feet BGS)[6]	Total Nitrogen (mg/l)[1]		Nitrate+Nitrite as N[2] (mg/l)		Total Coliform Organisms (MPN/100 ml)[3]	
		Measured	Limitations	Measured	Limitations	Measured	Limitations
MW[4]-1	10.77	2.0	10	1.73	NL[5]	NA[7]	NL
MW-2	12.42	3.8	10	0.22	NL	300	NL
MW-3	12.60	3.1	10	1.97	NL	13	NL

1. mg/l: milligrams/liter
2. Typically referred to as just "Nitrate"
3. MPN/100 ml: Most Probable Number per 100 milliliters
4. MW: Monitoring Well
5. NL: No Limits identified in the WDR. Analyzed to determine background.
6. Feet BGS: Feet Below Ground Surface-measured by SHN.
7. NA: Not Analyzed due to Laboratory Error

Laboratory analysis and data provided by Basic Laboratory, Redding, California.

5.0 Discussion

5.1 Wastewater Flows

The Town's wastewater treatment facility has a maximum facility design flow of 0.060 mgd average daily dry weather flows (ADWF). Effluent flow data show that ADWF had a significant decrease through the quarter with flows of 0.158, 0.074 and 0.044 mgd for the months of April, May, and June respectively. Flows into the treatment facility showed a typical downward trend for the Fort Jones facility that has been seen in past years monitoring. Monthly flow data is provided in Appendix A, and results summarized in Table 1.

Total monthly flows into the facility have reduced significantly from the 1st Quarter 2017, and continued a downward trend through June. Total flow volumes reduced from the high of 4.749 million gallons (mg) in April, to 2.289 mg in May and 1.332 mg in June. These reduced flows are consistent with a reduction in rainfall and return of area creeks and groundwater table to traditional levels, resulting in less impacts to the collection system from Inflow and Infiltration (I&I). As previously reported in the 1st Quarter 2017, the increased flows and high groundwater observations, combined with discussions with Town staff confirmed previous years reporting that I&I is contributing to the overall winter high flows through the treatment system.

There were no sanitary sewer overflows (SSO) during the reporting period. The existing facility has the capacity to contain flows collected by the wastewater system.

5.2 Wastewater Effluent

Treated effluent water monitoring data was collected during this period for the constituents of concern identified in the WDR, as well as other wastewater analytical data. A summary of the analytical results are shown in Tables 2 and 3, with laboratory analytical data found in Appendix B.

Analytical data shows that the only exceedance was for settleable solids, with a value of 0.2 ml/l/hr. This was an exceedance over the WDR maximum values of 0.1 ml/l/hr monthly average limit. The Fort Jones treatment system has primary treatment in the Imhoff tank prior to disposal into ponds. Treatment in the tank is dependent on consistent flows that allow for treatment through resident time. The existing system has no means to bypass high flows around the Imhoff tank and into a holding pond, thereby allowing higher level flows go directly through the tank and into the disposal ponds. While this is an issue that will be dealt with during the design of the new treatment system currently underway, elevated levels of settleable solids are generally less of a concern with effluent pond systems, since they do not dispose of wastewater effluent directly to waterways and contain it within the pond system. As noted in the flow analysis, there were no overflows at the treatment facility ponds.

5.3 Monitoring Wells

Monitoring Wells (MW-1, 2, and 3) were installed under the supervision of SHN Engineers & Geologists with groundwater samples collected for analysis of Total Nitrogen, Nitrate+Nitrite (Nitrate), and Total Coliform Organisms.

As shown in Table 4, analysis found that Total Nitrogen is below the maximum limit of 10 mg/l (analysis results ranged from 2.0 to 3.8 mg/l). Samples analyzed for Nitrate+Nitrite (commonly referred to as Nitrate) shows a larger range, from 0.22 to 1.97 mg/l.

Analysis also showed that Total Coliform Organisms were present in the groundwater samples, which was expected. The area has historic cattle ranching, grazing and crop production (in addition to the use of the site as a wastewater treatment facility) which can contribute to increased levels of Total Coliform Organisms. Additionally, since the wastewater treatment system has been in operation for many years, it is assumed that some levels of Total Coliform Organisms would be present. As noted in the results, low levels of Total Coliform are present in groundwater samples collected; however, the up-gradient monitoring well (MW-1) sample for Total Coliform Organisms was not able to be analyzed at the laboratory due to a laboratory error with that sample. Therefore, no comparison of up-gradient and down-gradient results can be made at this time. However, since this is the first sampling event, additional sampling will be required to provide for more definitive conclusions and trends. With a single point of groundwater data, no interpretation of this data can be made at this time, and additional groundwater analysis will be needed to begin to develop any conclusions and trends regarding constituent levels.

The next groundwater monitoring event is scheduled to occur in the 4th Quarter of 2017. However, with the current development of new wastewater treatment alternatives for the facility, additional groundwater analysis may occur as part of that project, and if done, those results will be included in future SMR's.

Third Quarter 2017
Self Monitoring Report

The Town of Fort Jones
Wastewater Treatment Facility
Fort Jones, California
Order No. R1-2014-0029

Prepared for:

The Town of Fort Jones

Consulting Engineers & Geologists, Inc.

350 Hartnell Avenue, Suite B
Redding, CA 96002-1875
530-221-5424

October 2017
514009

CONSULTING ENGINEERS & GEOLOGISTS, INC.
350 Hartnell Ave., Ste B, Redding, CA 96002-1875 • 530-221-5424 • FAX: 530-221-0135 • reddinginfo@shn-engr.com

Reference: 514009

October 16, 2017

Mr. Roy O'Connor
North Coast Regional Water Quality Control Board
5550 Skylane Blvd., Suite A
Santa Rosa, CA 95403

Subject: Third Quarter 2017 Self Monitoring Report
Town of Fort Jones Wastewater Treatment Facility
Order No. R1-2014-0029

Dear Mr. O'Connor:

At the request of the Town of Fort Jones, SHN Consulting Engineers & Geologists, Inc. is providing you with this Third Quarter 2017 self monitoring report for the Fort Jones Wastewater Treatment Facility. This report has been prepared in accordance with the requirements of the Waste Discharge Requirements (WDR) and as stipulated in Attachment B-Monitoring and Reporting Program (MRP), of the Order. The facility information is located below:

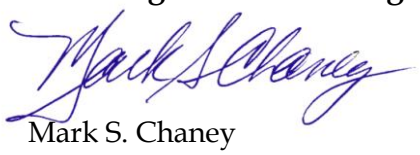
Facility Information	
Facility Name and Address	The Town of Fort Jones Wastewater Treatment Facility Scott River Road, Fort Jones, CA 96032
WDID	1A81157OSIS
Monitoring/Reporting Period	July, August, September 2017 (3rd Quarter 2017)
Violations of the WDR	BOD exceeded the monthly average limits.
Corrective Actions Taken/Planned	A new treatment system is being designed that will correct BOD issues.
Corrective Action Time Schedule	New facility design will be completed in 2018 with construction funding pending that design.

Information contained in this report was collected by the Town of Fort Jones wastewater treatment staff, with analytical results developed by Basic Laboratory of Redding, California, a State Certified Laboratory (California ELAP Cert #1677 and #2718).

If you have any questions, please call me at (530) 221-5424 or Ken Smith at the Town of Fort Jones at (530) 468-2281.

Sincerely,

SHN Engineers & Geologists



Mark S. Chaney
Project Manager

MSC:ka

Enclosure: 3rd Quarter 2017 Self Monitoring Report
c. w/Encl: Mr. Ken Smith, Town of Fort Jones

Reference: 514009

Third Quarter 2017
Self Monitoring Report

Town of Fort Jones
Wastewater Treatment Facility
Order No. R1-2014-0029

Prepared for:

Town of Fort Jones

Prepared by:

Engineers & Geologists
350 Hartnell Avenue, Suite B
Redding, CA 96002-1875
530-221-5424

October 2017

QA/QC: AR__

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- 2.2 Monitoring Well Locations 1

3.0 Effluent Monitoring 1
- 3.1 Wastewater Flow Data 2
- 3.2 Effluent Analytical Results 2

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- 4.1 Groundwater Monitoring 4

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B. Laboratory Analytical Data

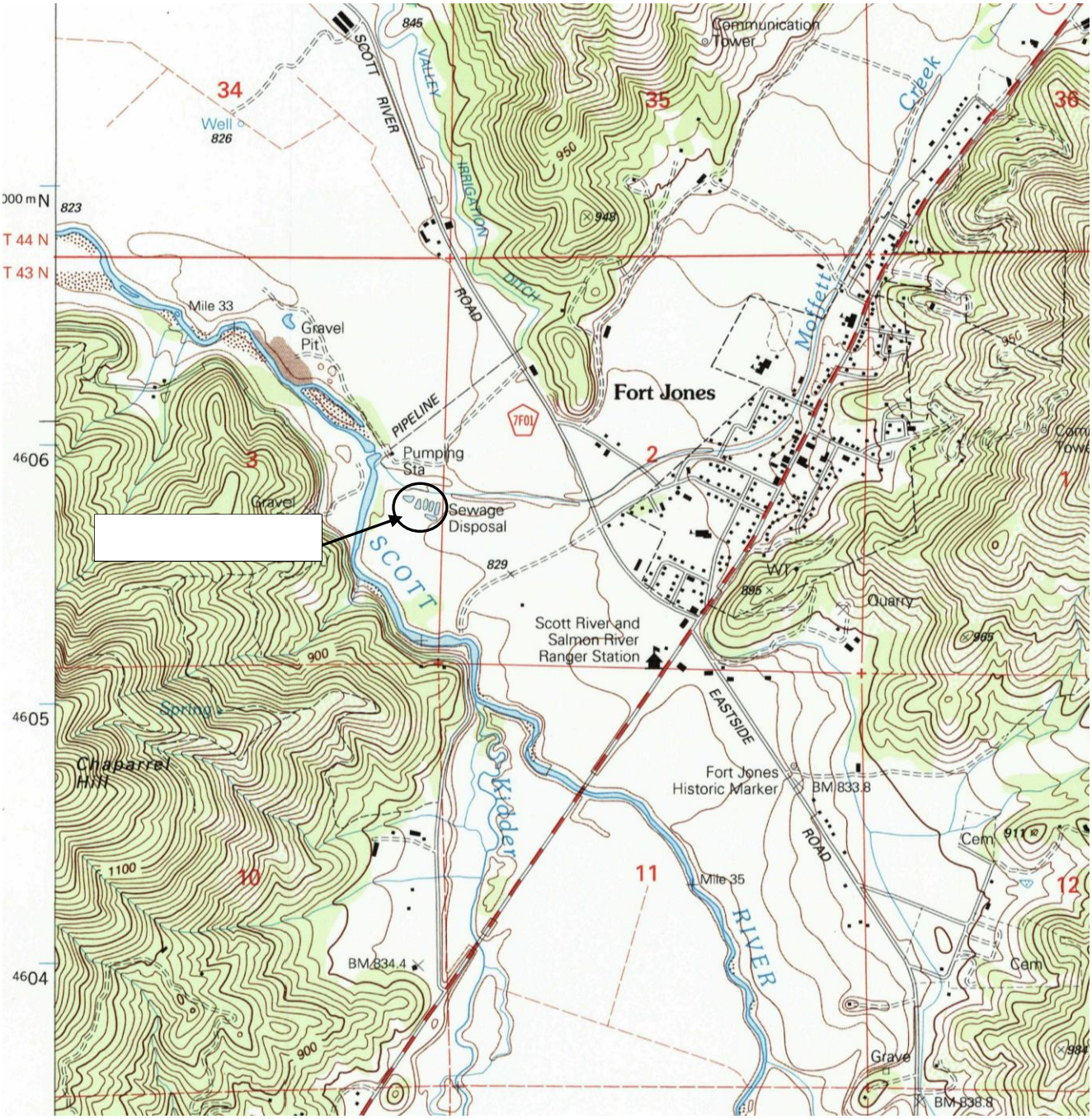
List of Illustrations

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2. Effluent/Discharge and Monitoring Well Locations 1

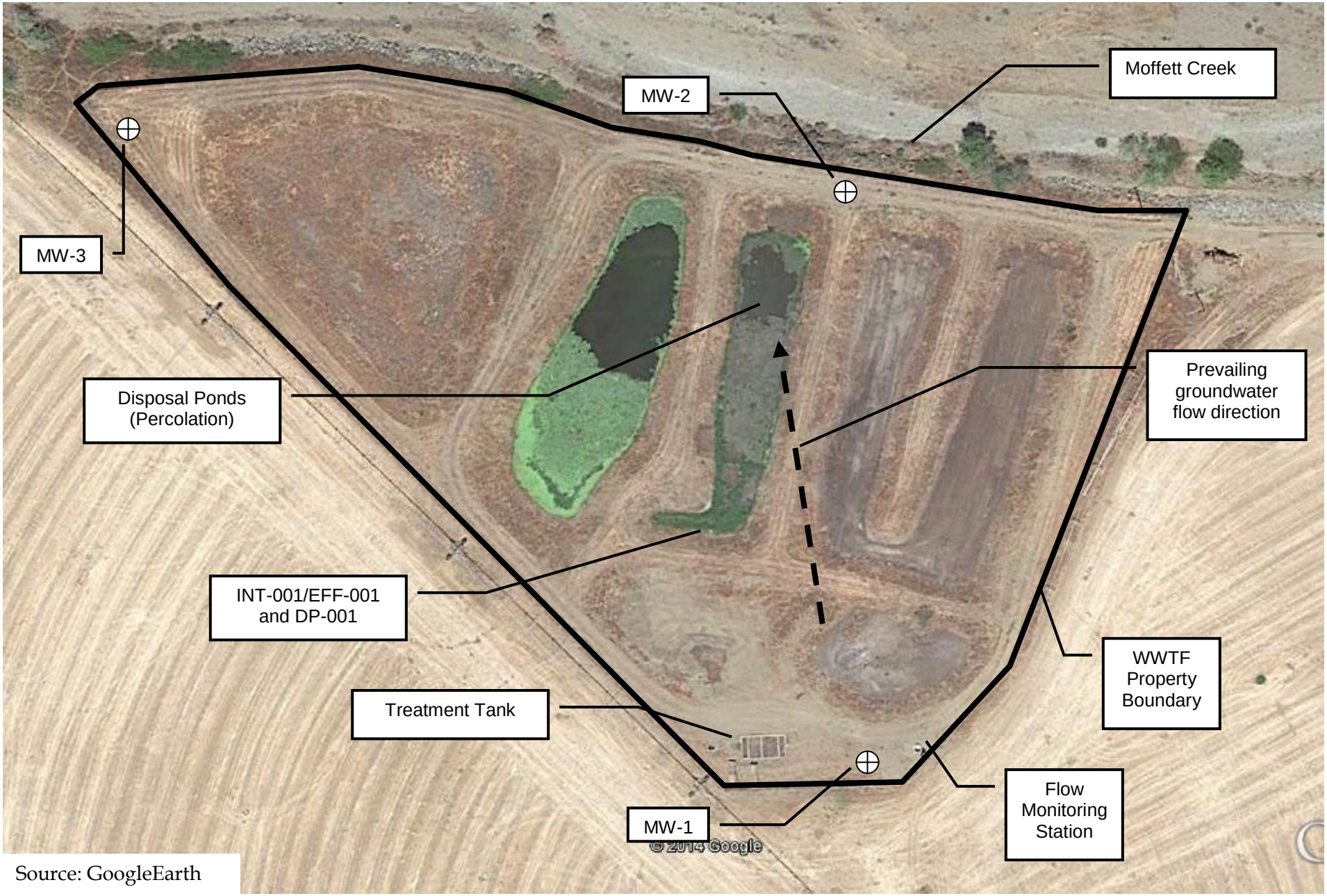
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Consulting Engineers & Geologists, Inc.	**Town of Fort Jones** **Waste Water Treatment Facility** **Fort Jones, California**	**Site Location Map** JOB #514009	
	March 2014	W:\2014\514009-FJ-WWTP\Figs\Figure 1.doc	Figure **#1**



Source: GoogleEarth

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Consulting Engineers & Geologists, Inc.

Town of Fort Jones
Waste Water Treatment Facility
Fort Jones, California

Effluent/Discharge Point and Monitoring Well Locations
INT-001/EFF-001/DP-001
MW-1, MW-2, MW-3
JOB #514009

July 2017 | W:\2014\514009-FJ-WWTP\Figs\Figure 2-Revised1.1.doc | Figure **#2**

Abbreviations and Acronyms

gpm	gallons per minute
mg	million gallons
mgd	million gallons per day
mg/l	milligrams per liter
ml/l/hr	milliliters per liter per hour
ADWF	Average Daily Dry Weather Flow
BGS	Below Ground Surface
BOD	Biochemical Oxygen Demand
C	Celsius
DO	Dissolved Oxygen
DP-001	Discharge Point Location
EFF-001	Effluent Monitoring Location
I&I	Inflow & Infiltration
INT-001	Internal Monitoring Location
MPN/100 ml	Most Probable Number per 100 milliliters
MW-1	Monitoring Well Location
N	Nitrogen
NA	Not Analyzed
ND	Non Detect
NL	No Limitation Identified
NR	Not Required
NS	Not Sampled
SHN	SHN Engineers & Geologists
SMR	Self Monitoring Report
SSO	Sanitary Sewer Overflow
TSS	Total Suspended Solids
WDR	Waste Discharge Requirements

1.0 Introduction

This report presents the results of wastewater treatment plant flows and effluent monitoring activities for the third quarter of 2017, at the Town of Fort Jones wastewater treatment facility (Order No. R1-2014-0029). The site is located on Scott River Road, Fort Jones, California. Refer to Figure 1. Flow data and effluent sampling was collected and performed by Town of Fort Jones wastewater staff with SHN Engineers & Geologists (SHN) developing the report on behalf of the Town of Fort Jones.

2.0 Monitoring Locations

2.1 Internal Monitoring Locations

An internal monitoring location has been established to collect effluent samples prior to disposal in existing percolation ponds. This internal monitoring location has been designated as INT-001. Refer to Figure 2 for a depiction of the location. At this time, the Monitoring Effluent (EFF-001) location and the Discharge Point (DP-001) are collocated at the same point.

2.2 Monitoring Well Locations

Monitoring wells have been installed and are designated as Monitoring Well-1 (MW-1) which is the up-gradient well, and MW-2 and MW-3 down gradient wells. Refer to Figure 2 for a depiction of the locations.

3.0 Effluent Monitoring

Wastewater effluent is sampled and analyzed at EFF-001 as required by the WDR. Effluent monitoring was conducted to acquire data for the constituents stipulated in the Order, and are summarized below. Additional constituents were also analyzed and are included in the results.

- Flow (mean daily)
- pH
- Dissolved Oxygen
- Biochemical Oxygen Demand (5-day at 20^{o} C)
- Total Suspended Solids
- Settleable Solids
- Nitrogen, Total (N)
- Title 22 Pollutants (sampled once every three years; will be completed in 2017)

The Town of Fort Jones collected flow measurements and sampled the effluent with Basic Laboratory of Redding, California, a State Certified Laboratory (California ELAP Cert #1677 and #2718) conducting laboratory analysis for the constituents listed above.

3.1 Wastewater Flow Data

Influent wastewater flow data is collected at a permanent flow monitoring station installed prior to wastewater entering the existing treatment tank. Data is collected continuously with minimum and maximum daily values tabulated, and monthly summaries calculated for minimum, maximum and average gallons per minute and total gallons. Flow data are provided in Appendix A. Table 1 provides a summary of the monthly flow data.

As noted in the data, flows recorded during the reporting period showed a relatively steady low volume trend, with flows of 0.040 mgd, 0.050 mgd and 0.040 mgd for the months of July, August and September, respectively. Instantaneous maximum values for August showed very high flow volumes.

Table 1
Influent Wastewater Flow Data
3rd Quarter 2017
Town of Fort Jones Wastewater Facility, Fort Jones, California

Month	Instantaneous Maximum (gpm[1]/mgd[2])	Instantaneous Minimum (gpm/mgd)	ADWF[3] (mgd)	Total Monthly (mg[4])
July	93.350/0.134	4.554/0.007	0.040	1.252
August	326.993/0.471	4.308/0.006	0.050	1.558
September	205.849/0.296	2.302/0.003	0.040	1.214

1. gpm: gallons per minute
2. mgd: million gallons per day
3. Average Dry Weather Flow, corresponds to Mean Daily Flow in Town data sheets
4. mg: million gallons

3.2 Effluent Analytical Results

Table 2 summarizes the laboratory analytical results for the wastewater samples collected at the facility for the monitoring period. Analytical results are found in Appendix B. Those results show that all constituents of concern were within WDR limits, with the exception of Biological Oxygen Demand (BOD) which had a measured value of 72 mg/l, exceeding the monthly average limit (50 mg/l). A summary of Other Constituents Analyzed are provided in Table 3. While not required for analysis, this information is useful in determining overall wastewater characteristics for future treatment design alternatives.

Table 2
Wastewater Analytical Results, August 21, 2107
3rd Quarter 2017
WDR Constituents and Limitations
Town of Fort Jones Wastewater Facility, Fort Jones, California

Sample Location	BOD[1] (mg/l)[2]		TSS[3] (mg/l)		pH (pH Units)		Settleable Solids (ml/l/hr)[4]		DO[5] (mg/l)		N-Total[6] (mg/l		Title 22
	Measured	Limitations	Measured	Limitations	Measured	Limitations	Measured	Limitations	Measured	Limitations	Measured	Limitations	
Effluent[7]	**72**	**50/80[8]**	**48**	**50/80**	**7.79**	**6.0-9.0**	**0.1**	**0.1/0.2[9]**	**1.6**	**1.0[10]**	**32**	**NL[11]**	**NOTE[12]**

1. Biochemical Oxygen Demand (5-day at 20 C)
2. mg/l: milligrams/liter
3. Total Suspended Solids
4. ml/l/hr: milliliters/liter/hour
5. Dissolved Oxygen
6. Nitrogen, Total (N)
7. Effluent: This location is also identified as Monitoring EFF-001 and Discharge Point 001 in the WDR
8. 50/80: Monthly Average/Maximum Daily limitations
9. 0.01/0.02: Monthly Average/Maximum Daily limitations
10. Limitation is the minimum level NS: not sampled
11. NL: No Limitation identified for constituent in WDR
12. NOTE: Title 22 contaminants were monitored from the groundwater monitoring wells. Refer to Table 5 in Section 4.0 of this report.

Table 3
Wastewater Analytical Results, August 21, 2017
3rd Quarter 2017
Other Constituents Analyzed
Town of Fort Jones Wastewater Facility, Fort Jones, California

Sample Location	Alkalinity[1] (mg/l)[2]	Bicarbonate (mg/l)	Ammonia[3] (mg/l)
Effluent[4]	**348**	**424**	**27.3**

1. Alkalinity as CaCO3
2. mg/l: milligrams/liter
3. Ammonia as N (nitrogen)
4. Effluent: This location is also identified as Monitoring EFF-001 and Discharge Point 001 in the WDR

4.0 Receiving Water Monitoring

4.1 Groundwater Monitoring

Groundwater sampling was conducted from the monitoring wells on August 9, 2017 with samples transported by SHN personnel under Chain-of-Custody to Basic Lab in Redding, California, for analysis. Sampling was conducted again in the 3rd Quarter due to laboratory error in the 2nd Quarter regarding the total coliform organisms in the upgradient (MW-1) well. Laboratory analysis was conducted within the specified time periods required for the constituents being analyzed. Information and analytical data consists of:

- Depth to Groundwater
- Nitrogen, Total (N)
- Nitrate + Nitrite as N
- Total Coliform Organisms

Nitrate + Nitrite is not a required constituent for analysis in the WDR, but was selected to help in determining potential contaminants for use in the separate wastewater treatment facility design process. Analytical results from the monitoring well samples are shown in Table 4, with results provided in Appendix B.

Table 4
Groundwater Sample Analytical Results, June 16, 2017
3rd Quarter 2017
Town of Fort Jones Wastewater Facility, Fort Jones, California

Sample Location	Depth to Groundwater (Feet BGS)[6]	Total Nitrogen (mg/l)[1]		Nitrate+Nitrite as N[2] (mg/l)		Total Coliform Organisms (MPN/100 ml)[3]	
		Measured	Limitations	Measured	Limitations	Measured	Limitations
MW[4]-1	15.97	2.80	10	2.41	NL[5]	240	NL
MW-2	15.93	3.94	10	3.37	NL	17	NL
MW-3	17.52	1.41	10	0.08	NL	2	NL

1. mg/l: milligrams/liter
2. Typically referred to as just "Nitrate"
3. MPN/100 ml: Most Probable Number per 100 milliliters
4. MW: Monitoring Well
5. NL: No Limits identified in the WDR. Analyzed to determine background.
6. Feet BGS: Feet Below Ground Surface-measured by SHN.

Laboratory analysis and data provided by Basic Laboratory, Redding, California.

In addition to the analysis shown in Table 4, the Town is required to provide Title 22 metals analysis every three years for the facility. Groundwater samples were also collected for this analysis and shipped to the certified laboratory for analysis. A summary of those results are found in Table 5, with the laboratory data found in Appendix B.

Table 5
Title 22 Laboratory Analysis Summary, August 23, 2017
3rd Quarter 2017
Town of Fort Jones Wastewater Facility, Fort Jones, California

Analyte	Monitoring Well #1		Monitoring Well #2		Monitoring Well #3	
	Results (ug/l)[1]	Primary MCL[2] (ug/l)	Results (ug/l)[1]	Primary MCL[2] (ug/l)	Results (ug/l)[1]	Primary MCL[2] (ug/l)
Antimony	ND[3]	6	ND	6	ND	6
Arsenic	7.5	10	6.5	10	2.7	10
Barium	315	1000	211	1000	116	1000
Beryllium	ND	4	ND	4	ND	4
Cadmium	ND	5	0.26	5	ND	5
Chromium	**122**	50	**57.2**	50	27.2	50
Cobalt	30.1	50	20.4	50	7.9	50
Copper	55.2	1300	35.1	1300	16.2	1300
Lead	10.0	15	7.4	15	2.3	15
Mercury	0.06	2	0.10	2	ND	2
Molybdenum	1.8	35[4]	0.9	35[4]	0.9	35[4]
Nickel	**194**	100	**109**	100	53.4	100
Selenium	ND	50	ND	50	ND	50
Silver	ND	100[5]	ND	100[5]	ND	100[5]
Thallium	ND	2	ND	2	ND	2
Vanadium	**74.9**	63[4]	39.6	63[4]	17.3	63[4]
Zinc	85.1	5000[5]	44.6	5000[5]	18.4	5000[5]

1: ug/l = micrograms per liter
2: MCL = California Primary Maximum Contaminant Levels for Drinking Water
3: ND = Not Detected
4: Analyte does not have a California Primary MCL; this value is the US EPA IRIS reference dose as a drinking water level.
5: Analyte does not have a California Primary MCL; this value is the California drinking water Secondary MCL.
Laboratory analysis and data provided by Basic Laboratory, Redding, California.

As shown in Table 5, laboratory analysis found that Chromium, Nickel and Vanadium were at levels above the Primary Maximum Contaminant Levels (MCL) for drinking water[1] in MW-1, and Chromium and Nickel were above the Primary MCL in MW-2. No exceedances were found in MW-3.

[1] Results are based on the MCL for the State of California Drinking Water Standards, as published by the State Water Resources Control Board for water quality goals of the State. Where Primary MCL's are not identified, Secondary MCL's are used. In some cases, no Primary or Secondary MCL's are provided by the State, and the United States Environmental Protection Agency (USEPA) drinking water health advisories are used, as noted in Table 5.

5.0 Discussion

5.1 Wastewater Flows

The Town's wastewater treatment facility has a maximum facility design flow of 0.060 mgd average daily dry weather flows (ADWF). Effluent flow data show that ADWF was generally consistent through the reporting period, with flows of 0.040, 0.050 and 0.040 mgd for the months of July, August, and September respectively. While the flows into the treatment facility were consistent for the months, an atypical pattern in August emerged with very high instantaneous peaks ranging from 169.193 gpm to 326.993 gpm during the early morning hours of several days. While a single day or two may be explained by a plugged mainline being unplugged, it is unusual to see these peaks in August when no rainfall was recorded. While an oddity, these higher peak flows did not have an overall impact on the total monthly flows through the treatment facility. Monthly flow data is provided in Appendix A, and results summarized in Table 1.

Total monthly flows into the facility during the 3rd Quarter are consistent with historical trends for this period, with the exception of August 4 and 5 which had total flows of 0.131 mgd and 0.129 mgd, respectively. Discussions with the WWTF Operator confirmed the high flows and it was explained that the seasonal area wildfires and the related firefighter activity contributed to the increased flows. Wildfire activity created fire camps, which have significant use of water for showers, cooking and other purposes. While the wastewater generated from portable toilets is taken out of the area, grey water is typically disposed of at local WWTF such as Fort Jones. While this increase was significant for a short period of time, the system was more than able to accommodate for these seasonal flows, during the low flow period.

There were no sanitary sewer overflows (SSO) during the reporting period. The existing facility has the capacity to contain flows collected by the wastewater system.

5.2 Wastewater Effluent

Treated effluent water monitoring data was collected during this period for the constituents of concern identified in the WDR, as well as other wastewater analytical data. A summary of the analytical results are shown in Tables 2 and 3, with laboratory analytical data found in Appendix B.

Analytical data shows that the only exceedance was for BOD, with a value of 72 mg/l. This was an exceedance over the WDR maximum values of 50 mg/l for the monthly average limit. The Fort Jones treatment system has primary treatment in the Imhoff tank prior to disposal into ponds; BOD is known to be an issue with these types of treatment systems. This is an issue that is currently being dealt with during the design of the new treatment system currently underway. As noted in the flow analysis, there were no overflows at the treatment facility ponds.

5.3 Monitoring Wells

5.3.1 Nitrogen and Total Coliform

Groundwater samples collected from the monitoring wells for analysis of Total Nitrogen, Nitrate+Nitrite (Nitrate), and Total Coliform Organisms. As shown in Table 4, analysis found that Total Nitrogen is below the maximum limit of 10 mg/l (analysis results ranged from 1.41 to 3.94 mg/l). Samples analyzed for Nitrate+Nitrite (commonly referred to as Nitrate) shows a larger range, from 0.80 to 3.37 mg/l.

Analysis also showed that Total Coliform Organisms were present in the groundwater samples, which was expected. The area has historic cattle ranching, grazing and crop production (in addition to the use of the site as a wastewater treatment facility) which can contribute to increased levels of Total Coliform Organisms. Additionally, since the wastewater treatment system has been in operation for many years, it is assumed that some levels of Total Coliform Organisms would be present. As noted in the results, low levels of Total Coliform are present in downgradient groundwater samples collected for MW-2 and MW-3 at 17 and 2 MPN/100 ml, respectively. Laboratory results for the upgradient monitoring well (MW-1) showed very high results at 240 MPN/100 ml. In comparing the upgradient and downgradient monitoring wells, the data show the there is considerable total coliform coming into the treatment facility, when compared to downgradient wells.

In addition to total coliform was eColi. The analysis of eColi helps to define animal waste contamination in the water column, as compared to the total coliform bacteria that can be present for various other reasons, in addition to animal wastes. As noted in the data (Table 4), eColi was analyzed in all samples to be less than 1 MPN/100 ml; effectively non-existent.

5.3.2 Title 22 Constituents

Groundwater samples collected from the monitoring wells were analyzed for the Title 22 constituents of concern. Table 5 displays a summary of the results with the laboratory data found in Appendix B. As shown in the results, MW-1 had constituent exceedances for Chromium at 122 micrograms per liter (ug/l), Nickel at 194 ug/l and Vanadium at 74.9 ug/l. Exceedances were also found for Chromium and Nickel in MW-2 at 57.2 and 109 ug/l, respectively. There were no exceedances for MW-3.

Of note, MW-1 is the upgradient well and was presumed to be in a location that effects to groundwater from the wastewater facility would not be detected. However, this initial data suggests that MW-1 may be located in an area where historic wastewater effluent has an impact on groundwater. The wastewater facility has been in operation for over 70 years, and is likely to have some residual effects on groundwater from the historical operations at the facility. Additionally, the influent pipeline and the Imhoff tank are located just downgradient from MW-1, and it is possible that these facilities have leaked untreated sewage into the groundwater over the decades of use. Though contamination was found above the MCL's, it was not widespread in MW-1 and this information could provide a baseline for the future removal of metals in the new wastewater system being designed for the facility.

Evaluation of MW-2 data found that Chromium and Nickel were found in concentrations slightly above the MCL's; Chromium was at 57.2 ug/l versus an MCL of 50 ug/l and Nickel was at 109 ug/l versus an MCL of 100 ug/l. It was presumed that MW-2 would have the most significant contaminant levels, if present, due to its location immediately downgradient from the wastewater effluent pond. However, this was not the case as contaminant levels (where present) were generally reduced from MW-1.

The data also shows that for MW-3, contaminant levels were not detected or were very low and well below the MCL's for all constituents.

Based on the contaminant levels analyzed, it is evident that the groundwater immediately around the wastewater treatment facility has been slightly impacted by some heavy metals, which given the age and condition of the facility is not surprising. Efforts currently underway to design a new treatment facility are likely to improve groundwater quality. It is recommended that groundwater monitoring for the Title 22 pollutants be conducted again within one year of the new treatment facility being put online, in addition to the triennial Title 22 sampling requirements.

Third Quarter 2018
Self Monitoring Report

The Town of Fort Jones
Wastewater Treatment Facility
Fort Jones, California

Prepared for:

The Town of Fort Jones

SHN
Engineers & Geologists

October 2018

514009

CONSULTING ENGINEERS & GEOLOGISTS, INC.
350 Hartnell Ave., Suite B • Redding, CA 96002 • 530-221-5424 • FAX: 530-221-0135 •www. shn-engr.com

Reference: 514009

October 30, 2018

Mr. Roy O'Connor
North Coast Regional Water Quality Control Board
5550 Skylane Blvd., Suite A
Santa Rosa, CA 95403

Subject: Third Quarter 2018 Self Monitoring Report
Town of Fort Jones Wastewater Treatment Facility
Order No. R1-2014-0029

Dear Mr. O'Connor:

At the request of the Town of Fort Jones, SHN Engineers & Geologists is providing you with this Third Quarter 2018 self monitoring report for the Fort Jones Wastewater Treatment Facility. This report has been prepared in accordance with the requirements of the Waste Discharge Requirements (WDR) and as stipulated in Attachment B-Monitoring and Reporting Program (MRP), of the Order. The facility information is located below:

Facility Information
Fort Jones Wastewater Treatment Facility

Facility Name and Address	The Town of Fort Jones Wastewater Treatment Facility Scott River Road, Fort Jones, CA 96032
WDID	1A81157OSIS
Monitoring/Reporting Period	July, August, September 2018 (3rd Quarter 2018)
Violations of the WDR	No analytical data for quarter
Corrective Actions Taken/Planned	Analytical data will be provided in 4th Quarter
Corrective Action Time Schedule	Analytical data will be developed in 4th Quarter

Information contained in this report was collected by the Town of Fort Jones wastewater treatment staff, with analytical results provided by Basic Laboratory of Redding, California, a State Certified Laboratory (California ELAP Cert #1677 and #2718).

If you have any questions, please call me at (530) 221-5424.

Sincerely,

SHN Engineers & Geologists



Mark S. Chaney
Project Manager

MSC:lm

Enclosure: 3rd Quarter 2018 Self Monitoring Report
c. w/Encl.: Town of Fort Jones

Reference: 514009

Third Quarter 2018
Self Monitoring Report

Town of Fort Jones
Wastewater Treatment Facility
Order No. R1-2014-0029

Prepared for:
Town of Fort Jones

Prepared by:

Engineers & Geologists
350 Hartnell Avenue, Suite B
Redding, CA 96002
530-221-5424

October 2018

QA/QC:AR

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Abbreviations and Acronyms

mg	million gallons
mgd	million gallons per day
mg/l	milligrams per liter
ml/l/hr	milliliters per liter per hour
ADWF	Average Daily Dry Weather Flow
BOD	Biochemical Oxygen Demand
C	Celsius
DO	Dissolved Oxygen
DP-001	Discharge Point Location
EFF-001	Effluent Monitoring Location
INT-001	Internal Monitoring Location
MW-#	Monitoring Well Location
N	Nitrogen
SHN	SHN Engineers & Geologists
SMR	Self Monitoring Report
SSO	Sanitary Sewer Overflow
TSS	Total Suspended Solids
WDR	Waste Discharge Requirements

Section 1 Introduction

This report presents the results of wastewater treatment plant flows and effluent monitoring activities for the third quarter of 2018 (3rd Quarter), at the Town of Fort Jones wastewater treatment facility (Order No. R1-2014-0029). The site is located on Scott River Road, Fort Jones, California. Refer to **Figure 1**. Flow data was collected by Town of Fort Jones wastewater staff with SHN developing the report on behalf of the Town of Fort Jones. No analytical laboratory testing of the wastewater effluent was conducted this quarter. Groundwater sampling was conducted by SHN for the Town and analysis of the samples was conducted by Basic Laboratories, a California ELAP certified lab (California ELAP Cert #1677 and #2718).

Section 2 Monitoring Locations

2.1 Internal Monitoring Locations

An internal monitoring location has been established to collect effluent samples prior to disposal in existing percolation ponds. This internal monitoring location has been designated as INT-001. Refer to **Figure 2** for a depiction of the location. At this time, the Monitoring Effluent (EFF-001) location and the Discharge Point (DP-001) are collocated at the same point.

2.2 Monitoring Well Locations

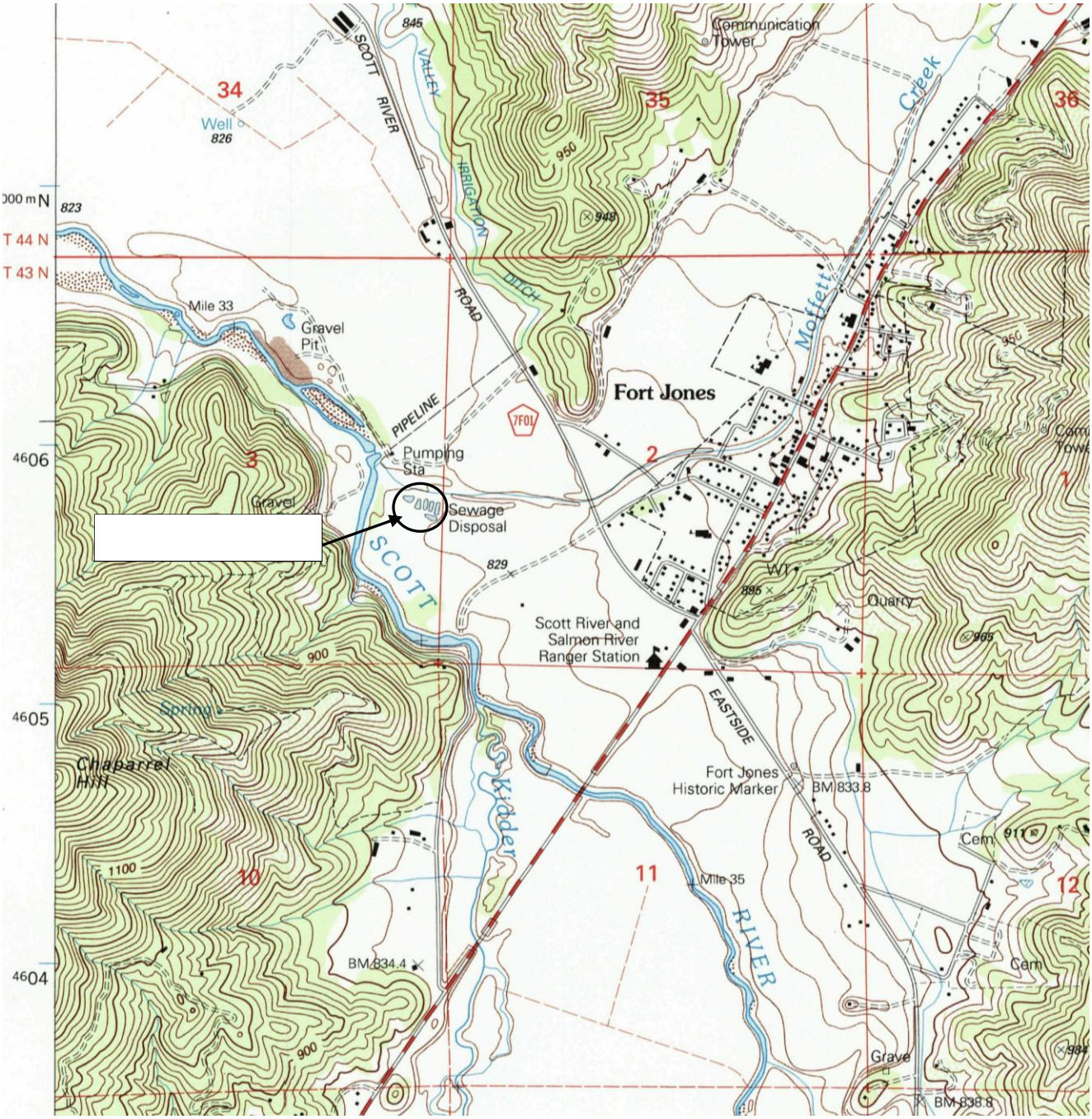
Monitoring wells have been installed and are designated as Monitoring Well-1 (MW-1) which is the up-gradient well, and MW-2 and MW-3 down gradient wells. Refer to **Figure 2** for a depiction of the locations.

Section 3 Effluent Monitoring

Wastewater effluent is sampled and analyzed at EFF-001 as required by the WDR. Effluent monitoring was conducted to acquire data for the constituents stipulated in the Order, and are summarized below. Additional constituents were also analyzed and are included in the results.

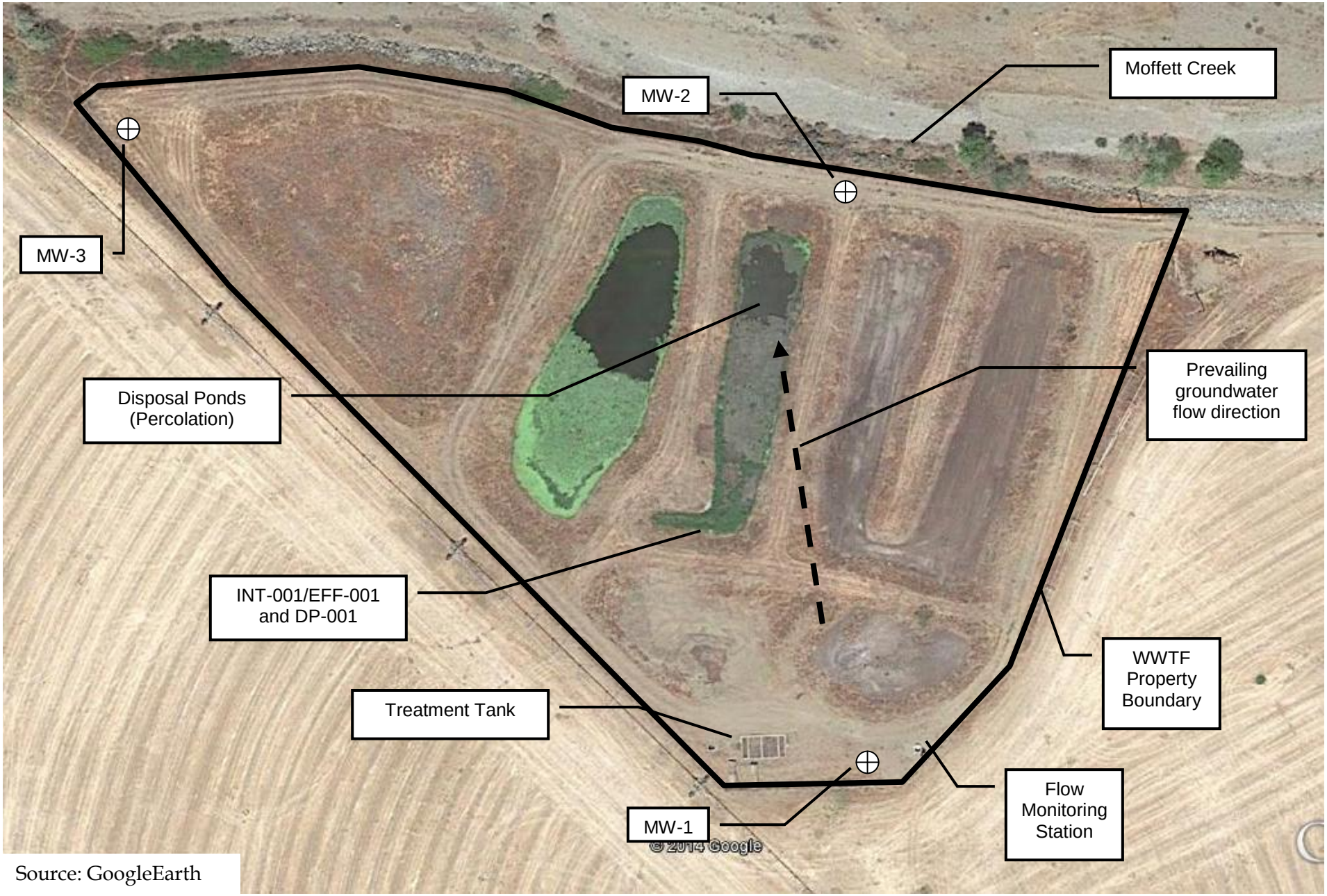
- Flow (mean daily)
- pH
- Dissolved Oxygen
- Biochemical Oxygen Demand (5-day at 20º C)
- Total Suspended Solids
- Settleable Solids
- Nitrogen, Total (N)
- Title 22 Pollutants (sampled once every three years; to be sampled in 2020)

The Town of Fort Jones collected flow measurements but wastewater effluent samples were not collected and analyzed this quarter.



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Consulting Engineers & Geologists, Inc.	**Town of Fort Jones** **Waste Water Treatment Facility** **Fort Jones, California**	**Site Location Map** JOB #514009	
	March 2014	W:\2014\514009-FJ-WWTP\Figs\Figure 1.doc	Figure **#1**



Source: GoogleEarth

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Consulting Engineers & Geologists, Inc.

Town of Fort Jones
Waste Water Treatment Facility
Fort Jones, California

Effluent/Discharge Point and Monitoring Well Locations
INT-001/EFF-001/DP-001
MW-1, MW-2, MW-3
JOB #514009

July 2017 | W:\2014\514009-FJ-WWTP\Figs\Figure 2-Revised1.1.doc | Figure **#2**

3.1 Wastewater Flow Data

Influent wastewater flow data is collected at a permanent flow monitoring station installed prior to wastewater entering the existing treatment tank. Data is collected continuously with minimum and maximum daily values tabulated, and monthly summaries calculated for minimum, maximum and average gallons per minute and total gallons. Flow data are provided in **Appendix 1**. **Table 1** provides a summary of the monthly flow data. The facility has a permitted flow of 0.060 million gallons per day (mgd) Average Dry Weather Flow (ADWF).

Analysis of effluent flow in late 2017 determined that wastewater flows appeared to be recorded by the flow meter at lower values that may be actually occurring. Though an older meter, the flow meter had been calibrated to manufacturers' requirements when first installed in 2014. During development of the wastewater facility plan for future upgrades to the treatment facility, additional evaluations of flow data were undertaken and it was surmised that the flow meter was currently not recording correct levels. Field evaluations by Fort Jones wastewater staff provided rudimentary calculations of flows, which estimated that the actual flows into the treatment facility could be up to 25% higher than are currently being recorded.

The current flow meter continues to be utilized. Knowing that flows are likely higher than those recorded, this Self Monitoring Report (SMR) provides the current flow meter results, as well as an estimated calculation of flows assuming a conservative 25% increase. These results will continue to be calculated until a new flow meter is installed with the new wastewater treatment facility design. Refer to **Table 1**.

As noted in the data, flows recorded during the reporting period showed an atypical increase from July to August and then a corresponding decrease from August to September.

Table 1. Influent Wastewater Flow Data, 3rd Quarter 2018
Town of Fort Jones Wastewater Treatment Facility
Fort Jones, California

Month	Instantaneous Maximum (mgd[1]/mgd[2])	Instantaneous Minimum (mgd[1]/mgd[2])	ADWF[3] (mgd[1]/mgd[2])	Total Monthly (mg[4]/mg[5])
July	0.134/0.168	0.007/0.008	0.040/0.050	1.252/1.565
August	0.228/0.285	0.013/0.016	0.055/0.069	1.704/2.13
September	0.138/0.173	0.011/0.017	0.050/0.063	1.512/1.890

1. million gallons per day measured by flow meter
2. million gallons per day with 25% correction factor
3. Average Dry Weather Flow; corresponds to Mean Daily Flow in Town data sheets.
4. million gallons measured flow
5. million gallons with 25% correction factor

3.2 Effluent Analytical Results

Wastewater effluent was not collected by the Town staff and therefore there were no samples for analysis at the laboratory. The missed sampling was a result of staff changes at the Town which resulted in the routine quarterly sampling to be overlooked in the transfer of duties. The error has been noted by the Town, and the staff will either schedule sampling in the 4th quarter themselves, or contract the sampling collection with the laboratory.

Section 4 Receiving Water Monitoring

4.1 Groundwater Monitoring

Groundwater sampling was conducted from the monitoring wells on August 21, 2018 with samples transported by SHN personnel under Chain-of-Custody to Basic Lab in Redding, California, for analysis. Laboratory analysis was conducted within the specified time periods required for the constituents being analyzed. Information and analytical data consists of:

- Depth to Groundwater
- Nitrogen, Total (N)
- Nitrate + Nitrite as N
- Total Coliform Organisms

Nitrate + Nitrite (as N) is not a required constituent for analysis in the WDR, but was selected to help in determining potential contaminants for use in the separate wastewater treatment facility design process. Analytical results from the monitoring well samples are shown in **Table 2**, with results provided in **Appendix B.**

Table 2 Groundwater Sample Analytical Results, 3rd Quarter 2018
Analyzed August 21, 2017
Town of Fort Jones Wastewater Facility,
Fort Jones, California

Sample Location	Depth to Groundwater (Feet BGS)[6]	Total Nitrogen (mg/l)[1]		Nitrate+Nitrite as N[2] (mg/l)		Total Coliform Organisms (MPN/100 ml)[3]	
		Measured	Limitations	Measured	Limitations	Measured	Limitations
MW[4]-1	18.92	4.57	10	4.21	NL[5]	<2	NL
MW-2	19.70	12.6	10	9.59	NL	2	NL
MW-3	20.26	6.05	10	0.41	NL	2	NL

1. mg/l: milligrams/liter
2. Typically referred to as just "Nitrate"
3. MPN/100 ml: Most Probable Number per 100 milliliters
4. MW: Monitoring Well
5. NL: No Limits identified in the WDR. Analyzed to determine background.
6. Feet BGS: Feet Below Ground Surface-measured by SHN.

Laboratory analysis and data provided by Basic Laboratory, Redding, California.

Section 5 Discussion

5.1 Wastewater Flows

The Town's wastewater treatment facility has a maximum permitted facility design flow of 0.060 mgd ADWF. Effluent flow data show that the wastewater flows into the facility trended upward from July to August and then downward again in September. Flows were reported as 0.040, 0.055 and 0.050 mg ADWF for the months of July, August and September respectively. Monthly flow data is provided in **Appendix 1**, and results summarized in **Table 1**. Measured flows were below the maximum permitted ADWF values for the facility of 0.060 mgd ADWF, when evaluated against the measured flow values.

As discussed earlier in this report, as part of the investigations for the wastewater treatment facility upgrades, measured wastewater flows were evaluated against calculated data based on population and potable water flows. Data analysis found that there was a discrepancy in the flows recorded at the treatment plant from calculated values. Field evaluations found that flow measurements recorded by the facility flow meter were about 20-25% below the field measured values, enough of a discrepancy to question the current flow meter results.

The flow meter, when installed in 2014, was calibrated at the time and provided flow measurements that appeared to be consistent with observed flows. Seasonal variations and daily fluctuations in flows into the treatment facility were consistent with expected results. Evaluation of the system cannot determine the cause of the apparent low flow measurements, and the Town is moving forward with replacing the flow meter during reconstruction of the wastewater facility.

To account for apparent flow discrepancies, and to provide a comparison of more conservative flows, **Table 1** also includes estimated flows based on a conservative correction factor of +25%. The corrected flows calculate to 0.050, 0.069 and 0.063 mgd ADWF. The flows for the month of August and September are slightly above the permitted levels of the ADWF (0.060 mgd), and if accurate represent 25% increase in flows above the permitted values. While these flows were above the ADWF limits, all flows were contained in the treatment facility ponds and there were no sanitary sewer overflows (SSO) during the reporting period. The existing facility has the capacity to contain flows collected by the wastewater system, well above the ADWF.

5.2 Wastewater Effluent

Treated effluent water monitoring data was not collected during this quarter due to Town staff changes that resulted in missed effluent sampling. Collection and analysis will resume in the 4th Quarter.

5.3 Monitoring Wells

5.3.1 Nitrogen and Total Coliform

Groundwater samples collected from the monitoring wells for analysis of Total Nitrogen, Nitrate+Nitrite (Nitrate), and Total Coliform Organisms. As shown in **Table 2**, analysis found that Total Nitrogen is below the maximum limit of 10 mg/l in both MW-1 and MW-3 at 4.57 mg/l and 6.05 mg/l, respectively. Samples from MW-2 had a Total Nitrogen analysis at 12.6 mg/l which exceeds the maximum allowable limit of 10 mg/l. Higher concentrations of Total Nitrogen were expected in MW-2, as this is the immediate downgradient monitoring well of the main wastewater treatment, evaporation and percolation pond. This sample appears to show that historic uses at the site are impacting groundwater, and the implementation of a new treatment system that reduces nitrogen will likely provide significant reductions in contamination.

Samples analyzed for Nitrate+Nitrite (commonly referred to as Nitrate) shows a larger range, from 0.41 to 9.59 mg/l, and again show a trend with MW-2 having the highest concentrations at 9.59 mg/l.

Analysis also showed that Total Coliform Organisms were present in the groundwater samples, which was expected. The area has historic cattle ranching, grazing and crop production (in addition to the use of the site as a wastewater treatment facility) which can contribute to increased levels of Total Coliform Organisms. Additionally, since the wastewater treatment system has been in operation for many years, it is assumed that some levels of Total Coliform Organisms would be present. As noted in the results, low levels of Total Coliform are present in groundwater samples collected for MW-1, MW-2 and MW-3 at less than 2 and 2 MPN/100 ml, respectively.

In addition to total coliform SHN had the analytical laboratory analyze for EColi in the monitoring well samples to help define animal waste contamination in the water column, as compared to the total coliform bacteria that can be present for various other reasons, in addition to animal wastes. EColi was analyzed in all samples to be less than 1 MPN/100 ml; effectively non-existent. Results are provided in **Appendix B**.

Second Quarter 2019
Self-Monitoring Report

The Town of Fort Jones
Wastewater Treatment Facility
Fort Jones, California
Order No. R1-2014-0029



Prepared for:

The Town of Fort Jones

July 2019

514009

Phone: (530) 221-5424 Email: info@shn-engr.com Web: shn-engr.com
350 Hartnell Avenue, Suite B, Redding, CA 96002-1875

Reference: 514009

July 23, 2019

Mr. Roy O'Connor
North Coast Regional Water Quality Control Board
5550 Skylane Blvd., Suite A
Santa Rosa, CA 95403

Subject: Second Quarter 2019 Self-Monitoring Report
Town of Fort Jones Wastewater Treatment Facility
Order No. R1-2014-0029

Dear Mr. O'Connor:

At the request of the Town of Fort Jones, SHN is providing you with this Second Quarter 2019 self-monitoring report for the Fort Jones Wastewater Treatment Facility. This report has been prepared in accordance with the requirements of the Waste Discharge Requirements (WDR) and as stipulated in Attachment B-Monitoring and Reporting Program (MRP), of the Order. The facility information is located below:

Facility Information
Fort Jones Wastewater Treatment Facility

Facility Name and Address	The Town of Fort Jones Wastewater Treatment Facility Scott River Road, Fort Jones, CA 96032
WDID	1A81157OSIS
Monitoring/Reporting Period	April, May, June 2019 (2nd Quarter 2019)
Violations of the WDR	BOD exceeds the monthly average limits. Monthly flows were collected but not available for this SMR due to staff training needs.
Corrective Actions Taken/Planned	A new treatment system has been designed that will correct violations of the WDR. Installation is pending funding. Staff training on the automated flow monitoring device will take place in the 3rd Quarter 2019.
Corrective Action Time Schedule	A new facility preliminary design has been completed and the Town is preparing construction funding applications. Flow data recovery training will occur in 3rd Quarter 2019 and flow data for the 2nd Quarter 2019 will be included in the 2019 Annual Report.

Information contained in this report was collected by the Town of Fort Jones wastewater treatment staff, and SHN's groundwater sampling staff, with analytical results provided by Basic Laboratory of Redding, California, a State Certified Laboratory (California ELAP Cert #1677 and #2718).

If you have any questions, please call me at (530) 221-5424 or Karl Drexel at the Town of Fort Jones at (530) 468-2281.

Sincerely,

SHN

Mark S. Chaney
Project Manager

MSC:lm

Enclosure: 2nd Quarter 2019 Self-Monitoring Report
c. w/Encl.: Mr. Karl Drexel, Town of Fort Jones

Reference: 514009

Second Quarter 2019
Self Monitoring Report

Town of Fort Jones
Wastewater Treatment Facility
Order No. R1-2014-0029

Prepared for:
Town of Fort Jones

Prepared by:

350 Hartnell Avenue, Suite B
Redding, CA 96002
530-221-5424

July 2019

QA/QC:AR

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Abbreviations and Acronyms

mg	million gallons
mgd	million gallons per day
mg/l	milligrams per liter
ml/l/hr	milliliters per liter per hour
ADWF	Average Daily Dry Weather Flow
BOD	Biochemical Oxygen Demand
C	Celsius
DO	Dissolved Oxygen
DP-001	Discharge Point Location
EFF-001	Effluent Monitoring Location
INT-001	Internal Monitoring Location
MW-#	Monitoring Well Location
N	Nitrogen
ND	Not Detected
NDR	No Data Reported
SHN	SHN Engineers & Geologists
SMR	Self Monitoring Report
SSO	Sanitary Sewer Overflow
TSS	Total Suspended Solids
WDR	Waste Discharge Requirements

Section 1 Introduction

This report presents the results of wastewater treatment plant flows and effluent monitoring activities for the second quarter of 2019 (2nd Quarter), at the Town of Fort Jones wastewater treatment facility (Order No. R1-2014-0029). The site is located on Scott River Road, Fort Jones, California. Refer to **Figure 1**. Flow data and effluent sampling was collected and performed by Town of Fort Jones wastewater staff with SHN developing the report on behalf of the Town of Fort Jones.

During June 2019 a vegetation fire occurred at the site surrounding the wastewater treatment facility, including areas inside of the wastewater facility perimeter. The fire burned ground vegetation at the site but did not damage the influent station or other discharge features.

Section 2 Monitoring Locations

2.1 Internal Monitoring Locations

An internal monitoring location has been established to collect effluent samples prior to disposal in existing percolation ponds. This internal monitoring location has been designated as INT-001. Refer to **Figure 2** for a depiction of the location. At this time, the Monitoring Effluent (EFF-001) location and the Discharge Point (DP-001) are collocated at the same point.

2.2 Monitoring Well Locations

Monitoring wells have been installed and are designated as Monitoring Well-1 (MW-1) which is the up-gradient well, and MW-2 and MW-3 down gradient wells. Refer to **Figure 2** for a depiction of the locations.

Section 3 Effluent Monitoring

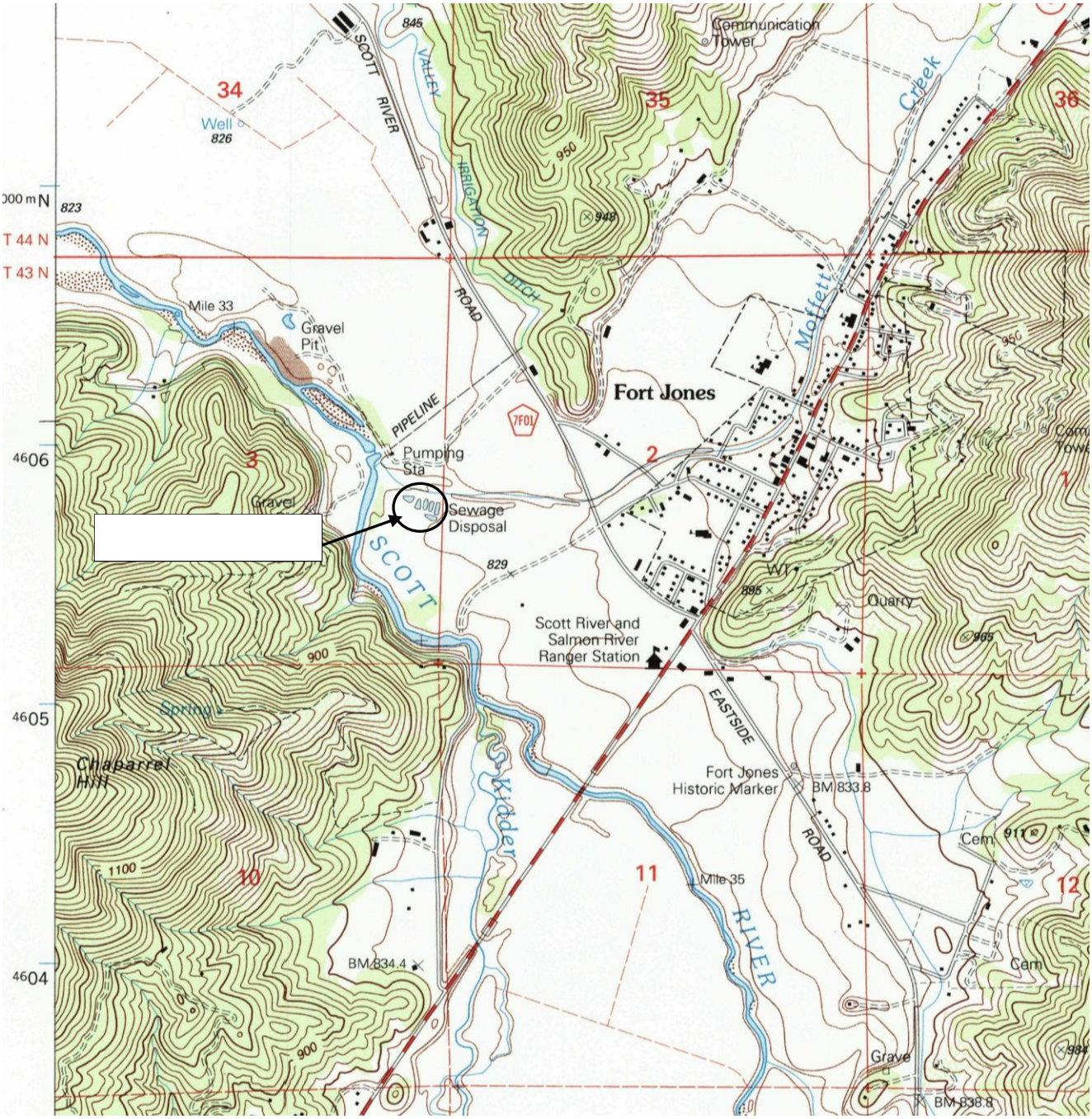
Wastewater effluent is sampled and analyzed at EFF-001 as required by the WDR. Effluent monitoring was conducted to acquire data for the constituents stipulated in the Order, and are summarized below. Additional constituents were also analyzed and are included in the results.

- Flow (mean daily)
- pH
- Dissolved Oxygen
- Biochemical Oxygen Demand (5-day at 20º C)
- Total Suspended Solids
- Settleable Solids
- Nitrogen, Total (N)
- Title 22 Pollutants (sampled once every three years; to be sampled in 2020)

The Town of Fort Jones collected flow measurements and sampled the effluent with Basic Laboratory of Redding, California, a State Certified Laboratory (California ELAP Cert #1677 and #2718) conducting laboratory analysis for the constituents listed above.

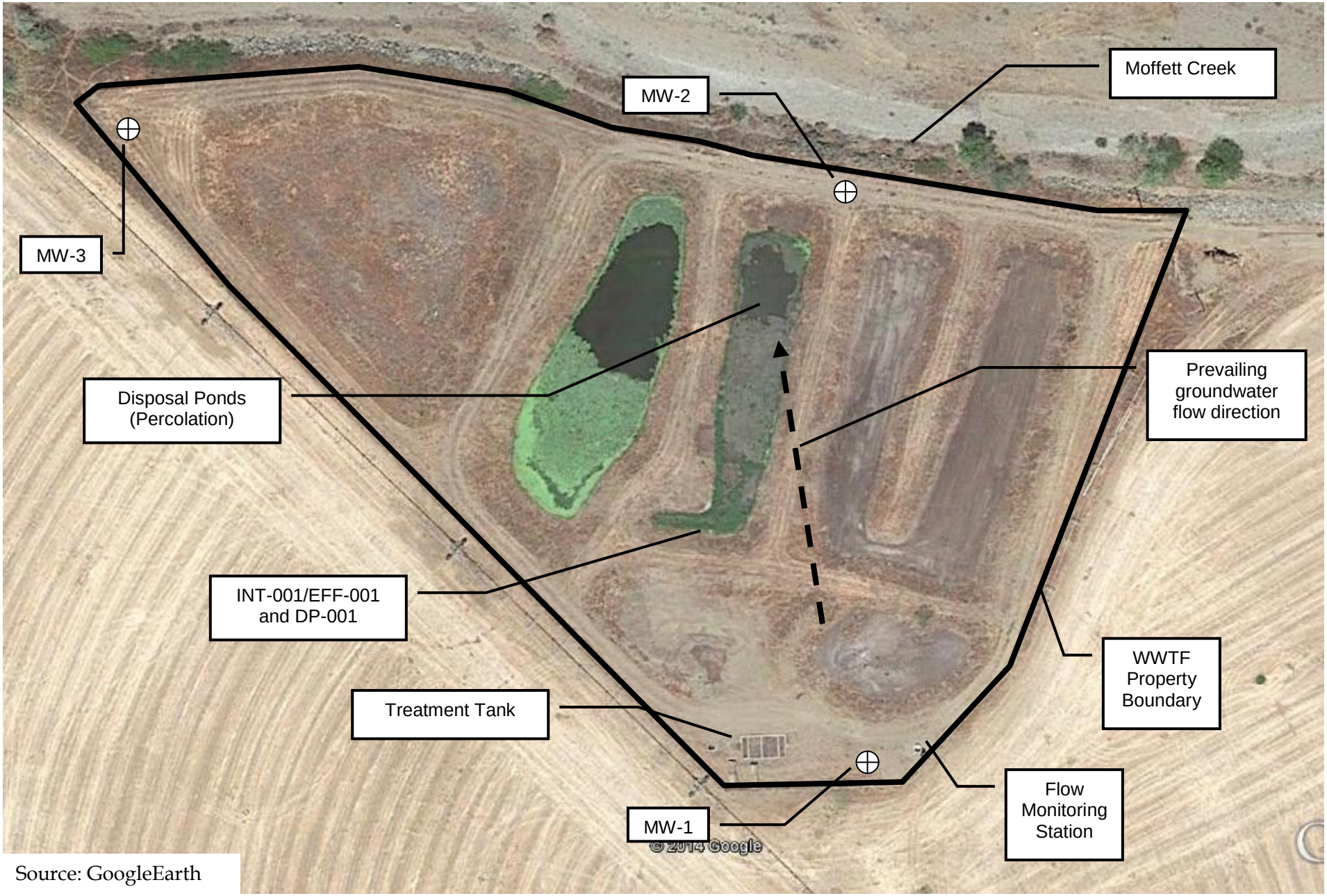
3.1 Wastewater Flow Data

Influent wastewater flow data is collected at a permanent flow monitoring station installed prior to wastewater entering the existing treatment tank. Data is collected continuously with minimum and



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Consulting Engineers & Geologists, Inc.	**Town of Fort Jones** **Waste Water Treatment Facility** **Fort Jones, California**	**Site Location Map** JOB #514009	
	March 2014	W:\2014\514009-FJ-WWTP\Figs\Figure 1.doc	Figure **#1**



Source: GoogleEarth

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Consulting Engineers & Geologists, Inc.

Town of Fort Jones
Waste Water Treatment Facility
Fort Jones, California

Effluent/Discharge Point and Monitoring Well Locations
INT-001/EFF-001/DP-001
MW-1, MW-2, MW-3
JOB #514009

July 2017 | W:\2014\514009-FJ-WWTP\Figs\Figure 2-Revised1.1.doc | Figure **#2**

maximum daily values tabulated, and monthly summaries calculated for minimum, maximum and average gallons per minute and total gallons. While flow data was automatically recorded electronically, that data could not be retrieved by the Town's wastewater staff due to recent staff changes and the lack of understanding on how to retrieve the data from the system. Staff is currently being trained, and data downloads will be resumed in the 3rd Quarter of 2019. Wastewater flow data for the 2nd Quarter of 2019 will also be downloaded and made available as part of the 2019 Annual Monitoring Report.

3.2 Effluent Analytical Results

Table 1 summarizes the laboratory analytical results for the wastewater samples collected at the facility for the monitoring period. Analytical results are found in **Appendix 1**. Those results show that all constituents of concern were within WDR limits, with the exception of Biological Oxygen Demand (BOD) that exceeded the monthly average maximum limit at 76 milligrams/liter (mg/l).

Table 1. WDR Constituents and Limitations, 2nd Quarter 2019
Town of Fort Jones Wastewater Treatment Facility
Fort Jones, California
Analysis June 24, 2019

Sample Location	BOD[1] (mg/l)[2]		TSS[3] (mg/l)		pH (pH units)		Settleable Solids (ml/l/hr)[4]		DO[5] (mg/l)		N Total[6] (mg/l)		Title 22
	Measured	Limitations	Measured	Limitations	Measured	Limitations	Measured	Limitations	Measured	Limitations	Measured	Limitations	
Effluent[7]	**76**	50/80[8]	23.3	50/80	7.10	6.0-9.0	0.1	0.1/0.2[9]	1.4	1.0[10]	31.5	NL[11]	NOTE[12]

1. Biological Oxygen Demand
2. milligrams per liter
3. Total Suspended Solids
4. milliliters per liter per hour
5. Dissolved Oxygen
6. Nitrogen, Total (N)
7. The effluent locations is also identified as Monitoring EFF-001 and Discharge Point 001 in the WDR
8. Monthly average (50) and maximum daily (80) limitations
9. Monthly average (0.1) and maximum daily (0.2) limitations
10. Limitation is the minimum level; larger values denote more dissolved oxygen
11. No Limitation identified in WDR
12. Title 22 contaminants will be sampled again in 2020
13. Not Detected

Section 4 Receiving Water Monitoring

4.1 Groundwater Monitoring

Groundwater sampling was conducted from the monitoring wells on April 16, 2019 with samples transported by SHN personnel under Chain-of-Custody to Basic Lab in Redding, California, for analysis. Laboratory analysis was conducted within the specified time periods required for the constituents being analyzed. Information and analytical data consists of:

- Depth to Groundwater
- Nitrogen, Total (N)
- Nitrate + Nitrite as N
- Total Coliform Organisms
- E. Coli

Nitrate + Nitrite (as N) is not a required constituent for analysis in the WDR, but was selected to help in determining potential contaminants for use in the separate wastewater treatment facility design process. Similarly, E. Coli is not a required constituent, but was used in combination with Total Coliform Organisms to measure potential groundwater impacts since naturally occurring coliform organisms can be very high in agricultural areas such as the project site. Analytical results from the monitoring well samples are shown in **Table 2**, with results provided in **Appendix 1.**

Table 2 Groundwater Sample Analytical Results, 2nd Quarter 2019
Analyzed May 6, 2019[7]
Town of Fort Jones Wastewater Facility,
Fort Jones, California

Sample Location	Depth to Groundwater (Feet BGS)[6]	Total Nitrogen (mg/l)[1]		Nitrate+Nitrite as N[2] (mg/l)		Total Coliform Organisms (MPN/100 ml)[3]		E. Coli (MPN/100 ml)	
		Measured	Limits	Measured	Limits	Measured	Limits	Measured	Limits
MW[4]-1	11.45	2.98	10	2.78	NL[5]	<1	NL	<1	NL
MW-2	11.48	6.07	10	5.88	NL	3	NL	3	NL
MW-3	13.80	4.05	10	0.37	NL	2	NL	144	NL

1. mg/l: milligrams/liter
2. Typically referred to as just "Nitrate"
3. MPN/100 ml: Most Probable Number per 100 milliliters
4. MW: Monitoring Well
5. NL: No Limits identified in the WDR. Analyzed to determine background.
6. Feet BGS: Feet Below Ground Surface-measured by SHN.
7. Laboratory analysis and data provided by Basic Laboratory, Redding, California.

Section 5 Discussion

5.1 Wastewater Flows

The Town's wastewater treatment facility has a maximum permitted facility design flow of 0.060 mgd average daily dry weather flows (ADWF). As previously documented in this report, flow data was recorded, but could not be retrieved for use in this report due to new wastewater staff not having training on the flow data equipment. Town staff is receiving training, and will be able to download and make available data for the 3rd Quarter monitoring report. Additionally, data for the 2nd Quarter is presumed to be present in the system, and will be downloaded and provided in the 2019 Annual report.

5.2 Wastewater Effluent

Treated effluent water monitoring data was collected during this period for the constituents of concern identified in the WDR. A summary of the analytical results are shown in **Table 1** with laboratory analytical data found in **Appendix 1**.

Analytical data shows that the wastewater effluent exceedances occurred for BOD only, with an exceedance of the monthly average at 76 mg/l. All other values were within the WDR limits.

The existing Fort Jones wastewater treatment system has primary treatment in the Imhoff tank prior to disposal into evaporation/percolation ponds; high levels of BOD are known to be an issue with these types of treatment systems because aeration is limited to surface exchange across the ponds surfaces. The Fort Jones system has no active aeration. This is an issue that is currently being dealt with during the preliminary design of the new treatment system that has been completed. That design proposes to reconfigure the treatment ponds and include aeration, as a part of the overall upgrades.

There are no discharges to surface waters from the system, so there are no direct impacts to area streams due to the BOD exceedances.

5.3 Monitoring Wells

5.3.1 Nitrogen and Total Coliform

Groundwater samples collected from the monitoring wells for analysis of Total Nitrogen, Nitrate+Nitrite (Nitrate), and Total Coliform Organisms and E. Coli. As shown in **Table 2**, analysis found that Total Nitrogen is below the maximum limit of 10 mg/l in all monitoring wells at 2.98 mg/l, 6.07 mg/l, and 4.05 mg/l for wells MW-1, MW-2 and MW-3, respectively. Higher concentrations of Total Nitrogen were expected in MW-2, as this is the immediate downgradient monitoring well of the main wastewater treatment, evaporation and percolation pond. Sampling continues to show the trend of this well having higher Total Nitrogen than the other wells. Implementation of a new treatment system that reduces nitrogen will likely provide significant reductions in contamination.

Samples analyzed for Nitrate+Nitrite (commonly referred to as Nitrate) shows a larger range, from 2.78 mg/l at MW-1, 5.88 mg/l at MW-2 and 0.37 mg/l at MW-3. As previously noted in other monitoring reports, MW-2 has the highest concentrations of Nitrate in groundwater. Again, a treatment system that actively increases oxygen will likely reduce the overall impacts at this monitoring well.

Analysis also showed that Total Coliform Organisms were present in the groundwater samples, which was expected. The area has historic cattle ranching, grazing and crop production (in addition to the use of the site as a wastewater treatment facility) which can contribute to increased levels of Total Coliform Organisms. Additionally, since the wastewater treatment system has been in operation for many years, it is assumed that some levels of Total Coliform Organisms would be present. The results during this sampling period showed an increase in the Total Coliform Organisms in MW-2 (analyzed at 3 MPN/100 ml) and MW-3 (2 MPN/100 ml). These values were an increase over the historic results of <1 MPN/100 ml and are likely directly related to the wastewater treatment system, as there has been no cattle operations at the adjacent site in recent years, though naturally occurring coliform can artificially increase the counts in samples.

In addition to Total Coliform Organisms, SHN had the analytical laboratory analyze for E. Coli in the monitoring well samples to help define animal waste contamination in the water column, as compared to the total coliform bacteria that can be present for various other reasons, in addition to animal wastes. The results of the E. Coli analysis showed <1 MPN/100 ml for MW-1 (upgradient well), an increased level of E. Coli of 3 MPN/100 ml at MW-2, and a very high count of E. Coli at MW-3 of 144 MPN/100. Results are provided in **Appendix 1.** The increase in E. Coli at MW-2 is expected as this is the direct downgradient monitoring well and increases in groundwater contaminants are expected here. However, MW-3 is also a downgradient monitoring well, but historically there has never been a measured E. Coli value at this monitoring well; previous analytical results were all <1 MPN/100 ml. Results are puzzling at this time as they represent an anomaly in the current data, and these results will be analyzed against the next round o groundwater sampling during the quarter with a comparison of the results and analysis provided in the Annual Report.

Project Cost Estimates

4

Opinion of Probable Project Cost
Alternative 3: Pond Treatment System and Land Application
Fort Jones Wastewater Facilities Plan

Item	Description	Units	Quantity	Unit Cost	Total Cost	Comments
1	Earthwork	LS	1	$340,000	$340,000	
2	Biosolids Disposal	LS	1	$117,000	$117,000	only hauling and disposal cost, excavation incl. in earthwork
3	Pond Lining	LS	1	$205,000	$205,000	geomembrane pond liners
4	Pond Aeration System	LS	1	$168,000	$168,000	2 aerated ponds inc. install
5	Headworks/Office Building	SF	800	$345	$276,000	
6	Influent Pump Station	LS	1	$345,000	$345,000	
7	Influent Screening	LS	1	$175,000	$175,000	Mechanical screen with manual screen backup/high flow
8	Influent Screening Channel	LS	1	$46,000	$46,000	
9	Backup Generator	LS	1	$92,000	$92,000	
10	Pond Effluent Control Structure	EA	2	$57,500	$115,000	downward opening, self-contained aluminum framed slide gate
11	14' flat bottom boat	EA	1	$6,000	$6,000	
12	SCADA System	LS	1	$44,000	$44,000	
13	Site Electrical	LS	1	$115,000	$115,000	
14	Influent Flow Meter	LS	1	$23,000	$23,000	
15	Effluent Pump Station	LS	1	$345,000	$345,000	
16	Nonpotable Well	LS	1	$9,000	$9,000	
17	Effluent Force Main	LF	8755	$52	$453,000	
18	Land Application Hardware	LS	1	$109,000	$109,000	
19	Access Rd	LS	1	$23,000	$23,000	
20	Mobilization (12%)	LS	1	$361,000	$361,000	

Note: values rounded up to nearest $1,000

Subtotal:	$3,367,000
Contingency (30%):	$1,010,000
Total Construction:	*$4,377,000*
Land Acquisition- Onsite	$58,000
Land Acquisition- Land App.	$276,000
Engineering and Permitting (20%):	$875,000
Administration and Legal (4%):	$175,000
Total Project:	*$5,761,000*

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JOB	516035.200		
SHEET NO.	2	OF	9
CALC'ED BY	MAC	DATE	11/22/2019
CHECKED BY		DATE	
UPDATED	JRR	DATE	9/15/2022

Alternative 1, Enhanced Pond System on Existing Footprint
Additional detail for capital construction line items

Inflation Factor: 15%
DGS California Construction Cost Index 2022

Item No.: 1 Earthwork

See "Fort Jones_Pond-Wetland Analysis.xlsx" for estimation of quantities

Clearing and Grubbing	$10,000		allowance
Demo existing structures	$28,750		allowance
Dry Biosolids in Pond Bottoms			
Bulldozer and Operator	$1,150	/hr	
Rip pond bottoms	2	hr/d	
Number of Days	8	d	
Biosolids Drying Subtotal	$18,400		
Excavation	6,500	CY	
Fill	6062	CY	
Excavation Cost	$35.00	/CY	Foster Ave Submittals
Excavation Subtotal	$227,500		
Pond grading for liner placement	$0.74	/SF	Bluelake Dike Repair Submittals
Surface Area (3 Ponds)	99,267	SF	
Pond grading Subtotal	$73,061		
Total Earthwork	$339,311		

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CALC'ED BY	MAC	DATE	11/22/2019
CHECKED BY		DATE	
UPDATED	JRR	DATE	9/15/2022

Item No.: 2 Biosolids Disposal

Anderson Landfill Disposal Costs

See "Fort Jones_Pond-Wetland Analysis.xlsx" for estimation of quantities

Disposal fees based on Personal Communication with landfill manager 8/30/17

Volume	2,500	CY
Density	1,200	lb/CY approximate
Mass	1,500	tons
Low Unit Price	33	/ton for reusable sludge
High Unit Price	42	/ton for non-reusable sludge
Low Cost	$49,500	
High Cost	$63,000	

Local Hauling

End Dump	50	CY
Volume	2,500	CY
Loads	50	loads
round trip	4	hr
load/unload	2	hr
time	300	hrs
unit price	$127	/hr
Subtotal	$37,950	

Total Biosolids Disposal $100,950

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Item No.: 3 Pond Liner

Plastic Liner - Unit Price	$2.00	/SF	incl. underlayment geotextile and installation
Pond Area	88,824	SF	
	$177,648	LS	
Total Liner	$177,648		

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JOB	516035.200		
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CALC'ED BY	MAC	DATE	11/22/2019
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UPDATED	JRR	DATE	9/15/2022

Item No.: 4 Submerged Aeration System

Triplepoint Environmental Quote	11/21/2019		
OptAer Aeration System		$73,000	
includes blowers			
HDPE lateral piping			
Diffusers			
2-15hp blowers with outdoor enclosures			
inspection, startup, commissioning, training, shipping			
Installation		$73,000	
Total Aeration		$146,000	
Inflation		15%	DGS California Construction Cost Index 2022
Total Adjusted		$ 167,900	

Item No.: 5 Headworks/Office Building

unit price incl electrical, concrete foundation, access doors, and air exchange
sized to fit headworks screen channels and washer/compactor, pump station, generator, blowers, and office

Item No.: 6 Influent Pump Station

peak capacity based on approximately 4x current peak day average of 0.25 MGD
pumps must handle average and low flow conditions

Item No.: 7 Influent Screening

Raketec estimate	7/28/2017		
Multiple Rake Screen	$64,672	Raketec DI500	
Manual Barscreen	$10,000	allowance	
Water Level Sensors (2)	$1,282	Siemens Echomax XRS-5 Ultrasonic Transducer	
Subtotal	$75,954		
Installation	$75,954		
Total Screen	$151,908		
Inflation	15%	Based on DGS California Construction Cost Index 2022	
Total Adjusted	$ 174,700		

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JOB	516035.200		
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CALC'ED BY	MAC	DATE	11/22/2019
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UPDATED	JRR	DATE	9/15/2022

Item No.: 8 Influent Screening Channel

two parallel channels

Channel Length	16	FT
Channel Width	3	FT
Channel Depth	4	FT
Wall Thickness (8 in)	0.67	FT
Concrete Volume	11.5	CY
fos (15%)	13.2	CY
Concrete Cost	$1,000	/CY
Total Concrete	$13,175	
Influent slide gates (2)	$20,000	allowance
Total Screen Channel	$40,000	
Inflation	15%	DGS California Construction Cost Index 2022
Total Adjusted	$ 46,000	

Item No.: 9 Backup Generator

Based on cost estimates completed for the Tulelake Water System Improvements project

Item No.: 10 Pond Effluent Control Structures

JW Wood Estimate		8/16/2017
Weir	$9,285.71	12"x24" Waterman aluminum frame slide gate weir Self-contained B-209 6061 Al T6 gate 304 SS rising stem mounted to geared yoke
Precast Concrete Weir Box	$10,000	
Floating effluent decanter	$10,000	
Installation	$10,000	allowance
Total Pond Effluent Control (X2)	$100,000	
Inflation	15%	DGS California Construction Cost Index 2022
Total Adjusted	$ 115,000	

Item No.: 11 14' Flat Bottomed Boat

	$ 5,000.00	
Inflation	15%	Based on DGS California Construction Cost Index 2022
Total Adjusted	$ 5,800	

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JOB	516035.200		
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CALC'ED BY	MAC	DATE	11/22/2019
CHECKED BY		DATE	
UPDATED	JRR	DATE	9/15/2022

Item No.: 12 SCADA System

Onsite HMI	$5,000	allowance
Portland Engineering estimate for Scotia, CA 8/28/17		
Cellular Communication System	$10,000	
UL508a-listed industrial control panel housing the following:		
Cellular Modem, Coax and Antenna		
Power Distribution and Protection Circuitry		
Detailed Design Submittals including Control Panel Shop Drawings		
Project Management and Installation Support		
Cellular Telemetry System Administration and Modem Configuration		
Hardwired Autodialer Configuration		
Onsite Testing, Startup and Operator Training		
Operation and Maintenance Manuals		
Remote Access VPN	$3,000	
Industrial SCADA PC	$10,000	
Software-based Autodialer System	$4,250	*add-on for Industrial PC*
Historical Database	$5,250	*add-on for Industrial PC*
Total SCADA System	$37,500	
Inflation	15%	DGS California Construction Cost Index 2022
Total Adjusted	$ 43,200	

Item No.: 13 Site Electrical

New Service	$25,000	
Site Electrical	$75,000	allowance
Total Electrical	$100,000	
Inflation	15%	DGS California Construction Cost Index 2022
Total Adjusted	$ 115,000	

Item No.: 14 Influent Flow Meter

New influent flow meter allowance:	$20,000	
Includes installation.		
Inflation	15%	DGS California Construction Cost Index 2022
Total Adjusted	$ 23,000	

Item No.: 15 Efluent Pump Station

New efluent pump station allowance:	$300,000	
Includes installation.		
Inflation	15%	DGS California Construction Cost Index 2022
Total Adjusted	$ 345,000	

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JOB	516035.200		
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CALC'ED BY	MAC	DATE	11/22/2019
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UPDATED	JRR	DATE	9/15/2022

Item No.:	16	Non-potable Well		
	Cost per ft	$ 50.00		
	Depth of well	150.00		
	Allowance	$ 7,500.00		
	Inflation	15%	DGS California Construction Cost Index 2022	
	Total Adjusted	$ 8,700		

Item No.:	17	Piping to Land App	
	Length	8755	
	Trenching-backfill-$/FT	$ 13.00	Online Estimates
	8" Pipe-$/FT	$ 32.00	Online Estimates - 8" Polyethylene 200 PSI
	Total $/FT	$ 45.00	
	Total w/ Install	$ 393,975.00	
	Inflation	15%	DGS California Construction Cost Index 2022
	Total Adjusted	$ 453,100	

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JOB	516035.200		
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UPDATED	JRR	DATE	9/15/2022

Item No.: 18 Land App Hardware

	Quant	Cost	
Pressure Regulator	1.00	$ 3,000.00	$ 3,000.00
Sprinkler Control	1.00	$ 5,000.00	$ 5,000.00
2" Piping	16,000.00	$ 3.00	$ 48,000.00
Pedistals	140.00	$ 200.00	$ 28,000.00
Solar power (battery etc.)	1.00	$ 10,000.00	$ 10,000.00

Ten 2-Acre sprinkler zones to be established with 7 sprinklers per acre in a grid pattern
Assume each sprinkler applies 6 gpm and there is a 75 ft spacing between risers
Each zone can handle 2 in/week to disperse 120,000 Gal/D

	$ 94,000.00	
Inflation		15% DGS CA Construction Cost Index 2022
Total Adjusted	$ 109,000	

Item No.: 19 Access Rd

	$ 20,000.00	
Inflation		15% Based on DGS California Construction Cost Index 2022
Total Adjusted	$ 23,000	

Item No.: 20 Mobilization (12%)

Mobilization assumed at 12% of all other construction line items.

Opinion of Probable Project Cost
Alternative 4: Aerated Ponds and Relocated Disposal Ponds
Fort Jones Wastewater Facilities Plan

Item	Description	Units	Quantity	Unit Cost	Total Cost	Comments (additional comments on detail sheets)
1	Earthwork	LS	1	$490,000	$490,000	
2	Biosolids Disposal	LS	1	$117,000	$117,000	only hauling and disposal cost, excavation incl. in earthwork
3	Pond Lining	LS	1	$273,000	$273,000	geomembrane pond liners
4	Pond Aeration System	LS	1	$168,000	$168,000	2 aerated ponds inc. install
5	Headworks/Office Building	SF	1000	$300	$300,000	includes space for blowers
6	Influent Pump Station	LS	1	$350,000	$350,000	
7	Influent Screening	LS	1	$175,000	$175,000	Mechanical screen with manual screen backup/high flow
8	Influent Screening Channel	LS	1	$46,000	$46,000	
9	Backup Generator	LS	1	$80,000	$80,000	
10	Pond Effluent Control Structure	EA	2	$57,500	$115,000	downward opening, self-contained aluminum framed slide gate
11	14' flat bottom boat	EA	1	$6,000	$6,000	
12	SCADA System	LS	1	$44,000	$44,000	
13	Engineered Nitrification/Denitrification System	LS	1	$638,000	$638,000	
14	Site Electrical	LS	1	$115,000	$115,000	
15	Influent Flow Meter	LS	1	$23,000	$23,000	
16	Nonpotable Well	LS	1	$30,000	$30,000	
17	Mobilization (12%)	LS	1	$356,000	$356,000	

Note: values rounded up to nearest $1,000

Subtotal:	$3,326,000
Contingency (30%):	$998,000
Total Construction:	***$4,324,000***
Land Acquisition:	$60,000
Engineering and Permitting (20%):	$865,000
Administration and Legal (4%):	$173,000
Total Project:	***$5,422,000***

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JOB	516035.200		
SHEET NO.	2	OF	10
CALC'ED BY	MAC	DATE	11/22/2019
CHECKED BY	AHR	DATE	11/27/2019
UPDATED	JRR	DATE	8/17/2022

Alternative 4, Enhanced Pond System on Existing Footprint
Additional detail for capital construction line items
Note: Inflation of 15% (cumulative) considered over unit costs for previous Alternatives, which were prepared between 2017 and 2020.

Item No.: 1 **Earthwork**

Notes: 1. Generally tried for balanced cut/fill
2. Some import of material is needed
3. 200 CY Fill added for Nite/Denite Pad -JR 8/17/2022

Item	*Unit*	*Qty*	*Unit Cost*	*Total*	
Clearing and Grubbing	LS	1	$ 10,000	$ 10,000	
Demo existing structures	LS	1	$ 25,000	$ 25,000	
Earthwork (cut)	CY	24,601	$ 5.00	$ 123,005	
Fill (Imported)	CY	5,713	$ 15.00	$ 85,695	with Nite/Denite fill
Rough grading (fill)	CY	30,313	$ 6.00	$ 181,878	with Nite/Denite fill
Total Earthwork				**$ 425,578**	
Inflation		15%			
Total Adjusted				**$ 490,000**	

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JOB	516035.200		
SHEET NO.	3	OF	10
CALC'ED BY	MAC	DATE	11/22/2019
CHECKED BY	AHR	DATE	11/27/2019
UPDATED	JRR	DATE	8/17/2022

Item No.: 2 **Biosolids Disposal**

Anderson Landfill Disposal Costs

See "Fort Jones_Pond-Wetland Analysis.xlsx" for estimation of quantities

Disposal fees based on Personal Communication with landfill manager 8/30/17

Volume	2,500	CY	
Density	1,200	lb/CY	approximate
Mass	1,500	tons	
Low Unit Price	33	/ton	for reusable sludge
High Unit Price	42	/ton	for non-reusable sludge
Low Cost	$49,500		
High Cost	$63,000		

Local Hauling		
End Dump	50	CY
Volume	2,500	CY
Loads	50	loads
round trip	4	hr
load/unload	2	hr
time	300	hrs
unit price	$127	/hr
Subtotal	$38,100	

Total Biosolids Disposal	**$101,100**	
Inflation	15%	Based on DGS California Construction Cost Index 2022
Total Adjusted	**$ 117,000**	

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JOB	516035.200		
SHEET NO.	4	OF	10
CALC'ED BY	MAC	DATE	11/22/2019
CHECKED BY	AHR	DATE	11/27/2019
UPDATED	JRR	DATE	8/17/2022

Item No.: 3 **Pond Lining**

Plastic Liner - Unit Price	$2.00	/SF	incl. underlayment geotextile and installation
Pond Area	118,613	SF	
	$237,226		

Total Liner	**$237,226**	
Inflation	15%	Based on DGS California Construction Cost Index 2022
Total Adjusted	**$ 273,000**	

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JOB	516035.200		
SHEET NO.	5	OF	10
CALC'ED BY	MAC	DATE	11/22/2019
CHECKED BY	AHR	DATE	11/27/2019
UPDATED	JRR	DATE	8/17/2022

Notes
inflation value based on DGS California Construction Cost Index 2022

Item No.: 4 **Pond Aeration System**

Triplepoint Environmental Quote	11/21/2019		
OptAer Aeration System		$73,000	
includes blowers			
HDPE lateral piping			
Diffusers			
2-15hp blowers with outdoor enclosures			
inspection, startup, commissioning, training, shipping			
Installation		$73,000	
Total Aeration		**$146,000**	
Inflation		15%	Based on DGS California Construction Cost Index 2022
Total Adjusted		**$167,900**	

Item No.: 5 **Headworks/Office Building**

unit price incl electrical, concrete foundation, access doors, and air exchange
sized to fit headworks screen channels and washer/compactor, pump station, generator, blowers, and office
added area for additional blowers for nitrogen removal system

Item No.: 6 **Influent Pump Station**

peak capacity based on approximately 4x current peak day average of 0.25 MGD
pumps must handle average and low flow conditions
Based on recent experience on other projects, estimated cost is: **$350,000**

Item No.: 7 **Influent Screening**

Raketec estimate	7/28/2017		
Multiple Rake Screen		$64,672	Raketec DI500
Manual Barscreen		$10,000	allowance
Water Level Sensors (2)		$1,282	Siemens Echomax XRS-5 Ultrasonic Transducer
Subtotal		$75,954	
Installation		$75,954	
Total Screen		**$151,908**	
Inflation		15%	Based on DGS California Construction Cost Index 2022
Total Adjusted	**$**	**175,000**	

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JOB	516035.200		
SHEET NO.	6	OF	10
CALC'ED BY	MAC	DATE	11/22/2019
CHECKED BY	AHR	DATE	11/27/2019
UPDATED	JRR	DATE	8/17/2022

Notes
inflation value based on DGS California Construction Cost Index 2022

Item No.: 8 **Influent Screening Channel**

two parallel channels		
Channel Length	16	FT
Channel Width	3	FT
Channel Depth	4	FT
Wall Thickness (8 in)	0.67	FT
Concrete Volume	11.5	CY
fos (15%)	13.2	CY
Concrete Cost	$1,000	/CY
Total Concrete	$13,175	
Influent slide gates (2)	$20,000	allowance
Total Screen Channel	**$40,000**	
Inflation	15%	
Total Adjusted	**$ 46,000**	

Item No.: 9 **Backup Generator**

Based on cost estimates completed for recent projects

Item No.: 10 **Pond Effluent Control Structure**

JW Wood Estimate		8/16/2017
Weir	$9,285.71	12"x24" Waterman aluminum frame slide gate weir Self-contained B-209 6061 Al T6 gate 304 SS rising stem mounted to geared yoke
Precast Concrete Weir Box	$10,000	
Floating effluent decanter	$10,000	
Installation	$10,000	allowance
Total Pond Effluent Control (X2)	**$100,000**	
Inflation	15%	
Total Adjusted	**$ 115,000**	

Item No.: 11 **14' flat bottom boat**

$	**5,000.00**
Inflation	15%
Total Adjusted	**$ 6,000**

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JOB	516035.200		
SHEET NO.	7	OF	10
CALC'ED BY	MAC	DATE	11/22/2019
CHECKED BY	AHR	DATE	11/27/2019
UPDATED	JRR	DATE	8/17/2022

Item No.: 12 **SCADA System**

Onsite HMI	$5,000	allowance
Portland Engineering estimate for Scotia, CA 8/28/17		
Cellular Communication System	$10,000	
UL508a-listed industrial control panel housing the following:		
Cellular Modem, Coax and Antenna		
Power Distribution and Protection Circuitry		
Detailed Design Submittals including Control Panel Shop Drawings		
Project Management and Installation Support		
Cellular Telemetry System Administration and Modem Configuration		
Hardwired Autodialer Configuration		
Onsite Testing, Startup and Operator Training		
Operation and Maintenance Manuals		
Remote Access VPN	$3,000	
Industrial SCADA PC	$10,000	
Software-based Autodialer System	$4,250	*add-on for Industrial PC*
Historical Database	$5,250	*add-on for Industrial PC*
Total SCADA System	**$37,500**	
Inflation	15%	based on DGS California Construction Cost Index 2022
Total Adjusted	**$ 44,000**	

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JOB	516035.200		
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CALC'ED BY	MAC	DATE	11/22/2019
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UPDATED	JRR	DATE	8/17/2022

Item No.: 13 **Engineered Nitrification/Denitrification System**

Triplepoint Proposal			
Base proposal (dated 1/21/2021)	$	276,700	Proposal for NitrOx+D® Reactor System by Triplepoint Environmental
Inflation		15%	
Revised Base		$319,000	
Other items		$319,000	Doubling of base to account for concrete basins, earthwork, piping, electrical, and controls.
Total Nitrification/Denitrification		**$638,000**	

Nexom Proposal includes Biofilm Reactor Lagoon Aeration Design/O&M Docs/Install & Start-up /Shipping	$	780,000	Does not indicate individual cost for biofilm reactor and assocaited shipping. As Nexom's is a combined quote, it was assumed their Nitrogen treatment cost is lower. Due to this, the Triplepoint cost for nitrogen treatment was selected for this estimate.

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JOB	516035.200		
SHEET NO.	9	OF	10
CALC'ED BY	MAC	DATE	11/22/2019
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UPDATED	JRR	DATE	8/17/2022

Notes
inflation value based on DGS California Construction Cost Index 2022

Item No.:	**14**	**Site Electrical**			
	New Service	$25,000			
	Site Electrical	$75,000	allowance	**$20,000**	
	Total Electrical	**$100,000**			
	Inflation	15%			
	Total Adjusted	**$ 115,000**			

Item No.:	**15**	**Influent Flow Meter**	
	New influent flow meter allowance:	$ 20,000	
	Includes installation.		
	Inflation	15%	
	Total Adjusted	**$ 23,000**	

Item No.:	**16**	**Nonpotable Well**	
	Cost per ft	$ 50.00	
	Depth of well	150.00	
	Allowance	$ 7,500.00	
	Inflation	15%	
	Total Adjusted	**$ 9,000**	
	Revised based on recent experience	**$ 30,000**	Based on Alturas costs for monitoring well

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CALC'ED BY	MAC	DATE	11/22/2019
CHECKED BY	AHR	DATE	11/27/2019
UPDATED	JRR	DATE	8/17/2022

Item No.: 17 **Mobilization (12%)**

Mobilization assumed at 12% of all other construction line items.

Land Acquisition

Allowance **$60,000**

include:

- *lot subdivision*
- *survey record*
- *surveying*
- *property purchase* approx 0.6 ac of adjacent farm land
- *title fees*

O&M Cost Estimates

5

Operation and Maintenance Cost Estimate
Alternative 3: Pond Treatment System and Land Application
Fort Jones Wastewater Facilities Plan

Item	Description	Annual O&M Cost	Comments (see attached sheets for additional info)
1	Labor, licensed operator	$ 46,400	
2	Cell/SCADA service	$ 1,900	for SCADA and alarms
3	Trash service	$ 500	For screenings at influent pump station
4	Electrical costs	$ 40,900	Assumed purchased power; does not account for onsite solar
6	Sludge handling	$ 2,200	Assume dredge Ponds 1-3 every 20 years
7	Operating Reserve (10%)	$ 9,200	
8	Short Lived Asset Reserve (10%)	$ 9,200	
	Annual O&M costs:	$ 110,300	

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JOB	516035.200		
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CALC'ED BY	MAC	DATE	11/22/2019
CHECKED BY		DATE	

Alternative 3, Pond System and Land Application
Additional detail for capital construction line items

Item No.: 1 Labor, licensed operator

Notes:
1. Grade II Operator required
2. Additional hrs/month is contingency for emergency and miscellaneous tasks
3. Assumes one licensed operator who is a Town employee

Hourly rate	$50.00
hrs/wk	16
Add't hrs/mon	8
Annual Cost	$46,400

Item No.: 2 Cell/SCADA service

Single phone service for alarms

Monthly fee	$30	data plan only
Annual Cost	$360	

SCADA system equipment maintenance

Annual allowance	$1,500
Total:	$1,900

Item No.: 3 Trash service

Trash service to collect screenings from influent screen

Weekly service	$40	per month
Annual Cost	$500	

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JOB	516035.200		
SHEET NO.	2	OF	3
CALC'ED BY	MAC	DATE	11/22/2019
CHECKED BY		DATE	

Item No.: 4 Electrical costs

Notes:
1. Assumed rate of: $0.20 per kWh
2. 1 hp = 0.746 kW
3. Costs do not account for any offsets from solar power generated onsite.

Influent Pumps

pump power	5.0	hp	
	3.7	kW	
peak flow	*2.0*	*MGD*	
avg flow	*0.045*	*MGD*	
avg:peak flow	*0.023*		
avg pump power	*0.08*	*kW*	approximate
daily runtime	24	hr/d	
annual runtime	8,760	hr/yr	
annual energy use	735	kWh	
Annual Cost	$147.04		

Influent Screen

screen power	0.75	hp	
	0.56	kW	
daily runtime	6	hr/d	
annual runtime	2,190	hr/yr	
annual energy use	1,225	kWh	
Annual Cost	$245.06		

Effluent Pumps - 8" Pressure Main to Land App

kWh/MG	125.8	
MG/YR	25.6	
kWh	3,220.48	
Cost (X2) - Unforseen Costs	$ 1,288.19	

Blowers (X2)

blower power	15.0	hp	
	11.2	kW	
annual runtime	8,760	hr/yr	
annual energy use	98,024	kWh	
Annual Cost	$39,210	$/yr	

Total $40,900 $/yr

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JOB	516035.200		
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CALC'ED BY	MAC	DATE	11/22/2019
CHECKED BY		DATE	

Item No.: 5 Sludge Handling

Notes:

1. Assume outside contractor to operate dredge and equipment
2. Assume all sludge pumped to drying beds

Daily labor rate	$3,000	3 laborers
Daily equipment rate	$1,000	incl dredge, sludge pump, and hoses
Days to dredge	10	Ponds 1-3
Dredge Frequency	20	years
Subtotal	$2,000	
mob (10%)	$200.0	
Annual Cost	$2,200	

Operation and Maintenance Cost Estimate
Alternative 4: Aerated Ponds and Relocated Disposal Ponds
Fort Jones Wastewater Facilities Plan

Item	Description	Annual O&M Cost	Comments (see attached sheets for additional info)
1	Labor, licensed operator	$ 46,400	
2	Cell/SCADA service	$ 1,900	for SCADA and alarms
3	Trash service	$ 500	For screenings at influent pump station
4	Electrical costs	$ 46,100	Assumed purchased power; does not account for onsite solar
5	Nitrification/Denitrification	$ 77,400	From Correspondence with Triplepoint Environmental
6	Sludge handling	$ 2,200	Assume dredge Ponds 1-2 every 20 years
7	Operating Reserve (10%)	$ 17,500	
8	Short Lived Asset Reserve (10%)	$ 17,500	
	Annual O&M costs:	$ 209,500	

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JOB	516035.200		
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CALC'ED BY	MAC	DATE	11/22/2019
CHECKED BY	AHR	DATE	
		UPDATED	2/12/2021

Alternative 4, Pond System and Land Application
Additional detail for capital construction line items

Item No.: 1 Labor, licensed operator
Assume dredge Ponds 1-2 every 20 years

Notes:
1. Grade II Operator required
2. Additional hrs/month is contingency for emergency and miscellaneous tasks
3. Assumes one licensed operator who is a Town employee

Hourly rate	$50.00
hrs/wk	16
Add't hrs/mon	8
Annual Cost	$46,400

Item No.: 2 Cell/SCADA service

Single phone service for alarms

Monthly fee	$30	data plan only
Annual Cost	$360	

SCADA system equipment maintenance

Annual allowance	$1,500
Total:	$1,900

Item No.: 3 Trash service

Trash service to collect screenings from influent screen

Weekly service	$40	per month
Annual Cost	$500	

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JOB	516035.200		
SHEET NO.	2	OF	4
CALC'ED BY	MAC	DATE	11/22/2019
CHECKED BY	AHR	DATE	
		UPDATED	2/12/2021

Item No.: 4 Electrical costs

Notes:
1. Assumed rate of: $0.20 per kWh
2. 1 hp = 0.746 Assume dredge Ponds 1-2 every 20 years
3. Costs do not account for any offsets from solar power generated onsite.

Influent Pumps

pump power	5.0	hp	
	3.7	kW	
peak flow	*2.0*	*MGD*	
avg flow	*0.045*	*MGD*	
avg:peak flow	*0.023*		
avg pump power	*0.08*	*kW*	approximate
daily runtime	24	hr/d	
annual runtime	8,760	hr/yr	
annual energy use	735	kWh	
Annual Cost	$147.04		

Influent Screen

screen power	0.75	hp	
	0.56	kW	
daily runtime	6	hr/d	
annual runtime	2,190	hr/yr	
annual energy use	1,225	kWh	
Annual Cost	$245.06		

Blowers (X2)

blower power	15.0	hp	
	11.2	kW	
annual runtime	8,760	hr/yr	
annual energy use	98,024	kWh	
Annual Cost	$39,210	$/yr	

Nite/Denite

Blower O&M	$ 6,497.45		Directly from Triplepoint's Quote

Total $46,100 $/yr

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CALC'ED BY	MAC	DATE	11/22/2019
CHECKED BY	AHR	DATE	
UPDATED	JRR	DATE	8/24/2022

Item No.: 5 Nitrification/Denitrification

Notes:

1. From Correspondence with Triplepoint Environmental Sales Rep

Carbon Source	26.50	gpd		
	$8.00	per gallon		
			$77,380.00	$/yr
		Total	$77,400.00	

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JOB	516035.200		
SHEET NO.	4	OF	4
CALC'ED BY	MAC	DATE	11/22/2019
CHECKED BY	AHR	DATE	
		UPDATED	2/12/2021

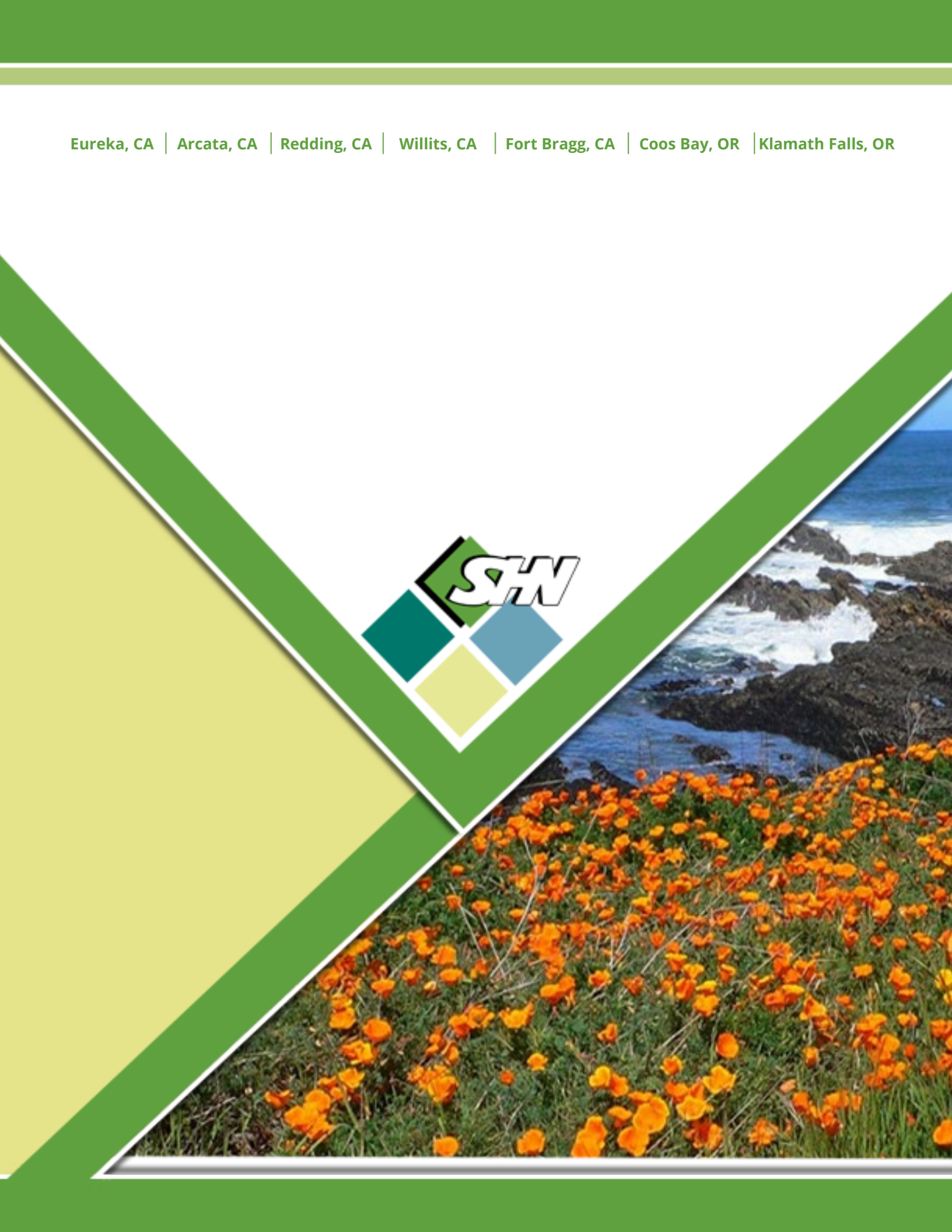
Item No.: 6 Sludge Handling

Notes:

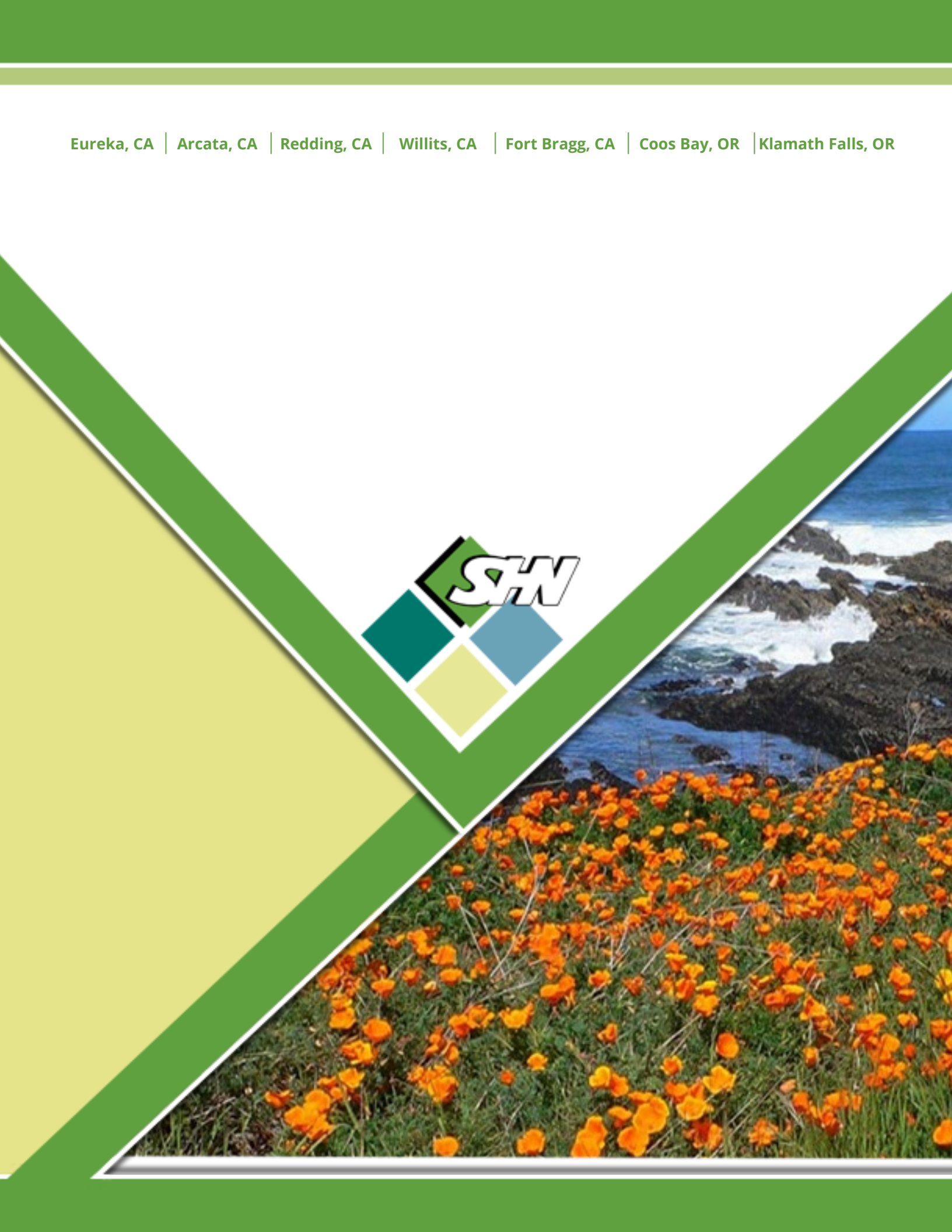
1. Assume outside contractor to operate dredge and equipment
2. Assume all sludge pumped to drying beds
3. Assume ponds 1-2 dredged every 20 years

Daily labor rate	$3,000	3 laborers
Daily equipment rate	$1,000	incl dredge, sludge pump, and hoses
Days to dredge	10	Ponds 1-3
Dredge Frequency	20	years
Subtotal	$2,000	
mob (10%)	$200.0	
Annual Cost	$2,200	

Eureka, CA | Arcata, CA | Redding, CA | Willits, CA | Fort Bragg, CA | Coos Bay, OR | Klamath Falls, OR



Eureka, CA | Arcata, CA | Redding, CA | Willits, CA | Fort Bragg, CA | Coos Bay, OR | Klamath Falls, OR



Appendix 3
Infiltration Test Results

Phone: (707) 441-8855 Email: info@shn-engr.com Web: shn-engr.com
812 W Wabash Avenue, Eureka, CA 95501

v. 1/16/2026

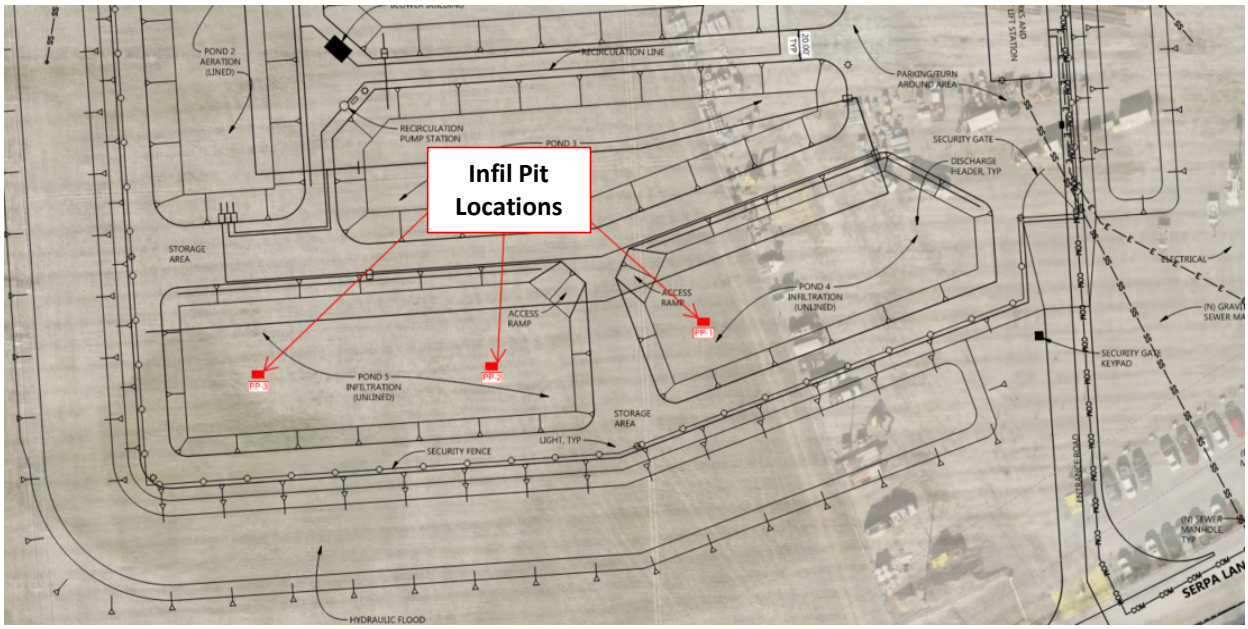
Infiltration Pond Bottom Surface Area

Pond 4	11,552	SF
Pond 5	16,237	SF
Total	**27,789**	**SF**
	0.638	**AC**

Infiltration Test Results: *Tested conducted 12/3/2025 & 12/4/2025*

Test Pit ID	MPI	FT/D	
PP-1	0.63	190	*POND 4*
PP-2	0.02	6,000	*POND 5*
PP-3	6.00	**20**	*POND 5*
POND 4	0.63	190	
POND 5	3.01	3,010	

10 ***MIN INFIL RATE***



Infiltration Rate Required According to Flow Rate and Pond Design Surface Area

Flow Rate	gpd	gpd/sf	ft/day	
ADWF	45,516	1.6	0.22	
ADF	83,795	3.0	0.40	
MMDWF	85,808	3.1	0.41	
AWWF	123,933	4.5	0.60	
MMWWF	317,530	11.4	1.53	
PDAF	627,424	22.6	3.02	**3.0 ft/day << 20 ft/day (OK)**

Infiltration Area Required According to Soil Type

Soil types in the areas contemplated for infiltration ponds have infiltration (Ksat, or saturated hydraulic conductivity) rates of 5.95 to 19.98 inches/hour ("Atter very gravelly sandy loam").

Area = daily flow / infiltration rate (with appropriate unit conversions)

Ksat (in/hr)	Infiltration Area (ac)	
5.95	0.08	**0.08 ac << 0.64 ac (OK)**
19.98	0.02	**0.02 ac << 0.64 ac (OK)**

Appendix 4
BOD Treatment Pond Sizing

Phone: (707) 441-8855 **Email:** info@shn-engr.com **Web:** shn-engr.com
812 W Wabash Avenue, Eureka, CA 95501

Fort Jones Wastewater Pond Design
Created: C. Swanson 11/5/2025
Checked: A. Bricken 1/16/2025

Inputs & Constants

Parameter	Symbol	Units	Winter	Summer	Notes
Influent BOD Concentration	Ci,BOD	mg/L	110	220	
Flow	Q	MGD	0.318	0.086	
Water Temperature	T	˚C	1	15	
Reaction rate constant at 20 ˚C	k20	d-1	0.276	0.276	Constant
Temperature correction factor	θ	--	1.036	1.036	Constant
Reaction rate constant at Temperature, T	kT	d-1	0.141	0.231	kT=k20θT-20

Pond 1 (Anaerobic Fermentation Pit)

ADVANCED INTEGRATED WASTEWATER POND SYSTEMS (AIWPS) By Tuba Ertas and Victor M. Ponce (https://ponce.sdsu.edu/aiwps.html)

BOD Removal Efficiency	INF	EFF	% Removal	
Richmond, CA	236	104	55.9%	*Ft Jones has a colder*
St. Helena, CA	223	17	92.4%	*climate, therefore*
Hollister, CA	194	43	77.8%	*assume lower removal*
Delhi, India	224	56	75.0%	*eff. Up to 50%*

TN Removal Efficiency	INF	EFF	% Removal
Richmond, CA	49	31	37.9%
St. Helena, CA	40	16	60.0%
Hollister, CA	NA	NA	NA
Delhi, India	34	35	-2.9%

Parameter	Symbol	Units	Winter	Summer	Notes
Influent BOD Concentration	Ci,BOD	mg/L	110	220	
Projected Effluent BOD	**Ce,BOD**	**mg/L**	**55**	**110**	

Partially Mixed, Aerated Ponds, 1st Order BOD Removal Equation

(Reed, Crites, Middlebrooks. 1995. Natural Systems for Waste Management and Treatment. pg 107)

Pond 1 (Aeration Zone)

Parameter	Symbol	Units	Winter	Summer	Notes
Influent BOD Concentration	Ci,BOD	mg/L	55	110	
Organic Loading Rate	L	lb/d	146	79	
Volume	V	Mgal	0.96	0.96	
Theoretical Hydraulic Residence Time	HRTT	d	3.0	11.2	
Hydraulic Efficiency	ε	%	80%	80%	
Nominal Hydraulic Residence Time	HRTn	d	2.4	8.9	
Projected Effluent BOD	**Ce,BOD**	**mg/L**	**41**	**36**	

Pond 2

Parameter	Symbol	Units	Winter	Summer	Notes
Influent BOD Concentration (mg/L)	Ci,BOD	mg/L	41	36	
Organic Loading Rate (lb/d)	L	lb/d	109	26	
Volume (Mgal)	V	Mgal	0.76	0.76	
Theoretical Hydraulic Residence Time (d)	HRTT	d	2.4	8.8	
Hydraulic Efficiency	ε	%	80%	80%	
Nominal Hydraulic Residence Time (d)	HRTn	d	1.9	7.1	
Projected Effluent BOD (mg/L)	**Ce,BOD**	**mg/L**	**32**	**14**	

Appendix 5
Capital Cost Breakdown

Item 1: Mobilization

Assumptions:

Mobilization = 8% of construction subtotal

Item 2: Clearing & Grubbing

Assumptions:

Remove top soil and organics from sale portion of APN 024-030-490.
APN 055-241-020 is gravelled and will not require C&G

Land area	6.0	acres	
	261,360	SF	
			Large Property (5+ acre; light brush/grass)
Unit cost	2,500	$/ac	https://www.danieldean.com/how-much-does-it-cost-to-clear-land-in-2025/
Item Cost	$ 15,000		

Reported Rounded Item Cost $ 15,000

Item 3: Stormwater Management

Assumptions:

2.5% of construction subtotal

Item 4: New Site Earthwork

Assumptions:

Includes new site grading
Includes pond excavation

CUT	22,544	CY	*C3D volume from grading .dwg*
FILL	15,742	CY	
Cut Unit Cost	50	$/CY	*assumes disposal via filling (E) site ponds*
Fill Unit Cost	250	$/CY	*assumes native material reuse (stockpile, mixing, etc.) not import*
Item Cost	$ 5,062,603.00		

Reported Rounded Item Cost $ 5,063,000

Item 5: Site Paving

Assumptions:

3" Thick

	82,952	SF	*Area from plans*
	20,738	CF	
	145	lbs/CF	
	1,504	tons	
$	350.00	/TON	
$	526,226.75		

Reported Rounded Item Cost $ 527,000

Item 6: Headworks

Screening Equipment Cost

$	93,000	Quoted
$	4,650.00	Freight (5%)
$	7,079.63	Tax (7.25%)
$	15,709.44	markup (15%)
$	23,250.00	install (25%)
$	143,689.07	Subtotal

Concrete Channel and Manual Screen

	17.5	SF	*channel cross section*
	3.5	LF	*channel width w/ including bypass*
	61.25	CF	
	3	CY	
$	7,500	/CY	*complicated forms plus embedded equipment & manual screen*
$	22,500		
$	8,000	Screen	
$	30,500	subtotal	

Grating

$	10,000	

Headworks Building

	1,280	SF	*Headworks, Electrical Room, Office, Bathroom*
$	450.00	/SF	
$	576,000	subtotal	

Influent Lift Station

$	750,000	

Odor Control

$	195,000	Quoted
$	14,137.50	Tax (7.25%)
$	31,370.63	Markup (15%)
$	97,500.00	Install (50%)
$	338,008.13	subtotal

Reported Rounded Item Cost	**$**	**1,849,000**

Item 7: Pond Lining

Assumptions:

Concrete pond lining under ponds aerated and settling pond
Water proofing lining above concrete

100,000	SF	*ponds surface area*	

Concrete Anti-Burrow

$	**75,000**	LS	Quoted	for HDPE Fabric Form
$	**37,500**	LS	install of HDPE Fabric Form + Contractor Markup	
	$275	/CY		for 3-sack Slurry
	1,222	CY	concrete required	
$	**336,111.11**	LS	Concrete Cost	

Water Proofing Liner

$	**125,000**	Quoted	

Reported Rounded Item Cost **$** **574,000**

Item 8: Control Structures and Yard Piping

Assumptions:

Includes weir structures at all ponds
Includes connecting piping from pond to pond
Includes percolation pond routing valves and piping

Gravity Pipe

10"	585	LF	PVC	
	325	$/LF		
$	*190,125*			

8"	680	LF	PVC	
	300	$/LF		
$	*204,000*			

Discharge Pipe

6"	415	LF	Aluminum Irrigation Pipe	
	45	$/LF		
$	*18,675*			

Pressure Pipe

4"	310	LF	PVC	
	180	$/LF		
$	*55,800*			

Structures
Single Routing

	5	EA	
$	10,350	/EA	
$	*51,750*		

Item 8 Continued: Control Structures and Yard Piping

Triple Routing

		1	EA	Structures	$	278,750
	$	*21,000*	/EA	Ship 15%	$	41,812.50
				Tax 7.25%	$	23,240.78
Stop Logs		103		Markup 15%	$	51,570.49
	$	2,000	/EA	Strcts Install 10%	$	27,875.00
	$	*206,000*		Piping	$	468,600
				Reported Rounded Item Cost	**$**	**892,000**

Item 9: Aeration System

Assumptions:

Includes in-pond aeration units
Includes blowers & compressors
Inclues all air distribution piping and manifolds

Aeration System

	$	343,920	Quoted
Sales Tax	$	24,934	Estimated (7.25%)

Piping

		280	LF
		180	$/LF
	$	50,400	*subtotal*

From coneptual site layout

Reported Rounded Item Cost **$** **420,000**

Item 10: Blower Building

Assumptions:

Includes foundation and structure
Does not include grading

Footprint		800	SF
		400	$/SF
subtotal	$	320,000	

Reported Rounded Item Cost **$** **320,000**

Item 11: Recirculation System

Assumptions:

Includes pump, wetwell and controls

Reported Rounded Item Cost **$** **200,000**

Item 12: Site Electical

Assumptions:

includes backup generator

Reported Rounded Item Cost **$** **1,500,000**

Item 13: Groundwater Monitoring Wells

Assumptions:

Includes drilling, materials, and installation

Reported Rounded Item Cost	**$**	**120,000**

Item 14: Existing Tank Abandonment

Assumptions:

Full removal of all existing structures and piping

Reported Rounded Item Cost	**$**	**35,000**

Item 15: Existing Pond Abandonment Earthwork

Assumptions:

Existing cut/fill balance of pushing (E) levees into ponds

Earthwork Volume

		20,000	CY
Unit cost		25	$/CY
Item Cost	$	500,000	

Reported Rounded Item Cost	**$**	**500,000**

Appendix 6
Operation and Maintenance Cost Breakdown

Alternative 5 - O&M Cost Breakdown

Fort Jones Wastewater Facilities Plan

Labor

FY24-25 Sewer Payroll	$	17,541.25
New Facility	$	50,000

Parts and Repair

Component	Maintenance and servicing	
Serpa Lift Station	$ 250	
Influent Lift Station	$ 250	
Auger Screen	$ 300	
Recirculation Pumps	$ 250	
Aeration Blowers	$ 200	Oil change and annual maintenance
Annual Cost	**$ 1,250**	**/year**

Electrical

Energy Change	$ 0.16025	/kWh	
Distribution Demand Charge	$ 6.04	/kW	

Component	HP	kW	Runtime (hr/yr)	Specific Energy (kWh/gal)	Energy (kWh)	Cost	
Serpa Lift Station	3.8	2.83366	-	0.00295	9,045	$ 1,449.41	*Based on 1/10 of ADF*
Influent Lift Station	5	3.7285	-	0.000154	4,722	$ 756.64	*Based on ADF*
Auger Screen	1	0.7457	1168	-	871	$ 139.57	
Recirculation Pumps	4	2.9828	-	0.000261	8,002	$ 1,282.36	*Based on ADF*
Aeration Blowers	15	11.1855	4380	-	48,992	$ 7,851.05	
Facility Lights & controls					2,000	$ 320.50	

Base Rate	$ 465.02	/month	
Demand Charge	$ 845.60	/month	*140 kW peak demand per month*
Annual Cost	**$ 27,526.98**	**/year**	

Screenings Disposal

	$ 160.00	/month	*quote by phone from Scott Valley Disposal*
Annual Cost	**$ 1,920.00**	**/year**	

Sludge Management

Total Pond 1 Area	0.5	acre	
Sludge Density	1.00	lbs/10^3gal	*Aerated Lagoon: high end of range from Metcalf & Eddy, 2014*
ADF	0.084	MGD	*ADF*
Time till Service	20	Years	
Total Volume Processed	613,200	10^3gals	
Dry Solids	613,200	lbs	
	306.60	dry Tons	
Unit Cost	$ 350.00	/dry tons	Industry average for dredging, dewatering, and disposal of lagoon solids
Unit Escalated	$ 540.86		
estimated cost	$ 165,828		
Annualized Cost	**$ 6,690.07**	**/year**	

Testing/Reporting

Compliance monitoring	**$ 15,000**	**/year**

Permitting

Treatment Facility	$ 28,205	*2B from FY 2025-26 Water Quality Fee Schedule: https://www.waterboards.ca.gov/resources/fees/stakeholder/docs/2025/fy2526-wq-feeschedule.pdf*
Collection System	$ 3,945	*less than 50,000 population = 3C: https://www.waterboards.ca.gov/resources/fees/stakeholder/docs/2025/fy2526-wq-feesche*
Total	$ 32,150	
Annual Cost	**$ 33,000**	**/year**

Eureka, CA | Redding, CA | Willits, CA | Fort Bragg, CA | Coos Bay, OR | Klamath Falls, OR | Lakeview, OR



Attachment B

Air Quality & GHG Modeling Outputs

Town of Fort Jones Wastewater Treatment Facility Upgrades Project Detailed Report

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1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	Town of Fort Jones Wastewater Treatment Facility Upgrades Project
Construction Start Date	6/1/2028
Operational Year	2030
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	2.70000
Precipitation (days)	48.4000
Location	41.604638022087556, -122.85389142016973
County	Siskiyou
City	Unincorporated
Air District	Siskiyou County APCD
Air Basin	Northeast Plateau
TAZ	164
EDFZ	0-D
Electric Utility	PacifiCorp
Gas Utility	—
App Version	2022.1.1.44

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description
General Heavy Industry	2.15000	1000sqft	0.04936	2,150.00	45,000.0	—	—	—

Parking Lot	2.00000	Space	0.01800	0.00000	0.00000	—	—	—
Other Non-Asphalt Surfaces	3.13000	Acre	3.13000	0.00000	0.00000	—	—	—
Other Asphalt Surfaces	2.03000	Acre	2.03000	88,426.8	0.00000	—	—	—
User Defined Linear	1,000.000	Mile	0.10000	0.00000	0.00000	—	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

No measures selected

2. Emissions Summary

2.1. Construction Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	8.77261	8.74845	43.5987	50.2135	0.08344	1.81392	27.5652	29.3792	1.66955	13.6753	15.3448	—	9,454.53	9,454.53	0.36901	0.17296	3.22831	9,510.82
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	3.48890	2.94654	24.7711	34.3322	0.05743	0.90876	7.87525	8.78401	0.83695	3.60724	4.44420	—	6,664.83	6,664.83	0.25911	0.16162	0.07885	6,719.55
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	1.11359	0.93977	7.99098	10.2917	0.01761	0.30012	2.55343	2.85355	0.27636	1.21218	1.48854	—	2,027.66	2,027.66	0.07835	0.04633	0.36465	2,043.79
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.20323	0.17151	1.45835	1.87824	0.00321	0.05477	0.46600	0.52077	0.05044	0.22122	0.27166	—	335.702	335.702	0.01297	0.00767	0.06037	338.372
Exceeds (Daily Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Threshol	—	250.000	250.000	2,500.00	250.000	—	—	250.000	—	—	250.000	—	—	—	—	—	—	—
Unmit.	—	No	No	No	No	—	—	No	—	—	No	—	—	—	—	—	—	Yes
Exceeds (Average Daily)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Threshol d	—	250.000	250.000	2,500.00	250.000	—	—	250.000	—	—	250.000	—	—	—	—	—	—	—
Unmit.	—	No	No	No	No	—	—	No	—	—	No	—	—	—	—	—	—	Yes
Exceeds (Annual)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Threshol d	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1,100.00
Unmit.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	No

2.2. Construction Emissions by Year

2.2.1. Total Construction Emissions by Year, Unmitigated

Includes both onsite and offsite emissions.

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2028	5.92619	4.99265	43.5987	50.2135	0.08344	1.81392	27.5652	29.3792	1.66955	13.6753	15.3448	—	9,454.53	9,454.53	0.36901	0.17296	3.22831	9,510.82
2029	8.77261	8.74845	6.50426	10.5866	0.01395	0.23904	0.12643	0.36548	0.21992	0.02964	0.24956	—	1,645.35	1,645.35	0.06787	0.01719	0.39943	1,652.57
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2028	3.48890	2.94654	24.7711	34.3322	0.05743	0.90876	7.87525	8.78401	0.83695	3.60724	4.44420	—	6,664.83	6,664.83	0.25911	0.16162	0.07885	6,719.55
2029	1.34829	1.13961	9.34029	14.8554	0.02718	0.28255	0.45216	0.73471	0.26050	0.11149	0.37200	—	3,172.89	3,172.89	0.12206	0.09451	0.05208	3,204.16
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

2028	1.11359	0.93977	7.99098	10.2917	0.01761	0.30012	2.55343	2.85355	0.27636	1.21218	1.48854	—	2,027.66	2,027.66	0.07835	0.04633	0.36465	2,043.79
2029	0.64261	0.63292	0.42920	0.70333	0.00093	0.01450	0.01166	0.02615	0.01334	0.00274	0.01607	—	109.241	109.241	0.00459	0.00139	0.01691	109.787
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2028	0.20323	0.17151	1.45835	1.87824	0.00321	0.05477	0.46600	0.52077	0.05044	0.22122	0.27166	—	335.702	335.702	0.01297	0.00767	0.06037	338.372
2029	0.11728	0.11551	0.07833	0.12836	0.00017	0.00265	0.00213	0.00477	0.00243	0.00050	0.00293	—	18.0861	18.0861	0.00076	0.00023	0.00280	18.1766

2.2.2. Onsite Construction Emissions by Year, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2028	5.73783	4.82137	42.9174	48.4167	0.08020	1.80467	27.1405	28.9452	1.66029	13.5706	15.2309	—	8,687.38	8,687.38	0.35240	0.07048	0.00000	8,717.19
2029	8.73643	8.71494	6.45817	9.91841	0.01395	0.23904	0.00000	0.23904	0.21992	0.00000	0.21992	—	1,510.63	1,510.63	0.06128	0.01226	0.00000	1,515.81
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2028	3.18131	2.66905	23.6121	31.3135	0.05217	0.89765	7.21664	8.11428	0.82583	3.44504	4.27087	—	5,514.02	5,514.02	0.22367	0.04473	0.00000	5,532.95
2029	1.15336	0.96514	8.58166	12.9012	0.02340	0.27564	0.00000	0.27564	0.25359	0.00000	0.25359	—	2,396.83	2,396.83	0.09723	0.01945	0.00000	2,405.06
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2028	1.02935	0.86365	7.69028	9.48869	0.01615	0.29701	2.37585	2.67286	0.27325	1.16845	1.44171	—	1,706.05	1,706.05	0.06920	0.01384	0.00000	1,711.91
2029	0.63599	0.62720	0.42288	0.64185	0.00092	0.01448	0.00000	0.01448	0.01332	0.00000	0.01332	—	96.2432	96.2432	0.00390	0.00078	0.00000	96.5735
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2028	0.18786	0.15762	1.40348	1.73169	0.00295	0.05420	0.43359	0.48780	0.04987	0.21324	0.26311	—	282.457	282.457	0.01146	0.00229	0.00000	283.426
2029	0.11607	0.11446	0.07718	0.11714	0.00017	0.00264	0.00000	0.00264	0.00243	0.00000	0.00243	—	15.9342	15.9342	0.00065	0.00013	0.00000	15.9888

2.2.3. Offsite Construction Emissions by Year, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2028	0.32062	0.29109	1.11375	3.06927	0.00576	0.01256	0.69984	0.71239	0.01256	0.17266	0.18522	—	1,265.40	1,265.40	0.03183	0.12696	3.22831	1,307.26
2029	0.07134	0.06607	0.04609	0.66816	0.00000	0.00000	0.12643	0.12643	0.00000	0.02964	0.02964	—	134.724	134.724	0.00659	0.00494	0.39943	136.759
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2028	0.30759	0.27750	1.15898	3.01879	0.00526	0.01112	0.65861	0.66973	0.01112	0.16221	0.17333	—	1,150.80	1,150.80	0.03543	0.11688	0.07885	1,186.60
2029	0.19493	0.17447	0.75863	1.95413	0.00378	0.00691	0.45216	0.45907	0.00691	0.11149	0.11841	—	776.062	776.062	0.02484	0.07506	0.05208	799.103
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2028	0.08425	0.07612	0.30070	0.80303	0.00146	0.00311	0.17759	0.18069	0.00311	0.04372	0.04683	—	321.605	321.605	0.00914	0.03249	0.36465	331.879
2029	0.00662	0.00572	0.00631	0.06148	0.00001	0.00001	0.01166	0.01167	0.00001	0.00274	0.00275	—	12.9977	12.9977	0.00068	0.00061	0.01691	13.2139
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2028	0.01537	0.01389	0.05488	0.14655	0.00027	0.00057	0.03241	0.03298	0.00057	0.00798	0.00855	—	53.2453	53.2453	0.00151	0.00538	0.06037	54.9464
2029	0.00121	0.00104	0.00115	0.01122	< 0.000005	< 0.000005	0.00213	0.00213	< 0.000005	0.00050	0.00050	—	2.15193	2.15193	0.00011	0.00010	0.00280	2.18772

2.3. Operations Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.90319	0.84005	0.15405	4.60741	0.00208	0.01063	0.14546	0.15609	0.00882	0.03705	0.04587	2.38954	276.414	278.804	0.25326	0.01102	0.99644	289.415
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.20220	0.19272	0.14122	0.69824	0.00179	0.00364	0.14546	0.14910	0.00354	0.03705	0.04058	2.38954	254.703	257.093	0.25346	0.01182	0.57098	267.523

Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.62249	0.58007	0.36627	2.64231	0.00184	0.01982	0.09776	0.11758	0.01891	0.02491	0.04382	2.38954	258.384	260.774	0.25321	0.00912	0.69042	270.512
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.11361	0.10586	0.06684	0.48222	0.00034	0.00362	0.01784	0.02146	0.00345	0.00455	0.00800	0.39562	42.7785	43.1741	0.04192	0.00151	0.11431	44.7863
Exceeds (Daily Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Threshold	—	250.000	250.000	2,500.00	250.000	—	—	250.000	—	—	250.000	—	—	—	—	—	—	—
Unmit.	—	No	No	No	No	—	—	No	—	—	No	—	—	—	—	—	—	—
Exceeds (Average Daily)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Threshold	—	250.000	250.000	2,500.00	250.000	—	—	250.000	—	—	250.000	—	—	—	—	—	—	—
Unmit.	—	No	No	No	No	—	—	No	—	—	No	—	—	—	—	—	—	—
Exceeds (Annual)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Threshold	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1,100.00
Unmit.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	No

2.4. Operations Emissions by Sector, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Sector	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.07881	0.07105	0.09722	0.64810	0.00170	0.00184	0.14546	0.14730	0.00173	0.03705	0.03878	—	173.381	173.381	0.00611	0.00818	0.43678	176.409
Area	0.82177	0.76770	0.03315	3.93941	0.00023	0.00700	—	0.00700	0.00529	—	0.00529	—	16.1994	16.1994	0.00068	0.00014	—	16.2578

Energy	0.00261	0.00130	0.02369	0.01990	0.00014	0.00180	—	0.00180	0.00180	—	0.00180	—	79.9872	79.9872	0.00486	0.00034	—	80.2099
Water	—	—	—	—	—	—	—	—	—	—	—	0.95273	6.84648	7.79921	0.09800	0.00236	—	10.9523
Waste	—	—	—	—	—	—	—	—	—	—	—	1.43681	0.00000	1.43681	0.14360	0.00000	—	5.02691
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.55965	0.55965
Stationary	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Total	0.90319	0.84005	0.15405	4.60741	0.00208	0.01063	0.14546	0.15609	0.00882	0.03705	0.04587	2.38954	276.414	278.804	0.25326	0.01102	0.99644	289.415
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.07921	0.07104	0.11754	0.67835	0.00165	0.00184	0.14546	0.14730	0.00174	0.03705	0.03878	—	167.869	167.869	0.00699	0.00912	0.01133	170.774
Area	0.12038	0.12038	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Energy	0.00261	0.00130	0.02369	0.01990	0.00014	0.00180	—	0.00180	0.00180	—	0.00180	—	79.9872	79.9872	0.00486	0.00034	—	80.2099
Water	—	—	—	—	—	—	—	—	—	—	—	0.95273	6.84648	7.79921	0.09800	0.00236	—	10.9523
Waste	—	—	—	—	—	—	—	—	—	—	—	1.43681	0.00000	1.43681	0.14360	0.00000	—	5.02691
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.55965	0.55965
Stationary	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Total	0.20220	0.19272	0.14122	0.69824	0.00179	0.00364	0.14546	0.14910	0.00354	0.03705	0.04058	2.38954	254.703	257.093	0.25346	0.01182	0.57098	267.523
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.05432	0.04880	0.07366	0.44927	0.00115	0.00127	0.09776	0.09903	0.00120	0.02491	0.02612	—	117.331	117.331	0.00455	0.00599	0.13077	119.360
Area	0.46627	0.43961	0.01635	1.94272	0.00012	0.00345	—	0.00345	0.00261	—	0.00261	—	7.98872	7.98872	0.00034	0.00007	—	8.01753
Energy	0.00261	0.00130	0.02369	0.01990	0.00014	0.00180	—	0.00180	0.00180	—	0.00180	—	79.9872	79.9872	0.00486	0.00034	—	80.2099
Water	—	—	—	—	—	—	—	—	—	—	—	0.95273	6.84648	7.79921	0.09800	0.00236	—	10.9523
Waste	—	—	—	—	—	—	—	—	—	—	—	1.43681	0.00000	1.43681	0.14360	0.00000	—	5.02691
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.55965	0.55965
Stationary	0.09930	0.09036	0.25258	0.23043	0.00043	0.01329	0.00000	0.01329	0.01329	0.00000	0.01329	0.00000	46.2308	46.2308	0.00186	0.00036	0.00000	46.3851
Total	0.62249	0.58007	0.36627	2.64231	0.00184	0.01982	0.09776	0.11758	0.01891	0.02491	0.04382	2.38954	258.384	260.774	0.25321	0.00912	0.69042	270.512
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Mobile	0.00991	0.00891	0.01344	0.08199	0.00021	0.00023	0.01784	0.01807	0.00022	0.00455	0.00477	—	19.4255	19.4255	0.00075	0.00099	0.02165	19.7614
Area	0.08509	0.08023	0.00298	0.35455	0.00002	0.00063	—	0.00063	0.00048	—	0.00048	—	1.32262	1.32262	0.00006	0.00001	—	1.32739
Energy	0.00048	0.00024	0.00432	0.00363	0.00003	0.00033	—	0.00033	0.00033	—	0.00033	—	13.2428	13.2428	0.00080	0.00006	—	13.2797
Water	—	—	—	—	—	—	—	—	—	—	—	0.15774	1.13351	1.29125	0.01623	0.00039	—	1.81328
Waste	—	—	—	—	—	—	—	—	—	—	—	0.23788	0.00000	0.23788	0.02378	0.00000	—	0.83226
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.09266	0.09266
Stationary	0.01812	0.01649	0.04610	0.04205	0.00008	0.00243	0.00000	0.00243	0.00243	0.00000	0.00243	0.00000	7.65403	7.65403	0.00031	0.00006	0.00000	7.67959
Total	0.11361	0.10586	0.06684	0.48222	0.00034	0.00362	0.01784	0.02146	0.00345	0.00455	0.00800	0.39562	42.7785	43.1741	0.04192	0.00151	0.11431	44.7863

3. Construction Emissions Details

3.1. Pipeline Preparation (2028)

3.1.1. Onsite - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.26867	0.22575	1.67449	2.74341	0.00394	0.09271	—	0.09271	0.08529	—	0.08529	—	426.478	426.478	0.01730	0.00346	—	427.942
Dust From Material Movement	—	—	—	—	—	—	0.39769	0.39769	—	0.04294	0.04294	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01031	0.00866	0.06423	0.10523	0.00015	0.00356	—	0.00356	0.00327	—	0.00327	—	16.3581	16.3581	0.00066	0.00013	—	16.4142
Dust From Material Movement	—	—	—	—	—	—	0.01525	0.01525	—	0.00165	0.00165	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.00188	0.00158	0.01172	0.01920	0.00003	0.00065	—	0.00065	0.00060	—	0.00060	—	2.70826	2.70826	0.00011	0.00002	—	2.71756
Dust From Material Movement	—	—	—	—	—	—	0.00278	0.00278	—	0.00030	0.00030	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.1.2. Offsite - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01244	0.01151	0.00845	0.12019	0.00000	0.00000	0.02107	0.02107	0.00000	0.00494	0.00494	—	22.8438	22.8438	0.00115	0.00082	0.07296	23.1908
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00048	0.00044	0.00039	0.00453	0.00000	0.00000	0.00078	0.00078	0.00000	0.00018	0.00018	—	0.84642	0.84642	0.00005	0.00003	0.00121	0.85887
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00009	0.00008	0.00007	0.00083	0.00000	0.00000	0.00014	0.00014	0.00000	0.00003	0.00003	—	0.14013	0.14013	0.00001	0.00001	0.00020	0.14220
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.2. Pipeline Installation (2028)

3.2.1. Onsite - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.14067	0.11820	0.89913	1.05734	0.00144	0.02920	—	0.02920	0.02687	—	0.02687	—	155.688	155.688	0.00632	0.00126	—	156.223
Dust From Material Movement	—	—	—	—	—	—	0.00051	0.00051	—	0.00008	0.00008	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.00886	0.00745	0.05666	0.06663	0.00009	0.00184	—	0.00184	0.00169	—	0.00169	—	9.81050	9.81050	0.00040	0.00008	—	9.84417
Dust From Material Movement	—	—	—	—	—	—	0.00003	0.00003	—	< 0.000005	< 0.000005	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.00162	0.00136	0.01034	0.01216	0.00002	0.00034	—	0.00034	0.00031	—	0.00031	—	1.62424	1.62424	0.00007	0.00001	—	1.62981
Dust From Material Movement	—	—	—	—	—	—	0.00001	0.00001	—	< 0.000005	< 0.000005	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.2.2. Offsite - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01244	0.01151	0.00845	0.12019	0.00000	0.00000	0.02107	0.02107	0.00000	0.00494	0.00494	—	22.8438	22.8438	0.00115	0.00082	0.07296	23.1908
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00220	0.00158	0.08747	0.01773	0.00050	0.00144	0.02015	0.02159	0.00144	0.00552	0.00696	—	69.4999	69.4999	0.00007	0.01088	0.11514	72.8589

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00078	0.00072	0.00064	0.00745	0.00000	0.00000	0.00129	0.00129	0.00000	0.00030	0.00030	—	1.39054	1.39054	0.00008	0.00006	0.00198	1.41100
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00014	0.00010	0.00567	0.00113	0.00003	0.00009	0.00124	0.00133	0.00009	0.00034	0.00043	—	4.38105	4.38105	< 0.000005	0.00069	0.00314	4.58900
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00014	0.00013	0.00012	0.00136	0.00000	0.00000	0.00023	0.00023	0.00000	0.00005	0.00005	—	0.23022	0.23022	0.00001	0.00001	0.00033	0.23361
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00002	0.00002	0.00103	0.00021	0.00001	0.00002	0.00023	0.00024	0.00002	0.00006	0.00008	—	0.72533	0.72533	< 0.000005	0.00011	0.00052	0.75976

3.3. Demolition (2028)

3.3.1. Onsite - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.61361	2.19353	19.5832	18.6629	0.03255	0.77585	—	0.77585	0.71378	—	0.71378	—	3,428.57	3,428.57	0.13908	0.02782	—	3,440.33
Demolition	—	—	—	—	—	—	0.19993	0.19993	—	0.03028	0.03028	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.14321	0.12019	1.07305	1.02262	0.00178	0.04251	—	0.04251	0.03911	—	0.03911	—	187.867	187.867	0.00762	0.00152	—	188.511
Demolition	—	—	—	—	—	—	0.01096	0.01096	—	0.00166	0.00166	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02614	0.02194	0.19583	0.18663	0.00033	0.00776	—	0.00776	0.00714	—	0.00714	—	31.1035	31.1035	0.00126	0.00025	—	31.2102
Demolition	—	—	—	—	—	—	0.00200	0.00200	—	0.00030	0.00030	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.3.2. Offsite - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07464	0.06905	0.05070	0.72115	0.00000	0.00000	0.12643	0.12643	0.00000	0.02964	0.02964	—	137.063	137.063	0.00692	0.00494	0.43779	139.145
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00466	0.00335	0.18508	0.03752	0.00106	0.00304	0.04264	0.04568	0.00304	0.01167	0.01472	—	147.062	147.062	0.00015	0.02302	0.24363	154.169
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	0.00407	0.00375	0.00332	0.03885	0.00000	0.00000	0.00671	0.00671	0.00000	0.00157	0.00157	—	7.25500	7.25500	0.00042	0.00029	0.01036	7.36176
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00025	0.00018	0.01043	0.00208	0.00006	0.00017	0.00228	0.00245	0.00017	0.00063	0.00079	—	8.06113	8.06113	0.00001	0.00126	0.00577	8.44376
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00074	0.00068	0.00061	0.00709	0.00000	0.00000	0.00123	0.00123	0.00000	0.00029	0.00029	—	1.20115	1.20115	0.00007	0.00005	0.00171	1.21882
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00005	0.00003	0.00190	0.00038	0.00001	0.00003	0.00042	0.00045	0.00003	0.00011	0.00014	—	1.33461	1.33461	< 0.000005	0.00021	0.00096	1.39796

3.4. Site Preparation (2028)

3.4.1. Onsite - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.61333	3.03620	27.4549	28.3524	0.04893	1.14375	—	1.14375	1.05225	—	1.05225	—	5,300.02	5,300.02	0.21499	0.04300	—	5,318.21
Dust From Material Movement	—	—	—	—	—	—	19.6595	19.6595	—	10.1028	10.1028	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipm	0.19799	0.16637	1.50438	1.55356	0.00268	0.06267	—	0.06267	0.05766	—	0.05766	—	290.412	290.412	0.01178	0.00236	—	291.409
Dust From Material Movement	—	—	—	—	—	—	1.07723	1.07723	—	0.55358	0.55358	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.03613	0.03036	0.27455	0.28352	0.00049	0.01144	—	0.01144	0.01052	—	0.01052	—	48.0811	48.0811	0.00195	0.00039	—	48.2461
Dust From Material Movement	—	—	—	—	—	—	0.19659	0.19659	—	0.10103	0.10103	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.4.2. Offsite - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.08708	0.08055	0.05914	0.84134	0.00000	0.00000	0.14751	0.14751	0.00000	0.03458	0.03458	—	159.907	159.907	0.00807	0.00576	0.51075	162.336
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.01085	0.00778	0.43051	0.08728	0.00248	0.00708	0.09919	0.10627	0.00708	0.02716	0.03423	—	342.078	342.078	0.00035	0.05355	0.56671	358.611
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	0.00475	0.00437	0.00387	0.04532	0.00000	0.00000	0.00783	0.00783	0.00000	0.00183	0.00183	—	8.46417	8.46417	0.00048	0.00034	0.01208	8.58872
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00058	0.00041	0.02426	0.00484	0.00014	0.00039	0.00531	0.00569	0.00039	0.00146	0.00184	—	18.7509	18.7509	0.00001	0.00294	0.01342	19.6409
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00087	0.00080	0.00071	0.00827	0.00000	0.00000	0.00143	0.00143	0.00000	0.00033	0.00033	—	1.40134	1.40134	0.00008	0.00006	0.00200	1.42196
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00011	0.00007	0.00443	0.00088	0.00002	0.00007	0.00097	0.00104	0.00007	0.00027	0.00034	—	3.10442	3.10442	< 0.000005	0.00049	0.00222	3.25178

3.5. Grading (2028)

3.5.1. Onsite - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.85583	1.55941	13.7880	17.3209	0.02734	0.56820	—	0.56820	0.52275	—	0.52275	—	2,960.88	2,960.88	0.12011	0.02402	—	2,971.04
Dust From Material Movement	—	—	—	—	—	—	7.08335	7.08335	—	3.42485	3.42485	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.85583	1.55941	13.7880	17.3209	0.02734	0.56820	—	0.56820	0.52275	—	0.52275	—	2,960.88	2,960.88	0.12011	0.02402	—	2,971.04

Dust From Material Movement	—	—	—	—	—	—	7.08335	7.08335	—	3.42485	3.42485	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.33049	0.27770	2.45541	3.08454	0.00487	0.10119	—	0.10119	0.09309	—	0.09309	—	527.280	527.280	0.02139	0.00428	—	529.089
Dust From Material Movement	—	—	—	—	—	—	1.26142	1.26142	—	0.60991	0.60991	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.06031	0.05068	0.44811	0.56293	0.00089	0.01847	—	0.01847	0.01699	—	0.01699	—	87.2972	87.2972	0.00354	0.00071	—	87.5968
Dust From Material Movement	—	—	—	—	—	—	0.23021	0.23021	—	0.11131	0.11131	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.5.2. Offsite - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	0.07464	0.06905	0.05070	0.72115	0.00000	0.00000	0.12643	0.12643	0.00000	0.02964	0.02964	—	137.063	137.063	0.00692	0.00494	0.43779	139.145
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00334	0.00240	0.13246	0.02686	0.00076	0.00218	0.03052	0.03270	0.00218	0.00836	0.01053	—	105.255	105.255	0.00011	0.01648	0.17437	110.342
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07564	0.06938	0.07011	0.74114	0.00000	0.00000	0.12643	0.12643	0.00000	0.02964	0.02964	—	130.892	130.892	0.00824	0.00527	0.01134	132.679
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00312	0.00218	0.14321	0.02762	0.00076	0.00218	0.03052	0.03270	0.00218	0.00836	0.01053	—	105.347	105.347	0.00007	0.01651	0.00453	110.274
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01323	0.01218	0.01079	0.12626	0.00000	0.00000	0.02182	0.02182	0.00000	0.00510	0.00510	—	23.5788	23.5788	0.00135	0.00094	0.03366	23.9257
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00058	0.00041	0.02426	0.00484	0.00014	0.00039	0.00531	0.00569	0.00039	0.00146	0.00184	—	18.7509	18.7509	0.00001	0.00294	0.01342	19.6409
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00242	0.00222	0.00197	0.02304	0.00000	0.00000	0.00398	0.00398	0.00000	0.00093	0.00093	—	3.90373	3.90373	0.00022	0.00016	0.00557	3.96118
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00011	0.00007	0.00443	0.00088	0.00002	0.00007	0.00097	0.00104	0.00007	0.00027	0.00034	—	3.10442	3.10442	< 0.000005	0.00049	0.00222	3.25178

3.6. Building Construction (2028)

3.6.1. Onsite - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.18481	0.99143	8.92495	12.9352	0.02340	0.30024	—	0.30024	0.27622	—	0.27622	—	2,397.46	2,397.46	0.09725	0.01945	—	2,405.68

Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.18481	0.99143	8.92495	12.9352	0.02340	0.30024	—	0.30024	0.27622	—	0.27622	—	2,397.46	2,397.46	0.09725	0.01945	—	2,405.68
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.32692	0.27357	2.46266	3.56922	0.00646	0.08284	—	0.08284	0.07622	—	0.07622	—	661.529	661.529	0.02683	0.00537	—	663.799
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.05966	0.04993	0.44944	0.65138	0.00118	0.01512	—	0.01512	0.01391	—	0.01391	—	109.524	109.524	0.00444	0.00089	—	109.900
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.6.2. Offsite - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.18931	0.17511	0.12857	1.82894	0.00000	0.00000	0.32066	0.32066	0.00000	0.07516	0.07516	—	347.612	347.612	0.01755	0.01252	1.11030	352.892
Vendor	0.02313	0.01771	0.57427	0.20920	0.00378	0.00691	0.13150	0.13841	0.00691	0.03633	0.04324	—	462.246	462.246	0.00477	0.06516	1.08237	482.864

Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.19182	0.17595	0.17782	1.87965	0.00000	0.00000	0.32066	0.32066	0.00000	0.07516	0.07516	—	331.961	331.961	0.02091	0.01336	0.02876	336.494
Vendor	0.02150	0.01640	0.62276	0.22113	0.00378	0.00691	0.13150	0.13841	0.00691	0.03633	0.04324	—	462.661	462.661	0.00477	0.06548	0.02812	482.323
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05200	0.04786	0.04239	0.49614	0.00000	0.00000	0.08573	0.08573	0.00000	0.02005	0.02005	—	92.6560	92.6560	0.00531	0.00369	0.13226	94.0195
Vendor	0.00611	0.00462	0.16345	0.05980	0.00104	0.00191	0.03533	0.03724	0.00191	0.00979	0.01169	—	127.595	127.595	0.00131	0.01798	0.12901	133.115
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00949	0.00873	0.00774	0.09055	0.00000	0.00000	0.01565	0.01565	0.00000	0.00366	0.00366	—	15.3403	15.3403	0.00088	0.00061	0.02190	15.5660
Vendor	0.00112	0.00084	0.02983	0.01091	0.00019	0.00035	0.00645	0.00680	0.00035	0.00179	0.00213	—	21.1248	21.1248	0.00022	0.00298	0.02136	22.0386
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.7. Building Construction (2029)

3.7.1. Onsite - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.15336	0.96514	8.58166	12.9012	0.02340	0.27564	—	0.27564	0.25359	—	0.25359	—	2,396.83	2,396.83	0.09723	0.01945	—	2,405.06

Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.00226	0.00189	0.01679	0.02525	0.00005	0.00054	—	0.00054	0.00050	—	0.00050	—	4.69048	4.69048	0.00019	0.00004	—	4.70657
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.00041	0.00034	0.00306	0.00461	0.00001	0.00010	—	0.00010	0.00009	—	0.00009	—	0.77656	0.77656	0.00003	0.00001	—	0.77923
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.7.2. Offsite - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.17343	0.15839	0.16614	1.74599	0.00000	0.00000	0.32066	0.32066	0.00000	0.07516	0.07516	—	326.305	326.305	0.02007	0.01336	0.02633	330.815
Vendor	0.02150	0.01608	0.59250	0.20814	0.00378	0.00691	0.13150	0.13841	0.00691	0.03633	0.04324	—	449.757	449.757	0.00477	0.06170	0.02575	468.288
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00035	0.00030	0.00028	0.00326	0.00000	0.00000	0.00061	0.00061	0.00000	0.00014	0.00014	—	0.64594	0.64594	0.00004	0.00003	0.00086	0.65549
Vendor	0.00004	0.00003	0.00110	0.00040	0.00001	0.00001	0.00025	0.00026	0.00001	0.00007	0.00008	—	0.87966	0.87966	0.00001	0.00012	0.00084	0.91672

Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00006	0.00006	0.00005	0.00059	0.00000	0.00000	0.00011	0.00011	0.00000	0.00003	0.00003	—	0.10694	0.10694	0.00001	< 0.000005	0.00014	0.10852
Vendor	0.00001	0.00001	0.00020	0.00007	< 0.000005	< 0.000005	0.00005	0.00005	< 0.000005	0.00001	0.00002	—	0.14564	0.14564	< 0.000005	0.00002	0.00014	0.15177
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.8. Paving (2029)

3.8.1. Onsite - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.80047	0.67262	6.45817	9.91841	0.01395	0.23904	—	0.23904	0.21992	—	0.21992	—	1,510.63	1,510.63	0.06128	0.01226	—	1,515.81
Paving	0.28139	0.28139	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.04386	0.03686	0.35387	0.54347	0.00076	0.01310	—	0.01310	0.01205	—	0.01205	—	82.7740	82.7740	0.00336	0.00067	—	83.0580
Paving	0.01542	0.01542	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.00800	0.00673	0.06458	0.09918	0.00014	0.00239	—	0.00239	0.00220	—	0.00220	—	13.7042	13.7042	0.00056	0.00011	—	13.7512
Paving	0.00281	0.00281	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.8.2. Offsite - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07134	0.06607	0.04609	0.66816	0.00000	0.00000	0.12643	0.12643	0.00000	0.02964	0.02964	—	134.724	134.724	0.00659	0.00494	0.39943	136.759
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00387	0.00335	0.00307	0.03594	0.00000	0.00000	0.00671	0.00671	0.00000	0.00157	0.00157	—	7.13142	7.13142	0.00040	0.00029	0.00946	7.23683
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00071	0.00061	0.00056	0.00656	0.00000	0.00000	0.00123	0.00123	0.00000	0.00029	0.00029	—	1.18069	1.18069	0.00007	0.00005	0.00157	1.19814
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.9. Architectural Coating (2029)

3.9.1. Onsite - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.12385	0.10236	0.79416	1.11216	0.00173	0.01284	—	0.01284	0.01181	—	0.01181	—	133.510	133.510	0.00542	0.00108	—	133.968
Architectural Coatings	8.61258	8.61258	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.00814	0.00673	0.05222	0.07313	0.00011	0.00084	—	0.00084	0.00078	—	0.00078	—	8.77872	8.77872	0.00036	0.00007	—	8.80884
Architectural Coatings	0.56631	0.56631	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipm	0.00149	0.00123	0.00953	0.01335	0.00002	0.00015	—	0.00015	0.00014	—	0.00014	—	1.45342	1.45342	0.00006	0.00001	—	1.45840
Architectural Coatings	0.10335	0.10335	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.9.2. Offsite - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03618	0.03351	0.02338	0.33891	0.00000	0.00000	0.06413	0.06413	0.00000	0.01503	0.01503	—	68.3360	68.3360	0.00334	0.00250	0.20260	69.3685
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00236	0.00204	0.00187	0.02188	0.00000	0.00000	0.00409	0.00409	0.00000	0.00096	0.00096	—	4.34072	4.34072	0.00024	0.00018	0.00576	4.40489
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00043	0.00037	0.00034	0.00399	0.00000	0.00000	0.00075	0.00075	0.00000	0.00017	0.00017	—	0.71866	0.71866	0.00004	0.00003	0.00095	0.72928
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.10. Trenching (2028)

3.10.1. Onsite - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.14067	0.11820	0.89913	1.05734	0.00144	0.02920	—	0.02920	0.02687	—	0.02687	—	155.688	155.688	0.00632	0.00126	—	156.223
Demolition	—	—	—	—	—	—	0.13329	0.13329	—	0.02018	0.02018	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.14067	0.11820	0.89913	1.05734	0.00144	0.02920	—	0.02920	0.02687	—	0.02687	—	155.688	155.688	0.00632	0.00126	—	156.223
Demolition	—	—	—	—	—	—	0.13329	0.13329	—	0.02018	0.02018	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01156	0.00972	0.07390	0.08690	0.00012	0.00240	—	0.00240	0.00221	—	0.00221	—	12.7963	12.7963	0.00052	0.00010	—	12.8402
Demolition	—	—	—	—	—	—	0.01096	0.01096	—	0.00166	0.00166	—	—	—	—	—	—	—

Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.00211	0.00177	0.01349	0.01586	0.00002	0.00044	—	0.00044	0.00040	—	0.00040	—	2.11857	2.11857	0.00009	0.00002	—	2.12585
Demolition	—	—	—	—	—	—	0.00200	0.00200	—	0.00030	0.00030	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.10.2. Offsite - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01244	0.01151	0.00845	0.12019	0.00000	0.00000	0.02107	0.02107	0.00000	0.00494	0.00494	—	22.8438	22.8438	0.00115	0.00082	0.07296	23.1908
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00311	0.00223	0.12339	0.02502	0.00071	0.00203	0.02843	0.03046	0.00203	0.00778	0.00981	—	98.0412	98.0412	0.00010	0.01535	0.16242	102.780
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01261	0.01156	0.01169	0.12352	0.00000	0.00000	0.02107	0.02107	0.00000	0.00494	0.00494	—	21.8153	21.8153	0.00137	0.00088	0.00189	22.1132
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00291	0.00203	0.13339	0.02573	0.00071	0.00203	0.02843	0.03046	0.00203	0.00778	0.00981	—	98.1266	98.1266	0.00007	0.01538	0.00422	102.716
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00102	0.00094	0.00083	0.00971	0.00000	0.00000	0.00168	0.00168	0.00000	0.00039	0.00039	—	1.81375	1.81375	0.00010	0.00007	0.00259	1.84044
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00025	0.00018	0.01043	0.00208	0.00006	0.00017	0.00228	0.00245	0.00017	0.00063	0.00079	—	8.06113	8.06113	0.00001	0.00126	0.00577	8.44376

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00019	0.00017	0.00015	0.00177	0.00000	0.00000	0.00031	0.00031	0.00000	0.00007	0.00007	—	0.30029	0.30029	0.00002	0.00001	0.00043	0.30471
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00005	0.00003	0.00190	0.00038	0.00001	0.00003	0.00042	0.00045	0.00003	0.00011	0.00014	—	1.33461	1.33461	< 0.000005	0.00021	0.00096	1.39796

4. Operations Emissions Details

4.1. Mobile Emissions by Land Use

4.1.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	0.07881	0.07105	0.09722	0.64810	0.00170	0.00184	0.14546	0.14730	0.00173	0.03705	0.03878	—	173.381	173.381	0.00611	0.00818	0.43678	176.409
Parking Lot	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Other Non-Asphalt Surfaces	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Other Asphalt Surfaces	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Total	0.07881	0.07105	0.09722	0.64810	0.00170	0.00184	0.14546	0.14730	0.00173	0.03705	0.03878	—	173.381	173.381	0.00611	0.00818	0.43678	176.409
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

General Heavy Industry	0.07921	0.07104	0.11754	0.67835	0.00165	0.00184	0.14546	0.14730	0.00174	0.03705	0.03878	—	167.869	167.869	0.00699	0.00912	0.01133	170.774
Parking Lot	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Other Non-Asphalt Surfaces	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Other Asphalt Surfaces	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Total	0.07921	0.07104	0.11754	0.67835	0.00165	0.00184	0.14546	0.14730	0.00174	0.03705	0.03878	—	167.869	167.869	0.00699	0.00912	0.01133	170.774
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	0.00991	0.00891	0.01344	0.08199	0.00021	0.00023	0.01784	0.01807	0.00022	0.00455	0.00477	—	19.4255	19.4255	0.00075	0.00099	0.02165	19.7614
Parking Lot	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Other Non-Asphalt Surfaces	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Other Asphalt Surfaces	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Total	0.00991	0.00891	0.01344	0.08199	0.00021	0.00023	0.01784	0.01807	0.00022	0.00455	0.00477	—	19.4255	19.4255	0.00075	0.00099	0.02165	19.7614

4.2. Energy

4.2.1. Electricity Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

General Heavy Industry	—	—	—	—	—	—	—	—	—	—	—	—	50.3661	50.3661	0.00230	0.00028	—	50.5066
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	1.36075	1.36075	0.00006	0.00001	—	1.36455
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Total	—	—	—	—	—	—	—	—	—	—	—	—	51.7269	51.7269	0.00236	0.00029	—	51.8711
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	—	—	50.3661	50.3661	0.00230	0.00028	—	50.5066
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	1.36075	1.36075	0.00006	0.00001	—	1.36455
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Total	—	—	—	—	—	—	—	—	—	—	—	—	51.7269	51.7269	0.00236	0.00029	—	51.8711
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	—	—	8.33868	8.33868	0.00038	0.00005	—	8.36194
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	0.22529	0.22529	0.00001	< 0.000005	—	0.22592
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	—	0.00000

Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Total	—	—	—	—	—	—	—	—	—	—	—	—	8.56397	8.56397	0.00039	0.00005	—	8.58786

4.2.3. Natural Gas Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	0.00261	0.00130	0.02369	0.01990	0.00014	0.00180	—	0.00180	0.00180	—	0.00180	—	28.2604	28.2604	0.00250	0.00005	—	28.3388
Parking Lot	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Other Non-Asphalt Surfaces	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Other Asphalt Surfaces	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Total	0.00261	0.00130	0.02369	0.01990	0.00014	0.00180	—	0.00180	0.00180	—	0.00180	—	28.2604	28.2604	0.00250	0.00005	—	28.3388
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	0.00261	0.00130	0.02369	0.01990	0.00014	0.00180	—	0.00180	0.00180	—	0.00180	—	28.2604	28.2604	0.00250	0.00005	—	28.3388
Parking Lot	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Other Non-Asphalt Surfaces	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000

Other Asphalt Surfaces	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Total	0.00261	0.00130	0.02369	0.01990	0.00014	0.00180	—	0.00180	0.00180	—	0.00180	—	28.2604	28.2604	0.00250	0.00005	—	28.3388
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	0.00048	0.00024	0.00432	0.00363	0.00003	0.00033	—	0.00033	0.00033	—	0.00033	—	4.67883	4.67883	0.00041	0.00001	—	4.69181
Parking Lot	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Other Non-Asphalt Surfaces	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Other Asphalt Surfaces	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Total	0.00048	0.00024	0.00432	0.00363	0.00003	0.00033	—	0.00033	0.00033	—	0.00033	—	4.67883	4.67883	0.00041	0.00001	—	4.69181

4.3. Area Emissions by Source

4.3.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Source	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	0.06375	0.06375	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.05663	0.05663	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Landscape	0.70139	0.64732	0.03315	3.93941	0.00023	0.00700	—	0.00700	0.00529	—	0.00529	—	16.1994	16.1994	0.00068	0.00014	—	16.2578
Total	0.82177	0.76770	0.03315	3.93941	0.00023	0.00700	—	0.00700	0.00529	—	0.00529	—	16.1994	16.1994	0.00068	0.00014	—	16.2578
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	0.06375	0.06375	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.05663	0.05663	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	0.12038	0.12038	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	0.01163	0.01163	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.01034	0.01034	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.06312	0.05826	0.00298	0.35455	0.00002	0.00063	—	0.00063	0.00048	—	0.00048	—	1.32262	1.32262	0.00006	0.00001	—	1.32739
Total	0.08509	0.08023	0.00298	0.35455	0.00002	0.00063	—	0.00063	0.00048	—	0.00048	—	1.32262	1.32262	0.00006	0.00001	—	1.32739

4.4. Water Emissions by Land Use

4.4.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	—	0.95273	6.84648	7.79921	0.09800	0.00236	—	10.9523
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Total	—	—	—	—	—	—	—	—	—	—	—	0.95273	6.84648	7.79921	0.09800	0.00236	—	10.9523
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	—	0.95273	6.84648	7.79921	0.09800	0.00236	—	10.9523
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Total	—	—	—	—	—	—	—	—	—	—	—	0.95273	6.84648	7.79921	0.09800	0.00236	—	10.9523
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	—	0.15774	1.13351	1.29125	0.01623	0.00039	—	1.81328

Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Total	—	—	—	—	—	—	—	—	—	—	—	0.15774	1.13351	1.29125	0.01623	0.00039	—	1.81328

4.5. Waste Emissions by Land Use

4.5.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	—	1.43681	0.00000	1.43681	0.14360	0.00000	—	5.02691
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Total	—	—	—	—	—	—	—	—	—	—	—	1.43681	0.00000	1.43681	0.14360	0.00000	—	5.02691
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

General Heavy Industry	—	—	—	—	—	—	—	—	—	—	—	1.43681	0.00000	1.43681	0.14360	0.00000	—	5.02691
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Total	—	—	—	—	—	—	—	—	—	—	—	1.43681	0.00000	1.43681	0.14360	0.00000	—	5.02691
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	—	0.23788	0.00000	0.23788	0.02378	0.00000	—	0.83226
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Total	—	—	—	—	—	—	—	—	—	—	—	0.23788	0.00000	0.23788	0.02378	0.00000	—	0.83226

4.6. Refrigerant Emissions by Land Use

4.6.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

General Heavy Industry	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.55965	0.55965
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.55965	0.55965
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.55965	0.55965
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.55965	0.55965
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.09266	0.09266
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.09266	0.09266

4.7. Offroad Emissions By Equipment Type

4.7.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.8. Stationary Emissions By Equipment Type

4.8.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Emergency Generator	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Total	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Emergency Generator	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Total	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Emergency Generator	0.01812	0.01649	0.04610	0.04205	0.00008	0.00243	0.00000	0.00243	0.00243	0.00000	0.00243	0.00000	7.65403	7.65403	0.00031	0.00006	0.00000	7.67959
Total	0.01812	0.01649	0.04610	0.04205	0.00008	0.00243	0.00000	0.00243	0.00243	0.00000	0.00243	0.00000	7.65403	7.65403	0.00031	0.00006	0.00000	7.67959

4.9. User Defined Emissions By Equipment Type

4.9.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipm Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

5. Activity Data

5.1. Construction Schedule

Phase Name	Phase Type	Start Date	End Date	Days Per Week	Work Days per Phase	Phase Description
Pipeline Preparation	Linear, Grubbing & Land Clearing	7/11/2028	7/29/2028	5.00000	14.0000	—
Pipeline Installation	Linear, Drainage, Utilities, & Sub-Grade	7/30/2028	8/30/2028	5.00000	23.0000	—
Demolition	Demolition	6/1/2028	6/29/2028	5.00000	20.0000	—
Site Preparation	Site Preparation	6/30/2028	7/27/2028	5.00000	20.0000	—
Grading	Grading	7/15/2028	10/15/2028	5.00000	65.0000	—

Building Construction	Building Construction	8/13/2028	1/1/2029	5.00000	101.000	—
Paving	Paving	7/2/2029	7/30/2029	5.00000	20.0000	—
Architectural Coating	Architectural Coating	7/31/2029	8/31/2029	5.00000	24.0000	—
Trenching	Trenching	8/29/2028	10/9/2028	5.00000	30.0000	—

5.2. Off-Road Equipment

5.2.1. Unmitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Pipeline Preparation	Graders	Diesel	Average	1.000000	6.00000	148.000	0.41000
Pipeline Installation	Trenchers	Diesel	Average	1.000000	6.00000	40.0000	0.50000
Demolition	Concrete/Industrial Saws	Diesel	Average	1.000000	8.00000	33.0000	0.73000
Demolition	Excavators	Diesel	Average	3.00000	8.00000	36.0000	0.38000
Demolition	Rubber Tired Dozers	Diesel	Average	2.00000	8.00000	367.000	0.40000
Site Preparation	Rubber Tired Dozers	Diesel	Average	3.00000	8.00000	367.000	0.40000
Site Preparation	Tractors/Loaders/Backhoes	Diesel	Average	4.00000	8.00000	84.0000	0.37000
Grading	Excavators	Diesel	Average	1.000000	8.00000	36.0000	0.38000
Grading	Graders	Diesel	Average	1.000000	8.00000	148.000	0.41000
Grading	Rubber Tired Dozers	Diesel	Average	1.000000	8.00000	367.000	0.40000
Grading	Tractors/Loaders/Backhoes	Diesel	Average	3.00000	8.00000	84.0000	0.37000
Building Construction	Cranes	Diesel	Average	1.000000	7.00000	367.000	0.29000
Building Construction	Forklifts	Diesel	Average	3.00000	8.00000	82.0000	0.20000
Building Construction	Generator Sets	Diesel	Average	1.000000	8.00000	14.0000	0.74000
Building Construction	Tractors/Loaders/Backhoes	Diesel	Average	3.00000	7.00000	84.0000	0.37000
Building Construction	Welders	Diesel	Average	1.000000	8.00000	46.0000	0.45000
Paving	Pavers	Diesel	Average	2.00000	8.00000	81.0000	0.42000

Paving	Paving Equipment	Diesel	Average	2.00000	8.00000	89.0000	0.36000
Paving	Rollers	Diesel	Average	2.00000	8.00000	36.0000	0.38000
Architectural Coating	Air Compressors	Diesel	Average	1.000000	6.00000	37.0000	0.48000
Trenching	Trenchers	Diesel	Average	1.000000	6.00000	40.0000	0.50000

5.3. Construction Vehicles

5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Pipeline Preparation	Worker	2.50000	11.9300	LDA,LDT1,LDT2
Pipeline Preparation	Vendor	0.00000	10.5600	HHDT,MHDT
Pipeline Preparation	Hauling	0.00000	20.0000	HHDT
Pipeline Preparation	Onsite truck	—	—	HHDT
Pipeline Installation	Worker	2.50000	11.9300	LDA,LDT1,LDT2
Pipeline Installation	Vendor	0.00000	10.5600	HHDT,MHDT
Pipeline Installation	Hauling	1.08696	20.0000	HHDT
Pipeline Installation	Onsite truck	—	—	HHDT
Demolition	Worker	15.0000	11.9300	LDA,LDT1,LDT2
Demolition	Vendor	—	10.5600	HHDT,MHDT
Demolition	Hauling	2.30000	20.0000	HHDT
Demolition	Onsite truck	—	—	HHDT
Site Preparation	Worker	17.5000	11.9300	LDA,LDT1,LDT2
Site Preparation	Vendor	—	10.5600	HHDT,MHDT
Site Preparation	Hauling	5.35000	20.0000	HHDT
Site Preparation	Onsite truck	—	—	HHDT
Grading	Worker	15.0000	11.9300	LDA,LDT1,LDT2
Grading	Vendor	—	10.5600	HHDT,MHDT
Grading	Hauling	1.64615	20.0000	HHDT

Grading	Onsite truck	—	—	HHDT
Building Construction	Worker	38.0423	11.9300	LDA,LDT1,LDT2
Building Construction	Vendor	14.8455	10.5600	HHDT,MHDT
Building Construction	Hauling	0.00000	20.0000	HHDT
Building Construction	Onsite truck	—	—	HHDT
Paving	Worker	15.0000	11.9300	LDA,LDT1,LDT2
Paving	Vendor	—	10.5600	HHDT,MHDT
Paving	Hauling	0.00000	20.0000	HHDT
Paving	Onsite truck	—	—	HHDT
Architectural Coating	Worker	7.60845	11.9300	LDA,LDT1,LDT2
Architectural Coating	Vendor	—	10.5600	HHDT,MHDT
Architectural Coating	Hauling	0.00000	20.0000	HHDT
Architectural Coating	Onsite truck	—	—	HHDT
Trenching	Worker	2.50000	11.9300	LDA,LDT1,LDT2
Trenching	Vendor	—	10.5600	HHDT,MHDT
Trenching	Hauling	1.53333	20.0000	HHDT
Trenching	Onsite truck	—	—	HHDT

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

Non-applicable. No control strategies activated by user.

5.5. Architectural Coatings

Phase Name	Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
Architectural Coating	0.00000	0.00000	3,225.00	1,075.00	13,533.2

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

Phase Name	Material Imported (Cubic Yards)	Material Exported (Cubic Yards)	Acres Graded (acres)	Material Demolished (Building Square Footage)	Acres Paved (acres)
Pipeline Preparation	0.00000	0.00000	0.30000	0.00000	0.00000
Pipeline Installation	200.000	0.00000	0.30000	0.00000	0.00000
Demolition	0.00000	0.00000	0.00000	4,000.00	0.00000
Site Preparation	850.000	0.00000	30.0000	0.00000	0.00000
Grading	850.000	0.00000	65.0000	0.00000	0.00000
Paving	0.00000	0.00000	0.00000	0.00000	5.27800
Trenching	0.00000	0.00000	0.00000	4,000.00	0.00000

5.6.2. Construction Earthmoving Control Strategies

Non-applicable. No control strategies activated by user.

5.7. Construction Paving

Phase Name	Land Use	Area Paved (acres)	% Asphalt
Paving	General Heavy Industry	0.00000	0%
Paving	Parking Lot	0.01800	100%
Paving	Other Non-Asphalt Surfaces	3.13000	0%
Paving	Other Asphalt Surfaces	2.03000	100%
Paving	User Defined Linear	0.10000	100%

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2028	0.00000	806.891	0.03300	0.00400
2029	0.00000	782.640	0.03300	0.00400

5.9. Operational Mobile Sources

5.9.1. Unmitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
General Heavy Industry	8.44950	13.8030	10.9435	3,493.26	124.449	203.298	161.181	51,450.5
Parking Lot	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Other Non-Asphalt Surfaces	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Other Asphalt Surfaces	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

5.10. Operational Area Sources

5.10.1. Hearths

Land Use	Hearth Type	Unmitigated (number)	Mitigated (number)
General Heavy Industry	Wood Fireplaces	0	0
General Heavy Industry	Gas Fireplaces	0	0
General Heavy Industry	Propane Fireplaces	0	0
General Heavy Industry	Electric Fireplaces	0	0
General Heavy Industry	No Fireplaces	0	0
General Heavy Industry	Conventional Wood Stoves	0	0
General Heavy Industry	Catalytic Wood Stoves	0	0
General Heavy Industry	Non-Catalytic Wood Stoves	0	0
General Heavy Industry	Pellet Wood Stoves	0	0
Parking Lot	Wood Fireplaces	0	0
Parking Lot	Gas Fireplaces	0	0
Parking Lot	Propane Fireplaces	0	0
Parking Lot	Electric Fireplaces	0	0

Parking Lot	No Fireplaces	0	0
Parking Lot	Conventional Wood Stoves	0	0
Parking Lot	Catalytic Wood Stoves	0	0
Parking Lot	Non-Catalytic Wood Stoves	0	0
Parking Lot	Pellet Wood Stoves	0	0
Other Non-Asphalt Surfaces	Wood Fireplaces	0	0
Other Non-Asphalt Surfaces	Gas Fireplaces	0	0
Other Non-Asphalt Surfaces	Propane Fireplaces	0	0
Other Non-Asphalt Surfaces	Electric Fireplaces	0	0
Other Non-Asphalt Surfaces	No Fireplaces	0	0
Other Non-Asphalt Surfaces	Conventional Wood Stoves	0	0
Other Non-Asphalt Surfaces	Catalytic Wood Stoves	0	0
Other Non-Asphalt Surfaces	Non-Catalytic Wood Stoves	0	0
Other Non-Asphalt Surfaces	Pellet Wood Stoves	0	0
Other Asphalt Surfaces	Wood Fireplaces	0	0
Other Asphalt Surfaces	Gas Fireplaces	0	0
Other Asphalt Surfaces	Propane Fireplaces	0	0
Other Asphalt Surfaces	Electric Fireplaces	0	0
Other Asphalt Surfaces	No Fireplaces	0	0
Other Asphalt Surfaces	Conventional Wood Stoves	0	0
Other Asphalt Surfaces	Catalytic Wood Stoves	0	0
Other Asphalt Surfaces	Non-Catalytic Wood Stoves	0	0
Other Asphalt Surfaces	Pellet Wood Stoves	0	0

5.10.2. Architectural Coatings

Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
0.00000	0.00000	3,225.00	1,075.00	13,533.2

5.10.3. Landscape Equipment

Season	Unit	Value
Snow Days	day/yr	0.00000
Summer Days	day/yr	180.000

5.11. Operational Energy Consumption

5.11.1. Unmitigated

Electricity (kWh/yr) and CO2 and CH4 and N2O and Natural Gas (kBTU/yr)

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)
General Heavy Industry	25,422.8	723.115	0.0330	0.0040	88,180.0
Parking Lot	686.854	723.115	0.0330	0.0040	0.00000
Other Non-Asphalt Surfaces	0.00000	723.115	0.0330	0.0040	0.00000
Other Asphalt Surfaces	0.00000	723.115	0.0330	0.0040	0.00000

5.12. Operational Water and Wastewater Consumption

5.12.1. Unmitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
General Heavy Industry	497,188	426,474
Parking Lot	0.00000	0.00000
Other Non-Asphalt Surfaces	0.00000	0.00000
Other Asphalt Surfaces	0.00000	0.00000

5.13. Operational Waste Generation

5.13.1. Unmitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
General Heavy Industry	2.66600	0.00000
Parking Lot	0.00000	0.00000
Other Non-Asphalt Surfaces	0.00000	0.00000
Other Asphalt Surfaces	0.00000	0.00000

5.14. Operational Refrigeration and Air Conditioning Equipment

5.14.1. Unmitigated

Land Use	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced
General Heavy Industry	Other commercial A/C and heat pumps	R-410A	2,088.00	0.30000	4.00000	4.00000	18.0000

5.15. Operational Off-Road Equipment

5.15.1. Unmitigated

5.16. Stationary Sources

5.16.1. Emergency Generators and Fire Pumps

Equipment Type	Fuel Type	Number per Day	Hours per Day	Hours per Year	Horsepower	Load Factor
Emergency Generator	Diesel	1.000000	0.00000	100.0000	201.000	0.73000

5.16.2. Process Boilers

5.17. User Defined

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.2. Sequestration

5.18.2.1. Unmitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

Cal-Adapt midcentury 2040–2059 average projections for four hazards are reported below for your project location. These are under Representation Concentration Pathway (RCP) 8.5 which assumes GHG emissions will continue to rise strongly through 2050 and then plateau around 2100.

Climate Hazard	Result for Project Location	Unit
Temperature and Extreme Heat	28.5100	annual days of extreme heat
Extreme Precipitation	6.05000	annual days with precipitation above 20 mm
Sea Level Rise	—	meters of inundation depth
Wildfire	40.9400	annual hectares burned

Temperature and Extreme Heat data are for grid cell in which your project are located. The projection is based on the 98th historical percentile of daily maximum/minimum temperatures from observed historical data (32 climate model ensemble from Cal-Adapt, 2040–2059 average under RCP 8.5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Extreme Precipitation data are for the grid cell in which your project are located. The threshold of 20 mm is equivalent to about ¾ an inch of rain, which would be light to moderate rainfall if received over a full day or heavy rain if received over a period of 2 to 4 hours. Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Sea Level Rise data are for the grid cell in which your project are located. The projections are from Radke et al. (2017), as reported in Cal-Adapt (Radke et al., 2017, CEC-500-2017-008), and consider inundation location and depth for the San Francisco Bay, the Sacramento-San Joaquin River Delta and California coast resulting different increments of sea level rise coupled with extreme storm events. Users may select from four scenarios to view the range in potential inundation depth for the grid cell. The four scenarios are: No rise, 0.5 meter, 1.0 meter, 1.41 meters

Wildfire data are for the grid cell in which your project are located. The projections are from UC Davis, as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider historical data of climate, vegetation, population density, and large (> 400 ha) fire history. Users may select from four model simulations to view the range in potential wildfire probabilities for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

6.2. Initial Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	N/A	N/A	N/A	N/A
Extreme Precipitation	1	0	0	N/A
Sea Level Rise	N/A	N/A	N/A	N/A
Wildfire	1	0	0	N/A
Flooding	0	0	0	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	N/A	N/A	N/A	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores do not include implementation of climate risk reduction measures.

6.3. Adjusted Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	N/A	N/A	N/A	N/A
Extreme Precipitation	1	1	1	2
Sea Level Rise	N/A	N/A	N/A	N/A
Wildfire	1	1	1	2
Flooding	1	1	1	2
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	N/A	N/A	N/A	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores include implementation of climate risk reduction measures.

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Exposure Indicators	—
AQ-Ozone	35.1587
AQ-PM	0.06223
AQ-DPM	5.05289
Drinking Water	17.5347
Lead Risk Housing	46.8935
Pesticides	63.1724
Toxic Releases	0.76269
Traffic	0.16250
Effect Indicators	—
CleanUp Sites	37.5513
Groundwater	65.3163
Haz Waste Facilities/Generators	0.00000
Impaired Water Bodies	72.1546
Solid Waste	94.5704
Sensitive Population	—
Asthma	15.8275

Cardio-vascular	50.2243
Low Birth Weights	—
Socioeconomic Factor Indicators	—
Education	37.2817
Housing	35.2725
Linguistic	0.00000
Poverty	68.2663
Unemployment	76.0541

7.2. Healthy Places Index Scores

The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Economic	—
Above Poverty	41.62710124
Employed	7.827537534
Median HI	28.35878352
Education	—
Bachelor's or higher	46.25946362
High school enrollment	100
Preschool enrollment	74.72090337
Transportation	—
Auto Access	78.96830489
Active commuting	20.56974208
Social	—
2-parent households	94.36673938
Voting	87.69408443
Neighborhood	—
Alcohol availability	75.14436032

Park access	16.89978186
Retail density	2.014628513
Supermarket access	46.56743231
Tree canopy	94.54638778
Housing	—
Homeownership	68.42037726
Housing habitability	52.55998973
Low-inc homeowner severe housing cost burden	27.06274862
Low-inc renter severe housing cost burden	73.36070833
Uncrowded housing	61.41408957
Health Outcomes	—
Insured adults	39.07352752
Arthritis	0.0
Asthma ER Admissions	82.4
High Blood Pressure	0.0
Cancer (excluding skin)	0.0
Asthma	0.0
Coronary Heart Disease	0.0
Chronic Obstructive Pulmonary Disease	0.0
Diagnosed Diabetes	0.0
Life Expectancy at Birth	43.4
Cognitively Disabled	11.9
Physically Disabled	8.5
Heart Attack ER Admissions	59.0
Mental Health Not Good	0.0
Chronic Kidney Disease	0.0
Obesity	0.0
Pedestrian Injuries	19.6

Physical Health Not Good	0.0
Stroke	0.0
Health Risk Behaviors	—
Binge Drinking	0.0
Current Smoker	0.0
No Leisure Time for Physical Activity	0.0
Climate Change Exposures	—
Wildfire Risk	49.5
SLR Inundation Area	0.0
Children	68.4
Elderly	8.4
English Speaking	80.4
Foreign-born	3.5
Outdoor Workers	13.4
Climate Change Adaptive Capacity	—
Impervious Surface Cover	94.9
Traffic Density	0.7
Traffic Access	0.0
Other Indices	—
Hardship	61.7
Other Decision Support	—
2016 Voting	62.3

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	27.0000
Healthy Places Index Score for Project Location (b)	50.0000
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	No

Project Located in a Low-Income Community (Assembly Bill 1550)	Yes
Project Located in a Community Air Protection Program Community (Assembly Bill 617)	No

a: The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.
b: The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

7.4. Health & Equity Measures

No Health & Equity Measures selected.

7.5. Evaluation Scorecard

Health & Equity Evaluation Scorecard not completed.

7.6. Health & Equity Custom Measures

No Health & Equity Custom Measures created.

8. User Changes to Default Data

8.1. Justifications

Screen	Justification
Construction: Construction Phases	Per project plans.
Construction: Off-Road Equipment	Per project plans.
Construction: Dust From Material Movement	Per project plans.
Construction: Demolition	Per project plans.
Construction: Architectural Coatings	Per project plans.
Operations: Architectural Coatings	Per project plans.

8.4. Construction

8.4.1. Construction Phases

Phase Type	Phase Name	Model Parameter	Default Value	New Value
Site Preparation	Site Preparation	End Date	7/14/2028	7/27/2028

Site Preparation	Site Preparation	Work Days per Phase	10.00000	20.0000
Grading	Grading	End Date	8/12/2028	10/15/2028
Grading	Grading	Work Days per Phase	20.0000	65.0000
Building Construction	Building Construction	End Date	7/1/2029	1/1/2029
Building Construction	Building Construction	Work Days per Phase	230.000	101.000
Architectural Coating	Architectural Coating	End Date	8/28/2029	8/31/2029
Architectural Coating	Architectural Coating	Work Days per Phase	20.0000	24.0000

8.4.4. Dust from Material Movement

Phase Name	Model Parameter	Units	Default Value	New Value
Pipeline Preparation	Material Imported	Cubic Yards	—	0.00000
Pipeline Preparation	Material Exported	Cubic Yards	—	0.00000
Pipeline Preparation	Total Acres Graded	acres	0.10000	0.30000
Pipeline Installation	Material Imported	Cubic Yards	—	200.000
Pipeline Installation	Material Exported	Cubic Yards	—	0.00000
Pipeline Installation	Material Import/Export Phased?	—	—	Yes
Pipeline Installation	Total Acres Graded	acres	0.10000	0.30000

8.4.8. Architectural Coatings

Phase Name	Model Parameter	Units	Default Value	New Value
Architectural Coating	Residential Interior VOC	g/L	250.000	0.00000
Architectural Coating	Residential Exterior VOC	g/L	250.000	0.00000

8.5. Operations

8.5.2. Area Sources

8.5.2.3. Architectural Coatings

Model Parameter	Units	Default Value	New Value
Residential Interior VOC	g/L	250.000	0.00000
Residential Exterior VOC	g/L	250.000	0.00000

Attachment C
Odor Control Memo

Phone: (707) 441-8855 **Email:** info@shn-engr.com **Web:** shn-engr.com
812 W. Wabash Avenue, Eureka, CA 95501-2138

Technical Memorandum

Reference: 525006
Date: June 22, 2026
To: Bruce Grove
From: Chuck Swanson
Subject: Fort Jones Wastewater Treatment Facility Odor Control

1.0 Purpose

The purpose of this memorandum is to evaluate the potential source and transport of odors with respect to sensitive uses and evaluate control measures to minimize potential impacts from operational odors associated with the proposed new relocated wastewater treatment facility (WWTF) for the Town of Fort Jones (Town; Figure 1).

2.0 Background

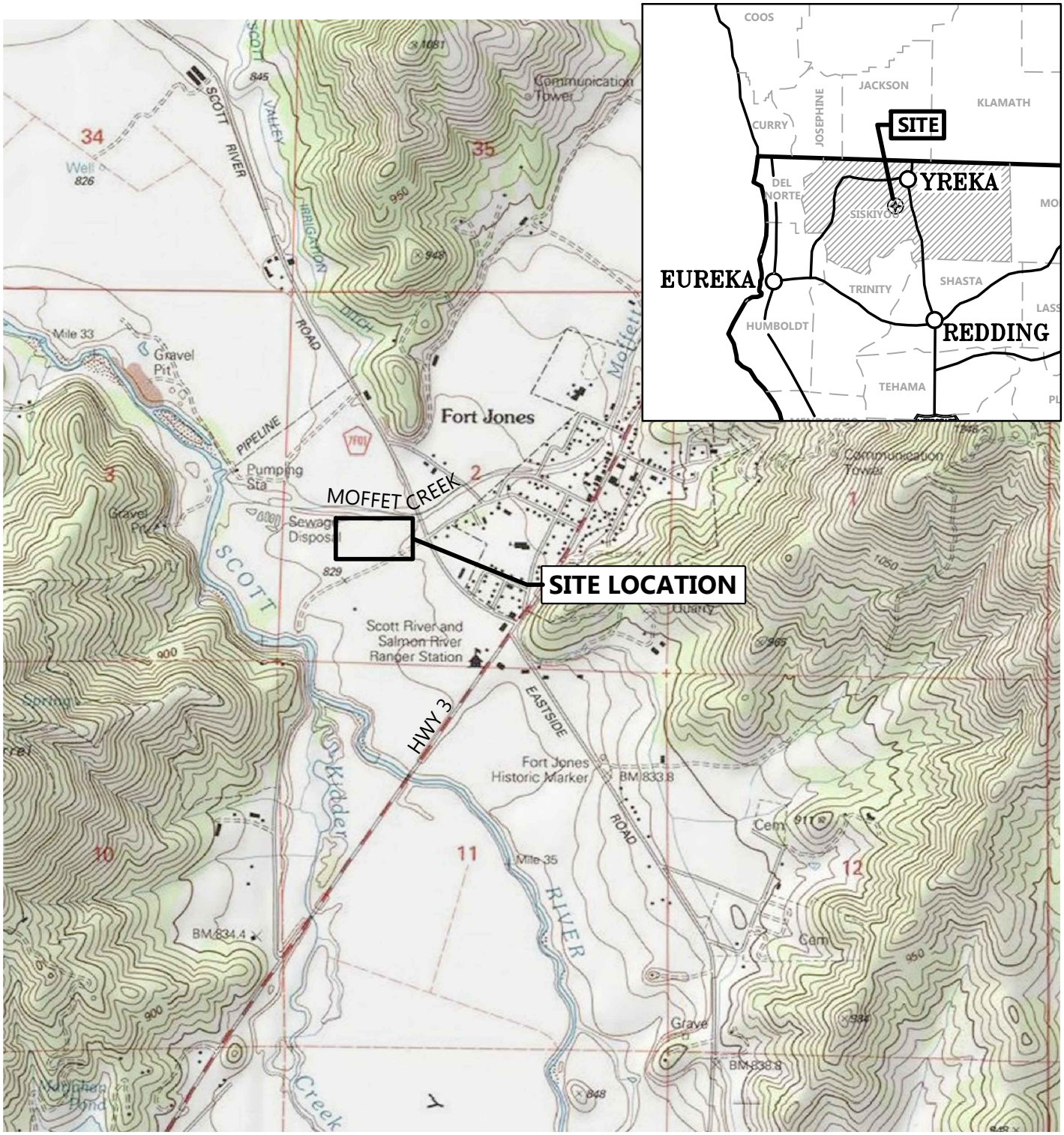
Odors generated by WWTFs are the result of decomposition of organic human waste, which can release hydrogen sulfide, ammonia, and other volatile organic compounds (VOCs).

The proposed WWTF for Fort Jones includes the following major components and processes (Figure 2):

- An influent lift station including pumps to lift the raw wastewater up to the elevation of the new treatment processes
- A mechanical screen to remove trash and debris from the raw wastewater
- A deep influent facultative pond zone (Pond 1) for settling and digesting primary solids
- Two partial-mix aerated ponds (Ponds 1 and 2)
- One recirculation pump station for recirculating aerated pond effluent back to the influent end of Pond 1
- One settling and polishing pond (Pond 3)
- One rock filter for removing algal solids and reducing total suspended solids prior to discharge
- Two infiltration ponds for ultimate discharge of treated wastewater effluent to groundwater

3.0 Existing Conditions

The existing Fort Jones WWTF consists of an Imhoff settling tank and a series of infiltration ponds approximately 1,000 feet west of the proposed WWTF location (Figure 2). According to Town staff, there is no record of odor complaints from the existing WWTF. Wind speed and direction data in the vicinity of the proposed WWTF were examined for the years 2015-2023 to identify prevailing wind patterns (Figure 3; NREL, 2024). The resulting radial plot indicates prevailing wind directions in this area are from west-southwest to northwest, south to south-southeast, and east to north-northeast.

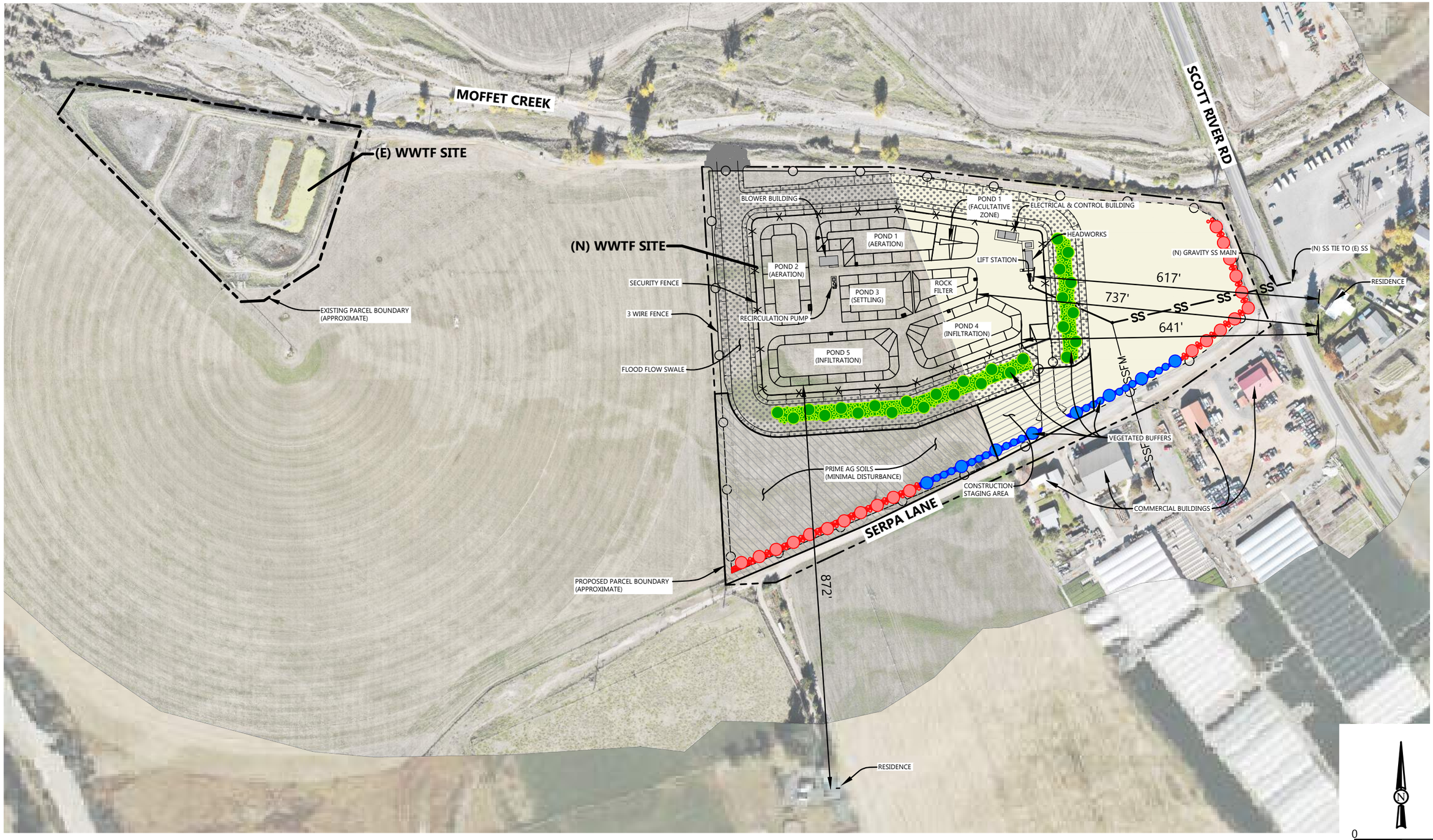


SOURCE: GREENVIEW AND FORT JONES
USGS 7.5 MINUTE QUADRANGLES

1"=2000'±

SHN	Town of Fort Jones Proposed WWTF-Odor Control Memorandum Fort Jones, California	**Site Location** April 2026 - 525006.400	**Figure** **1**

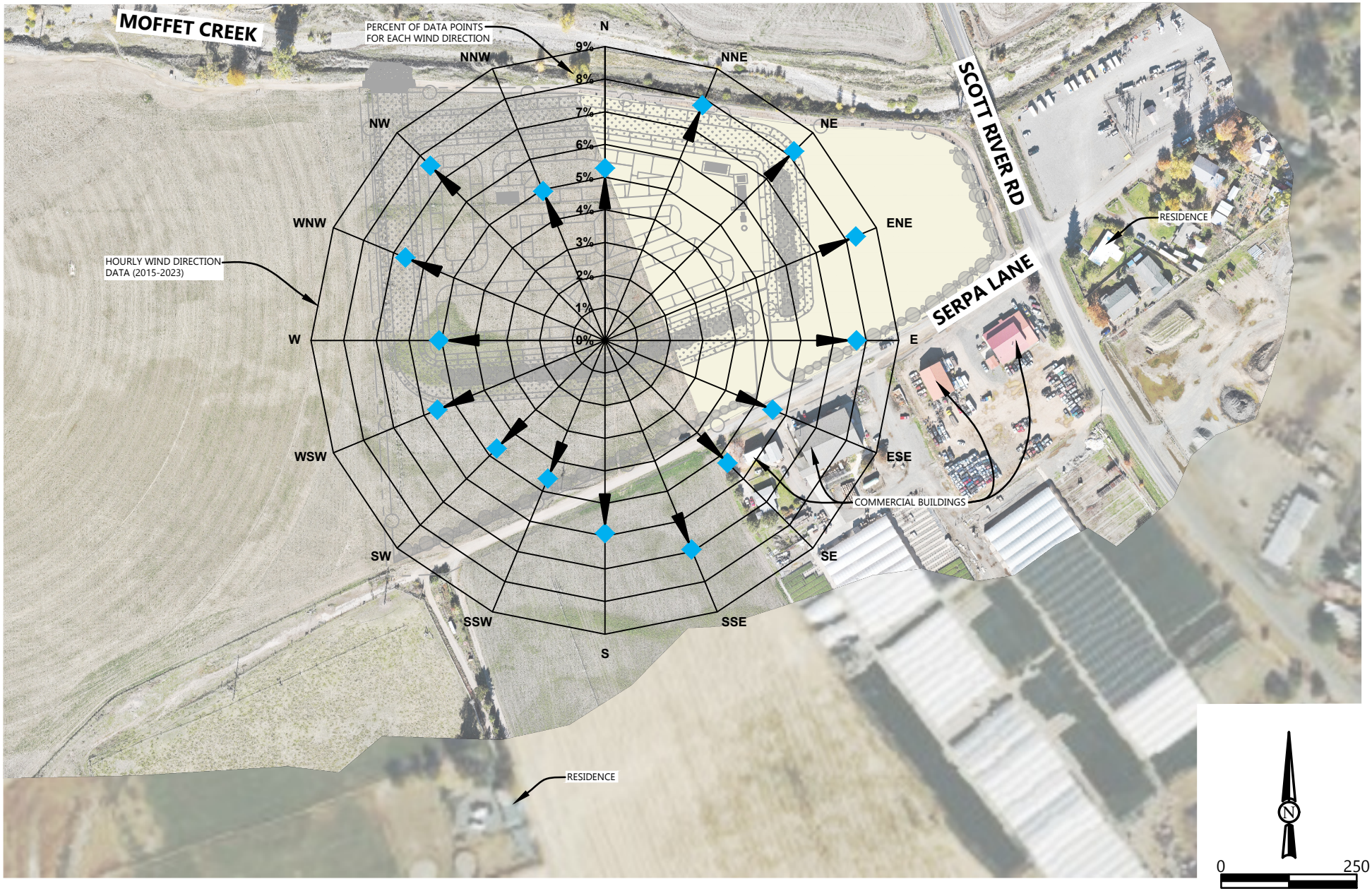
\\Redding-fs\p-projects\Redding\2025\525006-Fort-Jones-WWTF-Design\400-Final-Design\Dwgs\525006-400-SITE-LCTN, SAVED: 4/1/2026 12:57 PM CSWANSON, PLOTTED: 4/1/2026 1:00 PM, SWANSON, CHUCK



SHN	Town of Fort Jones Odor Control Fort Jones, California	**Project Overview** June 2026 - 525006	**Figure** **2**

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SHN	Town of Fort Jones Odor Control Fort Jones, California	**Wind Direction** June 2026 - 525006	**Figure** **3**

Data presented in Figure 3 represents the percent of data points that are in each principal wind direction based on hourly wind records between January 1, 2015, and December 31, 2023 (78,840 data points).

Sensitive Receptors

Sensitive receptors (for example, children, senior citizens, and acutely or chronically ill people) are more susceptible to the effect of air pollution than the general population. Land uses that are considered sensitive receptors typically include residences, schools, parks, childcare centers, hospitals, and retirement homes.

Land uses north and south of the existing WWTF are primarily agricultural with the nearest residences located approximately 1,600 feet to the southeast and 1,400 feet to the southwest along Bridge Street across Scott River Road. The sensitive receptors closest to the relocated facility are located approximately 641 feet from the nearest pond (Pond 4 infiltration pond), approximately 737 feet from the rock filter, and approximately 617 feet from the influent lift station (Figure 2).

4.0 Potential Odor Sources and Buffer Distances

Odors within a WWTF can originate from a multitude of onsite locations, primarily from the decomposition of organic matter, anaerobic conditions, and exposed areas of high turbulence. Table 1 below lists typical locations of odor generation in a WWTF, the source or cause of odors, and relative potential of occurrence.

Table 1. Potential WWTF Odor Sources and Likelihood of Occurrence

Treatment Unit/Process	Source/Cause of Odors	Odor Potential
Raw Wastewater Pumping Station[a]	Wetwell/septic raw wastewater, solids and scum deposits	High
Headworks[a]	Odorous gases generated in the wastewater collection system due to turbulence in hydraulic channels and transfer points	High
Mechanical Screen[a]	Putrescible matter removed by screening	High
Facultative Pond (Influent end of Pond 1)[b]	High organic loading, poor mixing, inadequate dissolved oxygen (DO), solids deposits, anaerobic solids digestion	Moderate/High
Aerated Ponds (Ponds 1 & 2)[b]	High organic loading, poor mixing, inadequate DO, solids deposits	Low/Moderate
Polishing Pond (Pond 3)[b]	High organic loading, poor mixing, inadequate DO, solids deposits	Low/Moderate
Rock Filter[a,b]	Biological film/septicity due to insufficient oxygen, high organic loading, or plugging of filter medium	Moderate/High
Infiltration Ponds (Ponds 4 & 5)[b]	High organic loading, poor mixing, inadequate DO, solids deposits	Low/Moderate

a. Metcalf & Eddy, 2014.
b. USEPA, 2011.

Table 2 lists recommended buffer distances from various treatment processes in order to avoid odor through natural attenuation, and the actual distance from each process to the nearest structure. When buffer distances cannot be attained, additional odor control and management may be necessary. With the exception of the rock filter, none of the other treatment processes meet the recommended minimum buffer distance from the nearest sensitive receptors. Recommended buffer distances presented in Table 2 are based on reference values recommended in Metcalf & Eddy (2014) "Wastewater Engineering, Treatment, and Resource Recovery." Metcalf & Eddy (2014) is a wastewater engineering design manual widely used in the United States. Buffer distances recommended in Metcalf & Eddy (2014) are drawn from the New York State Department of Environmental Conservation and do not include each specific treatment unit listed below in Table 2. Treatment units in Table 2 reference specific treatment units included in this project, and suggested buffer distances are derived by equating each unit to units listed in the Metcalf & Eddy manual.

Table 2. Recommended Minimum Buffer Distances from Treatment Units for Odor Containment

Treatment Unit	Recommended Buffer Distance (feet)[a]	Distance to Nearest Sensitive Receptor (feet)
Raw Wastewater Pumping Stations, Headworks, and Screening Facilities	1,000[b]	617
Facultative Pond (Influent End of Pond 1)	1,000[c]	747
Aerated Ponds (Ponds 1 & 2)	1,000	840
Polishing Pond (Pond 3)	500	876
Rock Filter	500[d]	737
Infiltration Ponds (Ponds 4 & 5)	500[e]	641

a. Metcalf & Eddy, 2014.
b. Influent pump station and headworks equated to sludge handling unit.
c. Facultative pond equated to an aerated lagoon due to presence of surface aerator.
d. Rock filter equated to an open secondary effluent filter
e. Infiltration pond equated to land disposal

5.0 Odor Mitigation Through Design and Operation

The new WWTF is proposed to be constructed as far from sensitive receptors as possible within the site boundary allotted for this project while maintaining compliance with the various other design criteria necessary for its construction. Odor impacts can be minimized, contained, or prevented by implementing engineering technologies and design measures at the source. While it may not be possible to obtain the optimal buffer distance from nearby sensitive receptors for natural attenuation of odors, a variety of control strategies and technologies will be employed to reduce odors to the extent practicable.

The Sacramento Metropolitan Air Quality Management District (SMAQMD) identifies several current, in-practice control measures to reduce odor emissions from wastewater treatment plants as noted below (SMAQMD, 2014):

- install activated carbon filters/carbon adsorption in primary clarifiers, headworks building, aeration basin influent channel, and/or all waste gas exhaust systems;
- install biofiltration/bio-trickling filters for all waste gas exhaust systems;
- install fine bubble aerators to wastewater treatment tanks or ponds to increase treatment efficiency and dissolved oxygen to prevent odor-generating anaerobic activity;
- install hooded enclosures on grit dumpsters and belt filter presses, primary clarifier weir covers, and/or channel seals;
- install wet and dry scrubbers on waste gas exhaust systems from treatment tanks;
- install caustic and hypochlorite chemical scrubbers on waste gas exhaust systems from treatment tanks;
- install ammonia scrubber on waste gas exhaust from treatment tanks;
- install energy-efficient blower system to increase treatment efficiency and dissolved oxygen levels;
- install thermal oxidizer to oxidize all waste gas exhaust;
- cap or cover storage basins and anaerobic ponds to avoid release of odorous compounds;
- install mixed flow exhaust system to dilute waste gas exhaust; and
- install SolarBee or similar technologies on storage basins, lagoons, and anaerobic ponds to avoid fugitive release of odorous compounds.

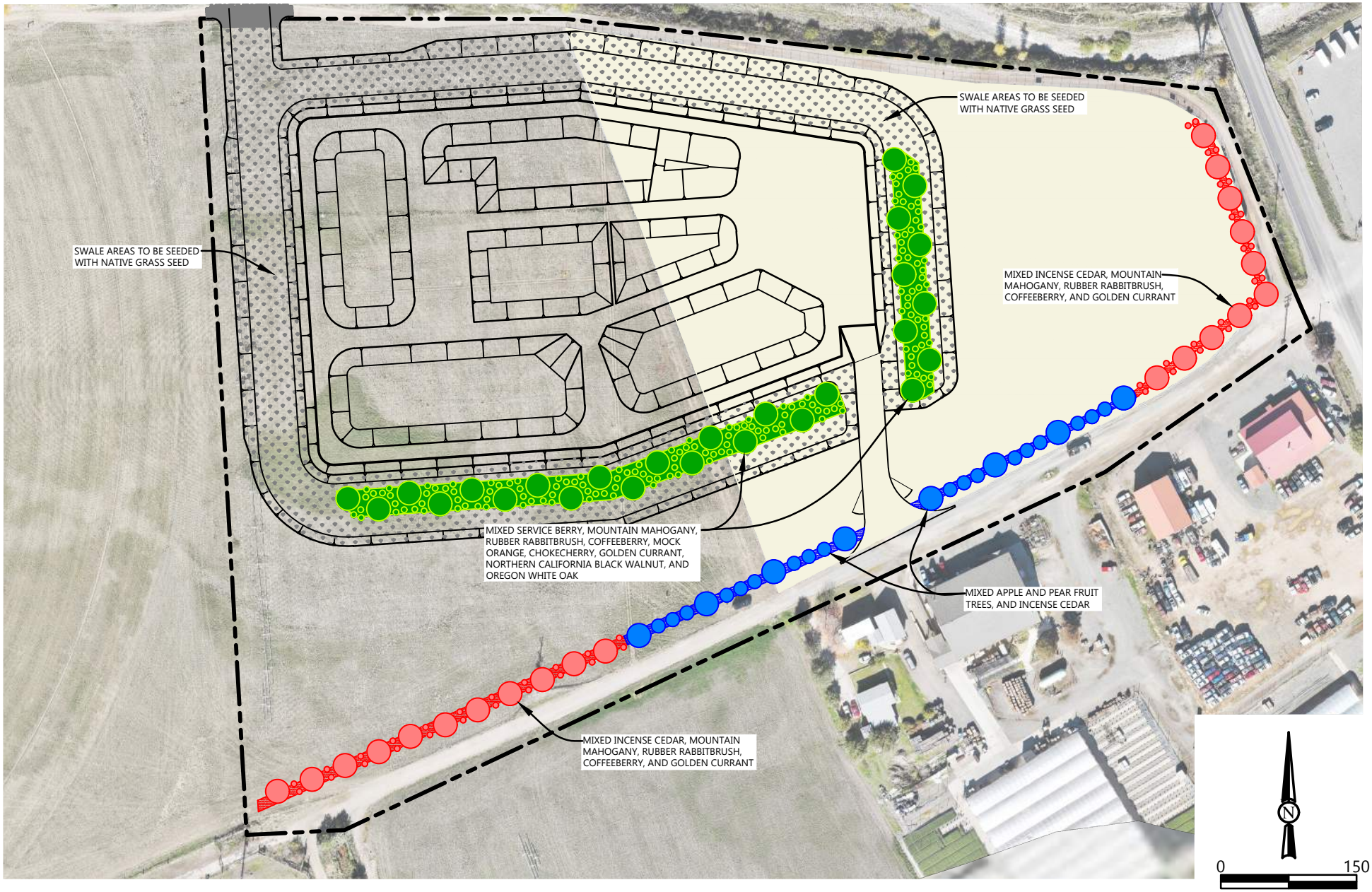
As described below, the new WWTF is designed to incorporate several of the control measures recommended by the SMAQMD (for example, odor control system in headworks building, fine bubble aerators in treatment ponds, and so on).

5.1 Vegetative Barriers

The new WWTF design includes vegetative barriers along the south and east boundaries of the facility to act as a filter for odors. Trees and shrubs have been shown to significantly reduce odors from livestock facilities by reducing localized wind speeds, filtering particulate matter, and creating wind turbulence (NRCS, 2007; USDA, 2011). Vegetative barriers create a wind block that forces air up into the atmosphere, creating turbulence that promotes dissipation of odors up and away from the ground where sensitive receptors are located. Many odor generating compounds are heavier than air such that they tend to travel along the ground when undisturbed.

The proposed vegetative barriers will be 30 feet wide with multiple rows of trees of varying species with shrubbery planted between the trees (Figure 4). An irrigation system will be installed to support plant growth during a 2 to 3 year establishment period. Tree species will include evergreen conifers and deciduous hardwood trees. Specific tree and shrub species are anticipated to include, but are not limited to, mixed incense cedar, mountain mahogany, black walnut, white oak, rubber rabbitbrush, mixed service berry, golden currant, mock orange, and mixed fruit trees (Figure 4). NRCS (2007) suggests that planting a diverse selection of tree species reduces the risk of a vegetative barrier failing due to disease and pest outbreaks.

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SHN	Town of Fort Jones Odor Control Fort Jones, California	**Planting Plan** June 2026 - 525006	**Figure** **4**

5.2 Dissolved Oxygen

Odors from WWTFs are typically generated from anaerobic processes or areas where insufficient dissolved oxygen (DO) is available to oxidize odor generating compounds (Metcalf & Eddy, 2014). Areas where high organic loading occurs are particularly problematic if insufficient oxygen and mixing is provided. The new WWTF design incorporates both active and passive aeration and mixing, efficient hydraulic design, and attention to potential odor-generating processes to reduce or mitigate odor generation within the new facility.

5.2.1 Pond 1 Deep Facultative Zone

The deep influent facultative zone of Pond 1 is designed to be anaerobic deeper in the water column, below approximately 3 to 4 feet below the surface (Figure 5). The anaerobic conditions in this part of the water column promotes solids digestion to reduce the volume of solids over time. A surface aerator will be placed in this area of Pond 1 that will maintain an oxygenated "cap" over the top few feet of the water column. The oxygenated "cap" will prevent odors from the deeper anaerobic waters escaping to the atmosphere. A full-depth baffle will be placed between the deep influent zone of Pond 1 and the downstream aerated zone. The baffle will prevent short-circuiting and ensure that the deep anaerobic waters of the influent zone are contained.

5.2.2 Pond 1 and Pond 2 Aeration Zone

Downstream of the deep facultative zone of Pond 1 is the partially mixed aerated zone of Pond 1 and the partially mixed aerated Pond 2 (Figure 5). Subsurface fine-bubble aerators will supply DO and provide mixing throughout Ponds 1 and 2, maintaining a DO concentration sufficient for oxidation of the organic waste and preventing odors from occurring. In-situ DO sensors will be used to control the blowers supplying air to these ponds, ensuring that they have sufficient DO for treatment and odor prevention. The facility operator will have a second handheld DO sensor to periodically check that the in-situ sensors are working correctly. The in-situ DO sensors will be calibrated as specified by the manufacturer to ensure they are accurate and working correctly.

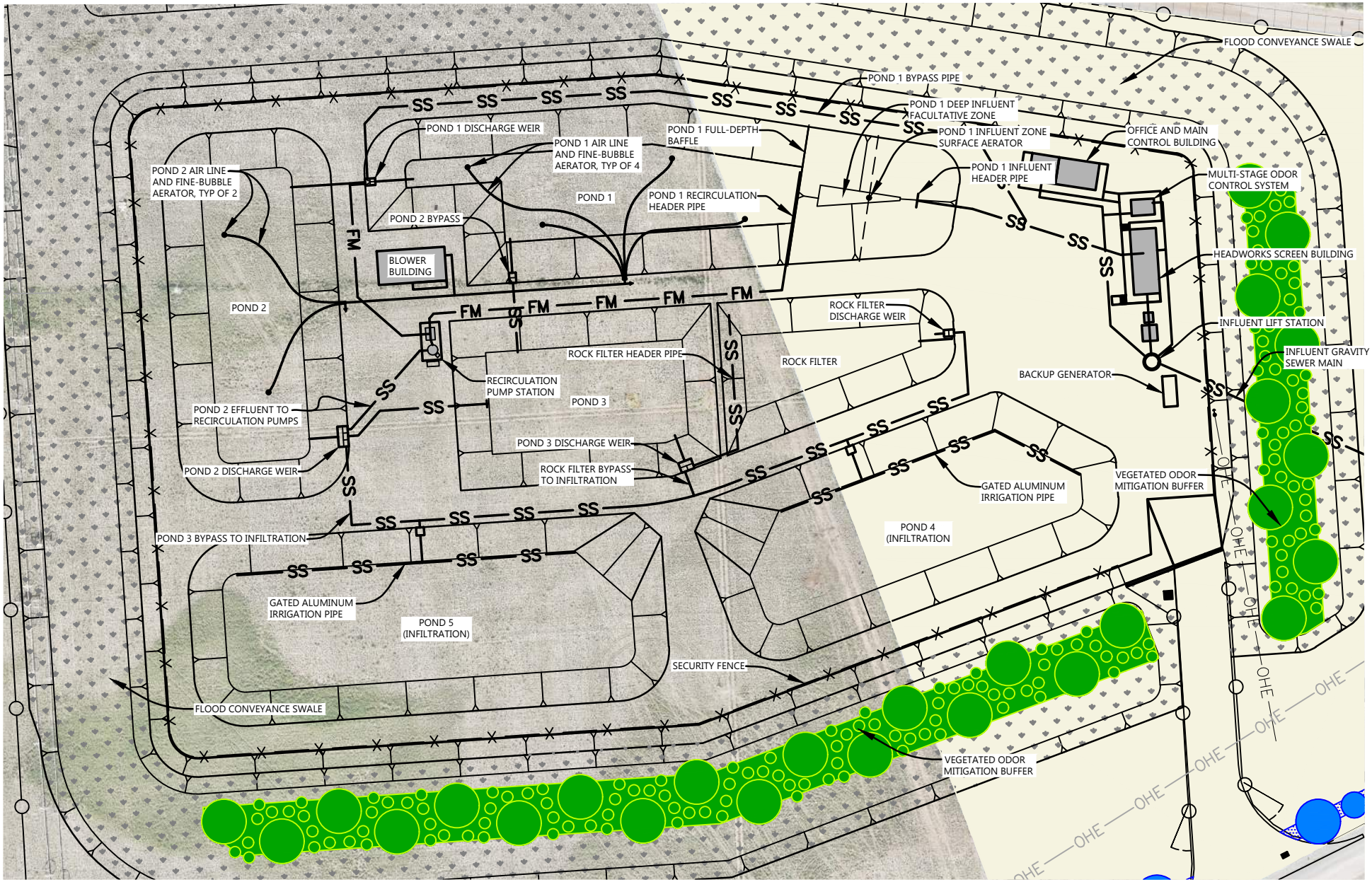
5.2.3 Recirculation

The aerated effluent from Pond 2 will be recirculated back to the influent end of the Pond 1 aerated zone to provide additional aeration and contact time to oxidize organic matter and further reduce potential odor generation (Figure 5). The recirculated water will be introduced to the bottom of the upstream end of the aerated zone in Pond 1, providing additional oxygen to water leaving the deep anaerobic zone of Pond 1 that will aid in reducing potential odor generation at this location.

5.2.4 Pond 3 Polishing Zone

Downstream of Pond 2 is the polishing pond, Pond 3 (Figure 5). This pond will be 4 to 5 feet in water depth, providing a facultative area for solids settling and additional organic matter oxidation in the upper water column. Facultative ponds absorb oxygen from the atmosphere that diffuses down through the upper few feet of the water column, providing treatment and reducing potential odors from escaping to the atmosphere. As much of the organic load will be removed through Ponds 1 and 2, Pond 3 will not have sufficient organic loading to create a high potential for odor generation.

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0 80

1"=80'

N

Town of Fort Jones
Odor Control
Fort Jones, California

Site Plan

June 2026 - 525006

Figure 5

5.2.5 Rock Filter

In quiescent polishing ponds such as Pond 3, planktonic green algae growth can occur during the dry season months when flows decrease and temperature and sunlight increase. Algae can contribute to elevated concentrations of total suspended solids (TSS) in the effluent, which is a primary discharge limitation from WWTFs. Algae can be removed through a variety of methods and technologies; however, rock filters are a simple, low-energy method of removal. As algae growth is primarily a concern during the dry season months when wastewater flows are minimal (May–September), the rock filter will be used during these times and bypassed during the remainder of the year (Figure 5). As the effluent passes through the rock filter, algae are deprived of sunlight and die off. As the algae die, they settle onto the surfaces of the rocks removing them from the waste stream. As the algal biomass accumulates on the rocks, there is the potential for anaerobic conditions to occur, which can result in odor generation. During the time of the year when the rock filter is bypassed, it will be drained, which will allow oxygen to fill the void spaces between rocks to oxidize the accumulated organic biomass. This will prevent excess buildup of organic matter over time that can contribute to odor generation.

Excess buildup of organic matter in rock filters can result in stagnant anaerobic conditions that can generate odors. The design of the new rock filter for the Fort Jones WWTF incorporates a distributed inflow header pipe to enhance hydraulic efficiency and prevent short-circuiting. Further, rock size and type have been selected to prevent plugging of the filter due to insufficient pore space between rocks. Rock gradation will include 2-inch to 8-inch angular rock of sufficient hardness to reduce weathering and fracturing over time. The ability to "rest" the rock filter during parts of the year will also aid in reducing accumulation of organic matter, extending the life of the rock filter significantly. The life expectancy of a rock filter is not well known as it depends largely on the amount of organic and solids loading. However, rock filters have been employed at other similar facilities for decades without any reduction in treatment, suggesting that if they are designed appropriately, they can function for long periods of time without issue (EPA, 2011). Design of the rock filter for Fort Jones is based on similar rock filter designs from other facilities that have had long-term success.

Similar methods of employing rock filters to remove algae from wastewater treatment pond effluent are used in the City of Blue Lake, California. The rock filter at the City of Blue Lake WWTF has not resulted in odor generation or complaints by neighbors according to the operator of the facility (Bernald, 2025). The City of Blue Lake's rock filter is located approximately 600 feet from the nearest sensitive receptor, which is the Blue Lake Casino and Hotel.

5.2.6 Infiltration Ponds

The effluent infiltration ponds are located in highly porous gravels and sands such that effluent is anticipated to infiltrate quickly, and standing water is not anticipated during the dry season months (Figure 5). As organic matter builds up in the ponds over time, the infiltration rate may slow; therefore, the ponds will be scarified annually or as needed to maintain proper infiltration. Effluent will also be treated through the various processes described above such that it will contain significantly reduced amounts of organic matter. The ponds are unlikely to accumulate water during the dry season when flows are lower, which is the main time of potential concern with respect to odors. With the effluent quickly infiltrating into the porous soils, there is ample oxygen available to minimize odor generation.

6.0 Odor Control Through Technology

Various technologies exist for control of odors, including chemical stripping, physical adsorption, biological filtration, or a combination of these processes. Chemical stripping is costly and has the added drawback of dealing with side effects of adding the chemicals such as balancing pH or inhibition of biological processes needed for treatment of wastewater. Therefore, this method is considered the least desirable approach to odor control. Physical adsorption using a media such as activated carbon can be highly effective (Metcalf & Eddy, 2014). However, it can become quite costly under certain conditions that require frequent replacement of the media. Biological filtration can include biofilters that are similar to compost piles, which incorporate an organic media that promotes microbial activity and removes odorous compounds as the air passes through them. However, these styles of filters are subject to blanking as the organic media decomposes over time and requires constant attention to maintain proper conditions for odor removal. Another style of biological filter incorporates an inert media that is kept moist with a solution of water and nutrients to facilitate biofilm growth. Air is passed through the filter media where it comes into contact with the biofilm, which removes odor compounds through natural biological processes. Automated media irrigation systems can be integrated into the biological component of these systems to maintain bacteria growth during the process.

The influent headworks for the Fort Jones WWTF has the highest potential for odor generation due to the influent pumping and turbulence, open screen channel, and removal of trash and debris with putrescible material. The proposed headworks facility will primarily consist of a channel designed to convey the raw influent wastewater through a mechanical auger screen (Figure 5).

The auger screen removes large waste items such as trash and debris from the influent stream. Screenings are washed and compacted through the auger screen and conveyed into an enclosed bagging system for disposal at a landfill offsite.

The headworks channel and screen will be housed within a fully enclosed building equipped with a point source, active ventilation, and a two-stage odor control system consisting of a biological first stage and an activated carbon secondary stage (Figure 5). The primary biological stage is designed to remove the bulk of the odorous compounds, while the secondary stage is designed to polish any residual compounds. The airstream from the exhaust fan, which is sized to maintain a flow rate of 12 air exchanges per hour, will be plumbed through the two-stage odor control system. The two stages create additional process redundancy.

The influent lift station will also be enclosed, and air from within the headspace of the lift station wet well and valve box will be captured and routed through the active odor control system for the headworks building, which will be sized adequately to handle the additional airflow.

7.0 Conclusion

While odor generation is inherently a natural part of wastewater treatment, implementation of the design, operational, and technological measures described herein would prevent significant odor impacts from the new wastewater treatment facility. Table 3 below provides a summary of the potential odor sources and proposed control measures.

Table 3. Odorous Sources[a] and Control Measures

Treatment Unit/Process	Source/Cause of Odors	Control Measures
Raw Wastewater Pumping Station[a]	Wetwell/septic raw wastewater, solids and scum deposits	Containment and conveyance of air to headworks active odor control system
Headworks[a]	Odorous gases generated in the wastewater collection system due to turbulence in hydraulic channels and transfer points	Containment and treatment of odors through active odor control system
Mechanical Screen[a]	Putrescible matter removed by screening	Containment and treatment of odors through active odor control system
Facultative Pond (Influent end of Pond 1)[b]	High organic loading, poor mixing, inadequate DO, solids deposits, anaerobic solids digestion	Surface aeration to provide oxygenated "cap", baffle to prevent short-circuiting
Aerated Ponds (Ponds 1 & 2)[b]	High organic loading, poor mixing, inadequate DO, solids deposits	Aeration units to supply even distribution of DO
Polishing Pond (Pond 3)[b]	High organic loading, poor mixing, inadequate DO, solids deposits	Prior removal of organic loads throughout treatment process
Rock Filter[a,b]	Biological film/septicity due to insufficient oxygen, high organic loading, or plugging of filter medium	Specific rock size and type selection, ability to bypass filter in wet season and allow algae to oxidize
Infiltration Ponds (Ponds 4 & 5)[b]	High organic loading, poor mixing, inadequate DO, solids deposits	Quick infiltration water accumulation during dry season and providing ample oxygen

a. Metcalf & Eddy, 2014.
b. USEPA, 2011.

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Attachment D

Biological Resources Report

3179 Bechelli Ln, Suite 100, Redding, CA 96002 | 530.221.0440 | www.ce.solutions

June 12, 2026

Bruce Grove
SHN Engineers & Geologists
350 Hartnell Avenue, Suite B
Redding, CA 96002

Via email: bgrove@shn-engr.com

RE: Biological Evaluation Results – Town of Fort Jones Wastewater Treatment Facilities Improvements Project

This letter report details the findings of our biological survey for the proposed Town of Fort Jones Wastewater Treatment Facility (WWTF) Improvements Project. A new WWTF is proposed to be constructed southeast of the existing facilities.

As shown in **Appendix A** (Figure 1)**,** the project site is located adjacent to Scott River Road in Sections 2 and 3, Township 43 North, Range 09 West, of the U.S. Geological Survey's (USGS) Fort Jones 7.5-minute quadrangle. The study area is ~25.5 acres in size. The study area includes the gravel access road leading to the existing WWTF and sewage ponds and a gravel pad to the southeast of the wastewater treatment facility. Moffet Creek abuts the northern boundary of the study area. The elevation of the study area ranges from 2710 to 2730 feet above sea level, with most of the site being nearly flat; steep banks are present around the sewage ponds. An aerial photograph of the site is provided in **Appendix A** (Figure 2). Representative photographs of the project site are provided in **Appendix B**.

METHODS

Records reviewed for this evaluation consisted of California Natural Diversity Database (CNDDB) records for special-status plants, wildlife, and sensitive communities within a five-mile radius of the study area (see **Appendix C** – Table 1); California Native Plant Society (CNPS) records for special-status plants present in the USGS Fort Jones 7.5-minute quadrangle (see **Appendix C** – Table 2); U.S. Fish and Wildlife Service (USFWS) records for federally listed, proposed, and candidate plant and wildlife species under jurisdiction of the USFWS; and critical habitat data maintained by the USFWS (see **Appendix C**); and National Marine Fisheries Service (NMFS) records for the USGS Fort Jones 7.5-minute quadrangle (see **Appendix C**).

To determine the presence/absence of special-status species and other sensitive biological resources, a biological field survey was conducted by ENPLAN (now Catalyst) biologists on August 5, 2025. Most special-status species potentially occurring in the study area would have been identifiable at the time the biological survey was completed. Determination of the potential presence of the species that would not have been detectable at the time of the field survey could readily be determined based on observed habitat characteristics.

SURVEY RESULTS

Natural Communities

The project site includes:

- Existing wastewater treatment facility and access road (barren/urban land);
- Irrigated alfalfa field (agricultural land);
- Gravel work pad (barren/urban land).

All these areas are highly modified, and no sensitive natural communities are present in the study area. However, the south bank of Moffett Creek abuts the project area to the north.

Special-Status Plant Species

Review of the USFWS species list for the project area identified one federally listed plant species, Yreka phlox (California Rare Plant Rank [CRPR] 1B.2, Federally Endangered [FE], State Endangered [SE]), as potentially occurring in the project vicinity. The study area does not contain designated critical habitat for any federally listed plant species.

Review of CNDDB records showed that the following special-status plants have been reported within an approximate five-mile radius of the project area: Henderson's fawn lily (CRPR 2B.3), Shasta chaenactis (CRPR 1B.3), Siskiyou clover (CRPR 1B.1), and timber blue grass (CRPR 1B.3). One non-status plant species, English Peak greenbrier (CRPR 4.2), also has been reported within the search radius.

CNPS records identified one additional special-status plant species, Scott valley phacelia (CRPR 1B.2), in the USGS Fort Jones 7.5-minute quadrangle. Two additional non-status plant species were reported in the USGS Fort Jones 7.5-minute quadrangle: California pitcherplant (CRPR 4.2) and Greene's buckwheat (CRPR 4.3).

The potential for each of the special-status plant species to occur on the project site is evaluated in **Appendix C** (Table 3). As documented in the table, no special-status plant species were observed during the biological survey, nor are any expected to be present.

A list of vascular plant species observed on the site during the August 5, 2025, field survey is provided in **Appendix D**.

Special-Status Wildlife Species

Review of the USFWS species list for the project area identified the following federally listed wildlife species as potentially being present in the project area: California condor (Experimental Population [EPNE], SE, State Fully Protected [SFP]), conservancy fairy shrimp (FE), Franklin's bumble bee (FE, State Candidate [SC]), monarch butterfly (Federally Proposed Threatened [FPT]), North American wolverine (Federally Threatened [FT], SFP, State Threatened [ST]), northern spotted owl (FT, ST), northwestern pond turtle (FPT, State Species of Special Concern [SSSC]), Suckley's cuckoo bumble bee (Federally Proposed Endangered [FPE], SC), vernal pool fairy shrimp (FT), vernal pool tadpole shrimp (FE), and yellow-billed cuckoo (FT, SE). The USFWS species list does not identify designated critical habitat in the study area for any federally listed wildlife species.

According to the NMFS, the USGS 7.5-minute Fort Jones quadrangle contains critical habitat and Essential Fish Habitat (EFH) for Southern Oregon/Northern California Coast (SONCC) coho salmon Evolutionary Significant Unit

(ESU) (FT, ST), as well as EFH for Chinook salmon. Because no work would occur in any streams, special-status fish would not occur in the project area. Therefore, the project would not have any direct adverse effects on listed fish species. However, special-status fish species could be indirectly affected if project activities cause erosion or sedimentation into nearby Moffett Creek. These potential indirect effects would be minimized with implementation of best management practices (BMPs) for erosion control and spill prevention as required under the State Water Resources Control Board's Construction Stormwater General Permit.

CNDDB records show that the following special-status wildlife species have been reported within an approximate five-mile radius of the project area: bank swallow (State Threatened [ST]), foothill yellow-legged frog (SSSC), golden eagle (SFP, State Watch List [WL]), Lower Klamath marbled sculpin (SSSC), and Townsend's big eared bat (SSSC). One non-status wildlife species, Secret Cave amphipod, has also been mapped within the search radius.

The potential for each of the special-status wildlife species to occur on the project site is evaluated in **Appendix C** (Table 3). As documented in the table, no special-status wildlife species were observed during the biological survey. However, special-status animal species that could potentially utilize the project site for critical life stages of development are northwestern pond turtle and monarch butterfly. Potential effects of project implementation on these species are addressed in more detail below.

Northwestern Pond Turtle

The northwestern pond turtle (NWPT) associates with permanent or nearly permanent water in a variety of habitats, typically in quiet water environments. Pond turtles require basking sites such as partially submerged logs, rocks, or open mud banks, and suitable upland habitat (sandy banks or grassy open fields) for egg-laying. Nesting and courtship occur during spring. Nests are generally constructed within 500 feet of a waterbody, but some nests have been found up to 1,200 feet away. Pond turtles leave aquatic sites in the fall and overwinter in uplands nearby. The turtles may also aestivate in uplands during periods with intense heat. For overwintering and aestivation, the turtles may burrow into leaf litter, under shrubs, or under large woody debris.

CNDDB records do not show any occurrences of NWPT in the Scott Valley, but iNaturalist records showed that a NWPT was observed in the Scott River ~10 miles downstream of Moffett Creek in 2023. Thus, the species could be present in the Scott River near the project. However, Moffett Creek does not provide suitable habitat for the NWPT.

Although no work is proposed in the Scott River, basking, nesting, or overwintering/ aestivating turtles could potentially be affected by project implementation if work were to occur in suitable habitat. The Scott River and associated potential basking habitat are ~200 feet west of the project site and are not within line-of-sight of the existing WWTF. Therefore, turtles in the river or basking on its banks would not be adversely affected by project implementation. The site for the new WWTF is over 1,200 feet from the Scott River, thus, no impacts to turtles are expected due to project construction. The existing WWTF is fenced, which greatly reduces the potential for entry by nesting or overwintering/aestivating turtles. Most of the study area outside of the fencing consists of maintained agricultural fields and access roads that offer no suitable habitat for overwintering/aestivating or nesting. Nevertheless, there is a slight potential that NWPT could be encountered in access roads or other work areas.

As noted in **Appendix C** (Table 3), the NWPT is currently proposed for federal listing as Threatened. If the species is formally listed prior to project completion, consultation under Section 7 of the

Endangered Species Act could be required. We anticipate that the federal lead agency for the proposed project will use this biological report for advance consultation with the USFWS. The objective of advance consultation would be to avoid the need (and time delays) for preparation of a separate Biological Assessment and to ensure that the adopted conservation measures would support a Section 7 determination of "no impact" or "may affect, but is not likely to adversely affect." **Mitigation Measure 1** incorporates all measures expected to be needed to support such a determination and allows for modification of the conditions if needed to meet USFWS requirements.

Monarch Butterfly

Monarch butterflies are reliant on milkweed species for development and survival. The western breeding population of the monarch butterfly occurs west of the Rocky Mountains. Adults migrate from their primary overwintering sites on the California Coast and northern Baja California in February and March and reach the northern limit of their North American range in California, Oregon, Washington, Idaho, and Nevada in early to mid-June. Eggs are laid singly on milkweed plants within their breeding range. Once hatched, larvae reach the adult stage in 20 to 35 days; adults typically live two to five weeks. Several generations can be produced within one season, with the last generation beginning migration to their overwintering range in August and September where they live between six and nine months before migrating north.

As shown in **Appendix A** (Figure 3), five patches of showy milkweed (*Asclepias speciosa*) were observed along the outer edges of the Moffett Creek channel just outside the study area. Because milkweeds are not present within the study area, monarch butterflies would not breed onsite. Additionally, because the study area is highly modified, floral resources in the area are sparse. Therefore, the chance of monarch butterflies using the site for incidental foraging is low.

Nevertheless, if construction activities were to inadvertently damage or kill the nearby milkweeds, monarch butterflies could potentially be affected. To avoid any inadvertent impacts to milkweeds, **Mitigation Measure 2** requires that the construction area be carefully demarcated and nearby milkweeds be flagged for visibility.

Nesting Migratory Birds

The USFWS identified the following Birds of Conservation Concern as potentially being present in the project area: Cassin's finch, evening grosbeak, oak titmouse, rufous hummingbird, and western screech-owl. The bald eagle and golden eagle are not listed as Birds of Conservation Concern, but the USFWS noted that they are birds that warrant consideration because they are protected under the Bald and Golden Eagle Protection Act. Construction activities could potentially affect nesting migratory birds through removal of active nests or through creation of noise or other disturbance that causes adults to abandon active nests with eggs or juveniles.

Suitable habitat for nesting migratory birds is present on the project site. Riparian vegetation north of the study area near Moffett Creek has a high potential to support nesting birds, while open lands in the study area could support ground-nesting birds such as killdeer. The potential for adversely affecting nesting birds can be greatly minimized by removing vegetation and conducting construction activities outside of the nesting season (i.e., either before February 1 or after August 31). If this is not possible, a pre-construction nesting survey should be conducted prior to removal of vegetation and/or the start of construction, as described in **Mitigation Measure 3.**

CONCLUSIONS

Based on the records search results, field observations, and the above analyses, we find that the project site has a low potential to be used by nesting or overwintering/aestivating turtles and a moderate to high potential to support nesting birds during the spring/summer nesting season. Just north of the study area, milkweeds have a moderate potential to be used as breeding habitat by the monarch butterfly. Implementation of the following mitigation measures would reduce the potential impacts of the proposed project on biological resources to less-than-significant levels.

Mitigation Measure 1: Northwestern Pond Turtle

If any ground-disturbing activity is proposed within 1,200 feet of the Scott River and outside of the existing fenced WWTF site, the following measures shall be implemented to ensure that potential impacts to the northwestern pond turtle (NWPT) are avoided or appropriately minimized. The NWPT is currently proposed for federal listing as Threatened, and the U.S. Fish and Wildlife Service (USFWS) may recommend a different suite of measures to protect the turtle. Therefore, alternative measures acceptable to the USFWS may be substituted for those provided below.

- Worker's Environmental Awareness and Protection Training: A Worker's Environmental Awareness and Protection (WEAP) Training shall be implemented by a USFWS-approved biologist prior to the commencement of construction and to any new crew members prior to beginning work on the jobsite. Upon completion of the program, employees will sign a form stating they attended the program and understand all protection measures. The project proponent will maintain a list of all personnel who have successfully completed the education program at the worksite.
- Pre-Construction Surveys: A USFWS-approved biologist shall conduct three pre-construction surveys of the project site for NWPT.
    - One survey shall be conducted no more than 48 hours before the onset of work activities, ideally when weather conditions are suitable to detect pond turtles.
    - Two additional surveys shall be conducted prior to the onset of work activities with at least three days between surveys during suitable weather conditions during the northwestern pond turtle's active season (generally March 1–September 30) when air temperatures regularly exceed 55 degrees Fahrenheit.
- Exclusionary Fencing: Silt fencing or other barriers to turtle movement shall be established around the perimeter of the work area within 1,200 feet of the Scott River and shall be inspected/maintained throughout the duration of construction. The interior of the exclusionary zone shall be inspected as part of the pre-construction surveys to ensure that no turtles are trapped within the barriers.
- Turtle Relocation: If any life stage of the NWPT (adult, hatchling, or egg) is found and individuals are likely to be killed or injured by work activities, project activities that may harm the species shall be halted within 50 feet of the turtles until the individuals move out of harm's way or until a USFWS-approved biologist can capture and relocate them.
- Trash Removal: All trash that could attract predators of the NWPT and all plastics that NWPT could consume or become entangled in shall be removed daily from the project site and disposed of properly.
- Erosion Control Materials: Plastic monofilament netting (erosion control matting), loosely woven netting, or similar material in any form shall not be used at the project site because NWPT can become entangled and trapped in them. Any such material found onsite shall be immediately removed by

construction personnel or the applicant. Materials utilizing fixed weaves (strands cannot move), polypropylene, polymer or other synthetic materials shall not be used.

- Nighttime Work: The project proponent shall conduct project activities no earlier than 30 minutes after sunrise and no later than 30 minutes before sunset. If the Town of Fort Jones determines that nighttime work is necessary, all lighting shall be directed to the work area and shielded to prevent spill over into occupied or assumed occupied habitat outside the work area.
- Construction Equipment: No equipment in which NWPT could seek shelter shall be left on site overnight outside of the designated staging areas, defined as those areas that are enclosed with silt fence or some other barrier designed to reasonably prevent wildlife from entering. The project proponent shall cover dirt or sand piles left overnight outside of the designated staging areas with tarps or plastic to prevent NWPT from sheltering in the material. For onsite storage of pipes, conduits and other materials that could provide shelter for NWPT that is not surrounded by NWPT exclusion fencing, an open-top trailer shall be used to elevate the materials above ground. This is intended to reduce the potential for NWPT to climb into the conduits and other materials.
- Cover Holes and Trenches: All holes and trenches over 6.0 inches deep shall be covered overnight or escape ramps installed and shall be inspected each morning by a qualified biologist or assistant biologist.
- Vehicle Speed Limit: Project-related vehicles shall observe a 15.0 miles per hour speed limit within construction areas, except on County roads, and State and federal highways. Off-road traffic outside of designated and fenced project work areas shall be prohibited.
- No Pets: No pets shall be permitted at the project site, to avoid and minimize the potential for harassment, injury, and death of the NWPT.
- No Herbicides or Insecticides: No herbicides or insecticides shall be used unless the USFWS determines that with implementation of best management practices (BMPs) that no NWPT are likely to be harmed.
- Refueling and Vehicle Maintenance: Refueling and maintenance of vehicles and equipment shall occur within a designated staging area a minimum of 100 feet from riparian habitat or aquatic areas, unless the USFWS approves, and the equipment is stationary and less than 100 feet from aquatic areas.
- Spill Response: Prior to the onset of work, the contractor shall have a plan in place for prompt and effective response to any accidental spills. A spill-containment kit shall be present at all times on site. The plan shall include informing all workers of the importance of preventing spills and of the appropriate measures to implement should a spill occur.
- Vehicle Leak Prevention: Vehicles and equipment shall be checked daily for leaks, and all vehicular fluid spills will be contained and cleaned up immediately following the procedures noted in the above measure.

Mitigation Measure 2: Monarch Butterfly

The monarch butterfly is currently proposed for federal listing as Threatened. If the western migratory population of the monarch butterfly is formally listed or remains proposed for listing at the time of construction, the following measures shall be implemented, or an alternative suite of measures recommended by the U.S. Fish and Wildlife Service (USFWS) may be substituted for those presented below.

The limits of the construction area shall clearly be demarcated with fencing, pin flags, or other means. Construction equipment shall not venture beyond the marked construction boundary. Additionally, known milkweed populations adjacent to the construction area shall be flagged for visibility.

Mitigation Measure 3: Nesting Migratory Birds

In order to avoid impacts to nesting migratory birds and/or raptors protected under the federal Migratory Bird Treaty Act and California Fish and Game Code §3503 and §3503.5, including their nests and eggs, one of the following shall be implemented:

a. Vegetation removal and other ground-disturbance activities associated with construction shall occur between September 1 and January 31 when birds are not nesting; or

b. If vegetation removal or ground disturbance activities commence during the nesting season, a pre-construction nesting survey shall be conducted by a qualified biologist to identify active nests in and adjacent to the work area.

   Surveys shall begin prior to sunrise and continue until vegetation and nests have been sufficiently observed. The survey shall take into account acoustic impacts and line-of-sight disturbances occurring as a result of the project in order to determine a sufficient survey radius to avoid nesting birds. At a minimum, the survey report shall include a description of the area surveyed, date and time of the survey, ambient conditions, bird species observed in the area, a description of any active nests observed, any evidence of breeding behaviors (e.g., courtship, carrying nest materials or food, etc.), and a description of any outstanding conditions that may have affected the survey results (e.g., weather conditions, excess noise, the presence of predators, etc.).

   The results of the survey shall be submitted electronically to the California Department of Fish and Wildlife (CDFW) upon completion. The survey shall be conducted no more than one week prior to the initiation of construction. If construction activities are delayed or suspended for more than one week after the pre-construction survey, the site shall be resurveyed.

   If active nests are found, the applicant shall consult with the USFWS and CDFW regarding appropriate action to comply with the Migratory Bird Treaty Act and California Fish and Game Code §3503. Compliance measures may include, but are not limited to, exclusion buffers, sound-attenuation measures, seasonal work closures based on the known biology and life history of the species identified in the survey, as well as ongoing monitoring by biologists.

Please contact me at **530.221.0440 ext. 7110** or jewald@ce.solutions if you have any questions regarding our findings.

Sincerely,

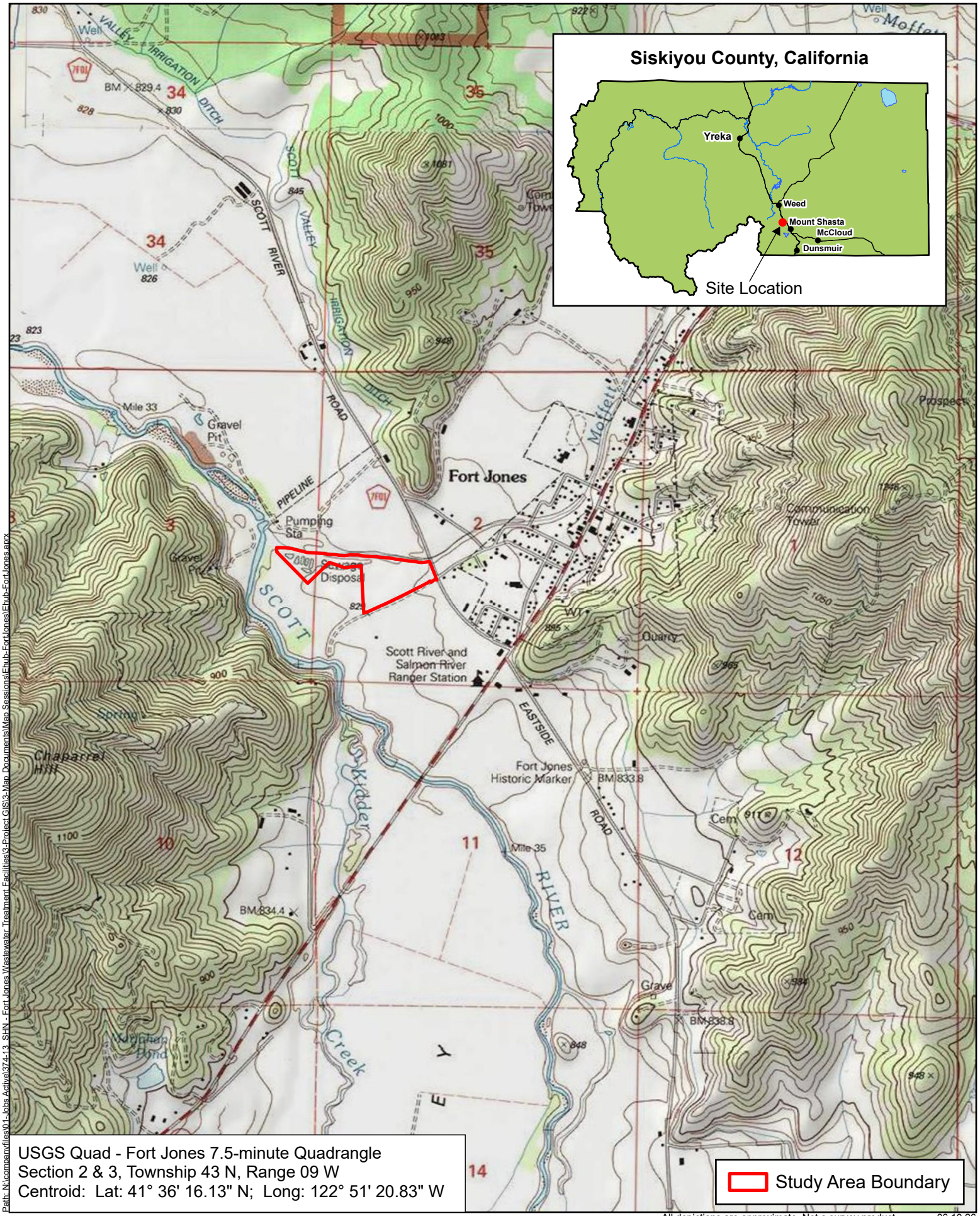


Jacob Ewald
Environmental Scientist

Attachments: Appendix A – Figures
Appendix B – Representative Photographs
Appendix C – Biological Record Search Results
Appendix D – List of Vascular Plants

Appendix A

Figures



USGS Quad - Fort Jones 7.5-minute Quadrangle
Section 2 & 3, Township 43 N, Range 09 W
Centroid: Lat: 41° 36' 16.13" N; Long: 122° 51' 20.83" W

Path: N:\company files\01-Jobs Active\374-13_SHN - Fort Jones Wastewater Treatment Facilities\3-Project GIS\3-Map Documents\Map Sessions\Fhub-Fort Jones\Fhub-Fort Jones.aprx

All depictions are approximate. Not a survey product. 06.10.26

0 2,000 Feet

Figure 1

Project Location and Vicinity

Catalyst ENVIRONMENTAL SOLUTIONS



Path: N:\companyfiles\01-Jobs Active\374-13 SHN - Fort Jones Wastewater Treatment Facilities\3-Project GIS\3-Map Documents\Map Sessions\Ehub-FortJones\Ehub-FortJones.aprx

All depictions are approximate. Not a survey product. 06.10.26

0 300 Feet

Figure 2

Study Area Boundary

Catalyst ENVIRONMENTAL SOLUTIONS



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All depictions are approximate. Not a survey product. 06.10.26

0 300 Feet

Figure 3

Milkweed Locations

Catalyst ENVIRONMENTAL SOLUTIONS

Appendix B

Representative Photographs



Easternmost wastewater treatment pond. View to south.



Fringe of agricultural field just east of fenced treatment plant. View to south.



Access road to treatment plant and graveled work pad, with Moffett Creek on far left. View to east.



Edge of agricultural field on north side of Moffett Creek. View to west.



Milkweed plants were observed just outside of the study area boundary.

Appendix C

Biological Record Search Results

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Yreka Fish And Wildlife Office
1829 South Oregon Street
Yreka, CA 96097-3446
Phone: (530) 842-5763 Fax: (530) 842-4517

In Reply Refer To: 06/04/2026 20:45:32 UTC
Project Code: 2026-0099179
Project Name: 374-13 Fort Jones Wastewater Treatment Facilities

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological

evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

https://www.fws.gov/sites/default/files/documents/endangered-species-consultation-handbook.pdf

Migratory Birds: In addition to responsibilities to protect threatened and endangered species under the Endangered Species Act (ESA), there are additional responsibilities under the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA) to protect native birds from project-related impacts. Any activity resulting in take of migratory birds, including eagles, is prohibited unless otherwise permitted by the U.S. Fish and Wildlife Service (50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)). For more information regarding these Acts, see https://www.fws.gov/program/migratory-bird-permit/what-we-do.

It is the responsibility of the project proponent to comply with these Acts by identifying potential impacts to migratory birds and eagles within applicable NEPA documents (when there is a federal nexus) or a Bird/Eagle Conservation Plan (when there is no federal nexus). Proponents should implement conservation measures to avoid or minimize the production of project-related stressors or minimize the exposure of birds and their resources to the project-related stressors. For more information on avian stressors and recommended conservation measures, see https://www.fws.gov/library/collections/threats-birds.

In addition to MBTA and BGEPA, Executive Order 13186: *Responsibilities of Federal Agencies to Protect Migratory Birds*, obligates all Federal agencies that engage in or authorize activities that might affect migratory birds, to minimize those effects and encourage conservation measures that will improve bird populations. Executive Order 13186 provides for the protection of both migratory birds and migratory bird habitat. For information regarding the implementation of Executive Order 13186, please visit https://www.fws.gov/partner/council-conservation-migratory-birds.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Code in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List

OFFICIAL SPECIES LIST

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Yreka Fish And Wildlife Office
1829 South Oregon Street
Yreka, CA 96097-3446
(530) 842-5763

PROJECT SUMMARY

Project Code: 2026-0099179
Project Name: 374-13 Fort Jones Wastewater Treatment Facilities
Project Type: Wastewater Facility - Maintenance / Modification
Project Description: The Town is considering two options: Option 1 would involve completing improvements to the existing WWTF; Option 2 would involve constructing a new WWTF southeast of the existing facilities.
Project Location:

The approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@41.604443,-122.8534157258081,14z



Counties: Siskiyou County, California

ENDANGERED SPECIES ACT SPECIES

There is a total of 12 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species. Note that 1 of these species should be considered only under certain conditions.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

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1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

MAMMALS

NAME	STATUS
North American Wolverine *Gulo gulo luscus*	Threatened

No critical habitat has been designated for this species.
This species only needs to be considered under the following conditions:

- Species may be present based on transient occurrence as it moves through or too suitable habitat. Effects should be considered to species and projects should consult with the Service, however, depending on the project, consultation may not be necessary.

Species profile: https://ecos.fws.gov/ecp/species/5123
General project design guidelines:
https://ipac.ecosphere.fws.gov/project/P3XT2IDVMRC5BBYT6Y2XCFEPXA/documents/generated/11139.pdf

BIRDS

NAME	STATUS
California Condor *Gymnogyps californianus*	Experimental Population, Non-Essential

Population: Pacific Northwest NEP
No critical habitat has been designated for this species.
Species profile: https://ecos.fws.gov/ecp/species/8193
General project design guidelines:
https://ipac.ecosphere.fws.gov/project/P3XT2IDVMRC5BBYT6Y2XCFEPXA/documents/generated/11139.pdf

Northern Spotted Owl *Strix occidentalis caurina*	Threatened

There is **final** critical habitat for this species. Your location does not overlap the critical habitat.
Species profile: https://ecos.fws.gov/ecp/species/1123
General project design guidelines:
https://ipac.ecosphere.fws.gov/project/P3XT2IDVMRC5BBYT6Y2XCFEPXA/documents/generated/11139.pdf

Yellow-billed Cuckoo *Coccyzus americanus*	Threatened

Population: Western U.S. DPS
There is **final** critical habitat for this species. Your location does not overlap the critical habitat.
Species profile: https://ecos.fws.gov/ecp/species/3911
General project design guidelines:
https://ipac.ecosphere.fws.gov/project/P3XT2IDVMRC5BBYT6Y2XCFEPXA/documents/generated/11139.pdf

REPTILES

NAME	STATUS
Northwestern Pond Turtle *Actinemys marmorata*	Proposed Threatened

No critical habitat has been designated for this species.
Species profile: https://ecos.fws.gov/ecp/species/1111
General project design guidelines:
https://ipac.ecosphere.fws.gov/project/P3XT2IDVMRC5BBYT6Y2XCFEPXA/documents/generated/11139.pdf

INSECTS

NAME	STATUS
Franklin's Bumble Bee *Bombus franklini* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/7022 General project design guidelines: https://ipac.ecosphere.fws.gov/project/P3XT2IDVMRC5BBYT6Y2XCFEPXA/documents/generated/11139.pdf	Endangered
Monarch Butterfly *Danaus plexippus* There is **proposed** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/9743 General project design guidelines: https://ipac.ecosphere.fws.gov/project/P3XT2IDVMRC5BBYT6Y2XCFEPXA/documents/generated/11139.pdf	Proposed Threatened
Suckley's Cuckoo Bumble Bee *Bombus suckleyi* Population: No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/10885	Proposed Endangered

CRUSTACEANS

NAME	STATUS
Conservancy Fairy Shrimp *Branchinecta conservatio* There is **final** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/8246 General project design guidelines: https://ipac.ecosphere.fws.gov/project/P3XT2IDVMRC5BBYT6Y2XCFEPXA/documents/generated/11139.pdf	Endangered
Vernal Pool Fairy Shrimp *Branchinecta lynchi* There is **final** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/498 General project design guidelines: https://ipac.ecosphere.fws.gov/project/P3XT2IDVMRC5BBYT6Y2XCFEPXA/documents/generated/11139.pdf	Threatened
Vernal Pool Tadpole Shrimp *Lepidurus packardi* There is **final** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/2246 General project design guidelines: https://ipac.ecosphere.fws.gov/project/P3XT2IDVMRC5BBYT6Y2XCFEPXA/documents/generated/11139.pdf	Endangered

FLOWERING PLANTS

NAME	STATUS
Yreka Phlox *Phlox hirsuta*	Endangered

NAME STATUS

No critical habitat has been designated for this species.
Species profile: https://ecos.fws.gov/ecp/species/8243
General project design guidelines:
https://ipac.ecosphere.fws.gov/project/P3XT2IDVMRC5BBYT6Y2XCFEPXA/documents/generated/11139.pdf

CRITICAL HABITATS

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

YOU ARE STILL REQUIRED TO DETERMINE IF YOUR PROJECT(S) MAY HAVE EFFECTS ON ALL ABOVE LISTED SPECIES.

IPAC USER CONTACT INFORMATION

Agency: Fort Jones city
Name: Kathleen Pate
Address: 3179 Bechelli Lane Suite 100
City: Redding
State: CA
Zip: 96002
Email kpate@enplan.com
Phone: 5302210440

LEAD AGENCY CONTACT INFORMATION

Lead Agency: Fort Jones city

TABLE 1
Rarefind (CNDDB) Report Summary
Fort Jones Wastewater Treatment Facilities Improvement Project
Five-Mile Radius of Project Area
June 2026

Listed Element	Quadrangle[1]		Status [2]
	GR	FJ	
ANIMALS			
Bank swallow		●	ST
Foothill yellow-legged frog	●		SSSC
Golden eagle		●	FP, WL
Lower Klamath marbled sculpin		●	SSSC
Secret Cave amphipod	●		None
Townsend's big eared bat	●		SSSC
PLANTS			
English Peak greenbrier	●		4.2
Henderson's fawn lily	●		2B.3
Shasta chaenactis	●	●	1B.3
Siskiyou clover	●		1B.1
Timber blue grass	●		1B.3

Highlighting denotes the quadrangle in which the project site is located
*Denotes species on the project site

[1]QUADRANGLE CODE

GR Greenview
FJ Fort Jones

[2]STATUS CODES

Federal

FE Federally Listed – Endangered
FT Federally Listed – Threatened
FC Federal Candidate
FP Federal Proposed
FD Federally Delisted
FSC Federal Species of Concern
FBCC Federal Bird of Conservation Concern

State

SFP State Fully Protected
SR State Rare
SE State Listed – Endangered
ST State Listed – Threatened
SC State Candidate
SD State Delisted
SSSC State Species of Special Concern
WL Watch List

Rare Plant Rank

1A Plants Presumed Extinct in California
1B Plants Rare, Threatened or Endangered in California and Elsewhere
2 Plants Rare, Threatened, or Endangered in California, but More Common Elsewhere
3 Plants About Which We Need More Information *(A Review List)*
(generally not considered special-status, unless unusual circumstances warrant)
4 Plants of Limited Distribution *(A Watch List)*
(generally not considered special-status, unless unusual circumstances warrant)

Rare Plant Threat Ranks

0.1 Seriously Threatened in California
0.2 Fairly Threatened in California
0.3 Not Very Threatened in California

TABLE 2
California Native Plant Society
Inventory of Rare and Endangered Plants
U.S. Geological Survey's Fort Jones 7.5-minute Quadrangle

Common Name	Scientific Name	CA Rare Plant Rank	Blooming Period	State Listing Status	Federal Listing Status
California pitcherplant	*Darlingtonia californica*	4.2	Apr-Aug	None	None
Greene's buckwheat	*Eriogonum strictum* var. *greenei*	4.3	Jul-Sep	None	None
Scott Valley phacelia	*Phacelia greenei*	1B.2	Apr-Jun	None	None
Shasta chaenactis	*Chaenactis suffrutescens*	1B.3	May-Sep	None	None

Rare Plant Rank	
1A	Plants Presumed Extinct in California
1B	Plants Rare, Threatened or Endangered in California and Elsewhere
2	Plants Rare, Threatened, or Endangered in California, but More Common Elsewhere
3	Plants About Which We Need More Information – A Review List (generally not considered special-status, unless unusual circumstances warrant)
4	Plants of Limited Distribution – A Watch List (generally not considered special-status, unless unusual circumstances warrant)
Rare Plant Threat Rank	
0.1	Seriously Threatened in California
0.2	Fairly Threatened in California
0.3	Not Very Threatened in California

Source: *California Native Plant Society, Rare Plant Program. 2026. Inventory of Rare and Endangered Plants of California (online edition v9.5.1). http://www.rareplants.cnps.org. Accessed June 2026.*

Status Codes			
Federal		***State***	
FE	Federally Listed – Endangered	SFP	State Full Protected
FT	Federally Listed – Threatened	SR	State Rare
FC	Federal Candidate	SE	State Listed – Endangered
FP	Federal Proposed	ST	State Listed – Threatened
FD	Federal Delisted	SC	State Candidate
FSC	Federal Species of Concern	SD	State Delisted
		SSSC	State Species of Special Concern
		WL	Watch List

TABLE 3
Potential for Special-Status Species to Occur on the Project Site
Fort Jones Wastewater Treatment Facilities Improvement Project

June 2026

COMMON NAME	SCIENTIFIC NAME	STATUS [1]	GENERAL HABITAT DESCRIPTION	HABITAT PRESENT (Y/N)	CRITICAL HABITAT PRESENT (Y/N)	SPECIES PRESENT (Y/N/POT.)	RATIONALE/COMMENTS
PLANTS							
Henderson's fawn lily	*Erythronium hendersonii*	2B.3	Henderson's fawn lily occurs in openings within lower montane coniferous forests in Siskiyou and Del Norte counties. The species is found between approximately 1,000 and 5,300 feet above sea level. The flowering period is April through July.	No	No	No	No suitable habitat for Henderson's fawn lily is present in the project area. The species is not expected to be present.
Scott Valley phacelia	*Phacelia greenei*	1B.2	Scott Valley phacelia generally occurs on bare, gravelly serpentine ridges and slopes in montane coniferous forests. The species is reported between 2,600 and 8,000 feet in elevation. The flowering period is April through June.	No	No	No	No suitable habitat for Scott Valley phacelia is present in the project area. The species is not expected to be present.
Shasta chaenactis	*Chaenactis suffrutescens*	1B.3	Shasta chaenactis is a perennial herb that occurs in upper and lower montane coniferous forests, typically in sandy or serpentine soils. Shasta chaenactis occurs on rocky open slopes, cobbly river terraces, and along roadcuts. The species is reported between 2,400 and 9,200 feet in elevation. The flowering period is May through September.	Yes	No	No	Suitable habitat for Shasta chaenactis is present in and adjacent to Moffett Creek. However, the species was not observed during the field surveys and is therefore not expected to be present.
Siskiyou clover	*Trifolium siskiyouense*	1B.1	Siskiyou clover is a perennial herb that generally occurs in montane meadows, seeps, or along streambanks between 2,800 and 4,900 feet in elevation. The species has been reported in southern Oregon and northern California, but has not been documented in Oregon since 1926 or in California since 1935. Flowering occurs in June and July.	No	No	No	No suitable habitat for Siskiyou clover is present in the project area. The species is not expected to be present.

TABLE 3
Potential for Special-Status Species to Occur on the Project Site
Fort Jones Wastewater Treatment Facilities Improvement Project
June 2026

COMMON NAME	SCIENTIFIC NAME	STATUS [1]	GENERAL HABITAT DESCRIPTION	HABITAT PRESENT (Y/N)	CRITICAL HABITAT PRESENT (Y/N)	SPECIES PRESENT (Y/N/POT.)	RATIONALE/COMMENTS
Timber blue grass	*Poa rhizomata*	1B.3	Timber blue grass is a perennial rhizomatous grass that is found in northwestern California and southwestern Oregon. It occurs on shady moist slopes, in rich loose soils, on ultramafic substrates (but not serpentine) within lower montane, upper montane, and subalpine coniferous forests at elevations from 1705 to 6695 feet. The species flowers between April and July.	No	No	No	No suitable habitat for timber blue grass is present in the project area. The species is not expected to be present.
Yreka phlox	*Phlox hirsuta*	1B.2, FE, SE	Yreka phlox, a low-growing perennial plant, is known from only five locations in Siskiyou County. Suitable habitat consists of dry, rocky, serpentine ridges and upper slopes with southerly to westerly aspects in juniper and Jeffrey pine communities. The species is reported between 2,400 and 4,400 feet in elevation. The flowering period is April through June.	No	No	No	Although Yreka phlox is broadly mapped in project area, the habitat present at the project site is not suitable for this species. Yreka phlox is not expected to be present.
CRUSTACEANS							
Conservancy fairy shrimp	*Branchinecta conservatio*	FE	Conservancy fairy shrimp inhabit large, cool-water vernal pools with moderately turbid water.	No	No	No	No vernal pools or other potentially suitable habitats for Conservancy fairy shrimp are present on or adjacent to the project site. Conservancy fairy shrimp would thus not be present.
Vernal pool fairy shrimp	*Branchinecta lynchi*	FT	Vernal pool fairy shrimp inhabit small, clear-water sandstone-depression pools and grassed swale, earth slump or basalt-flow depression pools.	No	No	No	No vernal pools or other potentially suitable habitats for vernal pool fairy shrimp are present on or adjacent to the project site. Vernal pool fairy shrimp would thus not be present.

TABLE 3
Potential for Special-Status Species to Occur on the Project Site
Fort Jones Wastewater Treatment Facilities Improvement Project
June 2026

COMMON NAME	SCIENTIFIC NAME	STATUS [1]	GENERAL HABITAT DESCRIPTION	HABITAT PRESENT (Y/N)	CRITICAL HABITAT PRESENT (Y/N)	SPECIES PRESENT (Y/N/POT.)	RATIONALE/COMMENTS
Vernal pool tadpole shrimp	*Lepidurus packardi*	FE	Vernal pool tadpole shrimp occur in vernal pools in California's Central Valley and in the surrounding foothills.	No	No	No	No vernal pools or other potentially suitable habitats for vernal pool tadpole shrimp are present on or adjacent to the project site. Vernal pool tadpole shrimp would thus not be present.
BIRDS							
Bank swallow	*Riparia riparia*	ST	Bank swallows nest in colonies and require vertical banks and cliffs with fine-textured or sandy soils near streams, rivers, ponds, lakes, or the ocean for nesting. In California, the bank swallow nesting season is from February through August.	Yes	No	No	Moffett Creek in the project vicinity has some relatively short steep banks that could potentially provide suitable nesting habitat for bank swallows. However, no bank swallows or nest cavities were observed during the biological field survey. Bank swallows are not expected to nest in the project area.
California condor	*Gymnogyps californianus*	EPNE, SE, SFP	The California condor is a permanent resident of the semi-arid, rugged mountain ranges surrounding the southern San Joaquin Valley, including the Coast Range from Santa Clara County south to Los Angeles County, the Traverse Ranges, Tehachapi Mountains, and southern Sierra Nevada. Condors roost on cliffs, large trees, and snags. Nesting habitat includes caves, crevices, behind rock slabs, or on large ledges on high sandstone cliffs. An experimental population (Pacific Northwest NEP) has recently been established in Humboldt County and is currently designated the status Experimental Population, Non-Essential.	No	No	No	No suitable nesting habitat for California condor is present in or near the project site. Condors are not expected to nest in the project area.

TABLE 3
Potential for Special-Status Species to Occur on the Project Site
Fort Jones Wastewater Treatment Facilities Improvement Project
June 2026

COMMON NAME	SCIENTIFIC NAME	STATUS [1]	GENERAL HABITAT DESCRIPTION	HABITAT PRESENT (Y/N)	CRITICAL HABITAT PRESENT (Y/N)	SPECIES PRESENT (Y/N/POT.)	RATIONALE/COMMENTS
Golden eagle	*Aquila chrysaetos*	SFP, WL	Golden eagles may be found throughout all of California except the Central Valley, ranging from sea level to over 11,000 feet in elevation. They inhabit oak woodlands, coniferous forests, and deserts and require open terrain for hunting. Nesting habitat consists of large trees in open areas or cliff-walled canyons. Breeding occurs between late January and August. Eggs are usually laid between early February and mid-May, with the nestling period concluding about four months later.	No	No	No	Potentially suitable nest trees and open foraging habitats are present near the project area. However, no eagles or nests were observed during the biological field survey. Golden eagles are not expected to nest in the project area.
Northern spotted owl	*Strix occidentalis caurina*	FT, ST	Northern spotted owls inhabit dense, old-growth, multi-layered mixed conifer, redwood, and Douglas-fir forests from sea level to approximately 7,600 feet in elevation. Northern spotted owls typically nest in tree cavities, the broken tops of trees, or in snags. The nesting season is March through June.	No	No	No	The project site does not support suitable nesting or foraging habitat for the northern spotted owl. Therefore, this species is not expected to be present in or adjacent to the project area.
Yellow-billed cuckoo	*Coccyzus americanus*	FT, SE	Western yellow-billed cuckoos inhabit and nest in extensive deciduous riparian thickets or forests with dense, low-level or understory foliage, and which about slow-moving watercourses, backwaters, or seeps. Willows are almost always a dominant component of the vegetation.	Yes	No	No	Although marginally suitable nesting habitat for the yellow-billed cuckoo is present along the Scott River near the mouth of Moffett Creek, nesting cuckoos were last documented in Siskiyou County in 1951 (near the City of Mt. Shasta). The species is not expected to nest in or adjacent to the project area.

TABLE 3
Potential for Special-Status Species to Occur on the Project Site
Fort Jones Wastewater Treatment Facilities Improvement Project
June 2026

COMMON NAME	SCIENTIFIC NAME	STATUS [1]	GENERAL HABITAT DESCRIPTION	HABITAT PRESENT (Y/N)	CRITICAL HABITAT PRESENT (Y/N)	SPECIES PRESENT (Y/N/POT.)	RATIONALE/COMMENTS
REPTILES							
Northwestern pond turtle	*Actinemys marmorata*	FPT, SSSC	The northwestern pond turtle associates with permanent or nearly permanent water in a variety of habitats. This turtle is typically found in quiet water environments. Pond turtles require basking sites such as partially submerged logs, rocks, or open mud banks, and suitable (sandy banks or grassy open fields) upland habitat for egg-laying. Nesting and courtship occur during spring. Nests are generally constructed within 500 feet of a waterbody, but some nests have been found up to 1,200 feet away. Pond turtles leave aquatic sites in the fall and overwinter in uplands nearby. Pond turtles return to aquatic sites in spring.	Yes	No	Pot.	Suitable habitat for northwestern pond turtle is present in the Scott River, approximately 200 feet from the project area. Though no nesting, overwintering, or estivating is expected to occur onsite, there is a low potential for northwestern pond turtles to disperse across the project area, especially access roads.
INSECTS							
Franklin's bumble bee	*Bombus franklini*	FE, SC	Franklin's bumble bee has a very limited geographic distribution. In California, the species may be found in in Siskiyou and Trinity counties. This species inhabits open grassy coastal prairies and Coast Range meadows from 540 feet to above 7800 feet in elevation. Important food plants include *Lupinus, Agastache, Monardella*, and *Vicia*. The flight season is from mid-May to the end of September. The bee probably nests in abandoned rodent burrows. Very little is known about overwintering sites utilized by the species. Generally, bumble bees overwinter in soft, disturbed soil, or under leaf litter or other debris.	No	No	No	The majority of the project area is highly disturbed and is used for agriculture or is overcovered with gravel. The less disturbed portions of the site are in and adjacent to Moffett Creek, and do not support an abundance of floral resources that could be used by the bees. No observations of the species in the Scott Valley are recorded in CNDDB or iNaturalist. Franklin's bumble bee is not expected to occur in or adjacent to the project site.

TABLE 3
Potential for Special-Status Species to Occur on the Project Site
Fort Jones Wastewater Treatment Facilities Improvement Project

June 2026

COMMON NAME	SCIENTIFIC NAME	STATUS [1]	GENERAL HABITAT DESCRIPTION	HABITAT PRESENT (Y/N)	CRITICAL HABITAT PRESENT (Y/N)	SPECIES PRESENT (Y/N/POT.)	RATIONALE/COMMENTS
Monarch butterfly	*Danaus plexippus* pop. 1	FPT	Monarch butterflies are reliant on milkweed species for development and survival. Adults overwinter primarily on the California Coast and in Baja California. Migration begins in February and March and the butterfly reaches the northern limit of its breeding range in California, Oregon, Washington, Idaho, and Nevada in early to mid-June. Eggs are laid on milkweed plants. Once hatched, the larvae reach the adult stage in 20 to 35 days; these adults live 2 to 5 weeks. Several generations can be produced within one season, with the last generation returning to the overwintering sites in August and September, where they live between 6 and 9 months before migrating north.	Yes	No	No	Milkweeds, which provide essential summer breeding habitat for the monarch butterfly, were observed in five locations along Moffett Creek outside the study area. However, no milkweed stems were observed within the project area. Thus, the monarch butterfly is not expected to breed within the project site.
Suckley's cuckoo bumble bee	*Bombus suckleyi*	FPE, SC	In California, Suckley's cuckoo bumble bees are limited to the Klamath Mountains. The bee is a social parasite that has only been documented to reproduce successfully in colonies of western bumble bees. Females emerge in late May, forage primarily on species of composites, and search for a suitable host bumble bee nest. Upon finding a nest, the invading female kills the queen, "enslaves" the workers, and lays her eggs in the nest. All offspring are reproductive. Males patrol circuits in search of females. Once mated, females seek a place to overwinter. Very little is known about overwintering sites utilized by the species, although generally, bumble bee females overwinter in soft, disturbed soil or under leaf litter or other debris.	No	No	No	The majority of the project area is highly disturbed and is used for agriculture or is overcovered with gravel. The less disturbed portions of the site are in and adjacent to Moffett Creek, and do not support an abundance of floral resources that could be used by the bees. No observations of the species in the Scott Valley are recorded in CNDDB or iNaturalist (although a bee was reported about three miles east of Callahan in 2009). Suckley's bumble bee is not expected to occur in or adjacent to the project site.

TABLE 3
Potential for Special-Status Species to Occur on the Project Site
Fort Jones Wastewater Treatment Facilities Improvement Project

June 2026

COMMON NAME	SCIENTIFIC NAME	STATUS [1]	GENERAL HABITAT DESCRIPTION	HABITAT PRESENT (Y/N)	CRITICAL HABITAT PRESENT (Y/N)	SPECIES PRESENT (Y/N/POT.)	RATIONALE/COMMENTS
FISH							
Lower Klamath marbled sculpin	*Cottus klamathensis polyporus*	SSSC	Lower Klamath marbled sculpin occur in the Klamath River drainage from the mouth of the Trinity River upstream to Iron Gate Dam (removed in 2024). These bottom-dwelling fishes occupy a wide variety of habitats and are primarily a slow water species. They grow quickly and become sexually mature at two years. Spawning occurs from late February to March. Adhesive eggs are deposited in clusters under flat rocks, and the nests are guarded by males.	No	No	No	Lower Klamath marbled sculpin were last collected in the Scott River near Fort Jones in 1894. According to CDFW range mapping (BIOS 2025), the upper limit of the species range in the Scott River is at Thompkins Creek, which is about 20 river miles downstream of the project site. The species is not expected to occur in the project vicinity.
Southern Oregon/ Northern California Coho salmon ESU	*Oncorhynchus kisutch* pop. 2	FT, ST	In California, Coho salmon are found in many of the short, coastal drainages from the Oregon border south to Monterey Bay. In the larger coastal drainages, Coho salmon are found primarily in the lower sections. Spawning migrations begin after heavy, late autumn or winter rains encourage the returning adults to leave the ocean and move upstream. Spawning occurs in gravel/pebble substrate in cold, well-oxygenated water.	No	No	No	No suitable habitat for Southern Oregon/Northern California Coho salmon was observed in the project area. The species is not expected to be present.

TABLE 3
Potential for Special-Status Species to Occur on the Project Site
Fort Jones Wastewater Treatment Facilities Improvement Project

June 2026

COMMON NAME	SCIENTIFIC NAME	STATUS [1]	GENERAL HABITAT DESCRIPTION	HABITAT PRESENT (Y/N)	CRITICAL HABITAT PRESENT (Y/N)	SPECIES PRESENT (Y/N/POT.)	RATIONALE/COMMENTS
MAMMALS							
North American wolverine	*Gulo gulo luscus*	FT, SFP, ST	Wolverines are dependent on areas in high mountains, near the tree-line, where conditions are cold year-round and snow cover persists well into the month of May. Female wolverines use birthing dens that are excavated in snow. Persistent, stable snow greater than 1.5 meters deep appears to be a requirement for birthing dens. Birthing dens consist of tunnels that contain well-used runways and bed sites and may naturally incorporate shrubs, rocks, and downed logs as part of their structure. Birthing dens may occur on rocky sites, such as north-facing boulder talus or subalpine cirques. Wolverines are very sensitive to human activities and often abandon den sites in response to human disturbance.	No	No	No	No suitable habitat for North American wolverine was observed in the project area. The species is not expected to be present.
Townsend's big eared bat	*Corynorhinus townsendii*	SSSC	Townsend's big-eared bat is found throughout California except in subalpine and alpine habitats. This bat may be found at any season throughout its range in most habitats. It is most abundant in mesic habitats. Townsend's big-eared bat requires caves, mines, tunnels, buildings, or other human-made structures for roosting and reproduction. The primary cause for the decline is human disturbance. This bat is extremely sensitive to disturbance of roosting sites. A single visit by a human may cause the site to be abandoned immediately. All known nursery colonies in limestone caves have been abandoned.	No	No	No	No suitable roosting sites are present in the study area. Although Townsend's big-eared bat could potentially forage in the project area, the species would not roost in or adjacent to the project area.

[1] Status Codes

Federal:

FE	Federally Listed – Endangered
FT	Federally Listed – Threatened
FC	Federal Candidate Species
FP	Federal Proposed Species
FD	Federal Delisted
FBCC	Federal Bird of Conservation Concern

State:

SFP	State Fully Protected
SR	State Rare
SE	State Listed - Endangered
ST	State Listed - Threatened
SC	State Candidate Species
SCE	State Candidate Endangered
SSSC	State Species of Special Concern
WL	Watch List

Rare Plant Rank

1A	Plants Presumed Extinct in California
1B	Plants Rare, Threatened or Endangered in California and Elsewhere
2A	Presumed Extirpated in California, but More Common Elsewhere
2B	Rare or Endangered in California, but More Common Elsewhere

Rare Plant Threat Rank

0.1	Seriously Threatened in California
0.2	Fairly Threatened in California
0.3	Not Very Threatened in California

Appendix D

List of Vascular Plants

VASCULAR PLANT SPECIES OBSERVED

Fort Jones Wastewater Treatment Facility

August 5, 2025

Alliaceae	**Onion Family**
Allium sativum	Garlic
Amaranthaceae	**Amaranth Family**
Amaranthus biltoides	Mat amaranth
Amaranthus powellii	Green amaranth
Apiaceae	**Carrot Family**
Conium maculatum	Poison hemlock
Apocynaceae	**Dogbane Family**
Asclepias speciosa	Showy milkweed
Araceae	**Arum Family**
Lemna sp.	Duckweed
Asteraceae	**Sunflower Family**
Artemisia douglasiana	Mugwort
Centaurea cyanus	Bachelor's button
Centaurea solstitialis	Yellow star thistle
Centaurea stoebe subsp. *micranthos*	Spotted knapweed
Cichorium intybus	Chicory
Erigeron canadensis	Horseweed
Euthamia occidentalis	Western goldenrod
Gnaphalium palustre	Western marsh cudweed
Heterotheca oregona	Oregon false goldenaster
Lactuca serriola	Prickly lettuce
Lessingia nemaclada	Thread stem lessingia
Madia sp.	Tarweed
Pseudognaphalium sp.	Cudweed
Tragopogon dubius	Yellow salsify
Xanthium strumarium	Cocklebur
Berberidaceae	**Barberry Family**
Berberis aquifolium	Oregon grape
Amsinckia sp.	Fiddleneck
Brassicaceae	**Mustard Family**
Alyssum simplex	Alyssum
Brassicaceae sp.	Mustard family
Capsella bursa-pastoris	Shepherd's purse
Hirschfeldia incana	Shortpod mustard
Isatis tinctoria	Dyer's-woad
Lepidium appelianum	Hairy whitetop
Lepidium latifolium	Broadleaved peppergrass
Sisymbrium altissimum	Tumble-mustard
Caprifoliaceae	**Honeysuckle Family**
Lonicera interrupta	Chaparral honeysuckle
Symphoricarpos albus var. *laevigatus*	Common snowberry
Caryophyllaceae	**Pink Family**
Herniaria hirsuta var. *hirsuta*	Gray herniaria
Saponaria officinalis	Bouncing bet

VASCULAR PLANT SPECIES OBSERVED

Fort Jones Wastewater Treatment Facility

Chenopodiaceae	**Goosefoot Family**
Chenopodium album	Lambs quarters
Chenopodium berlandieri	Berlandier's goosefoot
Chenopodium vulvaria	Stinking goosefoot
Dysphania botrys	Jerusalem oak
Salsola tragus	Russian thistle
Convolvulaceae	**Morning Glory Family**
Convolvulus arvensis	Bindweed
Cyperaceae	**Sedge Family**
Cyperus squarrosus	Bearded flatsedge
Dipsacaceae	**Teasel Family**
Dipsacus fullonum	Wild teasel
Euphorbiaceae	**Spurge Family**
Croton setigerus	Dove weed
Euphorbia virgata	Leafy spurge
Euphorbia serpyllifolia subsp. *serpyllifolia*	Thymeleaf sandmat
Fabaceae	**Legume Family**
Lupinus albifrons var. *collinus*	Silver bush lupine
Medicago lupulina	Black medick
Medicago sativa	Alfalfa
Melilotus albus	White sweetclover
Robinia pseudoacacia	Black locust
Grossulariaceae	**Gooseberry Family**
Ribes sp.	Gooseberry
Heliotropiaceae	**Heliotrope Family**
Heliotropium europaeum	European pulsey
Hydrangeaceae	**Mock Orange Family**
Philadelphus lewisii	Wild mock orange
Hydrophyllaceae	**Waterleaf Family**
Phacelia hastata var. hastata	Mountain phacelia
Hypericaceae	**St. John's-wort Family**
Hypericum perforatum	Klamath weed
Juncaceae	**Rush Family**
Juncus bufonius	Toad rush
Lamiaceae	**Mint Family**
Marrubium vulgare	Horehound
Mentha canadensis	Wild mint
Nepeta cataria	Catnip
Trichostema lanceolatum	Vinegar weed
Linaceae	**Flax Family**
Linum sp.	Flax
Loasaceae	**Loasa Family**
Mentzelia laevicaulis	Giant blazingstar

VASCULAR PLANT SPECIES OBSERVED

Fort Jones Wastewater Treatment Facility

Malvaceae	**Mallow Family**
Malva neglecta	Common mallow
Molluginaceae	**Carpet-weed Family**
Mollugo verticillata	Green carpetweed
Onagraceae	**Evening-Primrose Family**
Epilobium brachycarpum	Tall annual willowherb
Papaveraceae	**Poppy Family**
Eschscholzia californica	California poppy
Plantaginaceae	**Plantain Family**
Plantago lanceolata	English plantain
Veronica anagallis-aquatica	Water speedwell
Poaceae	**Grass Family**
Agrostis exarata	Spike bentgrass
Avena barbata	Slender wild oats
Bromus commutatus	Meadow brome
Bromus tectorum	Downy brome
Crypsis schoenoides	Swamp grass
Cynodon dactylon	Bermuda grass
Dactylis glomerata	Orchard grass
Echinochloa crus-galli	Barnyard grass
Elymus hispidus	Intermediate wheatgrass
Elymus repens	Quack grass
Eragrostis cilianensis	Stinkgrass
Eragrostis pectinacea var. *pectinacea*	Purple lovegrass
Festuca myuros	Foxtail fescue
Hordeum murinum subsp. *glaucum*	Glaucous wall barley
Panicum capillare	Witchgrass
Phalaris arundinacea	Reed canary grass
Poa bulbosa	Bulbous bluegrass
Poa pratensis	Kentucky bluegrass
Polypogon monspeliensis	Annual beardgrass
Secale cereale	Rye
Setaria viridis	Bristly foxtail
Polygonaceae	**Buckwheat Family**
Eriogonum nudum	Naked buckwheat
Eriogonum vimineum	Wicker buckwheat
Polygonum aviculare subsp. *depressum*	Common knotweed
Rumex transitorius	Willow dock
Portulacaceae	**Purslane Family**
Portulaca oleracea	Common purslane
Ranunculaceae	**Buttercup Family**
Clematis lasiantha	Pipestem
Rosaceae	**Rose Family**
Crataegus gaylussacia	Klamath hawthorn
Malus sp.	Apple
Prunus virginiana var. *demissa*	Western choke-cherry
Rubus armeniacus	Himalayan blackberry
Sanguisorba officinalis	Great burnet

VASCULAR PLANT SPECIES OBSERVED

Fort Jones Wastewater Treatment Facility

Rubiaceae	**Madder Family**
Galium aparine	Cleavers
Salicaceae	**Willow Family**
Populus balsamifera subsp. *trichocarpa*	Black cottonwood
Populus fremontii subsp. *fremontii*	Fremont cottonwood
Salix sp.	Willow
Salix exigua	Sandbar willow
Salix lasiolepis	Arroyo willow
Salix melanopsis	Dusky willow
Sapindaceae	**Soapberry Family**
Acer negundo	Box elder
Scrophulariaceae	**Snapdragon Family**
Verbascum thapsus	Woolly mullein
Solanaceae	**Nightshade Family**
Lycium barbarum	Matrimony vine
Nicotiana acuminata var. *multiflora*	Many-flowered tobacco
Typhaceae	**Cattail Family**
Typha sp.	Cattail
Ulmaceae	**Elm Family**
Ulmus parvifolia	Chinese elm
Urticaceae	**Nettle Family**
Urtica dioica	Stinging nettle
Zygophyllaceae	**Caltrop Family**
Tribulus terrestris	Puncture vine

Attachment E

Cultural Resources Inventory Report

NOTE TO REVIEWER

The *Cultural Resources Inventory – Historic Properties Identification Report for the Town of Fort Jones Wastewater Facility Improvements* is not available for public distribution. This report identifies the locations of cultural resource sites. Disclosure of this information to the public may be in violation of both federal and State laws. Applicable United States laws include, but may not be limited to, Section 304 of the National Historic Preservation Act (16 U.S.C. 470w-3). In California, such laws include, but may not be limited to, Government Code Section 6254.10. Site location information should be kept confidential and is not for public disclosure.

Additionally, records maintained or in the possession of the Native American Heritage Commission or State and local agencies that are exempt from public disclosure include those that contain information on Native American graves, cemeteries, and sacred places, and include records obtained during consultation with Native Americans (California Government Code Section 6254(r) and Section 6254.10).

Information contained in the above referenced reports related on the specific location of prehistoric and historic sites is confidential and exempt from the Freedom of Information Act (FOIA) and the California Public Records Act (CPRA); therefore, site specific cultural resource investigations are not appended to this Initial Study. Professionally qualified individuals, as determined by the California Office of Historic Preservation, may contact the Town of Fort Jones directly in order to inquire about its availability.

Attachment F

Regulatory Floodway Impact Analysis Report

Regulatory Floodway Impact Analysis Report

Proposed Fort Jones Wastewater Treatment Facility in Support of FEMA MT-2 Conditional Letter of Map Revision (CLOMR) Application



Prepared for:

Town of Fort Jones
Siskiyou County, California
FEMA, Region 9

July 2026

525006

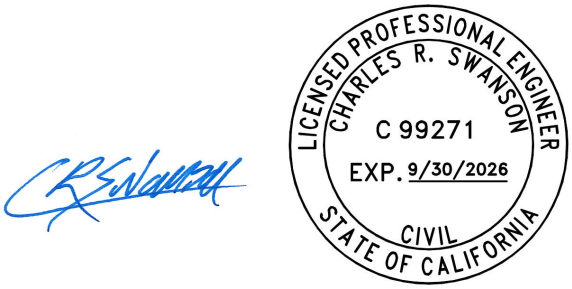
Phone: (530) 221-5424 **Email:** info@shn-engr.com
Web: shn-engr.com • 350 Hartnell Ave., Ste. B, Redding, CA 96002

Regulatory Floodway Impact Analysis Report

Proposed Fort Jones Wastewater Treatment Facility in Support of FEMA MT-2 Conditional Letter of Map Revision (CLOMR) Application

Prepared for:

Town of Fort Jones
Siskiyou County, California
FEMA, Region 9



Chuck Swanson, PE
signed 7/6/26

Prepared by:

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July 2026

QA/QC: DMW

Reference: 525006

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Abbreviations and Acronyms

Term	Definition
BFE	Base Flood Elevation
CFR	Code of Federal Regulations
CLOMR	Conditional Letter of Map Revision
ESA	Endangers Species Act
FEMA	Federal Emergency Management Agency
FIRM	Flood Insurance Rate Map
FIS	Flood Insurance Study
NOAA	National Oceanic and Atmospheric Administration
Risk MAP	Risk Mapping, Assessment, and Planning
RSP	rock slope protection
SFHA	Special Flood Hazard Area
STARR II	Strategic Alliance for Risk Reduction
USFWS	U.S. Fish and Wildlife Service
WWTF	Waste Water Treatment Facility

1.0 Introduction and Purpose

This report documents the hydraulic analyses performed to evaluate proposed encroachments within the Federal Emergency Management Agency (FEMA)-mapped regulatory floodway and associated Special Flood Hazard Area (SFHA) for the Proposed Fort Jones Wastewater Treatment Facility (WWTF) located in Fort Jones, Siskiyou County, California. The analyses presented herein are submitted in support of a Conditional Letter of Map Revision (CLOMR) request prepared in accordance with FEMA Form MT-2.

The purpose of this report is to document the hydraulic impacts of the proposed project on the effective regulatory floodway and floodplain, including potential changes to Base Flood Elevations (BFEs), floodway surcharge, and floodway conveyance, using methods consistent with FEMA guidance and the effective Flood Insurance Study (FIS). Although the proposed project is located within the mapped regulatory floodway, the evaluation necessarily considers hydraulic conditions across the broader floodplain system within the defined limits of the study area, as floodway boundaries and regulatory criteria are established based on floodplain-wide hydraulics.

The existing conditions hydraulic baseline for this analysis is based on the HEC-RAS model and Hydraulics Report developed by STARR II, a FEMA technical contractor, as part of FEMA Risk Mapping, Assessment, and Planning (Risk MAP) activities for Scott Valley, Siskiyou County, California. That model and supporting documentation were prepared to support the current effective Flood Insurance Study and are used herein to represent effective existing hydraulic conditions. The STARR II model was adopted as the starting condition for this CLOMR evaluation. The hydrologic inputs used in this analysis are consistent with the effective FEMA Flood Insurance Study, and no revisions to the effective hydrologic analysis, peak discharges, or recurrence-interval flows are proposed as part of this CLOMR request. Accordingly, the evaluation focuses exclusively on hydraulic effects associated with proposed geometric and roughness changes within the regulatory floodway.

This report serves as the **Project Narrative** required for the MT-2 CLOMR application and provides the **technical documentation** necessary for FEMA's review of proposed floodway encroachments prior to project construction.

2.0 Project Description

The Proposed Fort Jones Wastewater Treatment Facility (WWTF) project includes improvements and new facilities necessary to relocate the existing wastewater treatment infrastructure serving the Town of Fort Jones in Siskiyou County, California. Both the existing WWTF site and the proposed WWTF project site are located within the FEMA-mapped regulatory floodway and associated Special Flood Hazard Area (SFHA) of the Scott River and Moffett Creek, as shown on Figures 1 and 2. The proposed development involves permanent physical improvements that result in localized modifications to existing ground conditions within the regulatory floodway.

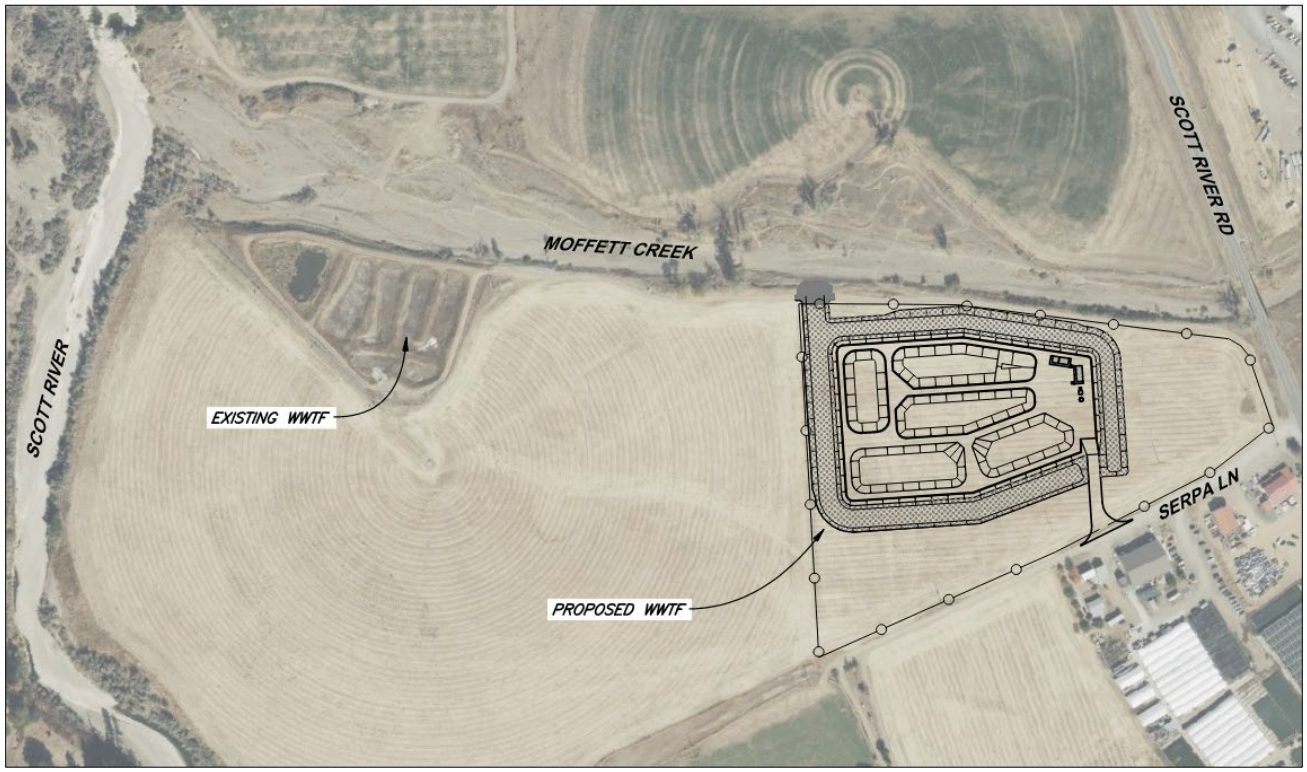


Figure 1. Existing and Proposed Fort Jones WWTF.

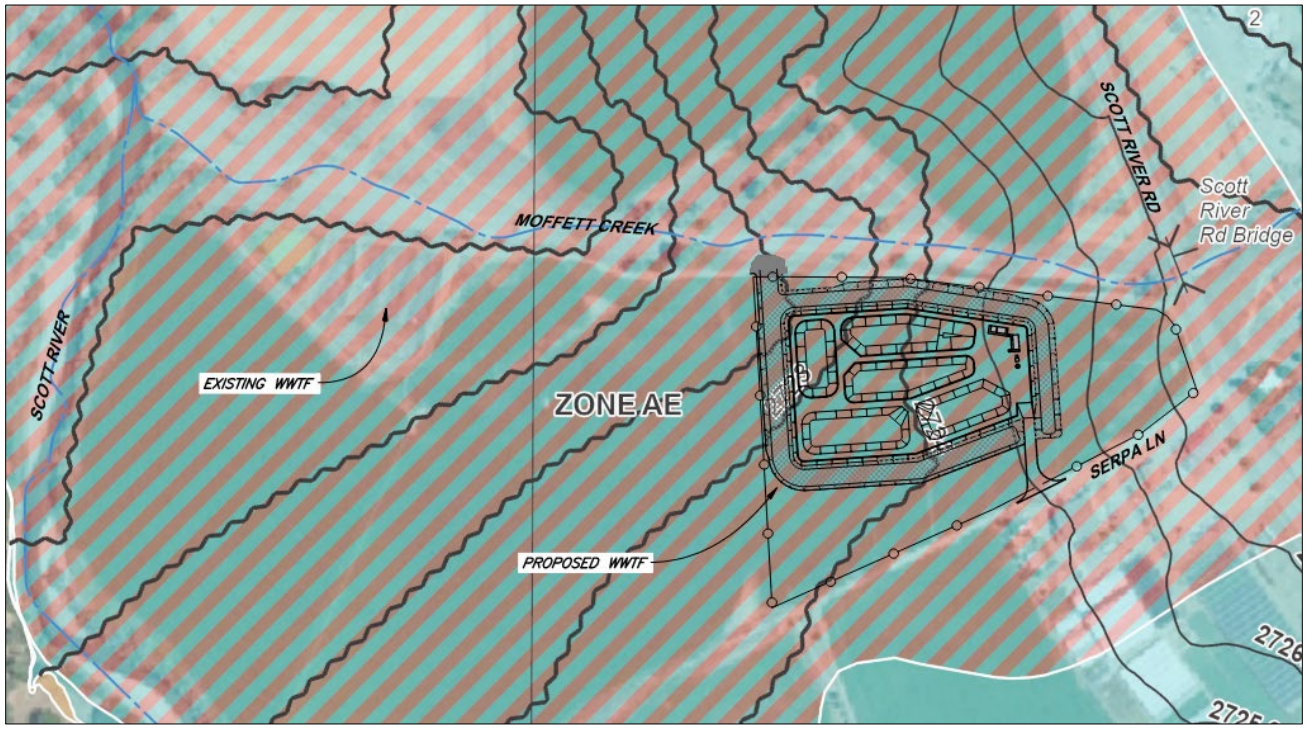


Figure 2. Existing and Proposed Fort Jones WWTF with FEMA FIRM imagery overlay.

The proposed improvements include placement of engineered fill to construct embankments for the new WWTF site, with finished grades set at a minimum of 1 foot above the effective BFEs. To offset the encroachment of the WWTF embankments into the regulatory floodway and to promote floodwater conveyance, a new grass-lined swale will be excavated around the perimeter of the WWTF site to

function as a hydraulic conveyance feature. The swale is designed to route flood flows around the embankments and discharge into Moffett Creek above the channel's ordinary high-water mark. Treatment-related structures and appurtenant facilities will be constructed entirely within the footprint of the raised WWTF embankment, such that these features are supported on grades set above the effective BFEs. Beyond the raised embankment footprint, the project includes ancillary site elements that are considered negligible with respect to hydraulic impacts. These elements include a site access driveway maintained at existing grade elevations; installation of underground utilities and manhole structures; and placement of an open-face, three-wire fence along the property boundary. The proposed development also includes decommissioning of the existing WWTF, consisting of filling the existing treatment ponds to match the embankment elevations. The existing site will be graded to a level site generally sloping to the south away from the banks of Moffett Creek. The proposed site layout is shown on the site plan included in Appendix 1.

The purpose of the proposed WWTF improvements is to replace the existing failing wastewater treatment system with a facility capable of meeting current and future service demands for the Town of Fort Jones while maintaining compliance with applicable federal, state, and local floodplain management regulations. Hydraulic impacts associated with the project are evaluated through comparison of effective existing conditions and proposed conditions using FEMA-consistent hydraulic modeling, as documented in subsequent sections of this report.

3.0 Regulatory Context

3.1 Floodplain Administration and Jurisdiction

Regulatory floodway administration for the Proposed Fort Jones Wastewater Treatment Facility (WWTF) project falls under the jurisdiction of both the Town of Fort Jones and Siskiyou County, each of which participates in the National Flood Insurance Program (NFIP) and administers floodplain management regulations within its respective authority. Coordination with, and compliance with the floodplain administrators for both jurisdictions, will be required as part of project permitting and implementation.

Floodplain development and map revision requirements applicable to this project are governed by NFIP regulations codified in Title 44, Chapter I, Subchapter B of the Code of Federal Regulations (CFR), including Parts 59, 60, 65, and 72. These regulations establish the general provisions of the NFIP, criteria for floodplain management and land use, procedures for identifying and mapping Special Flood Hazard Areas (SFHAs) and regulatory floodways, and the requirements and fees associated with processing flood hazard map revisions.

3.2 Regulatory Floodway Standards

The proposed WWTF project is located within an adopted regulatory floodway, and floodway development standards are, therefore, governed by 44 CFR §60.3(d). Under §60.3(d)(3), participating communities are required to prohibit encroachments within the regulatory floodway unless it can be demonstrated, through hydrologic and hydraulic analyses performed in accordance with standard engineering practice, that the proposed encroachment would not result in any increase in flood levels during the occurrence of the base flood discharge.

However, §60.3(d)(4) establishes an alternative compliance pathway that allows communities to permit encroachments within the regulatory floodway that would result in increases in BFEs, provided the

community first applies for and receives FEMA approval of a conditional Flood Insurance Rate Map (FIRM) and floodway revision in accordance with 44 CFR §65.12.

Because the proposed WWTF project includes permanent encroachments within the regulatory floodway that are not addressed through a no-rise certification, compliance with NFIP floodway requirements is pursued through the Conditional Letter of Map Revision (CLOMR) process.

3.3 CLOMR Regulatory Authority and Procedures

The procedures and data requirements applicable to this CLOMR request are established under 44 CFR Part 65, which governs revisions to effective flood hazard information. Specifically, this request is prepared in accordance with:

- §65.6, which addresses revisions of base flood elevation determinations resulting from physical changes affecting hydraulic or topographic conditions,
- §65.7, which establishes data and certification requirements for regulatory floodway revisions, and
- §65.12, which governs revisions to FIRMs to reflect base flood elevations caused by proposed encroachments.

FEMA's review and processing of the CLOMR request are conducted in accordance with 44 CFR Part 72, which establishes FEMA's authority and procedures for evaluating and issuing determinations related to proposed flood hazard map revisions and associated review fees.

3.4 Treatment of Ancillary Project Elements

Ancillary project elements described in the Project Description that are considered negligible with respect to hydraulic impacts are addressed in accordance with FEMA guidance for minor projects exempt from floodway impact, as described in *Guidance for Flood Risk Analysis and Mapping: Floodway Analysis and Mapping*, Section 11.1.1. These elements are not expected to obstruct flood flows or reduce floodway conveyance and are, therefore, evaluated to be consistent with applicable FEMA guidance rather than as floodway encroachments requiring detailed hydraulic analysis.

3.5 Applicable NFIP Regulatory Provisions

The following NFIP regulatory provisions provide the primary regulatory basis for this CLOMR application, as applied to the specific conditions of the proposed project.

44 CFR §65.6—Revisions of Base Flood Elevation Determinations

This project is subject to the data requirements of §65.6(c)(2) for changes affecting hydraulic conditions and §65.6(c)(3) for changes involving topographic conditions. Hydrologic conditions remain unchanged from the effective Flood Insurance Study.

44 CFR §65.7—Floodway Revisions

Applicable requirements under §65.7(b) include the submission of technical and administrative documentation supporting the proposed floodway revision. Compliance with these requirements is addressed as follows:

- Public notice of the community's intent to revise the floodway will be provided under separate cover, consistent with §65.7(b)(1).
- Engineering analyses supporting the revised floodway are provided in Section 8.0 of this report, consistent with §65.7(b)(4).
- Input and output data from the effective and proposed hydraulic models are included in the project submittal materials, consistent with §65.7(b)(5).
- Delineation of the revised floodway on the same topographic base used for flood boundary mapping is provided in Appendix 2, consistent with §65.7(b)(6).

44 CFR §65.12—Revisions to FIRMs Based on Proposed Encroachments

This CLOMR request is submitted in accordance with §65.12(a). Applicable requirements are addressed as follows:

- This report and its supporting documentation collectively constitute the CLOMR application, and all applicable review fees are submitted concurrently, consistent with §65.12(a)(1).
- An evaluation of alternatives that would not result in a base flood elevation increase beyond that permitted under §60.3(d)(3), and justification for their infeasibility, is provided in Section 4.0 of this report, consistent with §65.12(a)(2).
- Documentation of individual legal notice to affected property owners within and outside the community will be provided under separate cover, consistent with §65.12(a)(3).
- Certification that no structures are located in areas impacted by increased base flood elevations is provided in Section 9.1, consistent with §65.12(a)(5).

4.0 Alternatives Analysis

SHN evaluated other alternatives to the proposed project, including moving the facility to a location out of the floodplain and raising the existing ponds above the projected flood elevation. No feasible location outside of the floodplain was found as the majority of available land in the Town of Fort Jones is in the floodplain. Moving the site to a location outside of the floodplain would also require construction of extensive utility piping and pump facilities since all existing infrastructure routes sanitary sewer flows to the existing WWTF. Such modification would entail a significant planning and design effort and was deemed infeasible and cost prohibitive.

SHN also evaluated raising the existing WWTF above the base flood elevation. Hydraulic modeling of a conceptual design at the existing facility, with similar dimensions and design parameters as the proposed project showed that upgrading the existing location is likely to cause increased flood elevations in the Scott River valley. The existing facility is located at the confluence of Moffett Creek and the Scott River, and the conceptual design showed flood impacts associated with the hydrographs from both Moffett Creek and the Scott River. The hydraulic modeling exercise also showed that providing conveyance to alleviate these impacts would require acquisition of high-value agricultural land and could interfere with existing irrigation infrastructure and agricultural operations.

The proposed site for the WWTF is located further away from the confluence of the Scott River and Moffett Creek. This location is less susceptible to the flooding hydraulics associated with the Scott River's hydrograph than the existing site. The proposed site is influenced chiefly by the Moffett Creek hydrograph, and the site is located in an area with ample space to provide conveyance to mitigate for flood elevation increases.

5.0 Existing Conditions Hydrology & Hydraulics

SHN used the Hydrologic Engineering Center—River Analysis System (HEC-RAS) version 6.0.0 for hydraulic modeling. This version is consistent with the model files that SHN obtained in August 2025 as well as the methods provided in the STARR II Hydraulics Report. The model files obtained were used as the basis of the hydraulic analysis and are copies of the model files used in the most recent FIRM map update. This model is referred to as the effective model in this report.

This unsteady flow model contains a hybrid 1D-2D domain with the Scott River and Moffett Creek modeled as 1D elements, while the overbanks of Moffett Creek and the eastern overbank of the Scott River are incorporated into a 2D domain. The western overbank of the Scott River is characterized by steep slopes, and this topography is contained within the cross-section geometry in the 1D model. The 1D and 2D domains are connected with lateral structures. The elevation data for the model elements are taken from a digital elevation model terrain file that has a 3-foot by 3-foot resolution. Several terrain modifications were incorporated into terrain file used to describe the 2D domain of the model. The effective model used a 5-second computation interval and a 5-minute interval for all outputs.

The effective model shows that flood flows from both Moffett Creek and the Scott River influence the hydraulics of the existing site and, to a lesser the degree, the proposed site as well. In the effective model, peak water surface elevations from the Moffett Creek flood flow cause significant flooding at the project site. The peak flow from the Scott River arrives later in the simulation, as the Moffett Creek flow begins to subside. The Scott River flood flows reinforce the flood conditions on the project site before beginning to subside at the end of the simulation.

The effective model shows inundation throughout the project site, and the entirety of the project site has been designated as floodway in the recently accepted FIRM maps. The floodway in the current FIRM was evaluated with terrain modification polygons that artificially raised the terrain elevation to perform an encroachment analysis within the floodway study limits. These modifications were incorporated into the 2D domain of the model.

The current floodplain mapping is included in annotated FIRM shown in Appendix 3 of this report.

6.0 Proposed Conditions & Design Rationale

The proposed conditions include modifications to the existing wastewater treatment facility as well as construction of a new wastewater treatment facility.

The proposed site includes the construction of 5 treatment ponds, headworks building, blower building, associated yard piping and access lanes. Existing conditions in these areas include a gravel laydown area as well as agricultural fields. The current WWTF site will receive spoils from excavation associated with

the new site and will be graded to a level site generally sloping to the south away from the banks of Moffett Creek. Grades near Moffett Creek will be preserved to minimize changes to flood hydraulics. The proposed development is shown in more detail in the 90-percent construction plans shown in Appendix 1.

To mitigate for the fill placement associated with the WWTF, conveyance swales were designed to convey floodwaters around the perimeter of the site. The conveyance swales join near the northwest corner of the WWTF and ultimately drain into Moffett Creek. To provide positive drainage, the conveyance swale ties into the bank of Moffett Creek at an elevation that is approximately 1 foot higher than the delineated ordinary high-water mark. The confluence with Moffett Creek is reinforced with rock slope protection (RSP). The conveyance swale intersects the existing access road to the current wastewater treatment plant. To accommodate this access, the travel lane crosses the conveyance swale and is reinforced with stone that allows for truck access. Where the conveyance swale follows the east and south perimeter of the WWTF, an assortment of trees and shrubs is planned to assist with odor control and screening. In areas where this planting is proposed, the swale has been widened to maintain flood conveyance capacity.

7.0 Modeling Methodology and Assumptions

SHN performed a hydraulic analysis using the HEC-RAS model supporting the current effective FEMA FIS and FIRM provided by Atkins-Realis as the basis for the analysis. The same geometry file, profile, and terrains were used as inputs to the model and the same computation interval and output intervals used in the effective model were maintained. This model was run to produce the duplicate effective model.

The duplicate effective model contains a hydraulically isolated system in the vicinity of Callahan, California, several miles to the south of the model domain that is not hydraulically connected to the Scott River/Moffett Creek confluence. These areas were removed from the model to produce a corrected effective model. The corrected effective model also incorporated updated survey data in the project area. The 2D mesh geometry from the duplicate effective model was preserved, and elevation data was updated within the 2D mesh and corresponding lateral structures that connect the Moffett Creek overbank, a 2D domain, to the Moffett Creek channel, a 1D domain. All terrain modifications that were present in the duplicate effective model terrain were copied into the corrected effective model. No significant changes to hydraulic performance were noted between the duplicate effective model and the corrected effective model.

The corrected effective model was further modified to create an existing conditions model by incorporating an area of agricultural land that has been recently converted to gravel laydown yard. This was incorporated into a copy of the corrected effective model with a Manning's roughness override region, assigned an n value of 0.035.

The existing conditions model was further modified to reflect proposed conditions and create a proposed conditions model. SHN incorporated a design surface model of the wastewater treatment facilities to the terrain to account for the treatment design and Manning's roughness overrides to assign a Manning's roughness value to modifications to land surface within the project vicinity. The Manning's roughness coefficients used in the proposed conditions model are summarized in Table 1. A breakline at the top of the slope of the treatment facility was incorporated into the geometry as well. The 2D cells associated with this breakline are the only departures from the 2D mesh geometry originally presented

in the effective model. Terrain modifications from the duplicative effective model were incorporated into the revised model.

Table 1. Manning's Roughness Coefficient Values

Project Element	Surface Description	n Value
Gravel Laydown Area	¾-inch—Crushed aggregate surfacing	0.035
Access Road	¾-inch—Crushed aggregate surfacing	0.035
Rock ford	Class 1 and Class 3 RSP	0.045
Concrete Blanket	Slope protection on outboard slopes of wastewater treatment facility (WWTF)	0.018
Conveyance Swale Vegetation	Turfgrass vegetated swale	0.035
Odor Control Vegetation Planting	Various shrubs and tree species	0.100

There were no changes made to the hydrologic computations used in the hydraulic modeling of the proposed projects because the project does not have a significant effect on hydrology of either the Scott River or Moffett Creek. The flow data contained in the effective HEC-RAS model was used as the input into the hydraulic analysis for the project.

To evaluate potential changes to the mapped floodway extents, SHN utilized the same terrain modifications that were used in the current floodway modeling in an encroachment analysis.

8.0 Results and Floodplain Impacts

The model results show that the proposed development does not increase base flood elevations on structures within the floodplain. Water surface increases are confined to the immediate vicinity of the proposed WWTF and agricultural lands on the other side of Moffett Creek. Base flood elevations are slightly decreased at the structures on the south side of Serpa Lane.

Appendix 2 shows the effective inundation extents for the 1-percent annual chance and 0.2-percent annual chance floods as well as maximum water surface elevation contours for the 1-percent annual chance flood. These are shown for the current effective model as well as the revised model, depicting the SHN design of the WWTF. Table 2 shows the maximum water surface elevation in the corrected effective model as well as the proposed conditions model at cross sections within in the 1D portions of the model domain in the vicinity of the project. Significant changes to water surface elevations do not occur within the Scott River cross sections. In Moffett Creek, the water surface elevations between river stations 1579 and 2771 fall in the proposed conditions model as compared to the duplicative effective model. Since the existing site will be re-graded with spoils from the excavations associated with the construction of the new facility, cross sections adjacent to the existing site are included in Table 2 even though there is minimal change in maximum water surface elevation.

Table 2. 1-Percent Annual Chance Maximum Water Surface Elevations on Moffett Creek

Cross Section River Station	Existing Condition Elevation	Post-Project Condition Elevation	Post Project Difference (feet)
103	2718.15	2718.14	-0.01
341	2718.19	2718.18	-0.01
533	2718.19	2718.18	-0.01
976	2718.09	2718.08	-0.01
1329	2718.83	2718.83	0
1579	2721.29	2721.17	-0.12
1723	2721.56	2721.44	-0.12
1873	2722.01	2721.89	-0.12
2325	2724.10	2723.98	-0.12
2771	2726.36	2726.25	-0.11

The floodway analysis utilized the encroachment techniques that were incorporated into the current FIRM maps. When comparing the model simulations with and without the floodway encroachment in the 1-percent annual chance, all water surface elevation increases (surcharge) within the project area conform to FEMA guidance for floodway mapping. For this reason, SHN does not propose any revision to the floodway extents, with the exception of omitting the portions of the WWTF that are above the 1-percent annual chance maximum water surface elevation. Table 3 shows the surcharge associated with the encroachment analysis.

Table 3. Floodway Surcharge Elevations on Moffett Creek

Cross Section River Station	Existing Condition Elevation	Post-Project Condition Elevation	Post Project Difference (feet)
103	2718.29	2718.32	0.03
341	2718.32	2718.36	0.04
533	2718.32	2718.36	0.04
976	2718.24	2718.26	0.02
1329	2719.13	2719.06	-0.07
1579	2721.51	2721.42	-0.09
1723	2721.78	2721.69	-0.09
1873	2722.22	2722.11	-0.11
2325	2724.30	2724.19	-0.11
2771	2726.51	2726.38	-0.13

Appendix 3 shows the proposed flood mapping changes in the context of the current FIRM map, while Appendix 2 shows the proposed mapping changes in relation to key features of the proposed design.

9.0 Compliance with FEMA Criteria

9.1 No Impacted Structures Certification

Review of existing conditions and proposed conditions floodplain mapping indicates that no existing structures experience an increase in BFE, and no additional structures are incorporated into the Special Flood Hazard Area.

9.2 ESA Compliance

Pursuant to the federal Endangered Species Act (ESA) (PL 93-205), U.S. Fish and Wildlife Service (USFWS) and National Oceanic and Atmospheric Administration (NOAA) Fisheries have regulatory authority over federally listed species. Under ESA, a permit to "take" a listed species is required for any federal action that may harm an individual of that species. Take is defined under ESA Section 9 as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct." Under federal regulation, take is further defined to include habitat modification or degradation where it would be expected to result in death or injury to listed wildlife by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering. ESA Section 7 outlines procedures for federal interagency cooperation to conserve federally listed species and designated critical habitat. Section 7(a)(2) requires federal agencies to consult with USFWS and/or NOAA Fisheries to ensure that they are not undertaking, funding, permitting, or authorizing actions likely to jeopardize the continued existence of listed species. No federally listed plant or wildlife species have potential to occur in the project area; therefore, no impacts to federally protected species are expected to occur.

10.0 Conclusions

Based on the unsteady state 1D-2D HEC-RAS 6.0.0 modeling effort, there is no appreciable change to the floodway extents within the vicinity of the project and water surface elevations do not rise in locations that increase flood risk to structures.

References

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Woolpert. (July 2019). *CA AZ FEMA R9 2017 D18, Airborne Lidar Report.* Contract #G16PC00022, Task Order #140G0218F0027. NR:United States Geological Survey.

Appendix 1.
Topographic Work Map

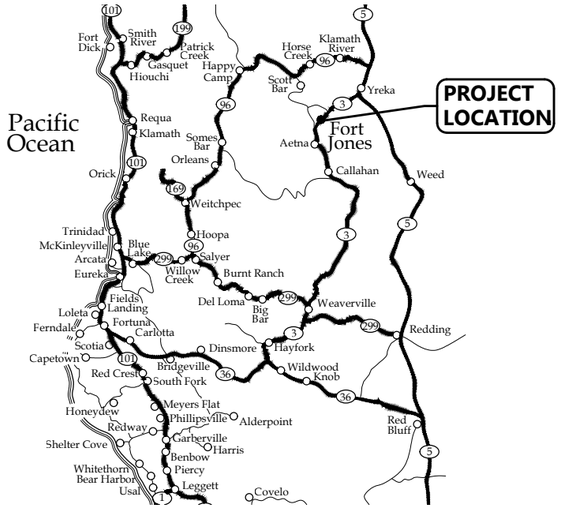
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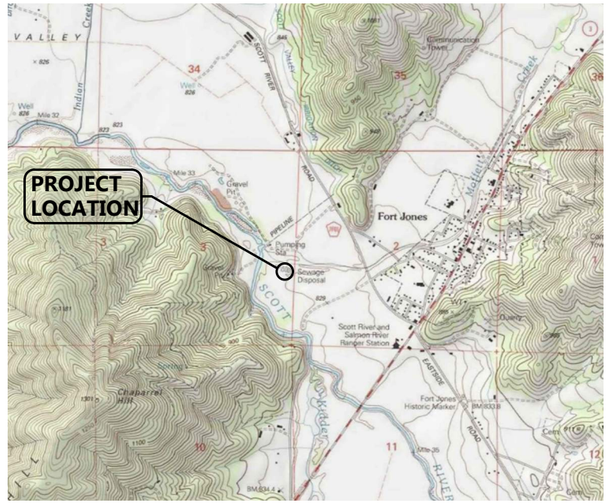
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JUNE 2026



VICINITY MAP
NTS



LOCATION MAP
NTS

CALIFORNIA Water Boards
STATE WATER RESOURCES CONTROL BOARD
REGIONAL WATER QUALITY CONTROL BOARDS

PROP 1
GOVERNOR GAVIN NEWSOM
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SHEET INDEX		SHEET INDEX	
SHEET	**TITLE**	**SHEET**	**TITLE**
G1.0	COVER	PID1.0	PROCESS AND INSTRUMENTATIONS LEGENDS
G2.0	SHEET LIST	PID2.0	INFLUENT LIFT STATION P&ID
G3.0	STANDARD ABBREVIATIONS AND LEGENDS	PID2.1	SCREENING P&ID
G4.0	GENERAL NOTES	PID2.2	TREATMENT PONDS P&ID
G5.0	DESIGN CRITERIA	PID2.3	AERATION P&ID
G6.0	PROCESS DIAGRAM	PID2.4	RECIRCULATION PUMP STATION P&ID
G7.0	HYDRAULIC PROFILE	PID2.5	SERPA LIFT STATION P&ID
G8.0	PROJECT OVERVIEW	PID2.6	ODOR CONTROL P&ID
G9.0	NEW WWTF SITE PLAN	S1.0	STRUCTURAL NOTES
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G10.1	HORIZONTAL CONTROL PLAN	S2.1	HEADWORKS BUILDING FLOOR PLAN
G10.2	HORIZONTAL CONTROL PLAN	S2.2	HEADWORKS BUILDING SECTIONS
C1.0	INTERIM BYPASS PIPING PLAN	S2.3	HEADWORKS UNDERGROUND PLAN
C2.0	DEMOLITION PLAN	S2.4	HEADWORKS UNDERGROUND SECTIONS
C3.0	UTILITY PLAN OVERVIEW	S2.5	HEADWORKS UNDERGROUND SECTIONS
C3.1	INFLUENT SEWER MAIN PLAN AND PROFILE	S2.6	HEADWORKS FOUNDATION PLAN
C3.2	INFLUENT SEWER MAIN PLAN AND PROFILE	S3.0	BLOWER BUILDING ELEVATIONS
C3.3	SERPA LIFT STATION FORCE MAIN PLAN AND PROFILE	S3.1	BLOWER BUILDING FLOOR PLAN AND SECTIONS
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C3.5	ENLARGED YARD PIPING PLAN	S4.0	OFFICE ELECTRICAL ELEVATIONS
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C3.8	YARD PIPING PLAN AND PROFILE	S4.3	OFFICE ELECTRICAL FOUNDATION PLAN
C3.9	YARD PIPING PLAN AND PROFILE	S5.0	STRUCTURAL DETAILS
C4.0	GRADING PLAN OVERVIEW	S5.1	STRUCTURAL DETAILS
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C4.4	ENLARGED GRADING PLAN	A1.1	OFFICE ELECTRICAL INTERIOR ELEVATIONS
C4.5	ENLARGED GRADING PLAN	A1.2	OFFICE ELECTRICAL PLUMBING PLAN
C4.6	ENLARGED GRADING PLAN	E1	SYMBOLS LEGEND, DRAWING LIST, HANDHOLE, J BOX, LIGHT SCHEDULE
C4.7	GRADING SECTIONS	E2	WWTP & EXIST LIFT STATION OVERALL SITE PLAN
C4.8	FLOOD CONVEYANCE FLOW LINE PROFILE	E3	WASTEWATER TREATMENT PLANT OVERALL SITE
C5.0	POND LINING PLAN	E4	WWTP ENLARGED EAST AREA ELECTRICAL PLAN
C6.0	PLANTING PLAN	E5	WWTP UTILITY GENERATOR AREA PLAN
C7.0	CIVIL DETAILS	E6	INFLUENT LIFT STATION AREA PLAN
C7.1	CIVIL DETAILS	E7	INFLUENT LIFT STATION WETWELL ELEVATIONS
C7.2	CIVIL DETAILS	E8	HEADWORKS BUILDING PLAN
C7.3	CIVIL DETAILS	E9	ODOR CONTROL EQUIPMENT PLAN AND MISCELLANEOUS ELEVATIONS
C7.4	CIVIL DETAILS	E10	OFFICE ELECTRICAL BUILDING PLAN
C7.5	CIVIL DETAILS	E11	BLOWER BUILDING PLAN
C7.6	CIVIL DETAILS	E12	BLOWER BUILDING DRAWING NOTES
C7.7	CIVIL DETAILS	E13	RECIRCULATION PUMP STATION PLAN
C7.8	CIVIL DETAILS	E14	RECIRCULATION PUMP STATION ELEVATION, SECTION, DETAILS
C7.9	CIVIL DETAILS	E15	MISCELLANEOUS ELEVATIONS, SECTIONS, DETAILS
C7.10	CIVIL DETAILS	E16	SERPA LIFT STATION DEMOLITION PLAN & SECTION
C7.11	CIVIL DETAILS	E17	SERPA LIFT STATION RENOVATION SITE PLAN
C7.12	CIVIL DETAILS	E18	SERPA LIFT STATION RENOVATION ELEVATIONS
C7.13	CIVIL DETAILS	E19	POWER PANELBOARD SCHEDULES
C7.14	CIVIL DETAILS	E20	POWER & SIGNAL ONE-LINE DIAGRAM - SHEET 1
M1.0	INFLUENT LIFT STATION PLAN	E21	POWER & SIGNAL ONE-LINE DIAGRAM - SHEET 2
M1.1	INFLUENT LIFT STATION SECTION	E22	POWER & SIGNAL ONE-LINE DIAGRAM NOTES
M2.0	HEADWORKS PLAN	E23	SCADA SYSTEM SYMBOLS LEGEND, SIGNAL BLOCK DIAGRAM
M2.1	HEADWORKS SECTIONS	E24	SCADA SYSTEM (PCP810) PANEL ELEVATIONS
M2.2	HEADWORKS SECTIONS AND DETAILS	E25	SCADA SYSTEM (PCP810) WIRING DIAGRAM - SHEET 1
M2.3	ODOR CONTROL PLAN AND SECTIONS	E26	SCADA SYSTEM (PCP810) WIRING DIAGRAM - SHEET 2
M3.0	RECIRCULATION PUMP STATION PLAN AND SECTION	E27	SCADA SYSTEM (PCP810) WIRING DIAGRAM - SHEET 3
M4.0	BLOWER BUILDING MECHANICAL PLAN AND SECTIONS	E28	SCADA SYSTEM (LCP820) PANEL ELEVATIONS
M5.0	SERPA LIFT STATION DEMOLITION PLAN	E29	SCADA SYSTEM (LCP820) WIRING DIAGRAM - SHEET 1
M5.1	SERPA LIFT STATION REHABILITATION PLAN & SECTION	E30	SCADA SYSTEM (LCP820) WIRING DIAGRAM - SHEET 2
M6.0	MECHANICAL DETAILS	E31	SCADA SYSTEM (LCP820) WIRING DIAGRAM - SHEET 3
M6.1	MECHANICAL DETAILS	E32	SCADA SYSTEM DRAWING NOTES

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ABBREVIATIONS

A	
AB	AGGREGATE BASE
AC	ACRES
AGGR	AGGREGATE
APPROX	APPROXIMATELY
B	
BMPs	BEST MANAGEMENT PRACTICES
C	
CL	CENTER LINE
CMU	CONCRETE MASONRY UNIT
COMM	COMMUNICATION
CONC	CONCRETE
CONT	CONTINOUS
CV	CHECK VALVE
D	
°	DEGREE
DEMO	DEMOLITION
DET	DETAIL
DF	DOUGLAS FIR
DI	DRAIN INLET OR DUCTILE IRON
DIA	DIAMETER
DIAG	DIAGONAL
DIP	DUCTILE IRON PIPE
E	
(E)	EXISITNG
E	EASTING
EA	EACH
EG	EXISTING GROUND
EL	ELBOW
ELEC	ELECTRIC
ELEV	ELEVATION
ESCP	EROSION AND SEDIMENT CONTROL PLAN
EW	EACH WAY
F	
'	FOOT OR FEET
(F)	FUTURE
FEMA	FEDERAL EMERGENCY MANAGEMENT AGENCY
FG	FINISHED GROUND
FLG	FLANGE
FL	FLOWLINE
G	
GPM	GALLONS PER MINUTE
GV	GATE VALVE
H	
H	HORIZONTAL
HDG	HOT DIP GALVANIZED
HDPE	HIGH DENSITY POLYETHYLENE
HP	HORSEPOWER
I	
"	INCH
ICFM	INLET CUBIC FEET PER MINUTE
ID	INTERNAL DIAMETER
INV	INVERT
L	
LRP	LEGALLY RESPONSIBLE PARTY
M	
MAX	MAXIMUM
MCJ	MASONRY CONTROL JOINT
MFR	MANUFACTURER
MG	MILLION GALLONS
MGD	MILLION GALLONS PER DAY
MH	MANHOLE
MIN	MINIMUM
MJ	MECHANICAL JOINT
N	
(N)	NEW
N	NORTHING
N/A	NOT APPLICABLE
NTS	NOT TO SCALE
O	
OC	ON CENTER
P	
PLCS	PLACES
PPD	POUNDS PER DAY
PSI	POUNDS PER SQUARE INCH
PT	PRESSURE TREATED
PVC	POLYVINYL CHLORIDE PLASTIC

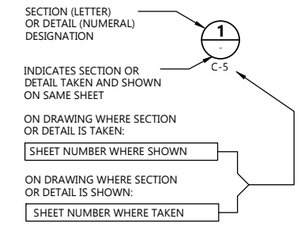
ABBREVIATIONS

R	
R	RADIUS
RC	RELATIVE COMPACTION
RDCR	REDUCER
RPZ	REDUCED PRESSURE ZONE
RSP	ROCK SLOPE PROTECTION
R/W	RIGHT OF WAY
S	
S	SLOPE
SF	SQUARE FOOT/FEET
SHT	SHEET
SQ	SQUARE
SS	SANITARY SEWER
SSFM	SANITARY SEWER FORCEMAIN
SSMH	SANITARY SEWER MANHOLE
SST	STAINLESS STEEL
STA	STATION
STL	STEEL
T	
TDH	TOTAL DYNAMIC HEAD
TOC	TOP OF CONCRETE
TYP	TYPICAL
U	
UNO	UNLESS NOTED OTHERWISE
V	
V	VERTICAL
VAR	VARIES
W	
W	WATER
WSE	WATER SURFACE ELEVATION
WWTF	WASTEWATER TREATMENT FACILITY

UTILITIES LEGEND

- GATE VALVE
- CLEANOUT
- AIR — AIR LINE
- COM — COMMUNICATIONS LINE
- E — ELECTRICAL LINE
- W — WATER LINE
- SS — SANITARY SEWER LINE
- SSFM — SANITARY SEWER FORCEMAIN LINE
- FM — SANITARY SEWER FORCEMAIN LINE
- 6" — PIPE SIZE AND FLOW DIRECTION
- FIRE HYDRANT
- S — SANITARY SEWER MANHOLE

DETAIL AND SECTION DESIGNATION



NOTES

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MAJOR EQUIPMENT LIST

DESCRIPTION	SPECIFICATION
INFLUENT LIFT STATION - TRIPLEX	33 32 13
INFLUENT FLOW METER	40 71 13
RECIRCULATION PUMP STATION - DUPLEX	33 32 13
ODOR CONTROL SYSTEM	44 31 19
EFFLUENT FLOW METERING WEIR	40 71 86
GENERATOR	26 32 12
INFLUENT AUGER SCREEN	46 21 00
INFLUENT COMPOSITE SAMPLER	46 10 00
POND BAFFLES	33 12 53
GEOMEMBRANE POND LINERS	31 35 26
CONCRETE POND LINERS	31 35 25
EXISTING PUMP STATION - DUPLEX	33 32 13
POND LEVEL CONTROL WEIRS	40 05 59
DAVIT CRANE	41 22 13.20
BLOWERS	43 11 00
AIR DIFFUSERS	46 51 00
BUILDING EXHAUST FANS	23 31 00
MISC EQUIPMENT (DESK, INDUSTRIAL SHELVING, RESTROOM FIXTURES, SCREENINGS BIN, ETC)	

PIPING SCHEDULE

SERVICE	INSTALLATION (NOTE 3)	SIZE(S) (IN.) (NOTE 1)	MATERIAL (NOTE 2)	THICKNESS (NOTE 4)	JOINT TYPE (NOTE 5)	COATING (NOTE 7)	LINING (NOTE 7)	TEST PRESSURE, TYPE, DURATION (NOTE 6)	SPECIFICATION SECTION	EXPOSED PIPING LABELING	REMARKS
RAW WASTEWATER - GRAVITY	EXP	-	-	-	-	-	-	-	-		
	BUR	ALL	PVC	SDR 35	BS	NONE	NONE	G	33 31 00		
RAW WASTEWATER - PRESSURE	EXP	<4"	PVC	SCH 80	SW	NONE	NONE	1.25x WP OR DH, H, 6 HRS	40 05 31		
		>3"	DIP	CL 53	FLG	FBE	CEMENT		40 05 19	"SEWER"	
	BUR	<4"	HDPE	DR11	FW	NONE	NONE		40 05 33		
		>3"	DIP	CL 53	MJ	BIT, PE	CEMENT		40 05 19		
SCREENED WASTEWATER	EXP	-	-	-	-	-	-	-	-		
	BUR	ALL	PVC	SDR 35	BS	NONE	NONE	G	33 31 00		
BLOWER	EXP<120' FROM BLOWER	ALL	CS A53	SCH 40	FLG	FBE	NONE	15 PSI. LPT, 6 HRS	40 05 24	"AIR"	
	BUR<120' FROM BLOWER	ALL	CS A53	SCH 40	W	FBE	NONE		40 05 24		
	BUR>120' FROM BLOWER	ALL	HDPE	DR17	FW	NONE	NONE		40 05 33		
TREATMENT POND - GRAVITY	EXP	-	-	-	-	-	-	-	-		
	BUR	ALL	PVC	SDR35	BS	NONE	NONE	G	33 31 00		
INFILTRATION POND - DISCHARGE	EXP	ALL	AL	0.051"	RL	NONE	NONE	NONE			
RECIRCULATION	EXP	<4"	PVC	SCH 80	SW	NONE	NONE	1.25x WP OR DH, H, 6 HRS	40 05 31	"SEWER"	
	BUR	ALL	HDPE	DR 17	FW	NONE	NONE		40 05 33		
POTABLE AND UTILITY WATER	BUR	2"	HDPE	DR 11	FW	NONE	NONE	1.25x WP OR DH, H, 6 HRS	40 05 33		
		<2"	CO	TYPE K	SL	NONE	NONE		40 05 17		
	EXP	ALL	SST 304L	SCH 40	TH	NONE	NONE		40 05 24	"NON-POTABLE"	
DRAIN AND VENT	BUR TO 5' FROM STRUCTURE	ALL	CISP	XH	BS	BIT	NONE	PC	22 10 00		
	BUR >5' FROM STRUCTURE	ALL	PVC	SDR 35	BS	NONE	NONE		33 31 00		
	EXP	ALL	CISP	XH	NH	EPOXY	NONE		22 10 00	"DRAIN"	
ODOR CONTROL	EXP	ALL	PVC	SCH 80	FLG	FIELD PAINT	NONE	15 PSI. LPT, 6 HRS	40 05 31	"HAZARDOUS GAS"	
	BUR	ALL	PVC	SCH 80	SW	NONE	NONE		40 05 31		
SAMPLE	EXP-CARRIER	ALL	PVC	SCH 80	SW	NONE	NONE	NONE	40 05 31	"SAMPLE"	
	EXP-SUCTION	ALL	PVC	-	B	NONE	NONE	-24" HG, H, 4 HRS	40 05 31		

NOTES:

1. ">" GREATER THAN
   "<" LESS THAN
   "<=" LESS THAN OR EQUAL TO
   ">=" GREATER THAN OR EQUAL TO
   "ALL" ALL SIZES

2. ABS: ACRYLONITRILE BUTADIENE STYRENE
   PE: POLYETHYLENE
   HDPE: HIGH DENSITY POLYETHYLENE
   LDPE: LOW DENSITY POLYETHYLENE
   AL: ALUMINUM
   CPVC: CHLORINATED POLYVINYL CHLORIDE
   CS: CARBON STEEL
   PVC: POLYVINYL CHLORIDE
   SST: STAINLESS STEEL
   CO: COPPER PIPE
   (T): TUBE
   CISP: CAST IRON SOIL PIPE
   DIP: DUCTILE IRON PIPE

3. INSTALLATIONS
   BUR: BURIED
   EMBC: EMBEDDED OR UNDERNEATH CONCRETE SLAB
   EXP: EXPOSED (INTERIOR OR EXTERIOR), MATERIAL REQUIREMENT EXTENDS TO 2' BELOW GRADE OR TO NEXT BELOW GRADE FITTING, WHICHEVER IS GREATER
   SUB: SUBMERGED (INCLUDES SUSPENDED ABOVE/INSIDE OF TANK)
   HDD: HORIZONTAL DIRECTIONAL DRILL
   ALL: ALL INSTALLATIONS

4. SDR: STANDARD DIMENSION RATIO
   DR: DIMENSION RATIO
   SCH: SCHEDULE
   CL: CLASS
   XH: EXTRA HEAVY
   GA: GAUGE

5. JOINTS AS SPECIFIED IN THE ABOVE SECTIONS REFERENCED, AND THE FOLLOWING:

   B: BARBED
   BS: BELL AND SPIGOT
   C: COMPRESSION
   FL: FLANGED
   FW: FUSION WELDED
   NH: NO-HUB
   QD: QUICK DISCONNECT
   RL: RING LOCK
   SL: SOLDERED
   SW: SOLVENT WELDED
   SP: SPEED FITTING
   TH: THREADED
   W: WELDED

6. TESTING
   H: HYDROSTATIC TEST
   WP: WORKING PRESSURE
   DH: PUMP DEAD HEAD
   G: GRAVITY PIPE - SEE 40 05 00.
   LPT: LOW PRESSURE AIR TEST
   PC: TEST PER UNIFORM PLUMBING CODE
   PSIG: PRESSURE
   MR: TEST PER MANUFACTURER RECOMMENDATIONS

7. COATINGS & LININGS
   BIT: BITUMINOUS/ASPHALTIC
   FBE: FUSION BONDED EPOXY
   PE: POLYETHYLENE ENCASEMENT
   GALV: GALVANIZED

REMARKS:
1.) ALL PIPING TO BE RESTRAINED JOINT PIPE AND FITTINGS, AS SHOWN ON PLAN SHEETS.
2.) SCHEDULE 40 PVC SHALL NOT BE THREADED. SUBSTITUTE WITH SCHEDULE 80 AS APPLICATION REQUIRES

GENERAL NOTES:

1. ALL WORK SHALL CONFORM TO CURRENT CALIFORNIA BUILDING CODE.
2. THE WORKING DRAWINGS ARE GENERALLY DIAGRAMMATIC, THEY DO NOT SHOW EVERY OFFSET, BEND OR ELBOW REQUIRED FOR INSTALLATION IN THE SPACE PROVIDED. THEY DO NOT SHOW EVERY DIMENSION, COMPONENT PIECE, SECTION, JOINT OR FITTING REQUIRED TO COMPLETE THE PROJECT. ALL LOCATIONS FOR WORK SHALL BE CHECKED AND COORDINATED WITH EXISTING CONDITIONS IN THE FIELD BEFORE BEGINNING CONSTRUCTION. EXISTING UNDERGROUND UTILITIES WITHIN THE LIMITS OF EXCAVATION SHALL BE VERIFIED AS TO CONDITION, SIZE AND LOCATION BY UNCOVERING, PROVIDED SUCH IS PERMITTED BY LOCAL PUBLIC AUTHORITIES WITH JURISDICTION, BEFORE BEGINNING CONSTRUCTION. CONTRACTOR SHALL NOTIFY ENGINEER OF ANY DISCREPANCIES.
3. THE CONTRACTOR SHALL SECURE ALL NECESSARY PERMITS PRIOR TO THE COMMENCEMENT OF CONSTRUCTION.
4. THE CONTRACTOR SHALL PROVIDE A COPY OF THE TRENCH PERMIT FROM THE CALIFORNIA DIVISION OF INDUSTRIAL SAFETY PRIOR TO THE EXCAVATION OF ANY TRENCH OVER FIVE FEET IN DEPTH.
5. CONTRACTOR SHALL PERFORM TRENCH WORK IN CONFORMANCE WITH THE CALIFORNIA DIVISION OF INDUSTRIAL SAFETY REQUIREMENTS AND SHALL CONFORM TO ALL APPLICABLE OCCUPATIONAL SAFETY AND HEALTH STANDARDS, RULES, REGULATIONS AND ORDERS ESTABLISHED BY THE STATE OF CALIFORNIA AND OTHER APPLICABLE AGENCIES.
6. CONTRACTOR AGREES THAT IN ACCORDANCE WITH GENERALLY ACCEPTED CONSTRUCTION PRACTICES, GENERAL CONTRACTOR WILL ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THE PROJECT, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY. ALL WORK AND EQUIPMENT SHALL COMPLY WITH THE CALIFORNIA DIVISION OF INDUSTRIAL SAFETY REQUIREMENTS. THIS REQUIREMENT SHALL BE MADE TO APPLY CONTINUOUSLY, AND NOT BE LIMITED TO NORMAL WORKING HOURS. CONTRACTOR FURTHER AGREES TO HOLD HARMLESS, INDEMNIFY AND DEFEND THE OWNER, THE ENGINEER AND HIS/HER CONSULTANTS.
7. THE CONTRACTOR SHALL INDEPENDENTLY REVIEW GROUND, TOPOGRAPHY AND TREE CONDITIONS THROUGHOUT THE SITE, AND ASSUME THE RISK OF COMPLETING THE WORK SET OUT ON THESE PLANS, REGARDLESS OF ROCK, WATER TABLE OR OTHER CONDITIONS WHICH MAY BE ENCOUNTERED IN THE COURSE OF THE WORK.
8. ANY DISCREPANCY DISCOVERED BY THE CONTRACTOR IN THESE PLANS, OR ANY FIELD CONDITIONS DISCOVERED BY THE CONTRACTOR THAT MAY DELAY OR OBSTRUCT THE PROPER COMPLETION OF THE WORK SHOWN HEREIN SHALL BE BROUGHT TO THE ATTENTION OF THE OWNER AND THE ENGINEER IMMEDIATELY UPON DISCOVERY. SAID NOTIFICATION SHALL BE IN WRITING.
9. ALL UNDERGROUND IMPROVEMENTS SHALL BE INSTALLED TESTED AND APPROVED PRIOR TO PAVING.
10. THE CONTRACTOR SHALL NOT BEGIN EXCAVATING UNTIL ALL EXISTING UTILITIES HAVE BEEN MARKED IN THE FIELD. THE CONTRACTOR SHALL NOTIFY EACH APPLICABLE ENTITY AT LEAST 48 HOURS PRIOR TO COMMENCING WORK. CALL UNDERGROUND SERVICE ALERT (USA) TWO WORKING DAYS BEFORE DIGGING AT (800) 227-2600 FOR LOCATES.
11. GRADING AND CONSTRUCTION CONTRACTORS SHALL STOP WORK AND NOTIFY THE OWNER AND THE ENGINEER IF CULTURAL RESOURCES ARE DISCOVERED DURING CONSTRUCTION.
13. THE CONTRACTOR SHALL GIVE THE INSPECTOR 48 HOURS ADVANCE NOTICE OF ANY CONSTRUCTION OR REQUIRED TESTING.
14. SHOULD THE CONTRACTOR OR ANY OF HIS AGENTS OR EMPLOYEES ENCOUNTER OR DISCOVER MATERIALS WHICH APPEAR TO BE HAZARDOUS DURING THE PERFORMANCE OF THE WORK, THE CONTRACTOR SHALL INFORM THE ENGINEER IMMEDIATELY AND SUSPEND WORK IN THE AFFECTED AREA UNTIL THE ENGINEER HAS INSPECTED THE LOCATION AND MATERIALS IN QUESTION. SHOULD IT BE NECESSARY TO UNDERTAKE REMEDIATION, THE ENGINEER WILL GIVE WRITTEN NOTICE TO SUSPEND WORK IN THE AFFECTED AREA UNTIL THE PROPER COURSE OF ACTION HAS BEEN DETERMINED. OPERATIONS IN THE AFFECTED AREA SHALL BE RESUMED ONLY UPON WRITTEN NOTICE BY THE ENGINEER.
15. NO CHANGES OR MODIFICATIONS SHALL BE MADE TO THESE PLANS WITHOUT WRITTEN APPROVAL BY THE ENGINEER.

PROJECT SPECIFICATIONS:

TESTING AND INSPECTION

1. ALL SITE GRADING, SUBGRADE, AND BACKFILLING WILL BE INSPECTED BY THE ENGINEER. CONTRACTOR TO PROVIDE 48 HOUR NOTICE IN ADVANCE OF REQUIRED INSPECTION. FAILURE TO GIVE ADEQUATE NOTICE MAY RESULT IN TESTING DELAYS WHICH WILL BE THE RESPONSIBILITY OF THE CONTRACTOR.
2. THE ENGINEER WILL MAKE ALL COMPACTION TESTS WHEN ADVISED BY THE CONTRACTOR THAT IN THE OPINION OF THE CONTRACTOR, SUFFICIENT DENSITIES HAVE BEEN ACHIEVED.
3. ALL COSTS ASSOCIATED WITH ACHIEVING COMPACTION STANDARDS SHALL BE INCLUDED IN THE BID PRICES PAID FOR THE BID ITEM INVOLVED AND THEREFORE NO ADDITIONAL COMPENSATION SHALL BE MADE.

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FORT JONES, CALIFORNIA

GENERAL NOTES

DESIGN	CHECK
PEG	CRS
DRAWN	
JWF/CDN	

DATE 06/2026
PROJ. NO. 525006
SHEET **G4.0**

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PRELIMINARY TREATMENT

FLOW RATE OPERATING PARAMETERS	
PARAMETER	DATA
MINIMUM MONTH FLOW	0.036 MGD
AVERAGE DRY WEATHER FLOW	0.046 MGD
AVERAGE DAILY FLOW	0.084 MGD
MAXIMUM MONTH DRY WEATHER FLOW	0.086 MGD
AVERAGE WET WEATHER FLOW	0.124 MGD
MAXIMUM MONTH WET WEATHER FLOW	0.318 MGD
PEAK DAY FLOW	0.627 MGD
PEAK INSTANTANEOUS FLOW	0.941 MGD
SAMPLING	
INFLUENT SAMPLING	AUTOMATIC SAMPLER, 24-HOUR COMPOSITE
GRAB SAMPLE LOCATION	IMMEDIATELY DOWNSTREAM OF SAMPLER IN CHANNEL
SAMPLE STORAGE	REFRIGERATED
SCREENING	
SCREEN TYPE	CYLINDRICAL AUGER SCREEN
PERFORATION DIAMETER	1/4"
SCREEN CLEANING	AUTOMATED AUGER BRUSH
INSTALLATION ANGLE	35°
REDUNDANCY	BYPASS CHANNEL WITH MANUAL BAR SCREEN
CONSTRUCTION MATERIALS	STAINLESS STEEL
EQUIPMENT WIDTH	14"
CHANNEL WIDTH AT SCREEN	14"
CHANNEL DEPTH	4'-0"
DISCHARGE HEIGHT ABOVE CHANNEL BASE	8'-7" APPROX
HEADLOSS AT PIF (30% BLINDING)	6.7"
COLD WEATHER PROTECTION	ENCLOSED BUILDING
DRAIN CONNECTION	2"
DISCHARGE TYPE	CONTINUOUS BAGGER
CLEAR HEIGHT UNDER BAGGER	50" MIN
WASHWATER TYPE	POTABLE/NON-POTABLE
WASHWATER PRESSURE	40 PSI
WASHWATER SUPPLY	8 GPM

LIFT STATIONS

INFLUENT LIFT STATION	
PARAMETER	DATA
WET WELL TYPE	CIRCULAR, PRECAST CONCRETE
WET WELL DIAMETER	8'-0"
WET WELL DEPTH	22'-0"
WET WELL OPERATING RANGE	4'-0"
LEVEL CONTROL TYPE	ULTRASONIC LEVEL SENSOR WITH REDUNDANT FLOATS
PUMP ARRAY	TRIPLEX (ALTERNATING LEAD/LAG, STANDBY)
PUMP TYPE	SUBMERSIBLE NON-CLOG
PUMP SIZE (PER PUMP)	5 HP
CAPACITY (PER PUMP)	0.60 MGD @ 24' TDH
AUXILIARY POWER	GENERATOR
AUXILIARY POWER FUEL TYPE	DIESEL
CONTROL TYPE	AUTOMATIC WITH RUNTIME BALANCING
RECIRCULATION PUMP STATION	
WET WELL TYPE	CIRCULAR, FIBERGLASS
WET WELL DIAMETER	5'-0"
WET WELL DEPTH	11'-6"
WET WELL OPERATING RANGE	N/A
LEVEL CONTROL TYPE	FLOATS
PUMP ARRAY	DUPLEX (1 DUTY, 1 STANDBY)
PUMP TYPE	SUBMERSIBLE NON-CLOG
PUMP SIZE	4 HP
CAPACITY (PER PUMP)	200 GPM @ 40' TDH
CONTROL TYPE	TIMER WITH MANUAL DUTY/STANDBY SWITCHING
SERPA LIFT STAION	
WET WELL TYPE (EXISTING)	CIRCULAR, PRECAST CONCRETE
WET WELL DIAMETER	4'-0"
WET WELL DEPTH	10'-0" (APPROX)
WET WELL OPERATING RANGE	2'-0"
LEVEL CONTROL TYPE	LEVEL FLOATS
PUMP ARRAY	DUPLEX (ALTERNATING)
PUMP TYPE	SUBMERSIBLE NON-CLOG
PUMP SIZE	3.8 HP
CAPACITY (PER PUMP)	180 GPM @ 46' TDH
CONTROL TYPE	AUTOMATIC ALTERNATION

BIOLOGICAL TREATMENT

LOADING		
PARAMETER	STARTUP CONDITIONS	FUTURE 30-YEAR GROWTH CONDITIONS
BIOCHEMICAL OXYGEN DEMAND (BOD)	158 PPD	213 PPD
TOTAL NITROGEN (TN)	25 PPD	34 PPD
AERATION		
AIR REQUIREMENT	144 ICFM	309 ICFM
BLOWER QUANTITY	1 DUTY 1 STANDBY	
BLOWER HORSEPOWER	7.5 HP	15 HP
BLOWER TYPE	POSITIVE DISPLACEMENT	
DIFFUSERS	6 DIFFUSERS	

POND SIZING

POND	TYPE	MAX WATER DEPTH (FT)	SURFACE AREA (AC)	VOLUME (MG)
POND 1	FACULTATIVE	14	0.15	0.36
POND 1	AERATED-PARTIAL MIX	8	0.55	1.05
POND 2	AERATED-PARTIAL MIX	8	0.44	0.82
POND 3	SETTLING/POLISHING	5	0.66	0.81
POND 4	INFILTRATION	4	0.55	0.53
POND 5	INFILTRATION	4	0.69	0.69

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DESIGN CRITERIA

DESIGN	CHECK
PEG	CRS
DRAWN	
JWF/CDN	

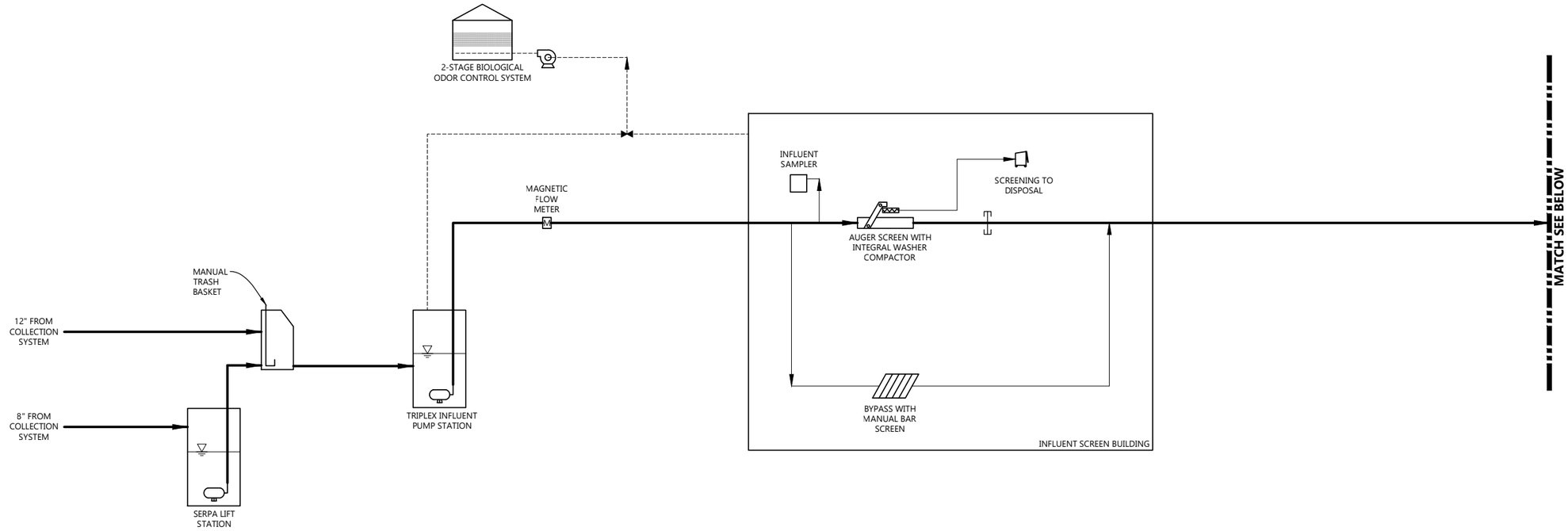
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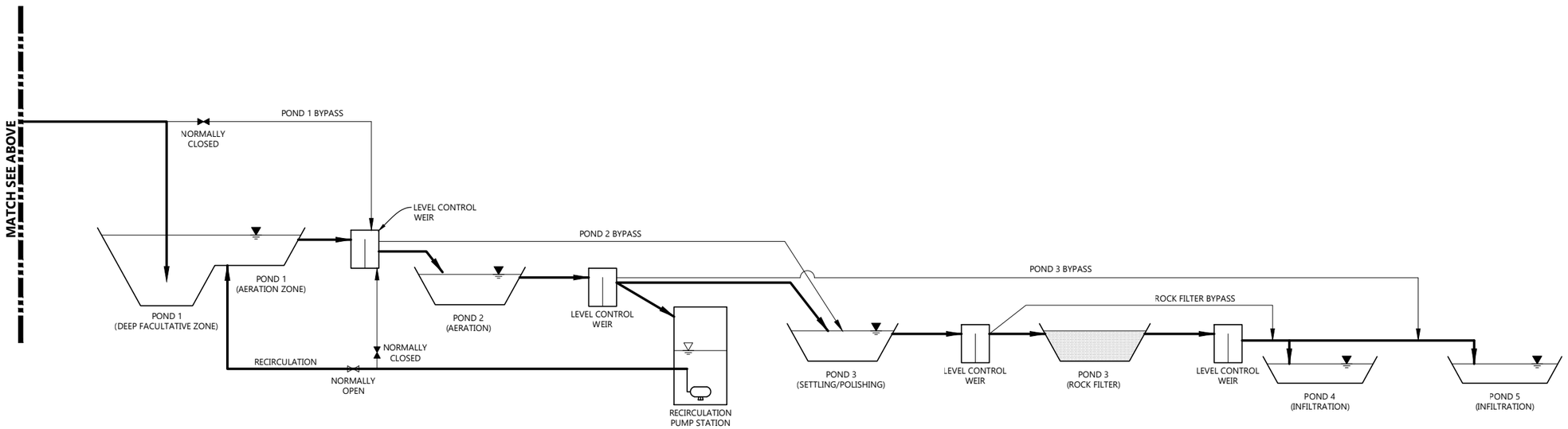
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SHEET **G5.0**

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PROCESS DIAGRAM

DESIGN	CHECK
PEG	CRS
DRAWN	
JWF/CDN	

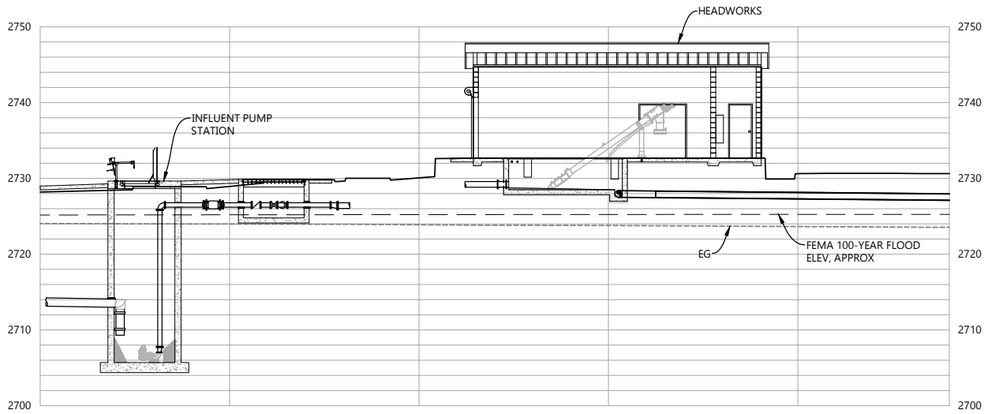
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SHEET **G6.0**

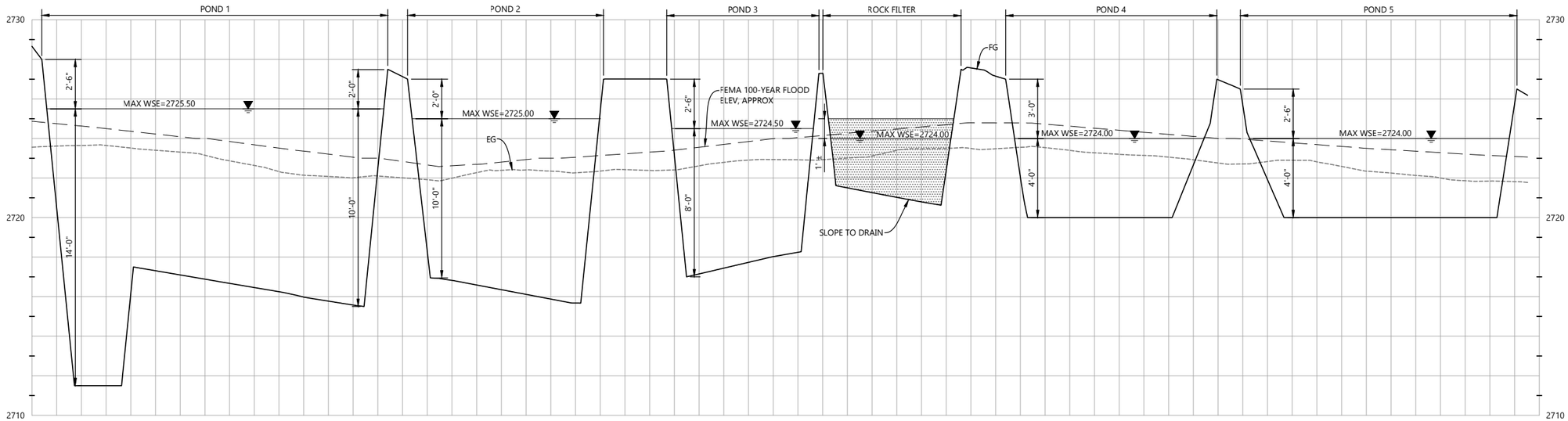
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HEADWORKS PROFILE

1"=10' H&V



PONDS PROFILE

1"=60' H
1"=3' V

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HYDRAULIC PROFILE

DESIGN	CHECK
PEG	CRS
DRAWN	
JWF/CDN	

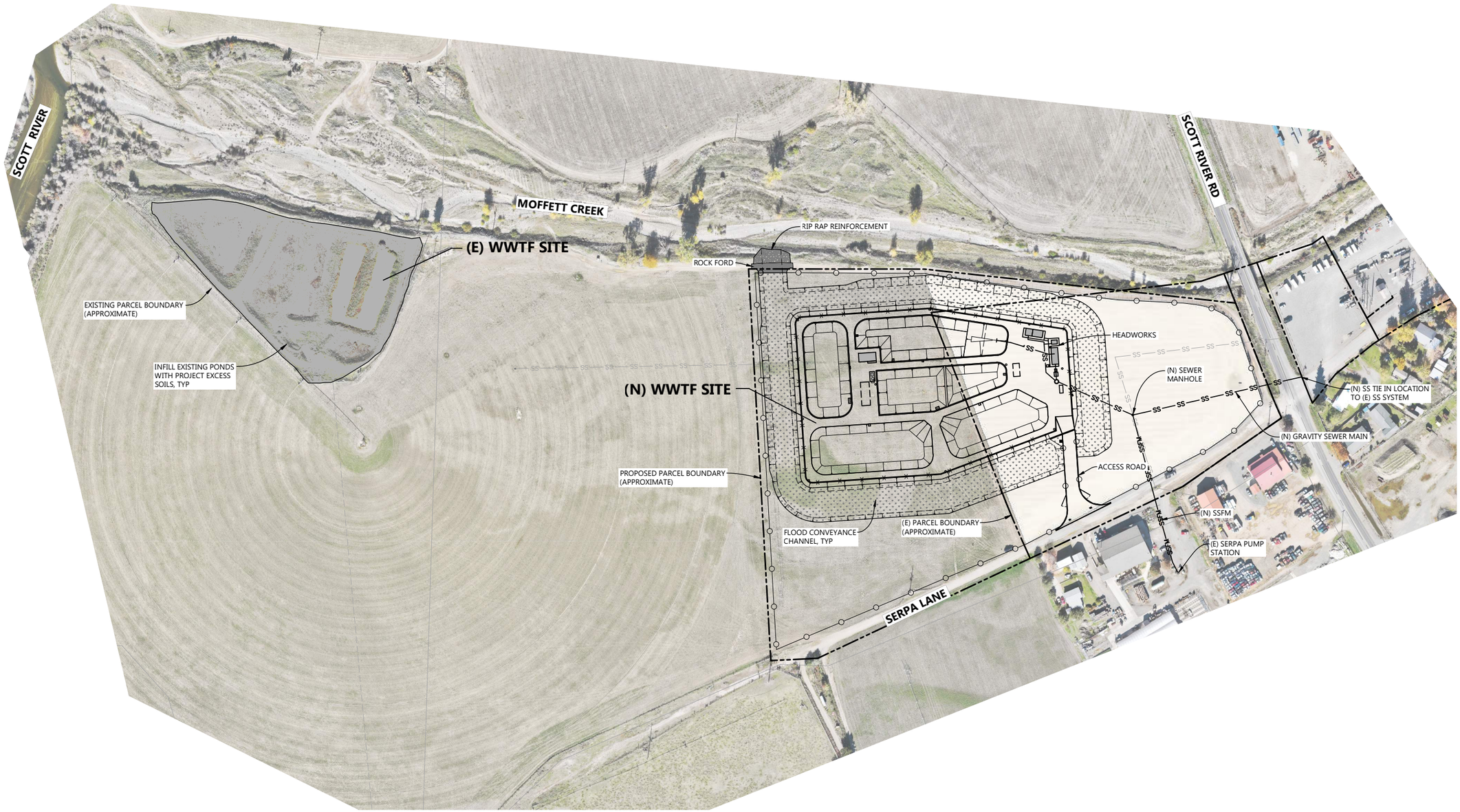
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PLAN
1"=120'

0 120

NOTE:

AERIAL IMAGERY DATE 11/14/2025. IMAGE PROVIDED IS FOR GENERAL CONTEXT ONLY, AND THE CONTRACTOR SHALL VERIFY EXISTING CONDITIONS AT TIME OF BIDDING.

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PROJECT OVERVIEW

DESIGN	CHECK
JM	CRS
DRAWN	
JWF/CDN	

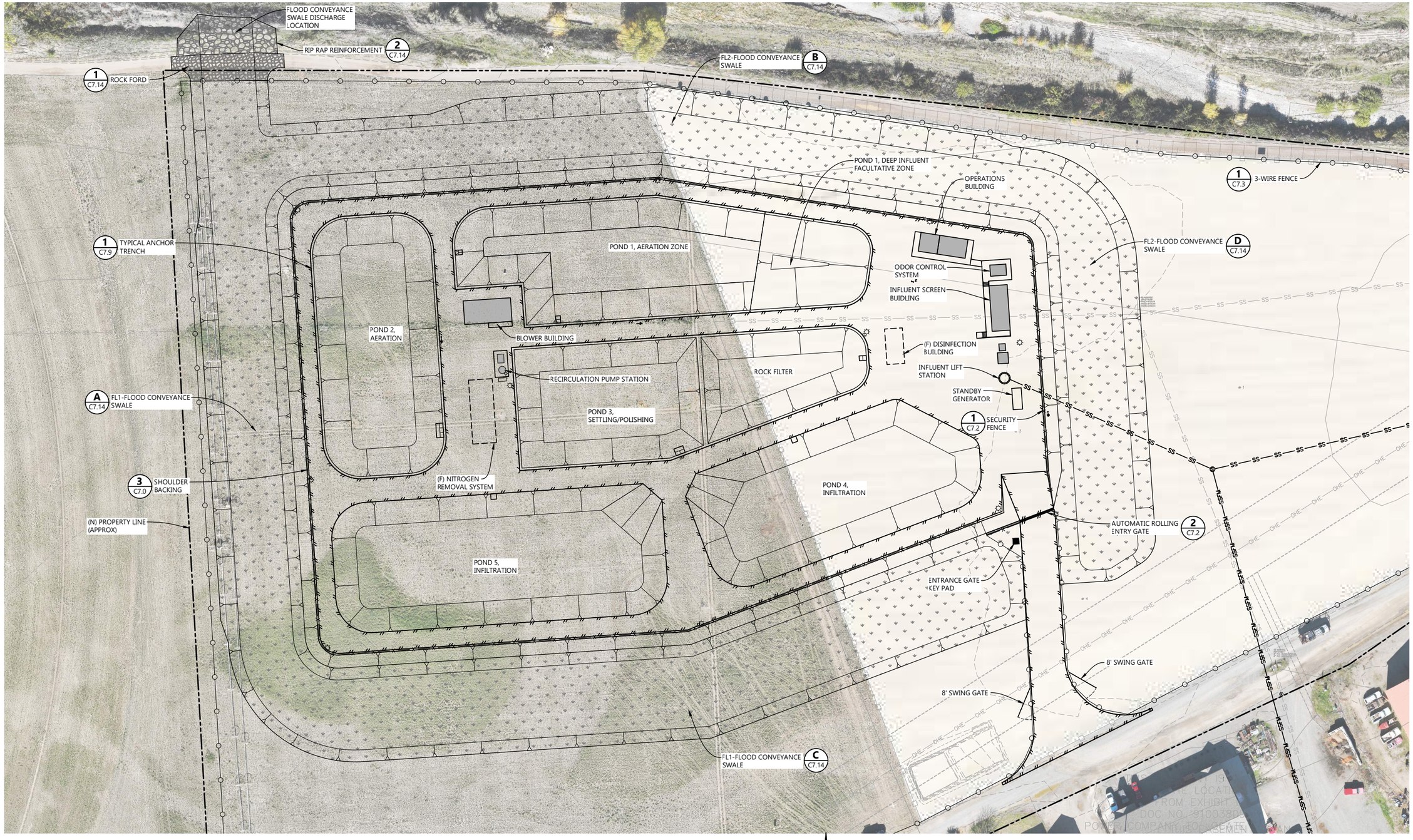
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PLAN
1"=40'

0 40

N

LEGEND

SYMBOL	DESCRIPTION	DETAIL	SHEET
	THREE-WIRE FENCE	1	C7.3
	PROPERTY LINE	-	-
	FLOOD CONVEYANCE SWALE	-	-
	ROCK FORD	1	C7.14
	AC PAVING	8	C7.0
— X — X — X —	SECURITY FENCE	1	C7.2

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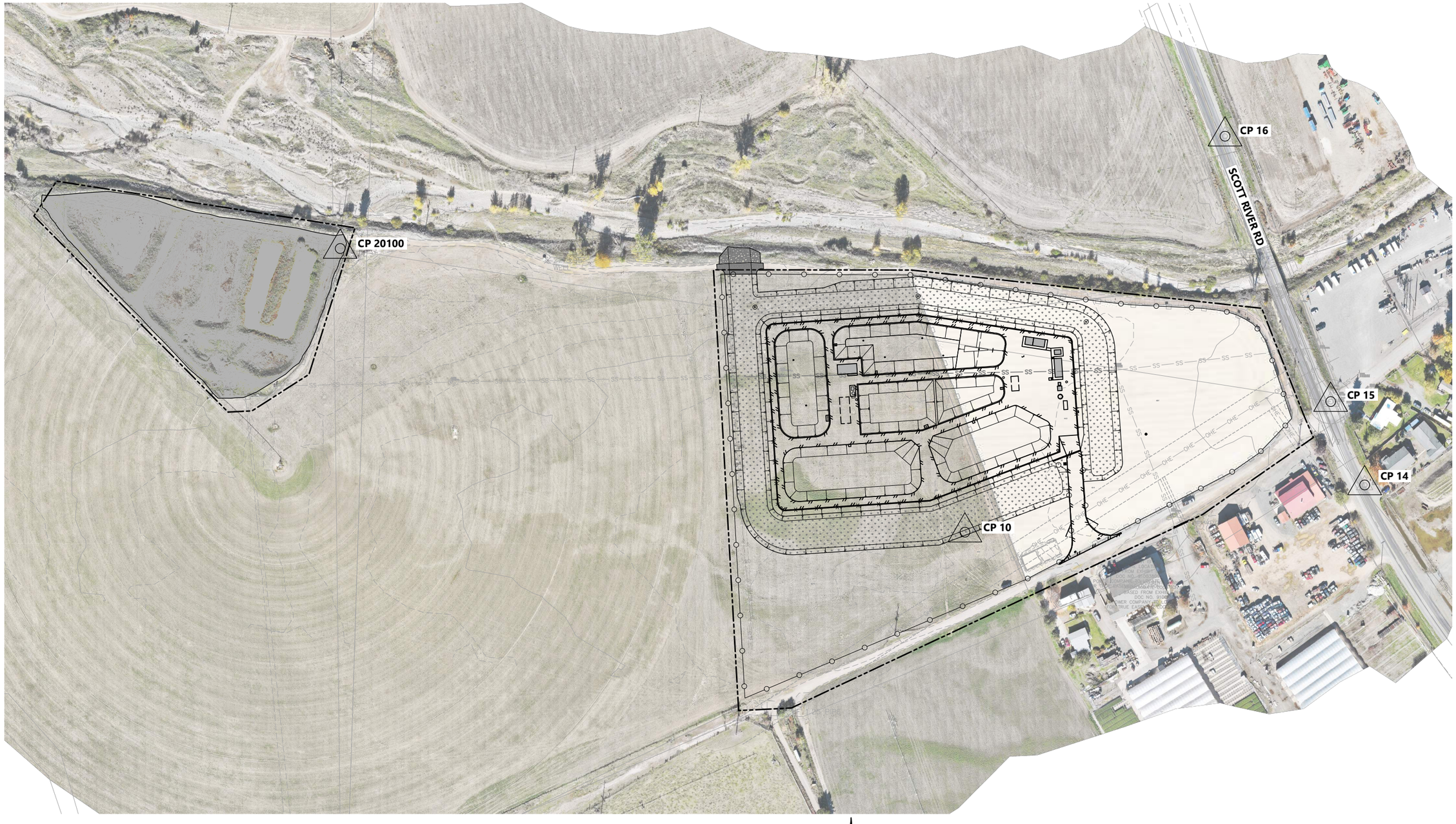
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NEW WWTF SITE PLAN

DESIGN	JM
DRAWN	JWF/CDN
CHECK	CRS
DATE	06/2026
PROJ. NO.	525006
SHEET	G9.0

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PLAN
1"=100'

0 100

SURVEY CONTROL INFORMATION

POINT	ELEVATION	NORTHING	EASTING	DESCRIPTION
10	2723.26	2468773.17	6328207.70	SET 5/8" REBAR PPC SHN
14	2727.07	2468869.76	6329025.50	MAGS IN EP SHN
15	2727.63	2469040.40	6328955.99	F MAGS IN AC E&S CP423
16	2729.52	2469583.65	6328739.82	MAGS IN EP SHN
20100	2718.25	2469353.75	6326929.43	F 5/8" REBAR E&S CP100

SURVEY CONTROL NOTES:

HORIZONTAL DATUM: NAD83 2011 (2010.00), CALIFORNIA STATE PLANES COORDINATE SYSTEM, ZONE 1. BASED ON THE E&S CONTROL SURVEY OF OCTOBER 2017.

VERTICAL DATUM: NAVD88 BASED ON THE E&S CONTROL SURVEY OF OCTOBER 2017.

UNITS: U.S. SURVEY FOOT

*COORDINATES ARE GRID

THE COMBINED SCALE FACTOR (GRID TO GROUND) AT CONTROL POINT 10 IS = 0.99985831

SURVEY NOTES:

THIS SURVEY WAS COMPLETED ON NOVEMBER 05, 2025. THE PERSONNEL CONDUCTING THE FIELD WORK WAS JOSE FLORES, SEAN ANGEL AND CORBIN WHITE.

SHN ESTABLISH CONTROL POINT #10 BY OPUS SOLUTION DATED NOVEMBER 19, 2025. SHN TIED E&S CONTROL POINTS 100 & 423, THIS SERVED AS A CHECK FOR THE E&S ENGINEERING CONTROL SURVEY OF OCTOBER 2017.

SHN'S TIES TO E&S CONTROL CHECKED WELL AND THE E&S CONTROL WAS HELD AS THE BASIS OF BEARING FOR THIS SURVEY AS A RESULT.

THE HORIZONTAL DATUM IS NAD83 2011 (2010.00) BASED ON THE HPGN AT MCADAMS CREEK, PID: AF8311, "HPGN D CA 02 TF"

THE VERTICAL DATUM IS NAVD88 BASES ON NGS BENCHMARK U 864 PID:MX0357

NO ADJUSTMENTS WERE MADE TO THE E&S CONTROL.

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HORIZONTAL CONTROL PLAN

DESIGN	CHECK
JM	CRS
DRAWN	
JWF/CDN	
DATE	
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PROJ. NO.	
525006	
SHEET	
G10.0	

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PLAN
1"=40'

0 40

N

VERIFY SCALES

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0 1"

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TOWN OF FORT JONES
WASTEWATER IMPROVEMENTS PROJECT
FORT JONES, CALIFORNIA

HORIZONTAL CONTROL PLAN

DESIGN	JM
DRAWN	JWF/CDN
CHECK	CRS
DATE	06/2026
PROJ. NO.	525006
SHEET	G10.1

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HORIZONTAL CONTROL

POINT	NORTHING	EASTING
1	2469324.01	6327794.90
2	2469345.73	6327788.02
3	2469354.82	6327767.77
4	2469357.58	6327722.48
5	2469336.98	6327705.26
6	2469321.57	6327699.85
7	2469301.18	6327708.12
8	2469301.15	6327726.29
9	2469301.61	6327771.36
10	2468756.90	6328153.40
11	2468816.17	6328140.53
12	2468826.05	6328138.39
13	2468836.91	6328136.03
14	2468717.43	6328411.07
15	2468767.25	6328506.72
16	2468789.36	6328424.31
17	2468802.77	6328457.02
18	2468847.19	6328421.43
19	2468876.87	6328449.49
20	2468930.56	6328415.80
21	2468941.24	6328444.16
22	2468937.23	6328402.32
23	2468969.59	6328400.14
24	2468972.28	6328440.05
25	2469231.10	6328110.77
26	2469276.33	6328112.65
27	2469299.63	6328097.44
28	2469273.24	6327918.28
29	2469264.18	6327783.91
30	2469050.61	6328402.69
31	2469062.67	6328397.45
32	2469091.10	6328407.66
33	2469090.07	6328392.36
34	2469129.52	6328405.07
35	2469128.48	6328389.77
36	2469151.69	6328369.61
37	2469167.51	6328372.02
38	2469173.54	6328332.47
39	2469157.72	6328330.06
40	2469118.46	6327986.18
41	2469115.77	6327946.27

HORIZONTAL CONTROL

POINT	NORTHING	EASTING
42	2469095.81	6327947.61
43	2469098.51	6327987.52
44	2469051.25	6327973.34
45	2469147.44	6328254.77
46	2469154.64	6328207.58
47	2469142.29	6328205.70
48	2469165.34	6328197.07
49	2469132.35	6328192.04
50	2469178.84	6328108.56
51	2469158.40	6327939.38
52	2469153.03	6327963.80
53	2469156.80	6328019.67
54	2469120.89	6328022.09
55	2469163.67	6327868.87
56	2469076.04	6327847.72
57	2468992.06	6327880.45
58	2469079.68	6327901.60
59	2469000.79	6327929.97
60	2469055.95	6328010.44
61	2468996.09	6328014.48
62	2469008.07	6328129.93
63	2469063.76	6328126.18
64	2468985.23	6328126.05
65	2469066.12	6328161.10
66	2469020.95	6328164.14
67	2469073.19	6328265.86
68	2469059.62	6328266.77
69	2469065.75	6328286.41
70	2468890.26	6327857.25
71	2468863.42	6327979.33
72	2468909.85	6328096.47
73	2468939.22	6328062.85
74	2468932.54	6327963.86
75	2468953.25	6327973.77
76	2468962.96	6328183.24
77	2468924.87	6328165.99
78	2468928.47	6328271.28
79	2468984.65	6328361.04
80	2469010.84	6328310.32
81	2468986.90	6328246.78
82	2469001.69	6328226.48

VERIFY SCALES

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FORT JONES, CALIFORNIA

HORIZONTAL CONTROL PLAN

DESIGN	CHECK
JM	CRS
DRAWN	
JWF/CDN	

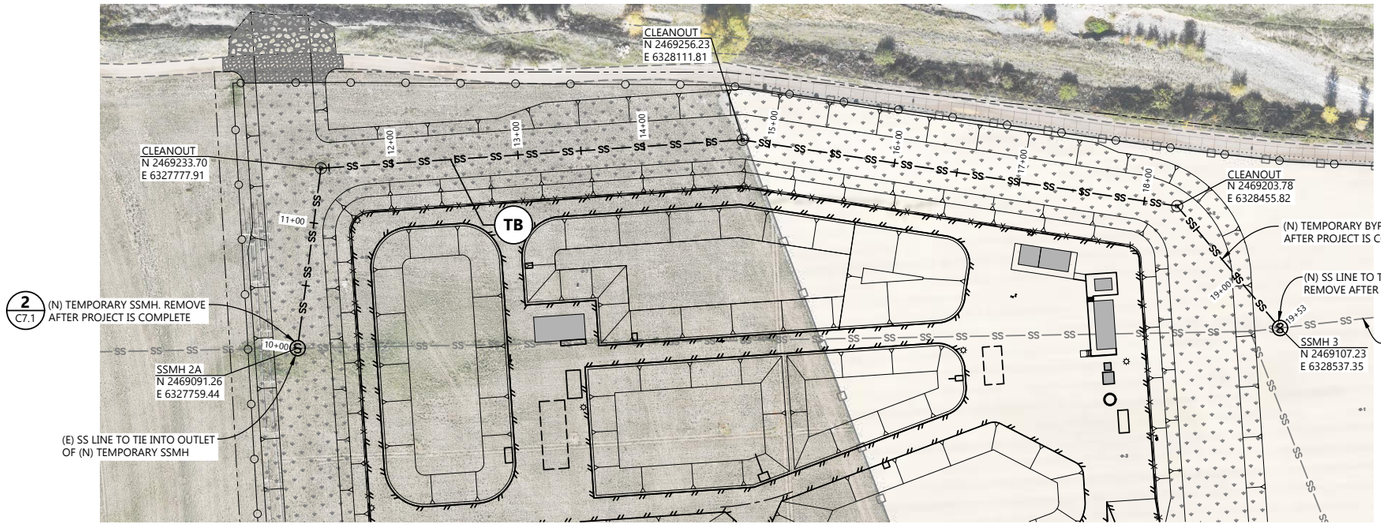
DATE 06/2026

PROJ. NO. 525006

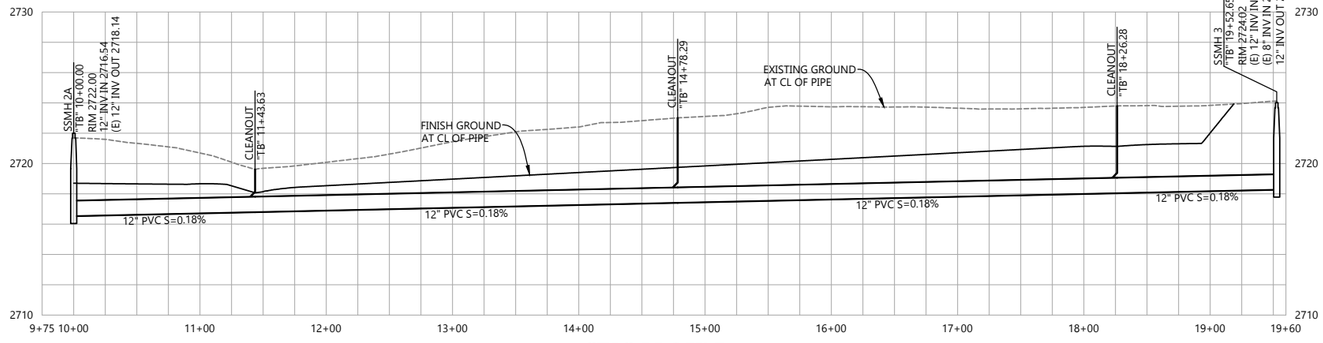
SHEET **G10.2**

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PLAN
1"=60'



"TB" PROFILE
1"=60' H
1"=5' V

NOTE:

FOR GENERAL PIPE AND FITTING REQUIREMENTS REFER TO THE PIPE AND FITTING SCHEDULE, SHEET G3.0. SPECIFIC VARIATIONS FROM THE SCHEDULE ARE NOTED ON THE DRAWINGS.

VERIFY SCALES

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FORT JONES, CALIFORNIA

INTERIM BYPASS PIPING PLAN

DESIGN	CHECK
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JWF/CDN	
DATE	
06/2026	
PROJ. NO.	
525006	
SHEET	
C1.0	

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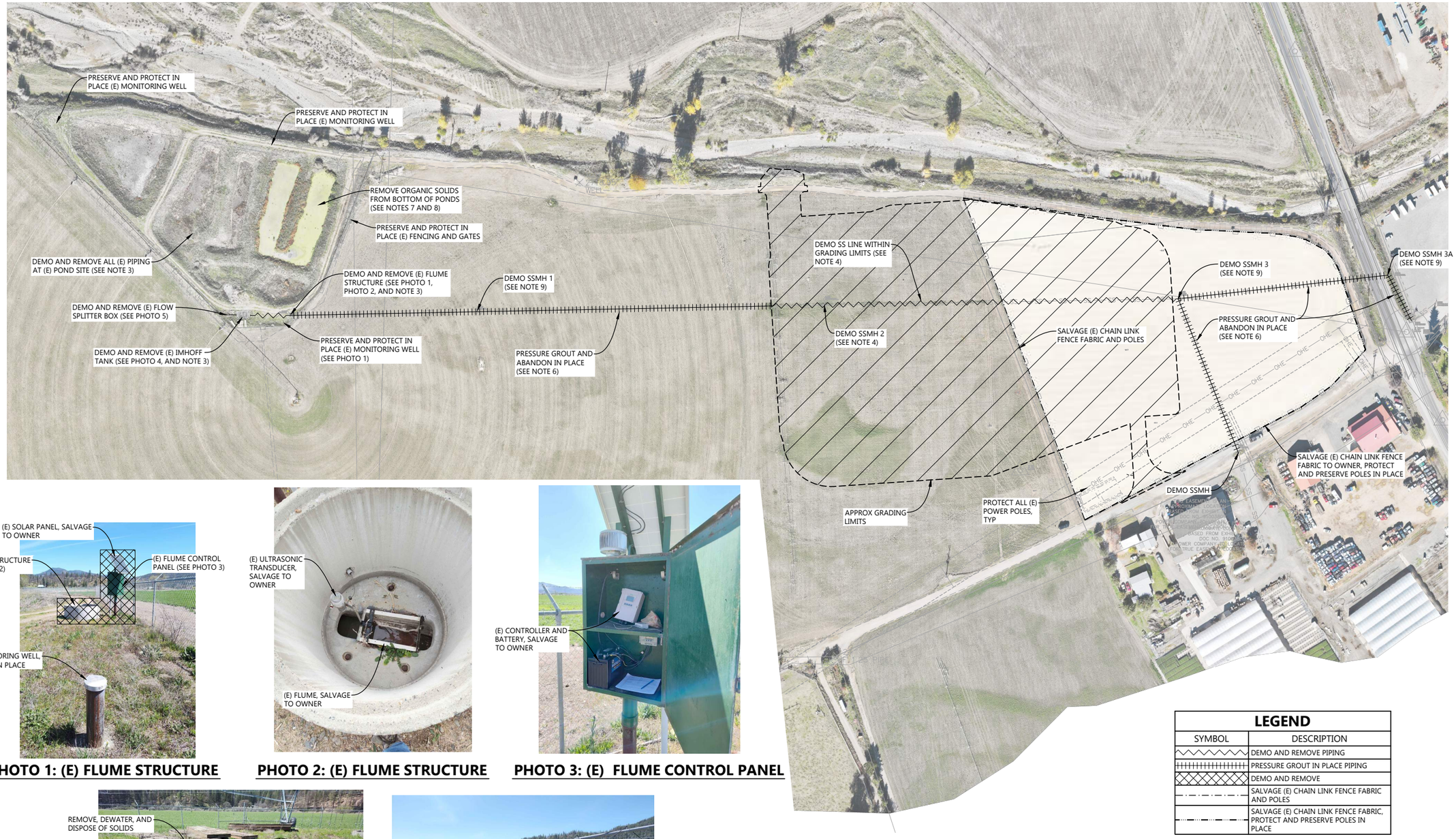


PHOTO 1: (E) FLUME STRUCTURE

PHOTO 2: (E) FLUME STRUCTURE

PHOTO 3: (E) FLUME CONTROL PANEL



PHOTO 4: (E) IMHOFF TANK



PHOTO 5: (E) FLOW SPLITTER BOX

PLAN
1"=100'

0 100

LEGEND

SYMBOL	DESCRIPTION
	DEMO AND REMOVE PIPING
	PRESSURE GROUT IN PLACE PIPING
	DEMO AND REMOVE
	SALVAGE (E) CHAIN LINK FENCE FABRIC AND POLES
	SALVAGE (E) CHAIN LINK FENCE FABRIC, PROTECT AND PRESERVE POLES IN PLACE

NOTES:

1. CLEAR AND GRUB WITHIN GRADING LIMITS.
2. REMOVE TOPSOIL TO 2' DEPTH BLEOW EXISTING SURFACE ELEVATIONS WITHIN GRADING LIMITS IN ACCORDANCE WITH GEOTECHNICAL REPORT. STOCKPILE AND PROTECT FOR RE-USE.
3. (N) WWTF SHALL BE FULLY FUNCTIONAL BEFORE STARTING DEMOLITION OF (E) WWTF SITE.
4. DEMOLITION OF EXISTING ACTIVE SS LINES AND MANHOLES MAY ONLY OCCUR AFTER THE INTERIM BYPASS LINE HAS BEEN INSTALLED AND IS FULLY OPERATIONAL.
5. CONTRACTOR SHALL WORK WITH THE ENGINEER TO DEVELOP A COORDINATED DEMOLITION SEQUENCE PLAN.
6. PRESSURE GROUTING SHALL ONLY OCCUR AFTER NEW PLANT IS ONLINE AND OLD SS LINES CAN BE ABANDONED.
7. EXISTING DRY PONDS NOT IN USE DURING CONSTRUCTION: SCARIFY AND ALLOW SOLIDS TO AIR DRY. AFTER SOLIDS HAVE REACHED 20% DRY SOLIDS BY WEIGHT, REMOVE SOLIDS AND DISPOSE OF AT APPROPRIATELY LICENSED/CERTIFIED LANDFILL.
8. EXISTING WET PONDS IN USE DURING CONSTRUCTION: AFTER NEW FACILITY IS FULLY OPERATIONAL AND NO NEW SEWAGE IS INTRODUCED TO PONDS, REMOVE, DEWATER, AND DISPOSE OF ORGANICS IN PONDS PRIOR TO BACKFILLING.
9. DEMOLITION OF EXISTING ACTIVE MANHOLES SHALL ONLY OCCUR AFTER NEW FACILITY IS ONLINE AND OLD SSMH CAN BE ABANDONED.

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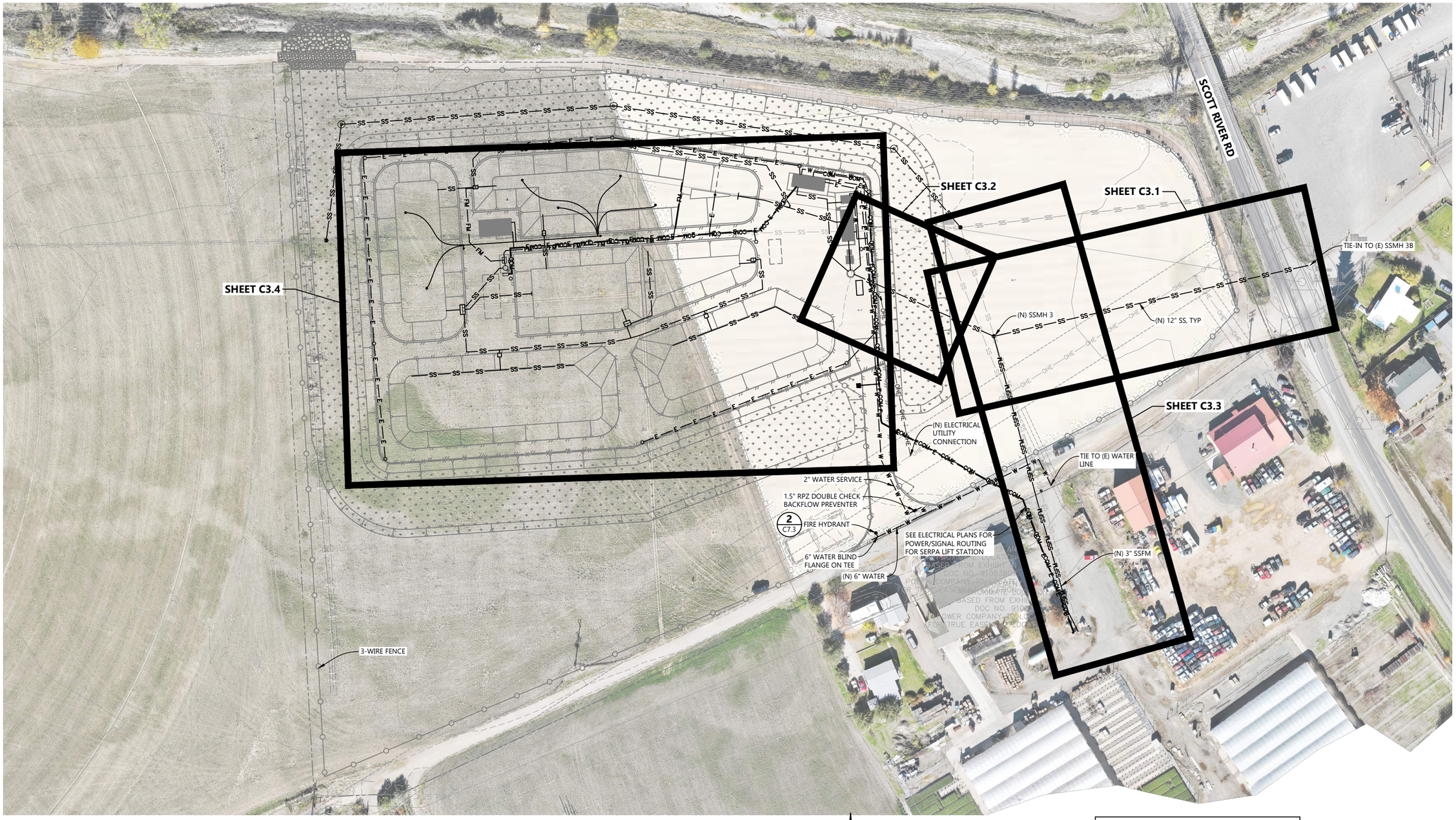
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DEMOLITION PLAN

DESIGN JM	CHECK CRS
DRAWN JWF/CDN	
DATE 06/2026	
PROJ. NO. 525006	
SHEET **C2.0**	

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PLAN
1"=60'

LEGEND	
SYMBOL	DESCRIPTION
	3-WIRE FENCE
	PROPERTY LINE
SS SS	SANITARY SEWER LINE
SSFM SSFM	SANITARY SEWER FORCE MAIN LINE
COM COM	TELECOM LINE
E E E	ELECTRICAL LINE
W W W	WATER LINE
	FLOOD CONVEYANCE SWALE
	RIP RAP REINFORCEMENT
	ROCK FORD
X X X	SECURITY FENCE

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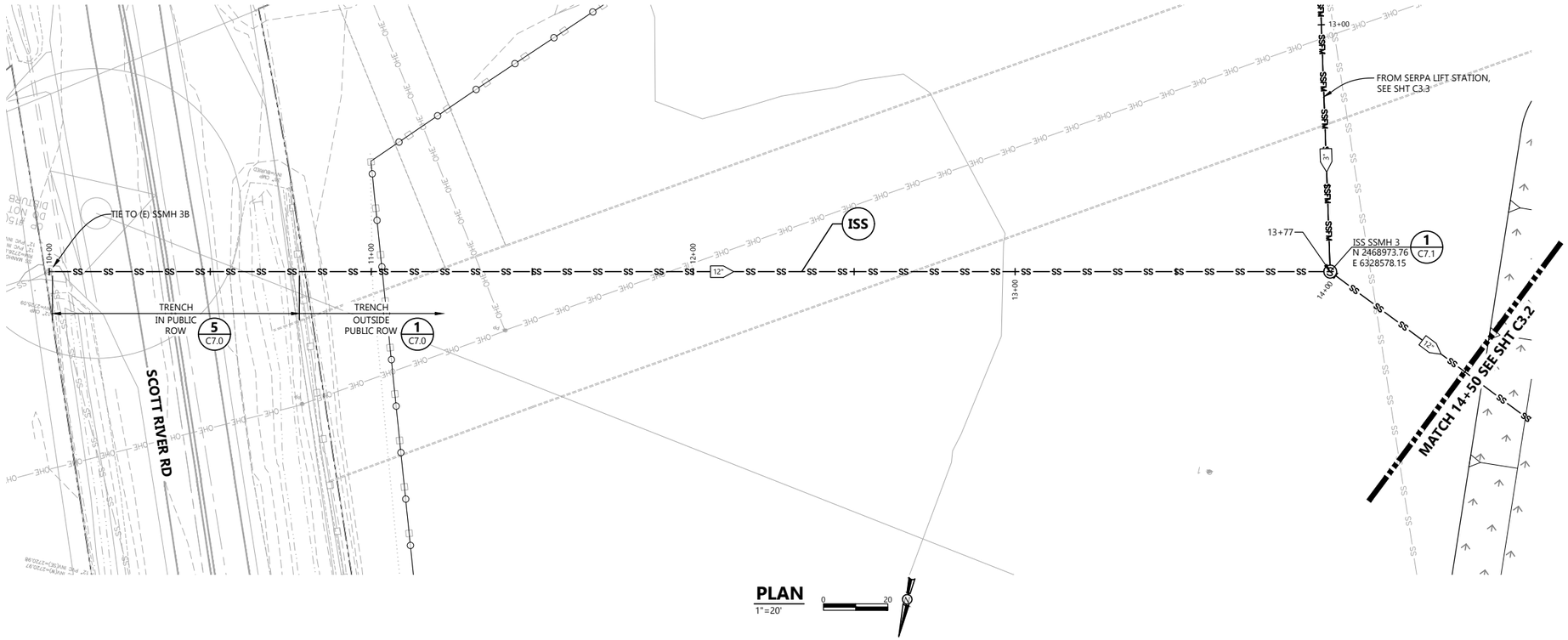
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UTILITY PLAN OVERVIEW

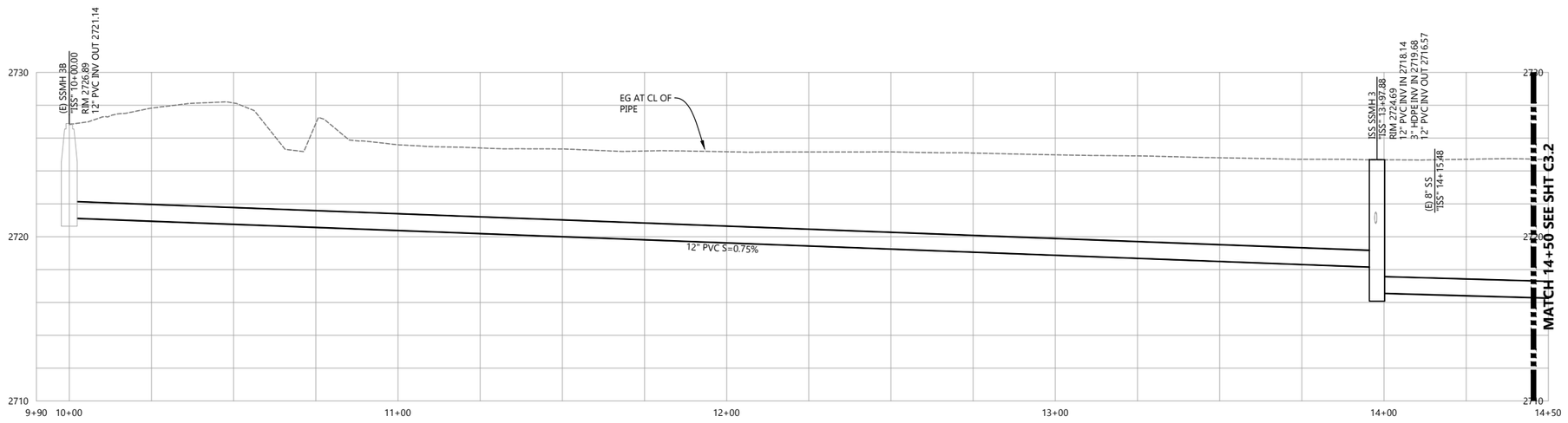
DESIGN	CHECK
JM	CRS
DRAWN	
JWF/CDN	
DATE	06/2026
PROJ. NO.	525006
SHEET	C3.0

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PLAN
1"=20'



"ISS" PROFILE
1"=20' H
1"=4' V

NOTE:

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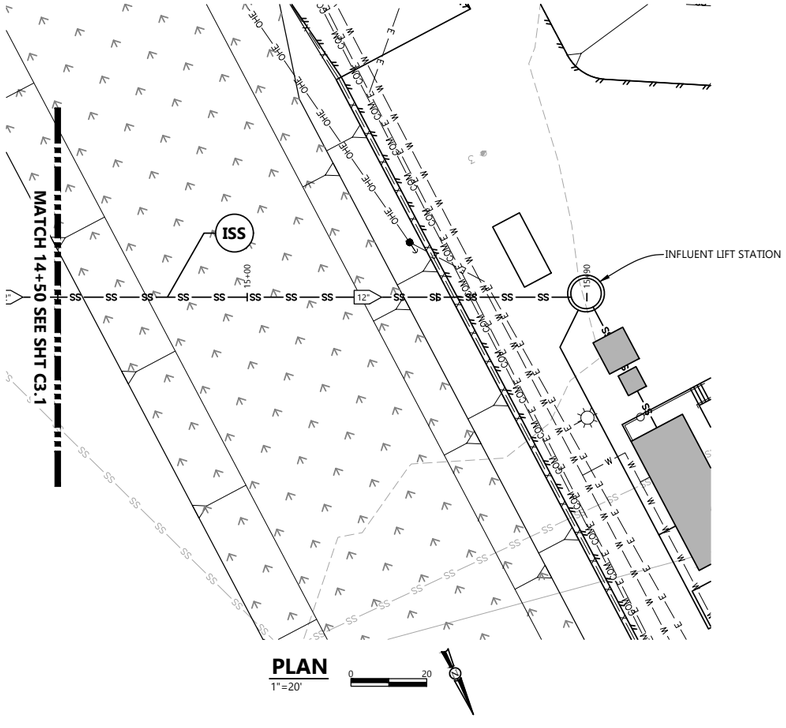
INFLUENT SEWER MAIN PLAN AND PROFILE

DESIGN	CHECK
JM	CRS
DRAWN	
JWF/CDN	

DATE 06/2026
PROJ. NO. 525006
SHEET **C3.1**

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VERIFY SCALES

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0 1"

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FORT JONES, CALIFORNIA

INFLUENT SEWER MAIN PLAN AND PROFILE

DESIGN	CHECK
JM	CRS
DRAWN	
JWF/CDN	

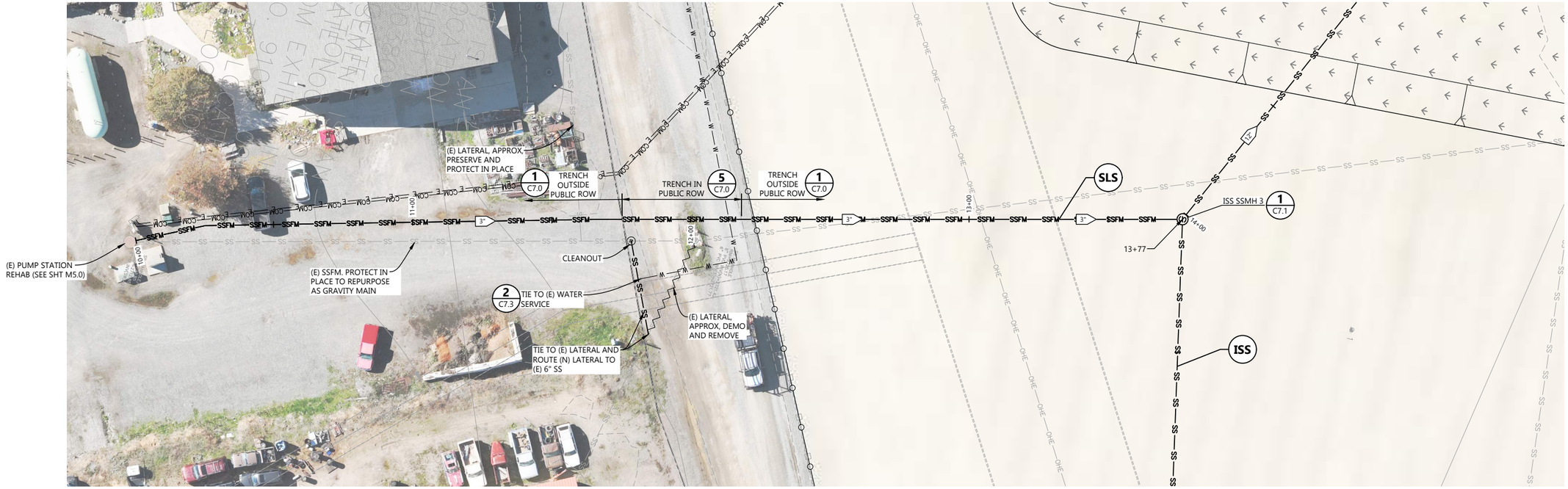
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PROJ. NO. 525006

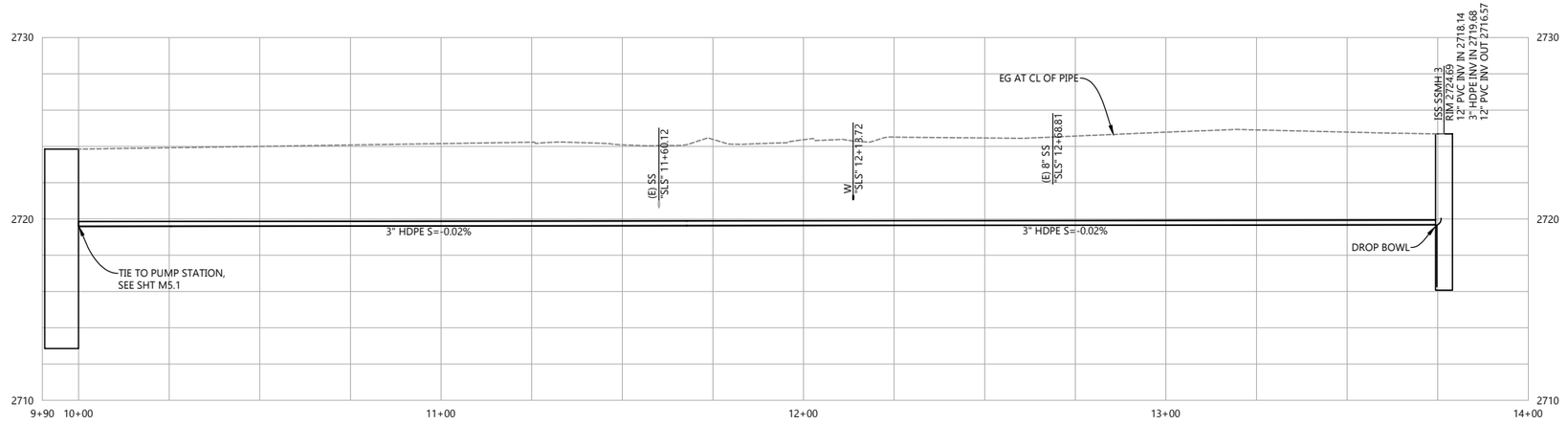
SHEET **C3.2**

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PLAN
1"=20'



"SLS" PROFILE
1"=20' H
1"=4' V

NOTE:
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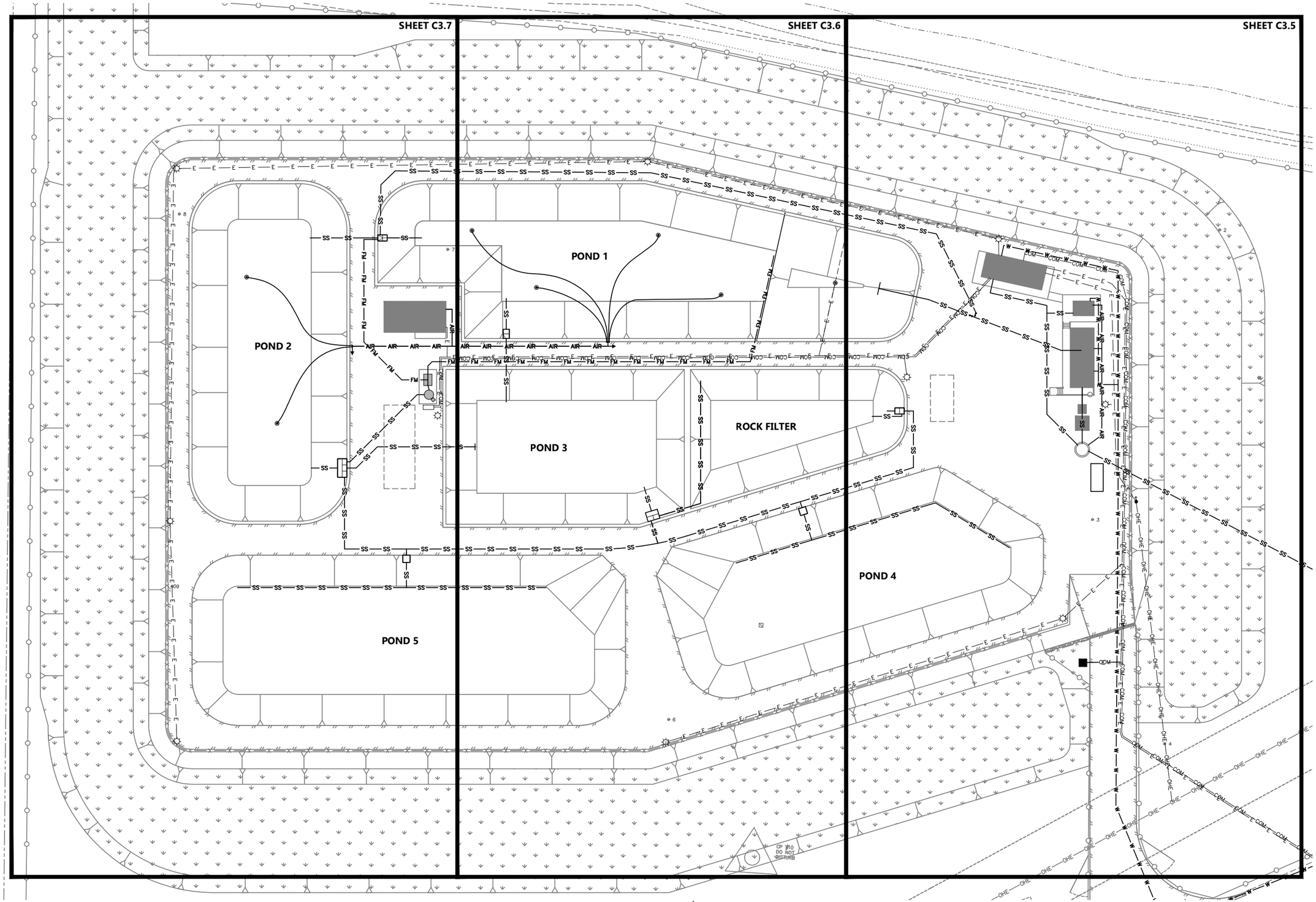
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SERPA LIFT STATION FORCE MAIN PLAN AND PROFILE

DESIGN	CHECK
JM	CRS
DRAWN	
JWF/CDN	
DATE	06/2026
PROJ. NO.	525006
SHEET	C3.3

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PLAN
1"=30'
0 30

VERIFY SCALES

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0 1"

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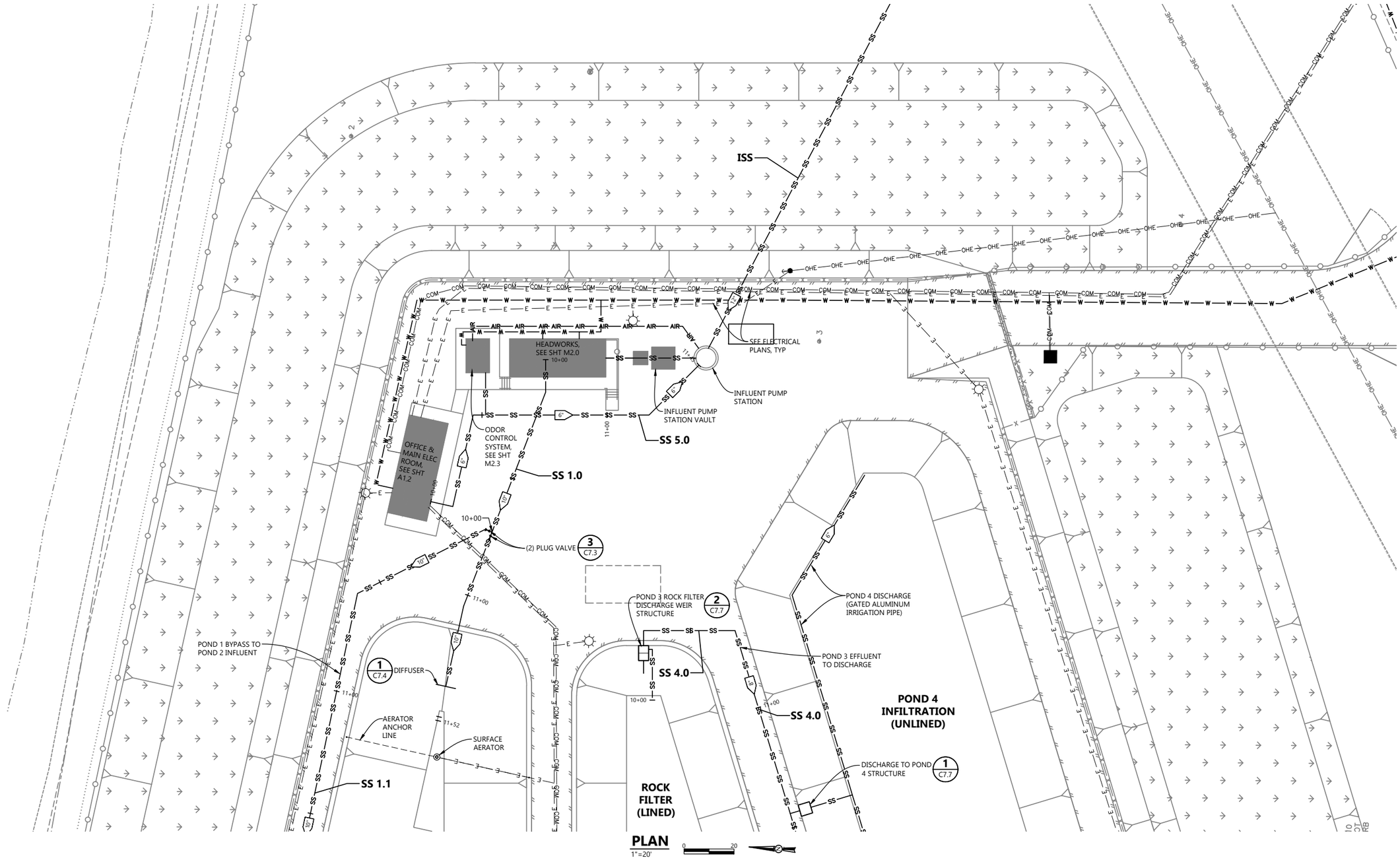
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YARD PIPING OVERVIEW

DESIGN JM	CHECK CRS
DRAWN JWF/CDN	
DATE 06/2026	
PROJ. NO. 525006	
SHEET C3.4	

90% DESIGN-NOT FOR CONSTRUCTION

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PLAN
1"=20'

VERIFY SCALES

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0 1"

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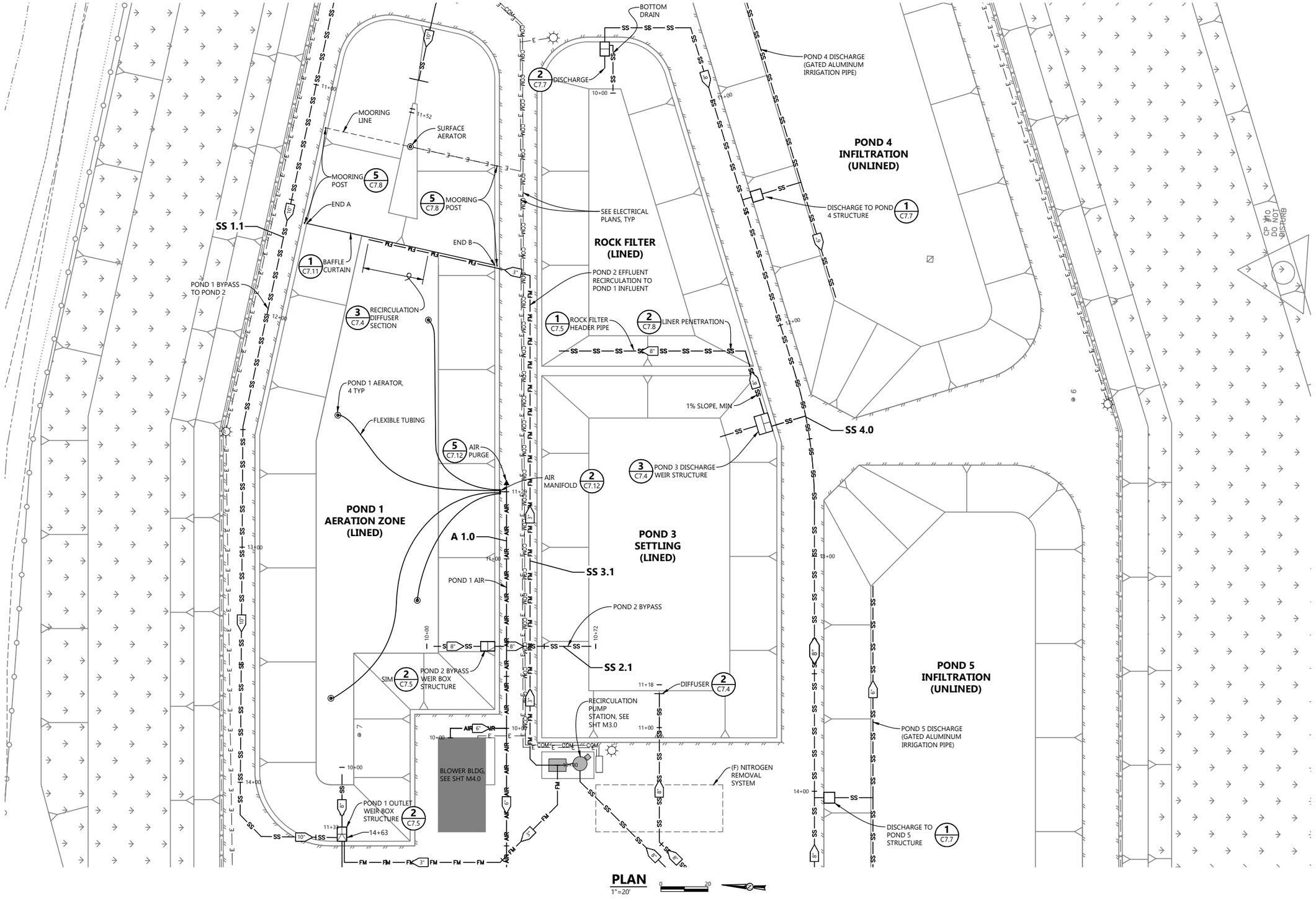
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WASTEWATER IMPROVEMENTS PROJECT
FORT JONES, CALIFORNIA

ENLARGED YARD PIPING PLAN

DESIGN JM	CHECK CRS
DRAWN JWF/CDN	
DATE 06/2026	
PROJ. NO. 525006	
SHEET **C3.5**	

90% DESIGN-NOT FOR CONSTRUCTION

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0 1"

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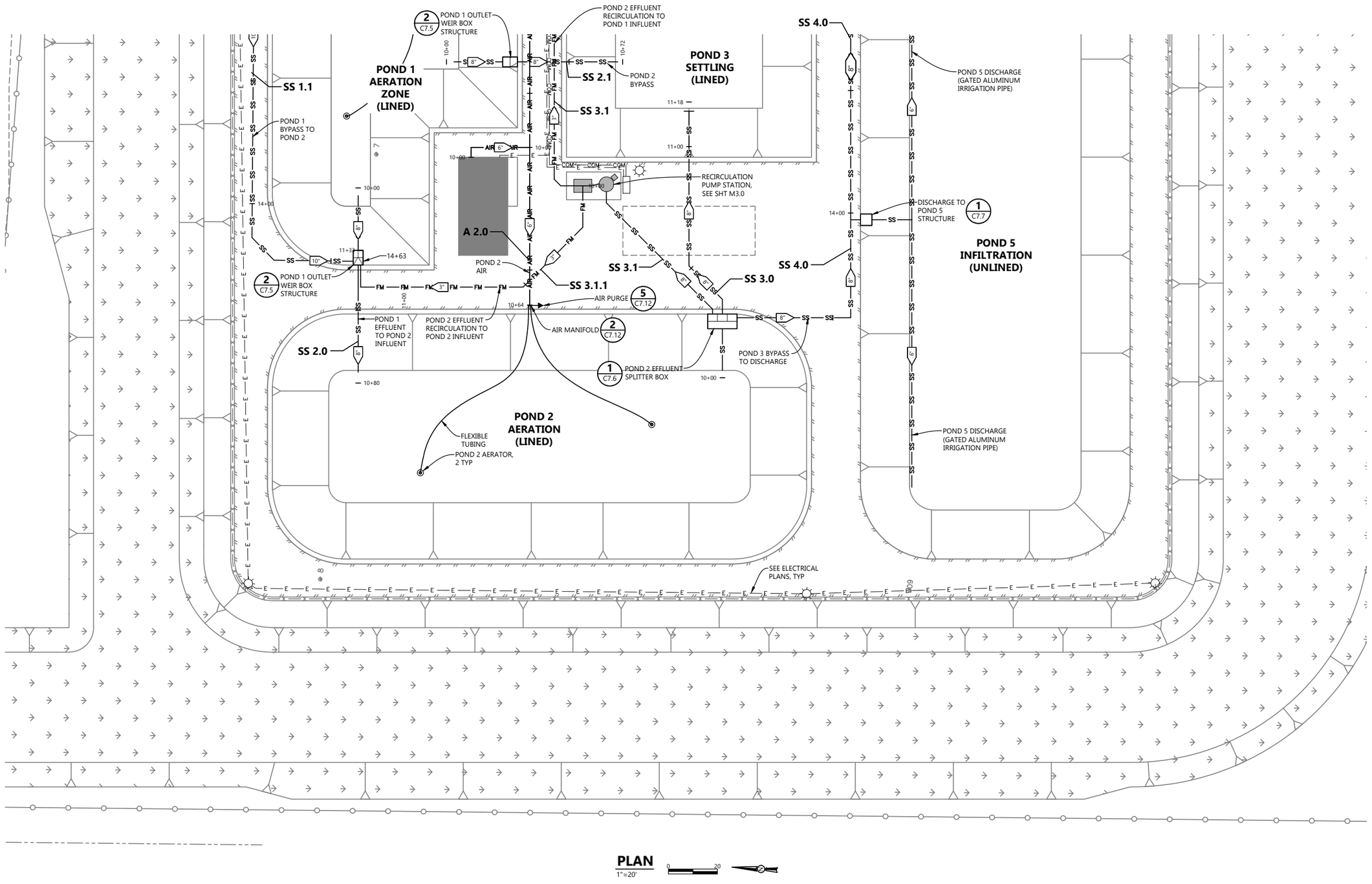
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WASTEWATER IMPROVEMENTS PROJECT
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ENLARGED YARD PIPING PLAN

DESIGN JM	CHECK CRS
DRAWN JWF/CDN	
DATE 06/2026	
PROJ. NO. 525006	
SHEET **C3.6**	

90% DESIGN-NOT FOR CONSTRUCTION

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PLAN
1"=20'

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
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FORT JONES, CALIFORNIA

ENLARGED YARD PIPING PLAN

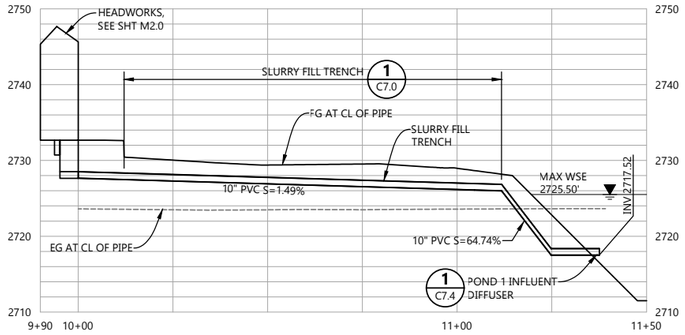
DESIGN	CHECK
JM	CRS
DRAWN	
JWF/CDN	
DATE	
06/2026	
PROJ. NO.	
525006	
SHEET	
C3.7	

90% DESIGN-NOT FOR CONSTRUCTION

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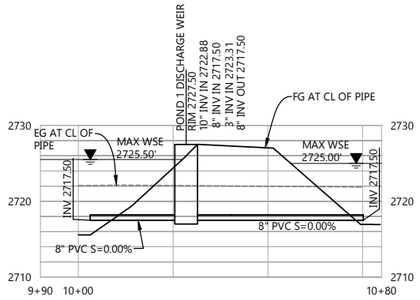
NOTE:

FOR GENERAL PIPE AND FITTING REQUIREMENTS REFER TO THE PIPE AND FITTING SCHEDULE, SHEET G3.0. SPECIFIC VARIATIONS FROM THE SCHEDULE ARE NOTED ON THE DRAWINGS.



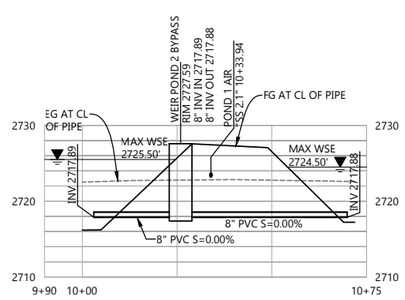
"SS 1.0" PROFILE

1"=20' H
1"=10' V



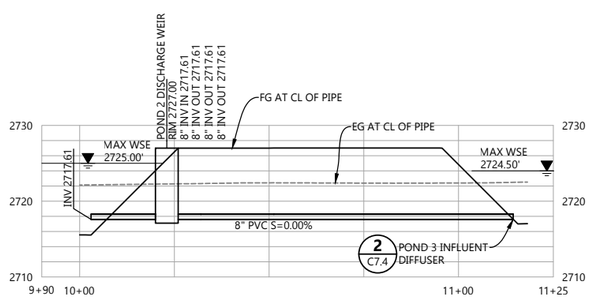
"SS 2.0" PROFILE

1"=20' H
1"=10' V



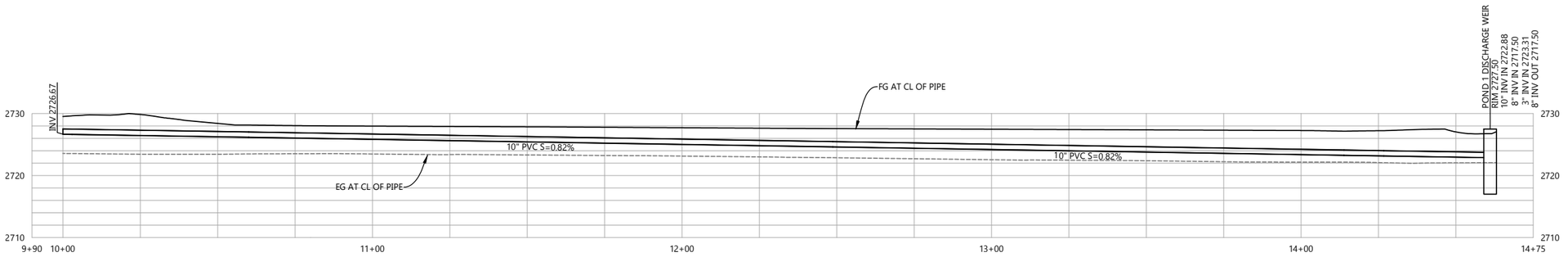
"SS 2.1" PROFILE

1"=20' H
1"=10' V



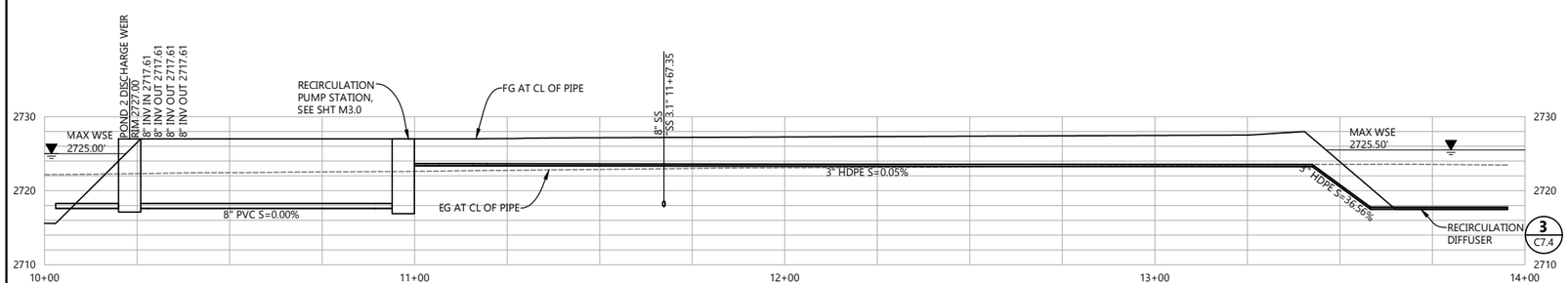
"SS 3.0" PROFILE

1"=20' H
1"=10' V



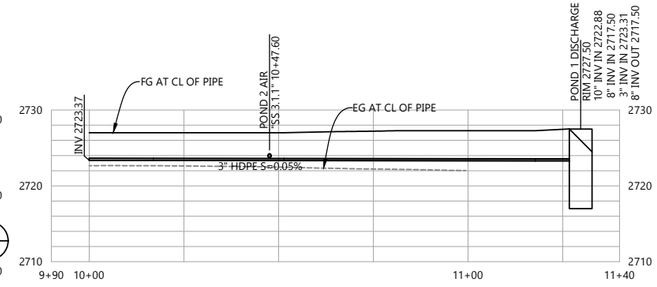
"SS 1.1" PROFILE

1"=20' H
1"=10' V



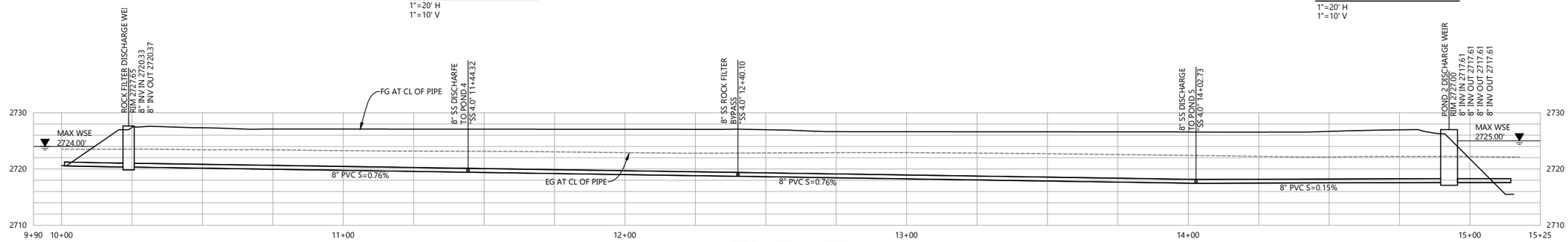
"SS 3.1" PROFILE

1"=20' H
1"=10' V



"SS 3.1.1" PROFILE

1"=20' H
1"=10' V



"SS 4.0" PROFILE

1"=20' H
1"=10' V

VERIFY SCALES

BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

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NO.	REVISION	BY	DATE

PRELIMINARY

TOWN OF FORT JONES
WASTEWATER IMPROVEMENTS PROJECT
FORT JONES, CALIFORNIA

YARD PIPING PLAN AND PROFILE

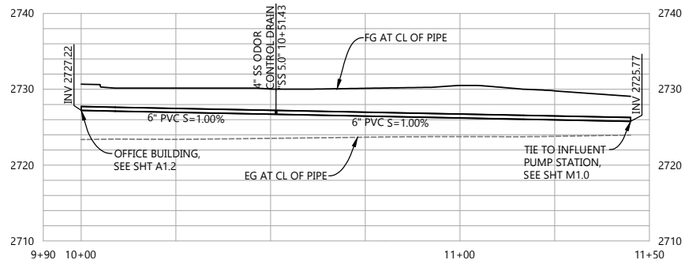
DESIGN	CHECK
JM	CRS
DRAWN	
JWF/CDN	
DATE	06/2026
PROJ. NO.	525006
SHEET	C3.8

90% DESIGN-NOT FOR CONSTRUCTION

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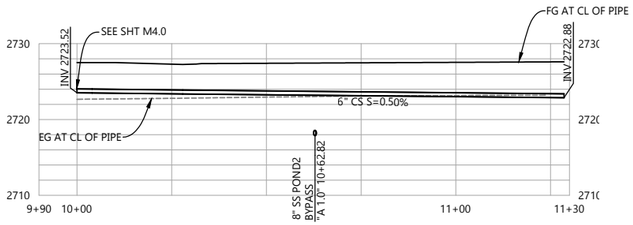
NOTE:

FOR GENERAL PIPE AND FITTING REQUIREMENTS REFER TO THE PIPE AND FITTING SCHEDULE, SHEET G3.0. SPECIFIC VARIATIONS FROM THE SCHEDULE ARE NOTED ON THE DRAWINGS.



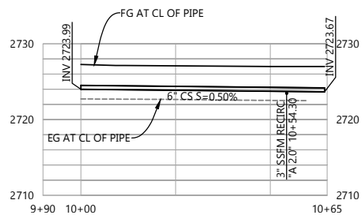
"SS 5.0" PROFILE

1"=20' H
1"=10' V



"A 1.0" PROFILE

1"=20' H
1"=10' V



"A 2.0" PROFILE

1"=20' H
1"=10' V

VERIFY SCALES

BAR IS ONE INCH ON ORIGINAL DRAWING

0 1"

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PRELIMINARY

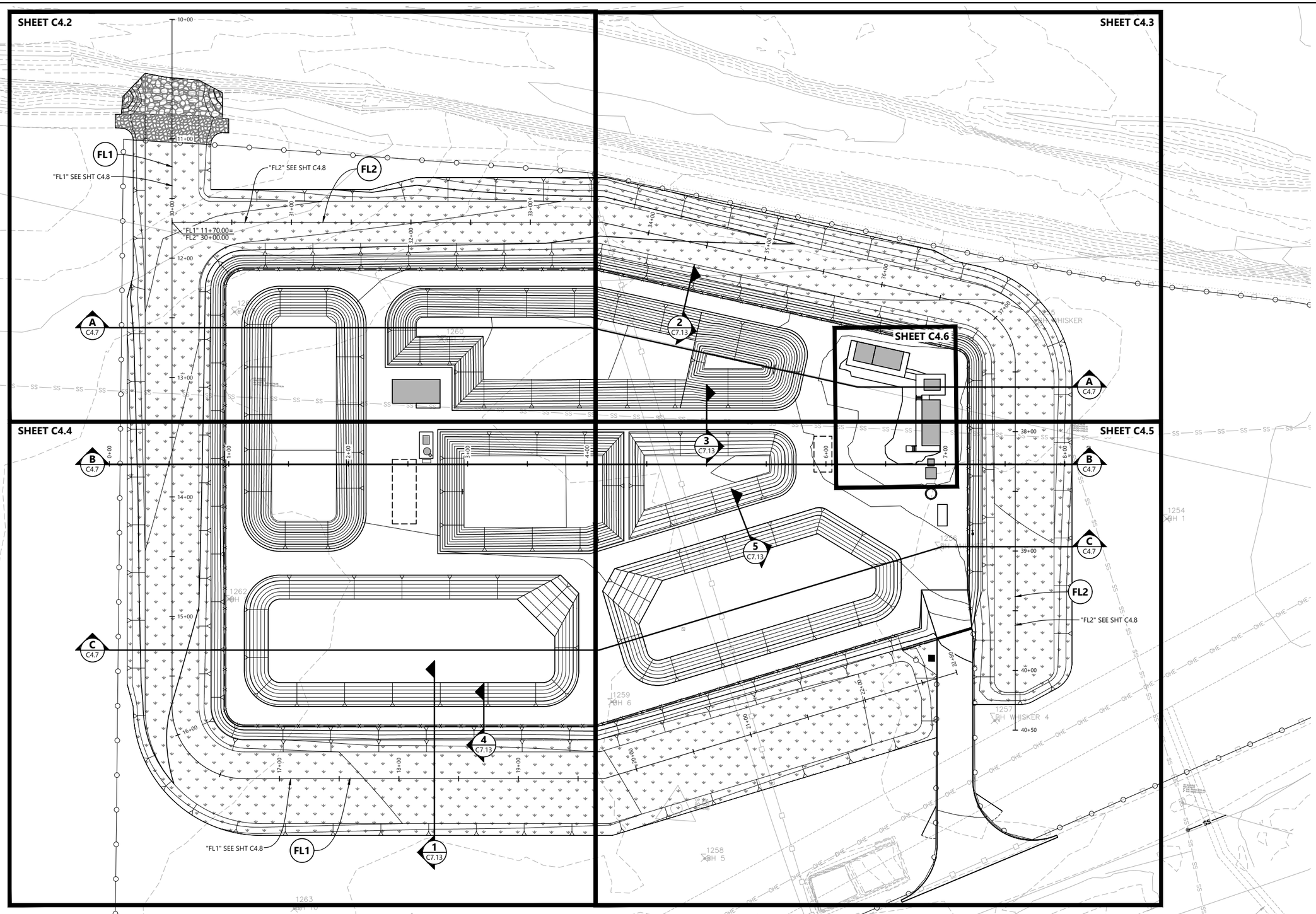
TOWN OF FORT JONES
WASTEWATER IMPROVEMENTS PROJECT
FORT JONES, CALIFORNIA

YARD PIPING PLAN AND PROFILE

DESIGN JM	CHECK CRS
DRAWN JWF/CDN	
DATE 06/2026	
PROJ. NO. 525006	
SHEET **C3.9**	

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PLAN
1"=40'

0 40

VERIFY SCALES

BAR IS ONE INCH ON ORIGINAL DRAWING

0 1"

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PRELIMINARY

TOWN OF FORT JONES
WASTEWATER IMPROVEMENTS PROJECT
FORT JONES, CALIFORNIA

GRADING PLAN OVERVIEW

DESIGN	CHECK
JM	CRS
DRAWN	
JWF/CDN	
DATE	06/2026
PROJ. NO.	525006
SHEET	C4.0

90% DESIGN-NOT FOR CONSTRUCTION

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R:\Redding\2025\525006-Fort-Jones-WWTF-Design\Dwgs\525006-GRDG.dwg

PLAN
1"=30'

0 30

N

LEGEND	
SYMBOL	DESCRIPTION
	MINING AREA

VERIFY SCALES

BAR IS ONE INCH ON ORIGINAL DRAWING

0 1"

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PRELIMINARY

TOWN OF FORT JONES
WASTEWATER IMPROVEMENTS PROJECT
FORT JONES, CALIFORNIA

MINING PLAN

DESIGN	CHECK
JM	CRS
DRAWN	
JWF/CDN	

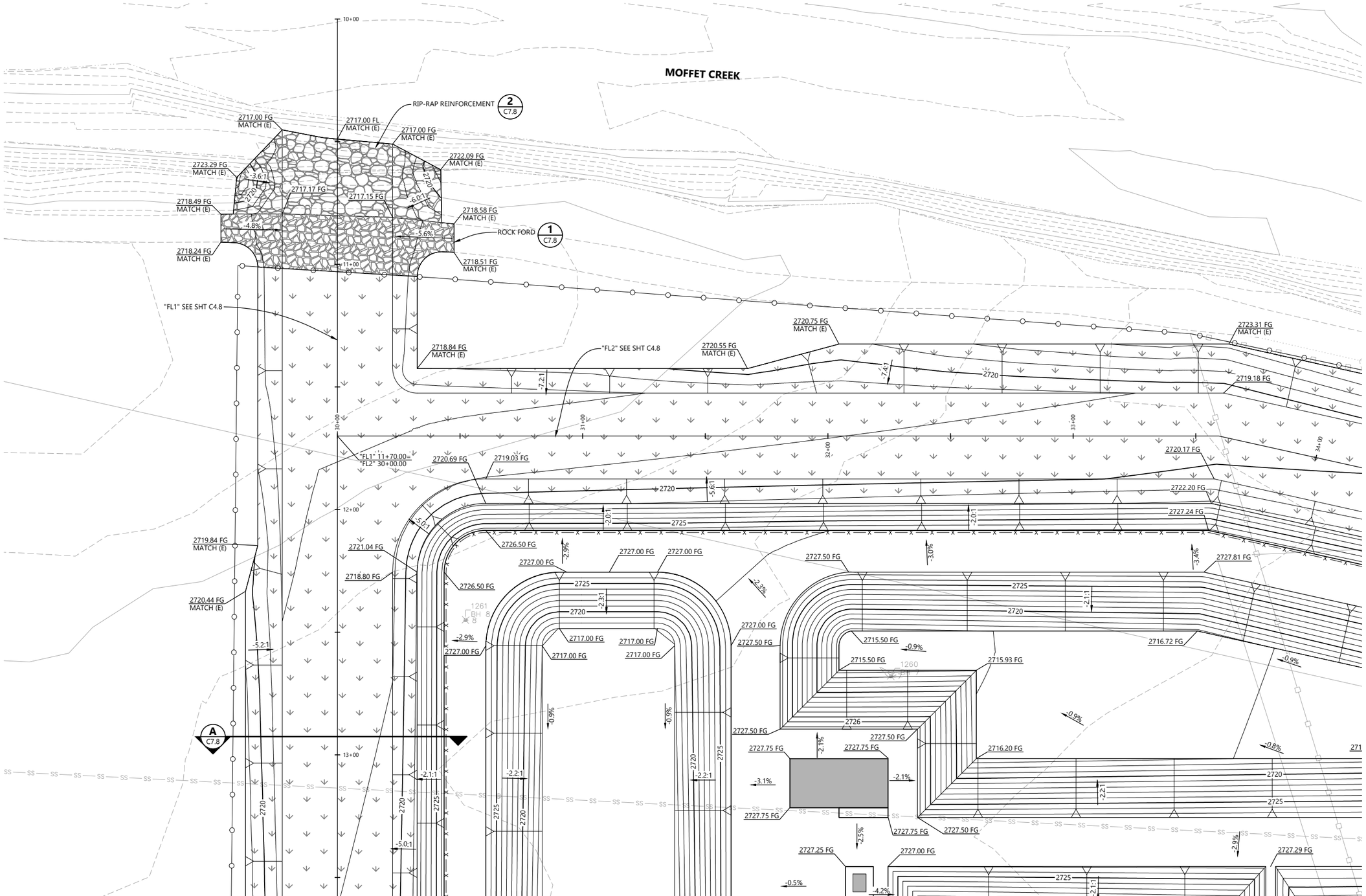
DATE 06/2026

PROJ. NO. 525006

SHEET **C4.1**

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PLAN
1"=20'

0 20

VERIFY SCALES

BAR IS ONE INCH ON ORIGINAL DRAWING

0 1"

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NO.	REVISION	BY	DATE

PRELIMINARY

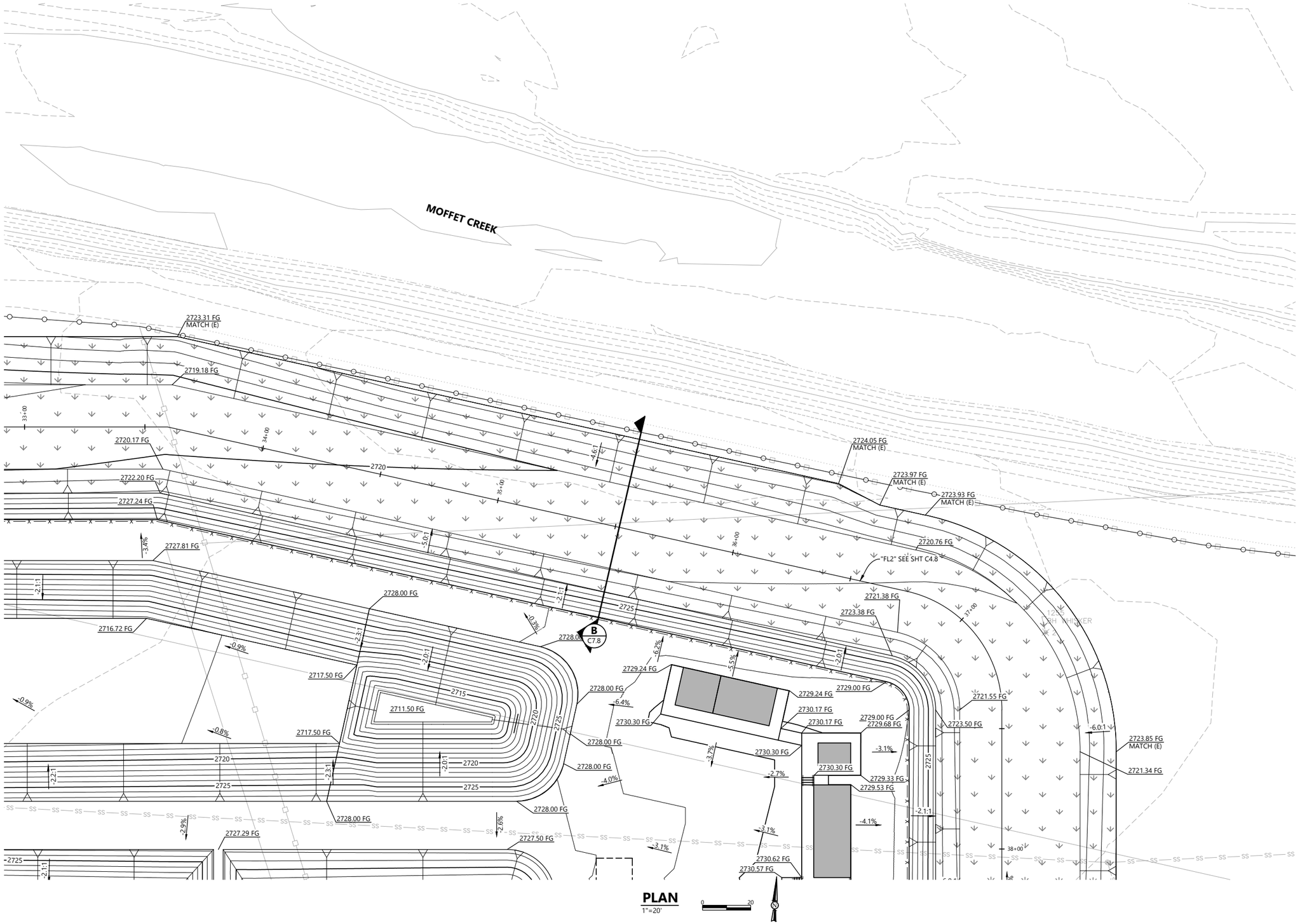
TOWN OF FORT JONES
WASTEWATER IMPROVEMENTS PROJECT
FORT JONES, CALIFORNIA

ENLARGED GRADING PLAN

DESIGN	CHECK
JM	CRS
DRAWN	
JWF/CDN	
DATE	
06/2026	
PROJ. NO.	
525006	
SHEET	
C4.2	

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PLAN
1"=20'

SAVED: 6/3/2026 8:28 PM JFOSTER, PLOTTED: 6/3/2026 9:26 PM JOHN FOSTER
R:\Redding\2025\525006-Fort-Jones-WWTF-Design\Dwgs\525006-GRDG.dwg

VERIFY SCALES

BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"

IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

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NO.	REVISION	BY	DATE

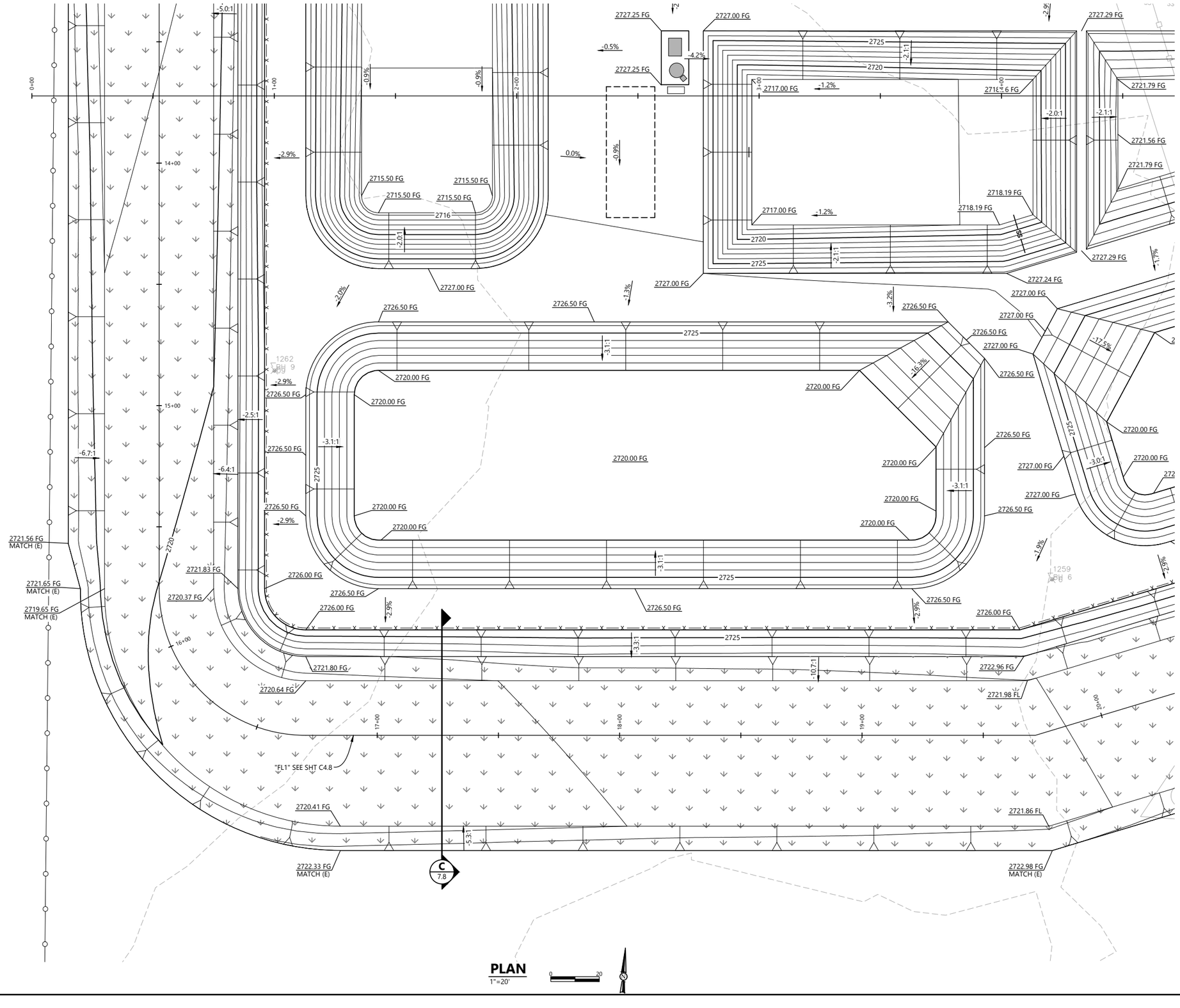
PRELIMINARY

TOWN OF FORT JONES
WASTEWATER IMPROVEMENTS PROJECT
FORT JONES, CALIFORNIA

ENLARGED GRADING PLAN

DESIGN	CHECK
JM	CRS
DRAWN	
JWF/CDN	
DATE	
06/2026	
PROJ. NO.	
525006	
SHEET	
C4.3	

90% DESIGN-NOT FOR CONSTRUCTION



PLAN
1"=20'

VERIFY SCALES

BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"

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PRELIMINARY

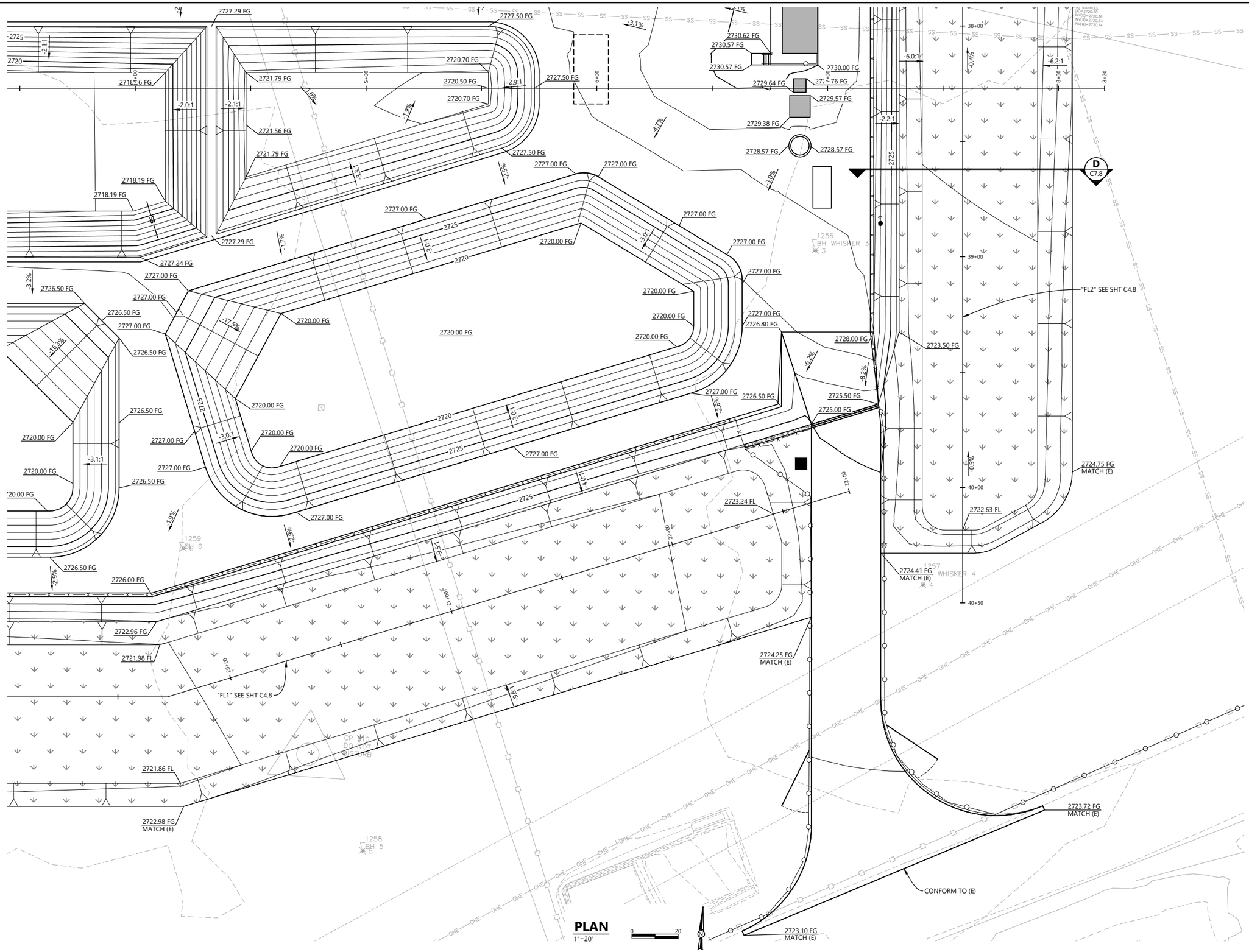
TOWN OF FORT JONES
WASTEWATER IMPROVEMENTS PROJECT
FORT JONES, CALIFORNIA

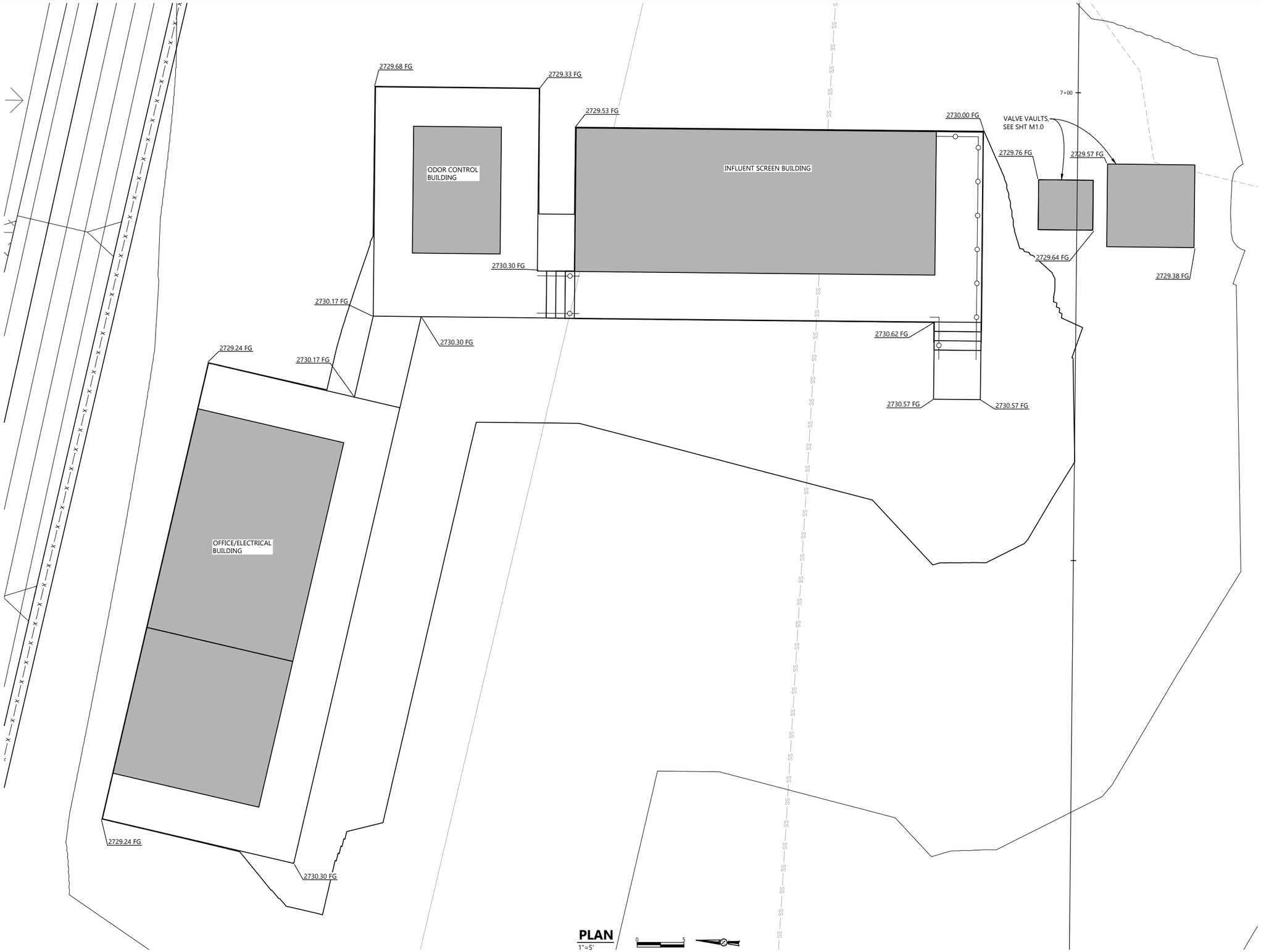
ENLARGED GRADING PLAN

DESIGN	CHECK
JM	CRS
DRAWN	
JWF/CDN	
DATE	
06/2026	
PROJ. NO.	
525006	
SHEET	
C4.4	

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2727.29 FG
2727.50 FG
2720.70 FG
2721.79 FG
2720.50 FG
2727.50 FG
2720.70 FG
2721.56 FG
2721.79 FG
2727.50 FG
2718.19 FG
2718.19 FG
2727.29 FG
2727.24 FG
2727.00 FG
2727.00 FG
2727.00 FG
2720.00 FG
2727.00 FG
2727.00 FG
2720.00 FG
2720.00 FG
2727.00 FG
2726.80 FG
2720.00 FG
2726.50 FG
2726.50 FG
2727.00 FG
2726.50 FG
2720.00 FG
2720.00 FG
2720.00 FG
2727.00 FG
2720.00 FG
2727.00 FG
2727.00 FG
2726.50 FG
2726.50 FG
2720.00 FG
2726.50 FG
2726.50 FG
2726.00 FG
2722.96 FG
2721.98 FG
2721.86 FG
2722.98 FG
MATCH (E)
2730.62 FG
2730.57 FG
2730.57 FG
2730.00 FG
2729.64 FG
2729.57 FG
2729.38 FG
2728.57 FG
2728.57 FG
2728.00 FG
2723.50 FG
2725.50 FG
2725.00 FG
2723.24 FL
2723.10 FG
MATCH (E)
2724.25 FG
MATCH (E)
2724.41 FG
MATCH (E)
2723.72 FG
MATCH (E)
2724.75 FG
MATCH (E)
2722.63 FL
"FL1" SEE SHT C4.8
"FL2" SEE SHT C4.8
CONFORM TO (E)
D
C7.8
1256
BH WHISKER 3
1257
WHISKER 4
1258
BH 5
1259
BH 6
CP #10
DO NOT
DISTURB
-2.0:1
-2.1:1
-3.1:1
-3.0:1
-2.9:1
-2.2:1
-6.0:1
-6.2:1
-3.3:1
-3.0:1
-3.0:1
-3.0



PLAN
1"=5'

VERIFY SCALES

BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"

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PRELIMINARY

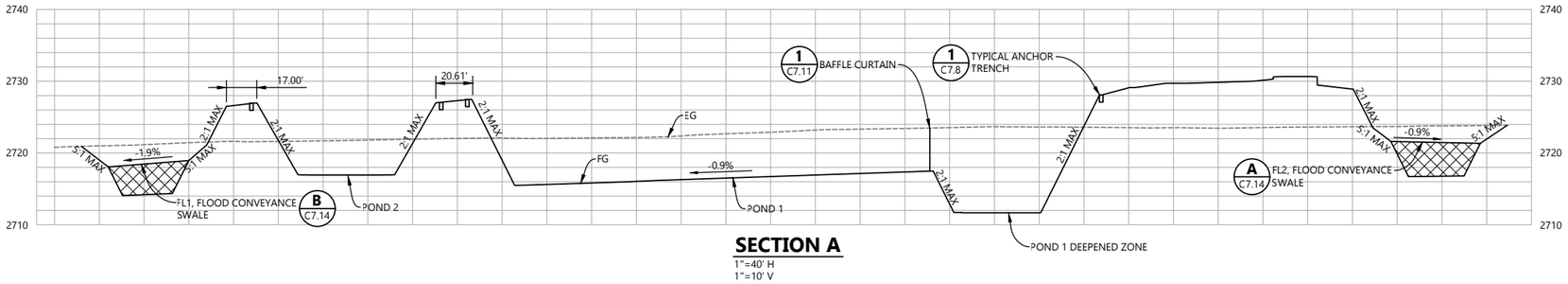
TOWN OF FORT JONES
WASTEWATER IMPROVEMENTS PROJECT
FORT JONES, CALIFORNIA

ENLARGED GRADING PLAN

DESIGN	CHECK
JM	CRS
DRAWN	
JWF/CDN	
DATE	06/2026
PROJ. NO.	525006
SHEET	C4.6

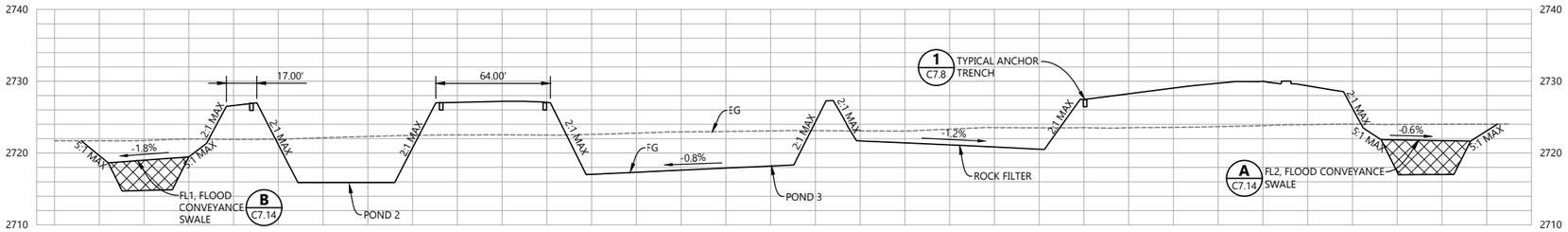
90% DESIGN-NOT FOR CONSTRUCTION

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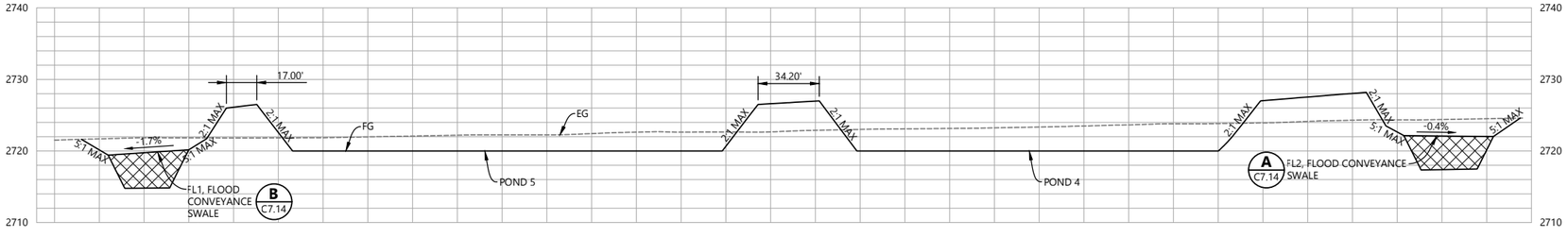
SECTION A

1"=40' H
1"=10' V



SECTION B

1"=40' H
1"=10' V



SECTION C

1"=40' H
1"=10' V

LEGEND	
SYMBOL	DESCRIPTION
	MINING AREA

VERIFY SCALES

BAR IS ONE INCH ON ORIGINAL DRAWING

0 1"

IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

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NO.	DATE	BY

REVISION

PRELIMINARY

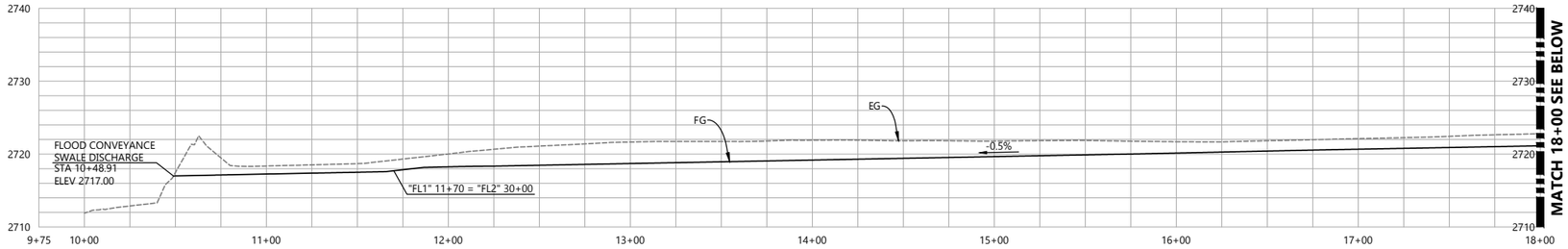
TOWN OF FORT JONES
WASTEWATER IMPROVEMENTS PROJECT
FORT JONES, CALIFORNIA

GRADING SECTIONS

DESIGN	CHECK
JM	CRS
DRAWN	
JWF/CDN	
DATE	
06/2026	
PROJ. NO.	
525006	
SHEET	
C4.7	

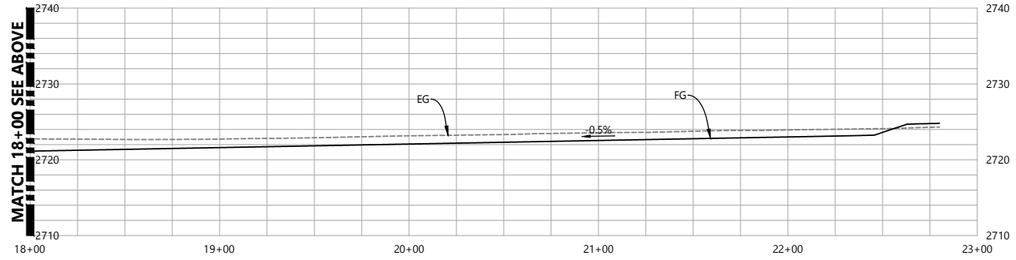
90% DESIGN-NOT FOR CONSTRUCTION

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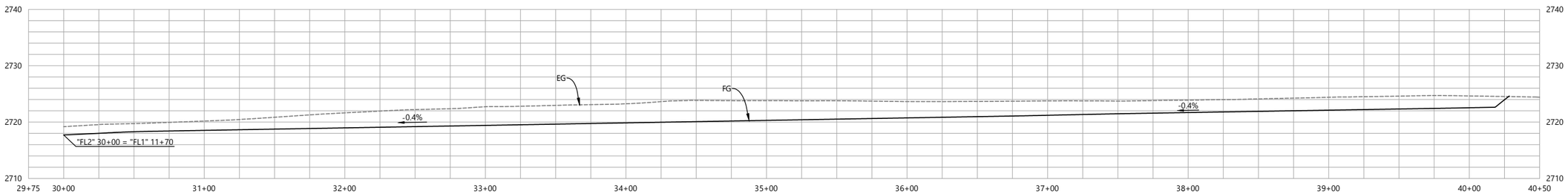
"FL1" PROFILE

1"=40' H
1"=10' V



"FL1" PROFILE

1"=40' H
1"=10' V



"FL2" PROFILE

1"=40' H
1"=10' V

VERIFY SCALES

BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

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NO.	DATE	REVISION	BY

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TOWN OF FORT JONES
WASTEWATER IMPROVEMENTS PROJECT
FORT JONES, CALIFORNIA

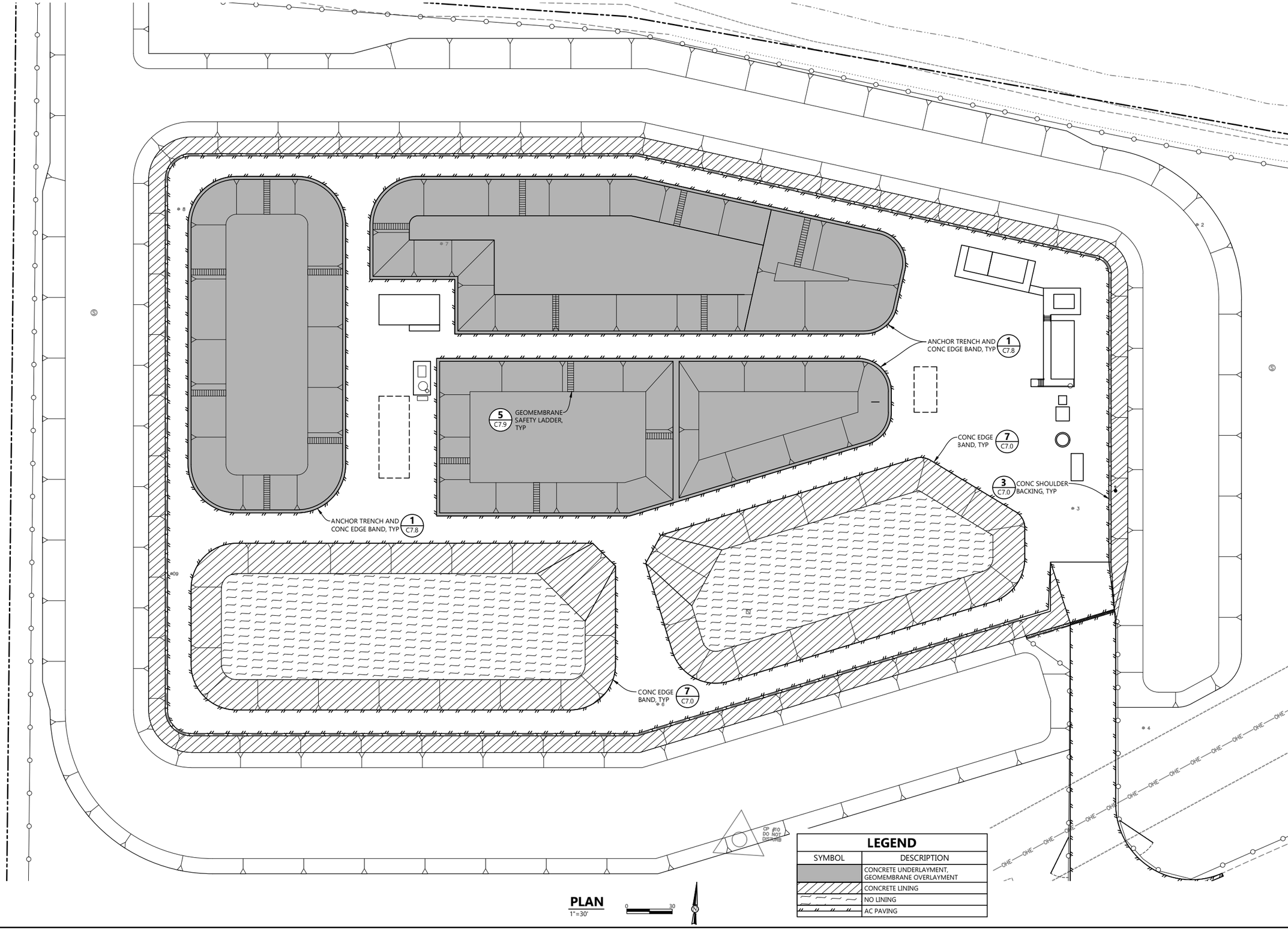
FLOOD CONVEYANCE FLOW LINE PROFILE

DESIGN	CHECK
JM	CRS
DRAWN	
JWF/CDN	

DATE 06/2026
PROJ. NO. 525006
SHEET **C4.8**

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PLAN
1"=30'

0 30

LEGEND

SYMBOL	DESCRIPTION
	CONCRETE UNDERLAYMENT, GEOMEMBRANE OVERLAYMENT
	CONCRETE LINING
	NO LINING
	AC PAVING

VERIFY SCALES

BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
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NO.	DATE	REVISION	BY

PRELIMINARY

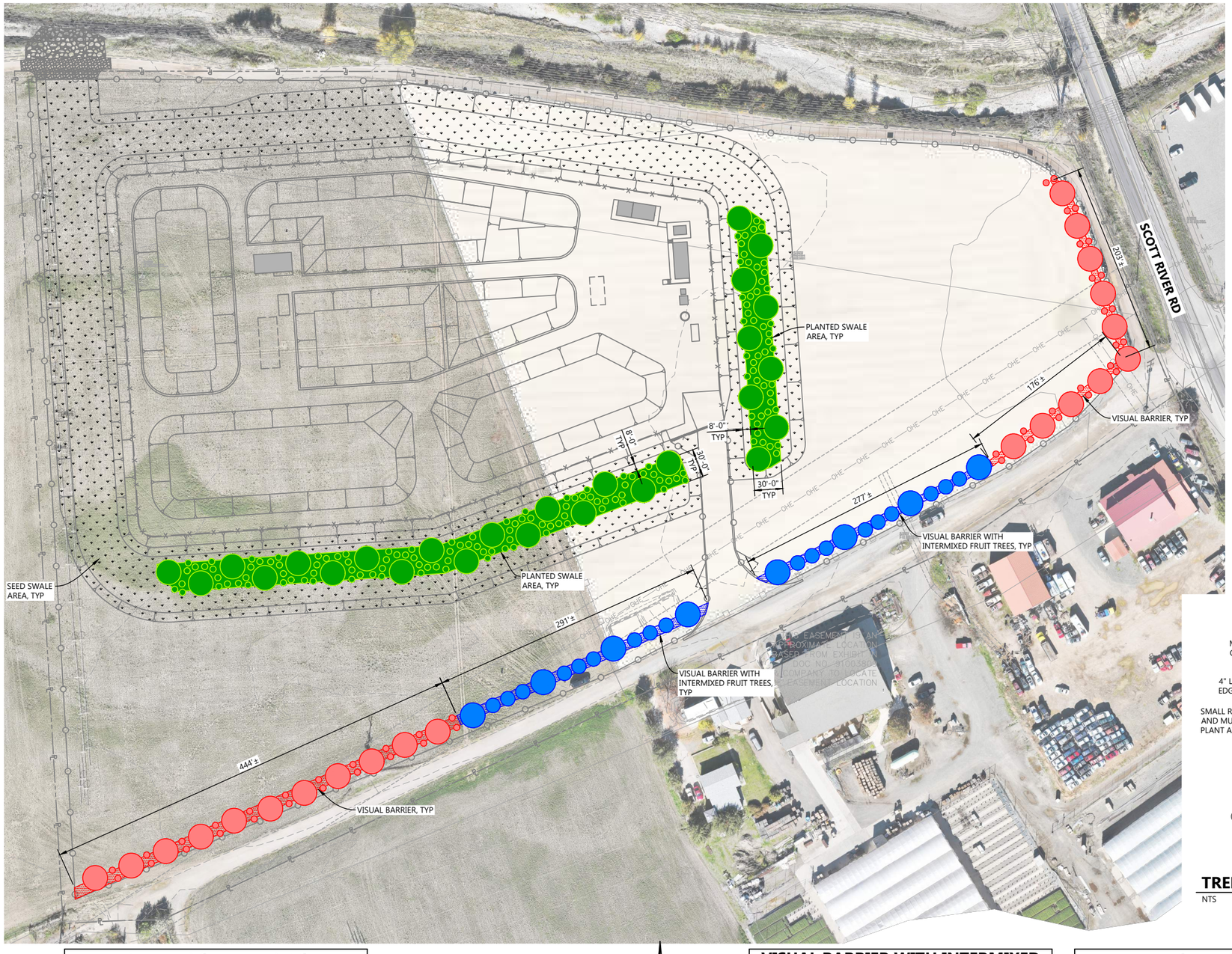
TOWN OF FORT JONES
WASTEWATER IMPROVEMENTS PROJECT
FORT JONES, CALIFORNIA

POND LINING PLAN

DESIGN	CHECK
JM	CRS
DRAWN	
JWF/CDN	
DATE	06/2026
PROJ. NO.	525006
SHEET	**C5.0**

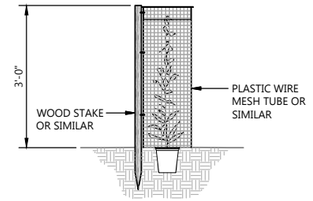
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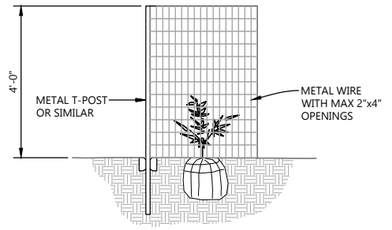
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PLAN

1"=60'

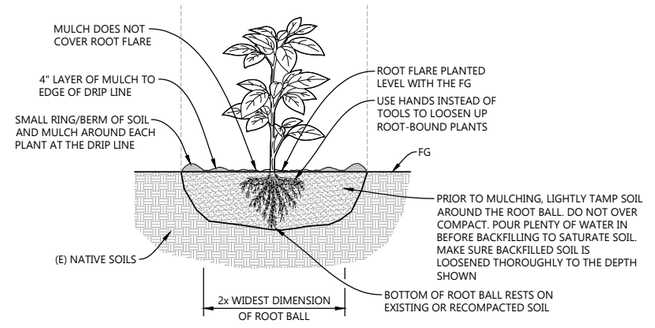




BROWSE PROTECTOR

NTS

1



TREE AND SHRUB PLANTING

NTS

2

PLANTED SWALE AREAS

PLANT TYPE	QUANTITY
SERVICE BERRY (AMELANCHIER UTAHENSIS)	7
MOUNTAIN MAHOGANY (CERCOCARPUS BETULOIDES)	7
RUBBER RABBITBRUSH (ERICAMERIA NAUSEOSA)	7
COFFEEBERRY (FRANGULA CALIFORNICA)	7
MOCK ORANGE (PHILADELPHUS LEWISII)	7
CHOKECHERRY (PRUNUS VIRGINIANA)	7
GOLDEN CURRANT (RIBES AUREUM)	7
NORTHERN CALIFORNIA BLACK WALNUT (JUGLANS HINDSLI)	13
OREGON WHITE OAK (QUERCUS GARRYANA)	13

VISUAL BARRIER WITH INTERMIXED FRUIT TREES

PLANT TYPE	QUANTITY
INCENSE CEDAR (CALOCEDRUS DECURRENS)	8
DOMESTIC APPLE TREE (MALUS DOMESTICA)	9
DOMESTIC PEAR TREE (PYRUS COMMUNIS)	9

VISUAL BARRIER

PLANT TYPE	QUANTITY
INCENSE CEDAR (CALOCEDRUS DECURRENS)	21
MOUNTAIN MAHOGANY (CERCOCARPUS BETULOIDES)	11
RUBBER RABBITBRUSH (ERICAMERIA NAUSEOSA)	11
COFFEEBERRY (FRANGULA CALIFORNICA)	11
GOLDEN CURRANT (RIBES AUREUM)	11

NOTES:

1. IRRIGATION SYSTEMS MUST BE IN PLACE AND FULLY FUNCTIONAL PRIOR TO PLANTING.
2. CONSULT WITH OWNER'S REPRESENTATIVE REGARDING EXACT PLACEMENT OF PLANTS.
3. ALL TREES SHALL RECEIVE BROWSING PROTECTOR (REFER TO DETAIL 1).
4. ALL TREES AND SHRUBS SHALL BE PLANTED ACCORDING TO DETAIL 2.

VERIFY SCALES

BAR IS ONE INCH ON ORIGINAL DRAWING

0 1"

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NO.	DATE	REVISION	BY

PRELIMINARY

TOWN OF FORT JONES
WASTEWATER IMPROVEMENTS PROJECT
FORT JONES, CALIFORNIA

PLANTING PLAN

DESIGN	CHECK
JM	CRS
DRAWN	
JWF/CDN	

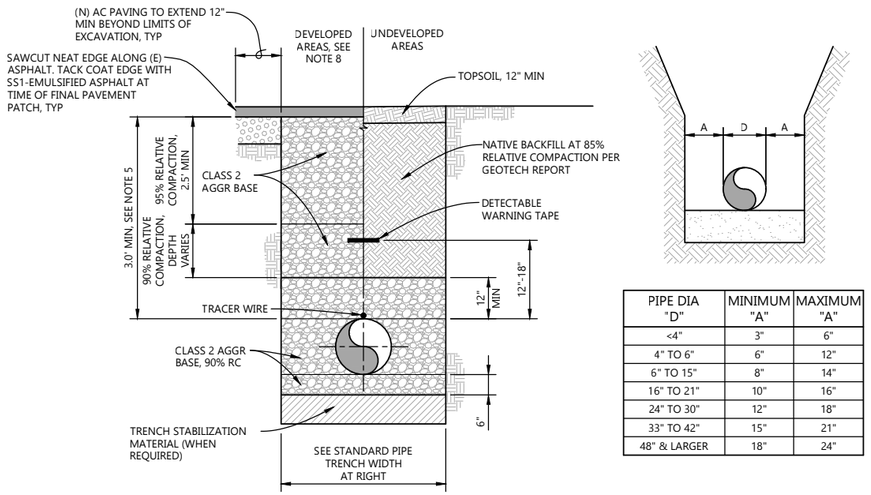
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PIPE DIA "D"	MINIMUM "A"	MAXIMUM "A"
<4"	3"	6"
4" TO 6"	6"	12"
6" TO 15"	8"	14"
16" TO 21"	10"	16"
24" TO 30"	12"	18"
33" TO 42"	15"	21"
48" & LARGER	18"	24"

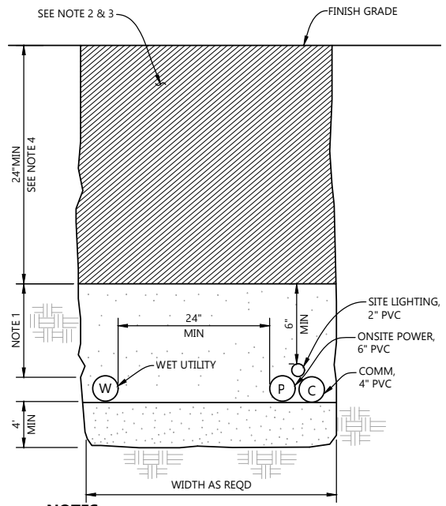
NOTES:

1. WIDER TRENCHES MAY REQUIRE HIGHER STRENGTH PIPE AND/OR SPECIAL BEDDING.
2. DIFFERING TRENCH WIDTHS REQUIRE PRIOR APPROVAL OF ENGINEER.
3. IN MAKING EXCAVATIONS FOR THIS PROJECT, THE CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR PROVIDING AND INSTALLING ADEQUATE SHEETING, SHORING AND BRACING AS MAY BE NECESSARY AS A PRECAUTION AGAINST SLIDES OR CAVE-INS, AND TO PROTECT ALL EXISTING IMPROVEMENTS OF ANY KIND, EITHER ON PUBLIC OR PRIVATE PROPERTY, FULLY FROM DAMAGE.
4. SATISFACTORY NATIVE BACKFILL MATERIAL USED AS UTILITY TRENCH BACKFILL BELOW UNPAVED AREAS SHALL BE APPROVED BY THE ENGINEER PRIOR TO USE.
5. 2-SACK SLURRY BACKFILL MAY BE USED IN TRENCH WHEN MINIMUM PIPE COVER NOT POSSIBLE, WHEN APPROVED BY OWNER'S REPRESENTATIVE.
6. DETECTABLE WARNING TAPE SHALL BE BRIGHT COLORED, CONTINUOUSLY PRINTED, MINIMUM 6" WIDE BY 4 MIL THICK, MANUFACTURED FOR DIRECT BURIAL.
7. DETECTABLE WARNING TAPE NOT REQUIRED FOR IRRIGATION LINES.
8. GRAVEL ROADS AND SURFACES EXPOSED TO VEHICLE LOADS SHALL USE DEVELOPED AREA TRENCH SECTION BUT WITH AGGREGATE BASE AS SURFACE INSTEAD OF PAVING.

TYPICAL TRENCH

NTS

1



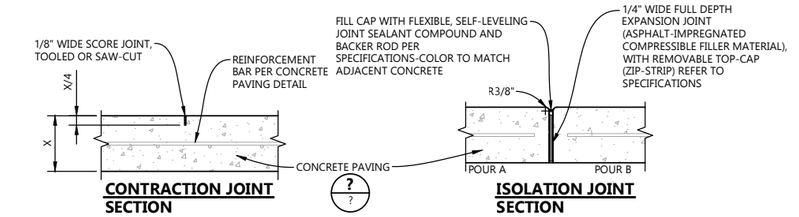
NOTES:

1. ROCK FREE BACKFILL (SAND OR NATIVE SOIL CONTAINING NOT MORE THAN OCCASIONAL ROUNDED ROCKS LESS THAN 1/4" DIAMETER) MUST BE PROVIDED FROM A LEVEL 4" BELOW TO 6" ABOVE ALL FACILITIES WITHIN THE TRENCH AREA.
2. BACKFILL AND COMPACTION MUST MEET ANY APPLICABLE PG&E, FEDERAL, STATE OR LOCAL REQUIREMENTS.
3. DEPTHS AND SEPARATION SHOWN ARE MINIMUMS. VARIANCES MAY BE REQUIRED IF LARGER DIAMETER FACILITIES ARE TO BE INSTALLED. ELECTRIC FACILITIES SHALL CONFORM TO PROVISIONS OF GENERAL ORDER 128.
4. ADDITIONAL DEPTH MUST BE PROVIDED TO MAINTAIN THE REQUIRED SEPARATION AND COVER FOR CROSSING ELECTRIC, TELEPHONE, OR CABLE TELEVISION FACILITIES.

JOINT TRENCH

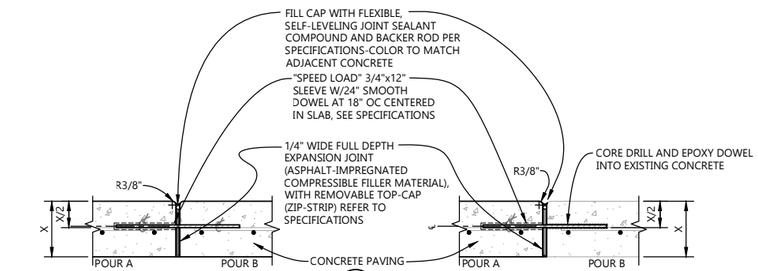
NTS

2



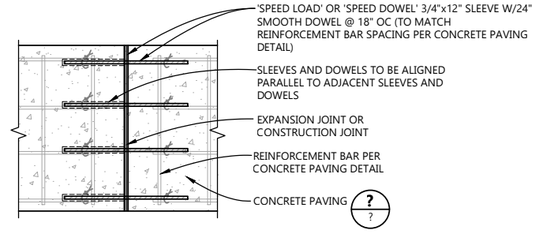
CONTRACTION JOINT SECTION

ISOLATION JOINT SECTION



EXPANSION JOINT AT NEW CONC SECTION

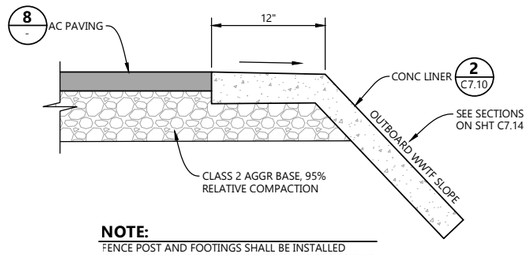
CONSTRUCTION JOINT AT EXIST CONC SECTION



CONSTRUCTION/EXPANSION PLAN

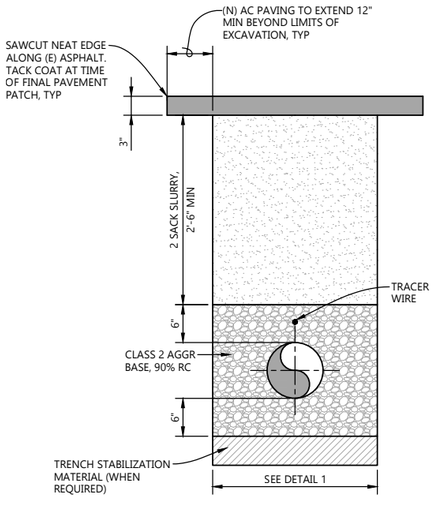
NOTES:

1. CONTRACTION JOINTS SHALL BE PLACED AT MAXIMUM INTERVALS OF 10'.
2. EXPANSION JOINTS SHALL BE PLACED AT MAXIMUM INTERVALS OF 50', AND AS INDICATED ON THE PLANS.
3. ISOLATION JOINTS SHALL BE PLACED ABUTTING CATCH BASINS, MANHOLES, INLETS, STRUCTURES, WALKS, OTHER FIXED OBJECTS, AND WHERE INDICATED ON THE PLANS.



NOTE:

FENCE POST AND FOOTINGS SHALL BE INSTALLED CENTERED ALONG THE CONCRETE SHOULDER BACKING.



SISKIYOU COUNTY ROAD TRENCH

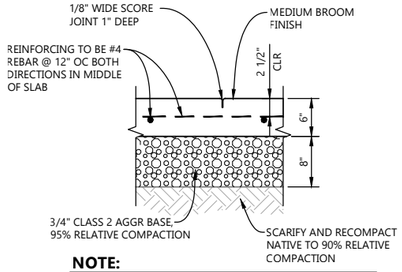
NTS

5

SHOULDER BACKING

NTS

3



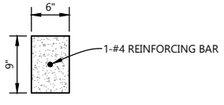
NOTE:

PROVIDE SCORE JOINTS 5' OC UNLESS OTHERWISE NOTED.

MINOR SITE CONCRETE

NTS

6



NOTE:

PROVIDE A 6-INCH MINIMUM FORM BOARD SECURED WITH STAKES ON THE PAVED SIDE OF THE CONCRETE EDGE BAND TO ACHIEVE A FLUSH FINISH. REMOVE THE FORM BOARD AND STAKES PRIOR TO PAVING.

CONCRETE EDGE BAND

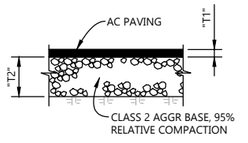
NTS

7

CONCRETE FLATWORK JOINTS

NTS

4



THICKNESS		
LOCATION	"T1"	"T2"
AC PAVING	3"	8"

NOTE:

APPLY TYPE SS1 OR RS1 TACK COAT TO ALL VERTICAL SURFACES OF EXISTING PAVEMENT, CURBS, GUTTERS, AND CONSTRUCTION JOINTS.

TYPICAL PAVING SECTION

NTS

8

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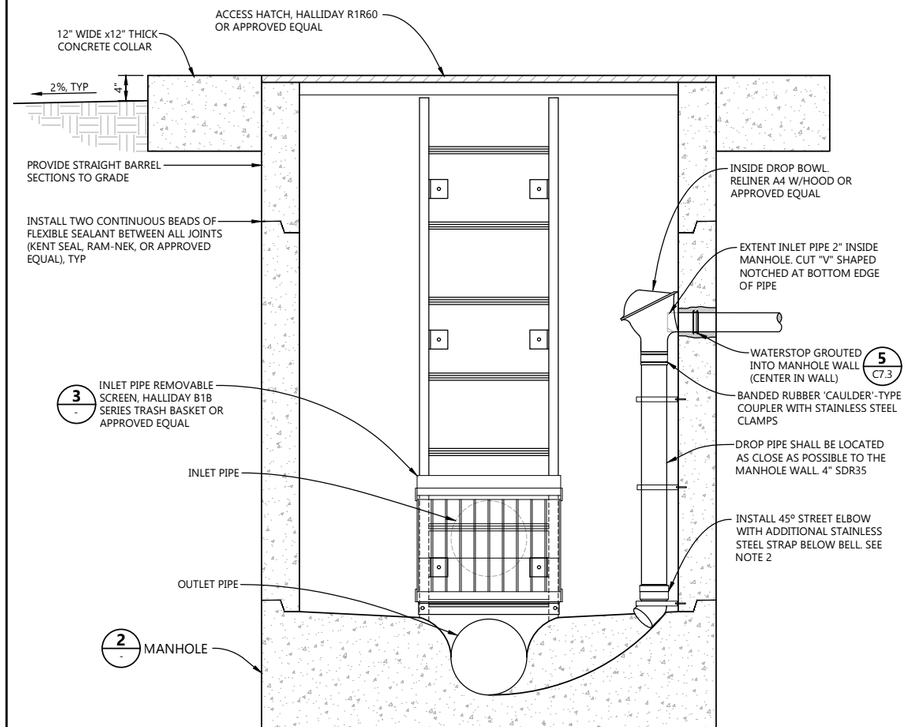
TOWN OF FORT JONES
WASTEWATER IMPROVEMENTS PROJECT
FORT JONES, CALIFORNIA

CIVIL DETAILS

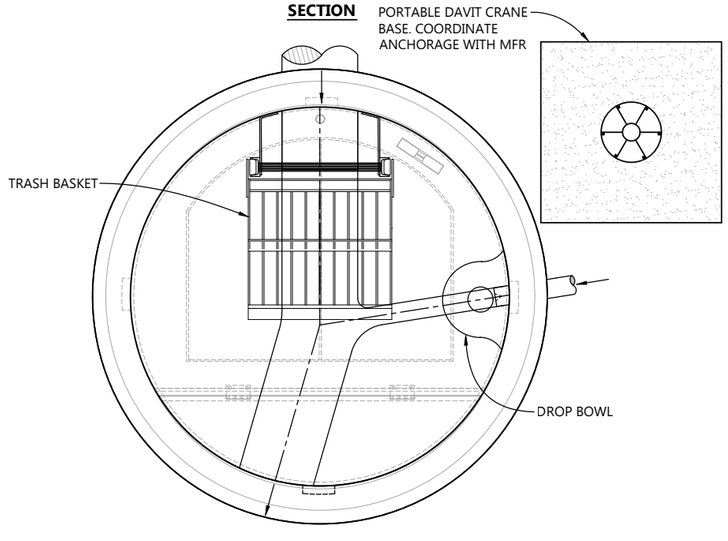
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JM	CRS
DRAWN	
JWF/CDN	
DATE	
06/2026	
PROJ. NO.	
525006	
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C7.0	

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SECTION



PLAN

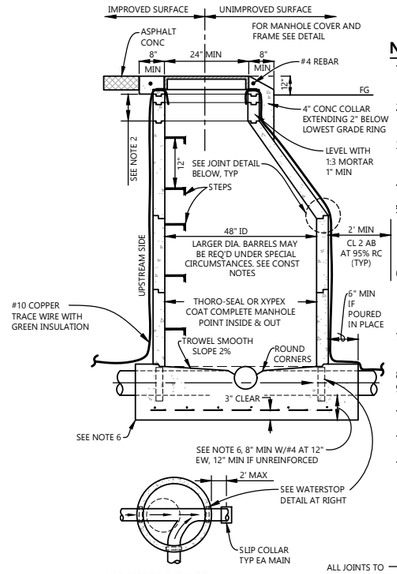
NOTES:

1. ALL HOLES FOR PIPE AND BOLTS SHALL BE EITHER DRILLED OR SAWCUT.
2. SECURE DROP PIPE TO THE WALL WITH ADJUSTABLE BRACKETS OF 1 1/2" MINIMUM WIDTH, 11 GAUGE TYPE 304 STAINLESS STEEL. PINCH BOLTS AND NUTS SHALL BE 3/8" DIAMETER, 18-8 STAINLESS, SPACED 3' ON O.C WITH A 2 STRAP MINIMUM.
3. HATCH COVER SHALL BE INCIDENTAL H20 LOAD RATED.

ISS SANITARY SEWER MANHOLE 3

NTS

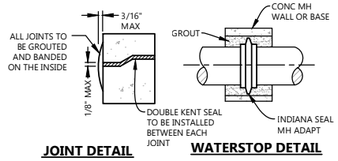
1



MANHOLE BASE

CHANNELIZATION PLAN
CHANNEL SIZE AND LENGTH
TO ACCOMODATE SEWER CAMERA

A SLIP COLLAR SHALL BE INSTALLED IN THE SEWER MAIN WITHIN 12" OF THE BASE OF THE MANHOLE (TYP-NOT SHOWN) NOT REQUIRED WHEN PRECAST BASES ARE MANUF. W/ FLEX CPLGS. ALREADY INSTALLED.



JOINT DETAIL

WATERSTOP DETAIL

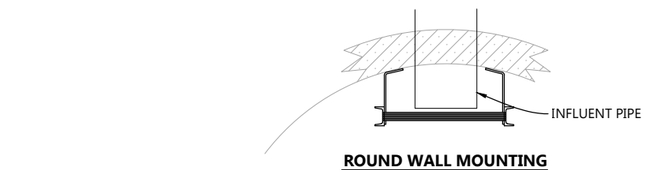
NOTES:

1. WHEN MANHOLES ARE INSTALLED IN UNIMPROVED AREAS, THE TOP OF THE COVER SHALL BE A MIN. OF 1 FOOT ABOVE ADJACENT FINISHED GRADE.
2. MIN. OF ONE 3" GRADE ADJUSTMENT RING. MAX. HEIGHT OF GRADE ADJUSTMENT RINGS = 12". ALTERNATELY, CONTRACTOR MAY CAST GRADE ADJUSTMENT RINGS IN PLACE.
3. SET ALL BARREL SECTIONS & TAPER SECTIONS IN PLASTIC GASKET, RAM-NEK OR APPROVED ALTERNATE. TYP. JOINT 1-1/2"(3/4X2-1/2") DOUBLE KENT SEAL.
4. CONE SECTION (TAPER) MUST BE ECCENTRIC FOR 48" MANHOLE UNLESS OTHERWISE SPECIFIED AND APPROVED BY THE ENGINEER.
5. CONSTRUCT ALL FLOW CHANNELS OF PIPE WHEREVER POSSIBLE. AFTER MANHOLE IS SET, CUT OUT TOP HALF OF PIPE FLUSH WITH INSIDE FACE OF M.H. WALL AND CONSTRUCT SHELF AND U-SHAPED CHANNEL. MAKE ELEVATION CHANGES GRADUALLY AND DIRECTIONAL CHANGES WITH SMOOTH CURVES.
6. POURED-IN-PLACE BASE SHALL BE POURED FULL THICKNESS TO UNDISTURBED SIDES OF EXCAVATION OR SHALL BE FORMED. PRECAST BASE TO BE FROM A ENGINEER APPROVED LIST AND PLACED ON 12" THICK 3/4" DRAIN ROCK SUBBASE INSTALLED AGAINST UNDISTURBED EARTH (NOT SHOWN).
7. JOINT BETWEEN BASE AND BARREL TO BE SEALED W/2-1/2"(3/4"X2-1/2") DOUBLE KENT SEAL ,OR PLASTER 6" FILLET, 1:3 MORTAR.
8. CONCRETE COLLAR SHALL BE BROUGHT UP TO FINISHED GRADE.
9. STANDARD MANHOLE BARREL SECTION PER ASTM C478. BACKFILL WITH CL 2 AB AT 95% RC.
10. BARREL AND TAPER SECTIONS MAY BE CAST IN PLACE AS APPROVED BY THE ENGINEER.
11. 48" I.D. MANHOLE TO BE USED FOR SEWER MAINS LESS THAN 18" DIAMETER AND LESS THAN 8 FT. DEEP FROM FINISH GRADE.
12. STEPS SHALL BE FIBERGLASS ENCAPSULATED POLYETHYLENE.

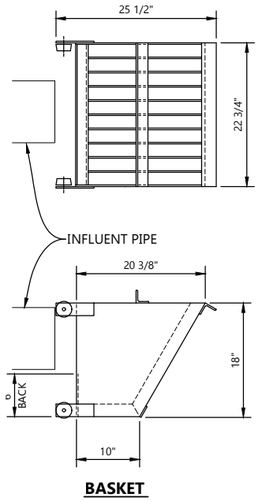
SANITARY SEWER MANHOLE

NTS

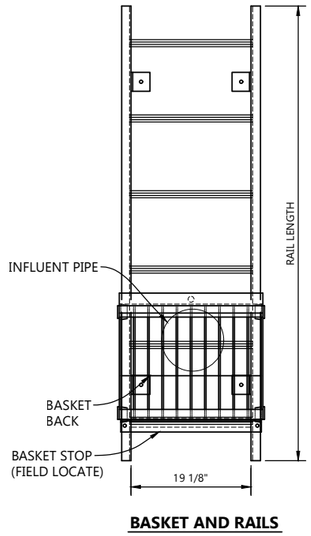
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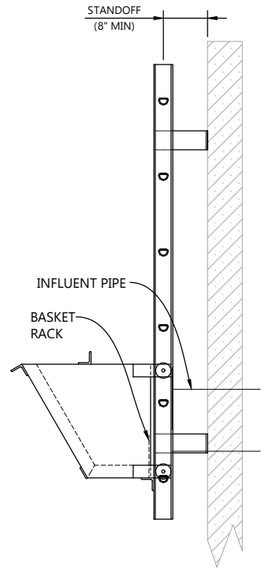
ROUND WALL MOUNTING



BASKET



BASKET AND RAILS



INLET PIPE REMOVABLE SCREEN

NTS

3

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VERIFY SCALES

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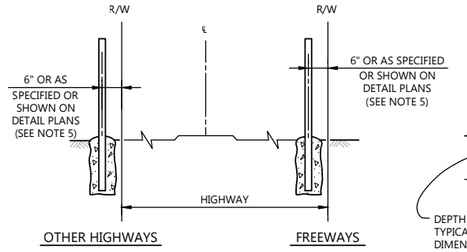
TOWN OF FORT JONES
WASTEWATER IMPROVEMENTS PROJECT
FORT JONES, CALIFORNIA

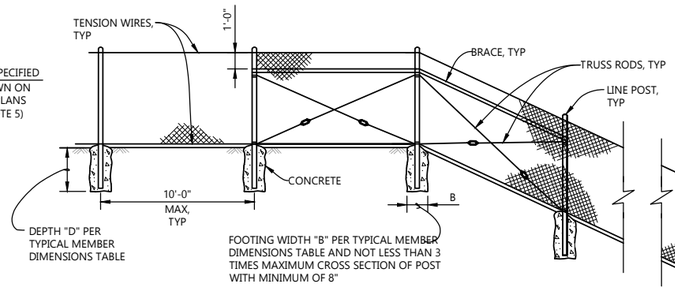
CIVIL DETAILS

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DATE 06/2026	
PROJ. NO. 525006	
SHEET **C7.1**	

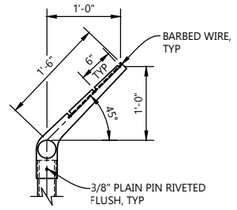
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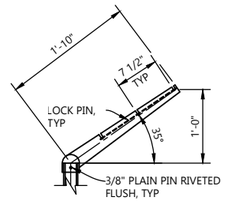




CHAIN LINK FENCE ON SHARP BREAK IN GRADE

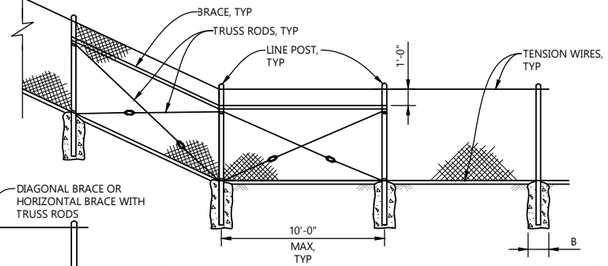


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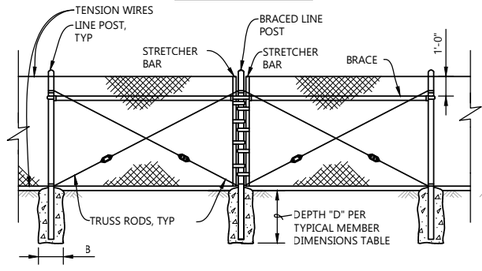


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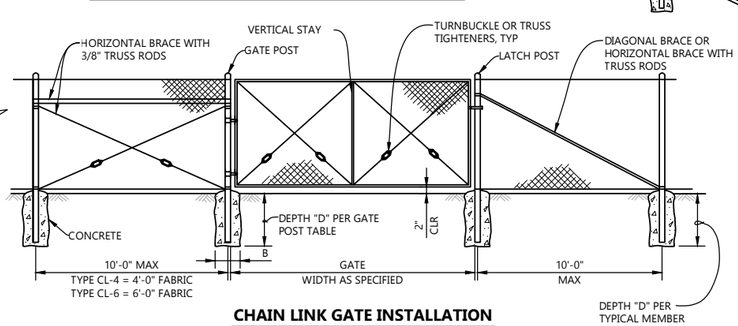
BARBED WIRE POST TOP



FENCE LOCATION



BRACED LINE POST INSTALLATION



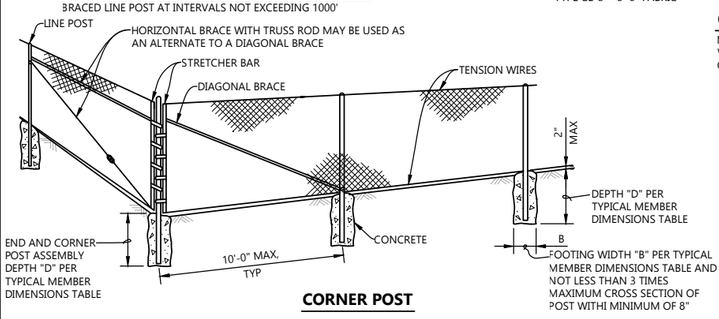
CHAIN LINK GATE INSTALLATION

MAXIMUM GATE WIDTH IS 12'-0"
VERTICAL STAY IS REQUIRED IN MIDDLE OF GATE GREATER THAN 8'-0" WIDTH

GATE POST

FENCE HEIGHT (MAX)	SLATTED	B (IN)	D (FT)	ROUND PIPE		
				SECTION	ROUND OD PIPE	WEIGHT (LB/FT)
5'-0"	NO	12"	2'-6"	3 STD	3.50"	7.58
6'-0"	NO	12"	2'-6"	3 STD	3.50"	7.58
8'-0"	NO	12"	3'-0"	3 STD	3.50"	7.58
10'-0"	NO	14"	3'-6"	3 STD	3.50"	7.58
5'-0"	YES	12"	3'-0"	3 1/2 STD	4.00"	9.12
6'-0"	YES	14"	3'-6"	4 STD	4.50"	10.80
8'-0"	YES	18"	3'-6"	5 STD	5.56"	14.60
10'-0"	YES	20"	4'-0"	6 STD	6.63"	19.00

ABOVE POST DIMENSIONS AND WEIGHTS ARE MINIMUMS.
LARGER SIZES MAY BE USED UPON APPROVAL.



CORNER POST

TYPICAL MEMBER DIMENSIONS (SEE NOTES)

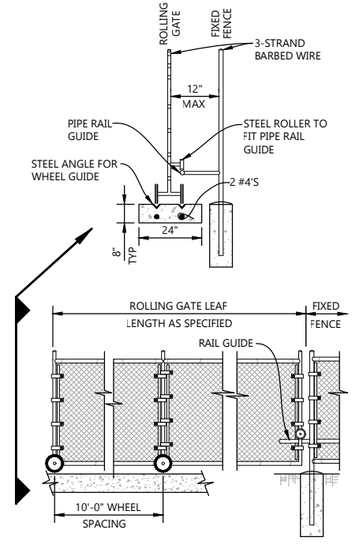
FENCE HEIGHT (MAX)	SLATTED	B (IN)	D (FT)	LINE POSTS					BRACES				
				ROUND PIPE			ROLL FORMED		ROUND PIPE			ROLL FORMED	
				SECTION	ROUND OD PIPE	WEIGHT (LB/FT)	SECTION	WEIGHT (LB/FT)	SECTION	ROUND OD PIPE	WEIGHT (LB/FT)	SECTION	WEIGHT (LB/FT)
5'-0"	NO	8"	2'-6"	1 1/2 STD	1.90"	2.72	1.875" x 1.625"	1.85	1 1/2 STD	1.90"	2.72	1.625" x 1.250"	1.35
6'-0"	NO	10"	2'-6"	2 STD	2.38"	3.66	1.875" x 1.625"	2.40	2 STD	2.38"	3.66	1.625" x 1.250"	1.35
8'-0"	NO	12"	3'-0"	2 1/2 STD	2.88"	5.80	3.250" x 2.500"	4.50	2 STD	2.38"	3.66	1.625" x 1.250"	1.35
10'-0"	NO	14"	3'-6"	3 STD	3.50"	7.58	3.250" x 2.500"	4.50	2 1/2 STD	2.88"	5.80	1.625" x 1.250"	1.35
5'-0"	YES	12"	3'-0"	3 1/2 STD	4.00"	9.12	N/A	-	2 STD	2.38"	3.66	N/A	-
6'-0"	YES	14"	3'-0"	4 STD	4.50"	10.80	N/A	-	2 STD	2.38"	3.66	N/A	-
8'-0"	YES	18"	3'-6"	5 STD	5.56"	14.60	N/A	-	2 STD	2.38"	3.66	N/A	-
10'-0"	YES	20"	4'-0"	6 STD	6.63"	19.00	N/A	-	2 1/2 STD	2.88"	5.80	N/A	-

NOTES:

1. THE TABLE TO THE RIGHT SHOWS MINIMUM SIZED POSTS AND BRACES COMPLYING WITH THE SPECIFICATIONS. LARGER OR HEAVIER POST AND BRACE SIZES MAY BE USED UPON APPROVAL.
2. SECTIONS SHOWN IN THE TABLES MUST ALSO COMPLY WITH STRENGTH REQUIREMENTS AND OTHER PROVISIONS OF THE SPECIFICATIONS.
3. OTHER SECTIONS WHICH COMPLY WITH THE STRENGTH REQUIREMENTS AND OTHER PROVISIONS OF THE SPECIFICATIONS MAY BE USED UPON APPROVAL.
4. OPTIONS EXERCISED SHALL BE UNIFORM ON ANY ONE PROJECT.
5. OFFSET TO BE 2'-0" AT MONUMENT LOCATIONS, MEASURED AT RIGHT ANGLES TO R/W LINES. TAPER TO ACHIEVE OFFSET TO BE AT LEAST 20'-0" LONG.
6. SEE STANDARD PLAN A85B FOR BRACE, STRETCHER BAR, AND TRUSS TIGHTENER DETAILS.

SECURITY FENCE

NTS



ROLLING ENTRY GATE

NTS

VERIFY SCALES

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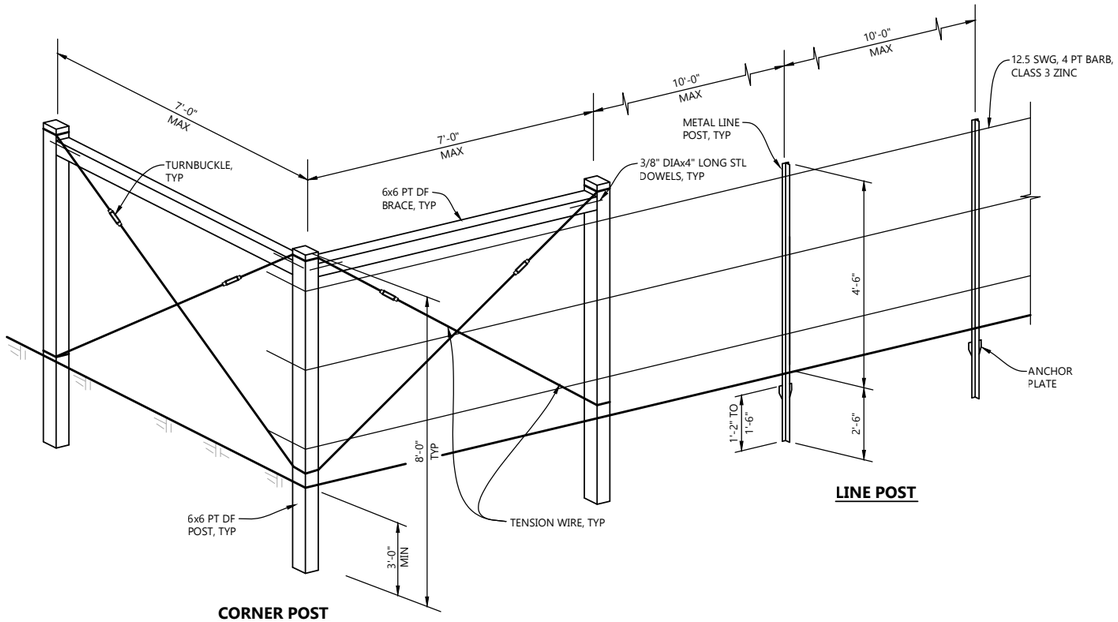
TOWN OF FORT JONES
WASTEWATER IMPROVEMENTS PROJECT
FORT JONES, CALIFORNIA

CIVIL DETAILS

DESIGN	CHECK
JM	CRS
DRAWN	
JWF/CDN	
DATE	
06/2026	
PROJ. NO.	
525006	
SHEET	
C7.2	

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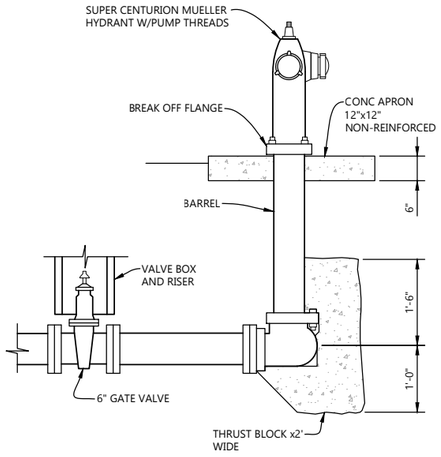
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THREE-WIRE FENCE

NTS

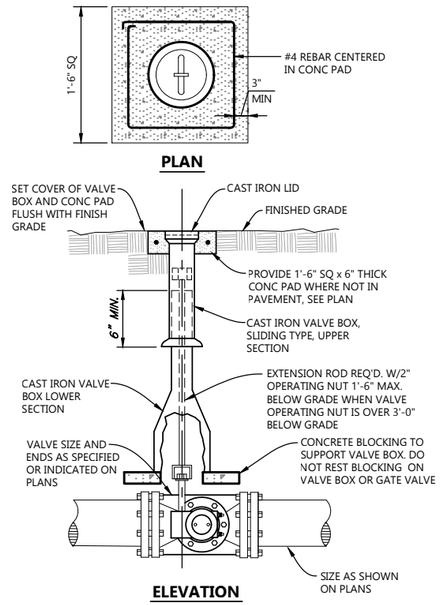
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DRY BARREL FIRE HYDRANT

NTS

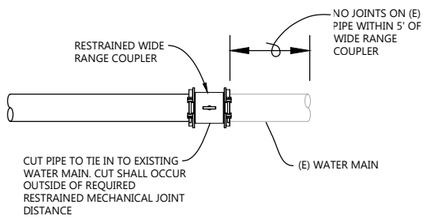
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PLUG VALVE

NTS

3



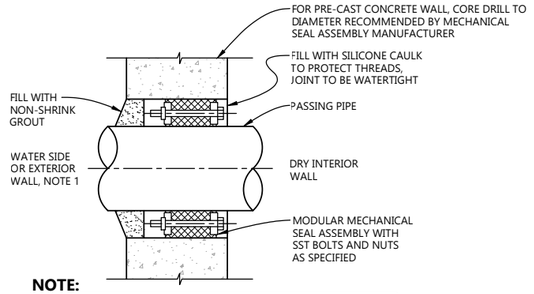
NOTE:

BOLTS AND NUTS SHALL RECEIVE RUBBERIZED COATING AND WHOLE ASSEMBLY SHALL BE POLY WRAPPED.

WATER MAIN TIE-IN

NTS

4



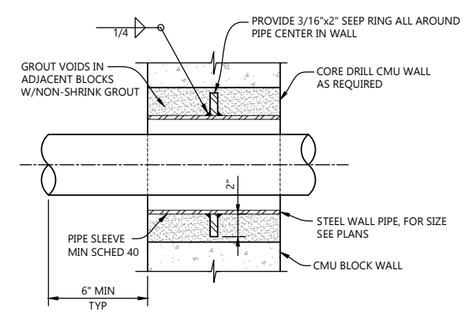
NOTE:

WHERE PIPE PASSES THROUGH INTERIOR WALL, GROUT IS NOT REQUIRED.

WALL PENETRATION SEAL

NTS

5



CMU WALL PIPE PENETRATION

NTS

6

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FORT JONES, CALIFORNIA

CIVIL DETAILS

DESIGN	CHECK
JM	CRS
DRAWN	
JWF/CDN	

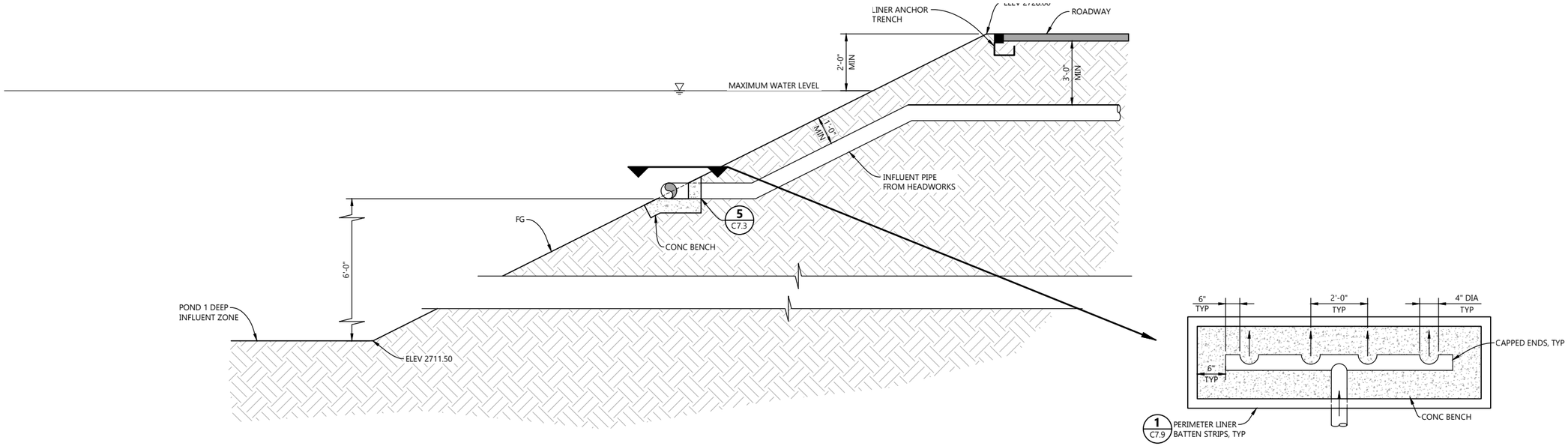
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SHEET **C7.3**

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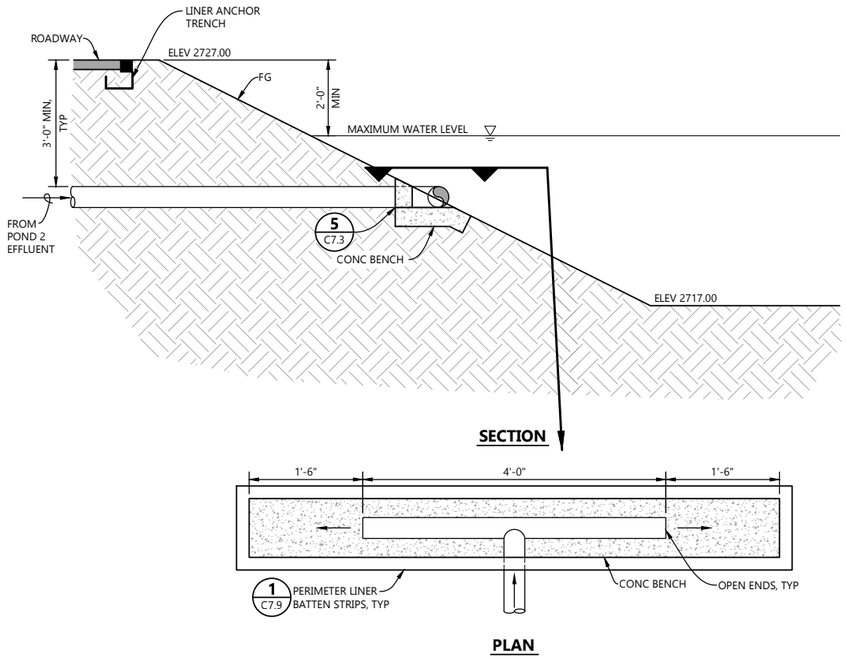


SECTION **PLAN**

POND 1 INFLUENT DIFFUSER

NTS

1

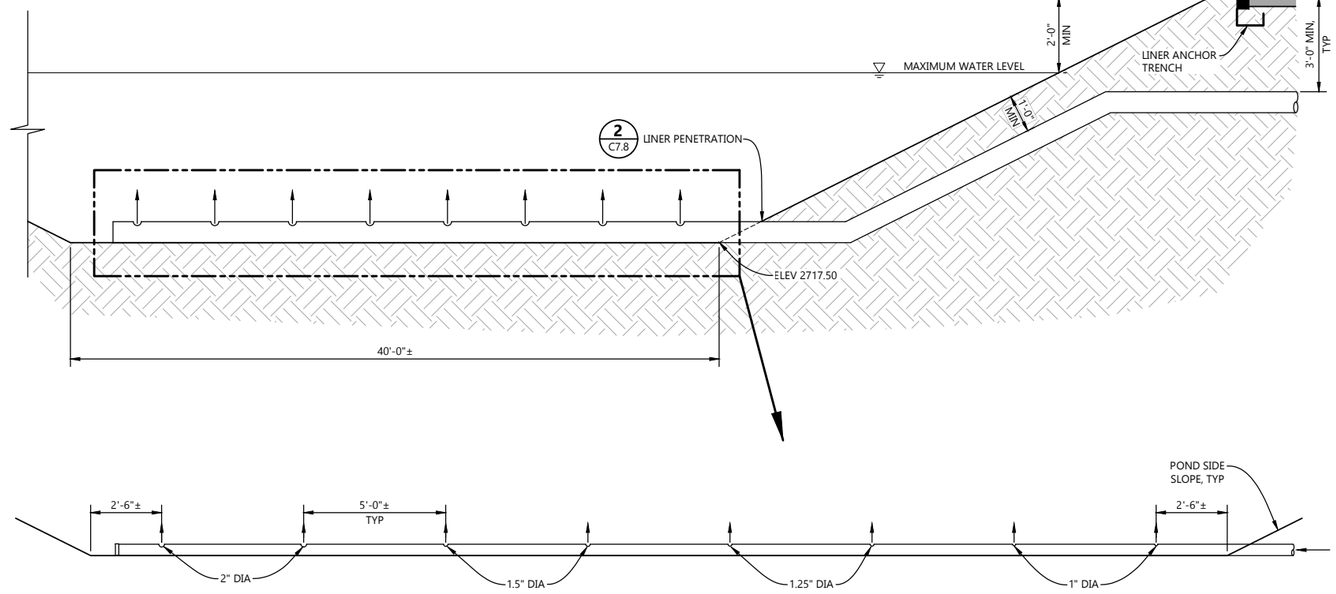


SECTION **PLAN**

POND 3 INFLUENT DIFFUSER

NTS

2



POND 1 RECIRCULATION DIFFUSER

NTS

3

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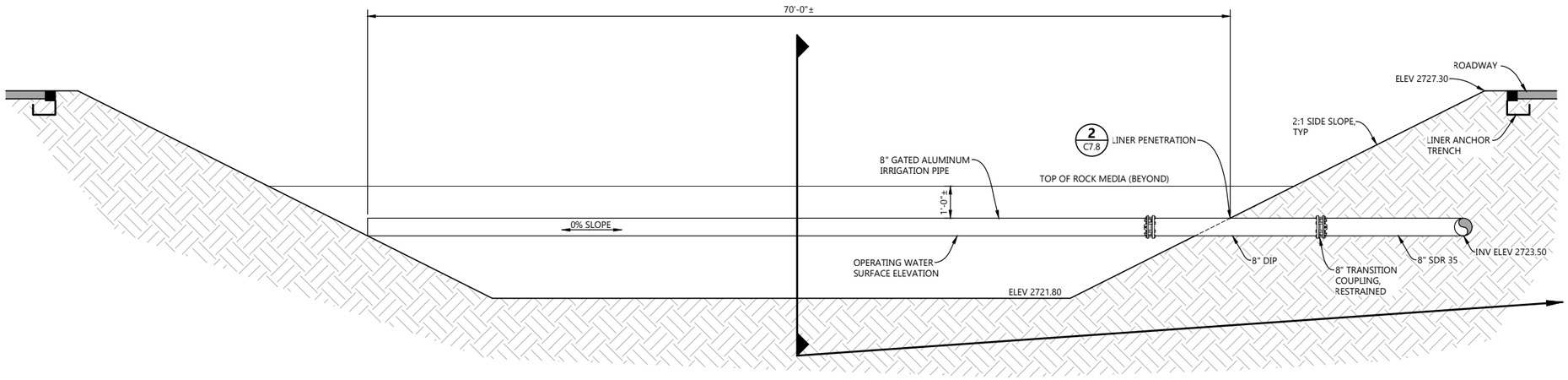
TOWN OF FORT JONES
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FORT JONES, CALIFORNIA

CIVIL DETAILS

DESIGN JM	CHECK CRS
DRAWN JWF/CDN	
DATE 06/2026	
PROJ. NO. 525006	
SHEET C7.4	

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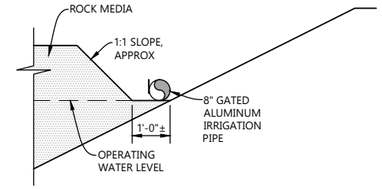
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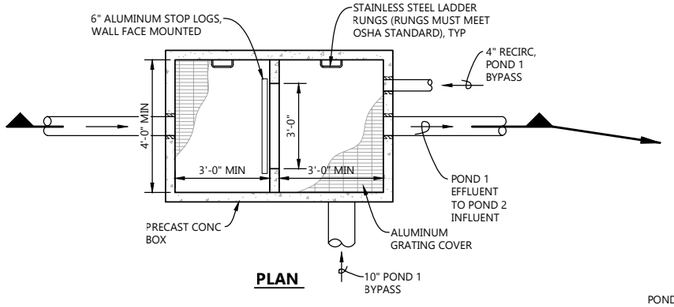


ROCK FILTER INFLUENT HEADER

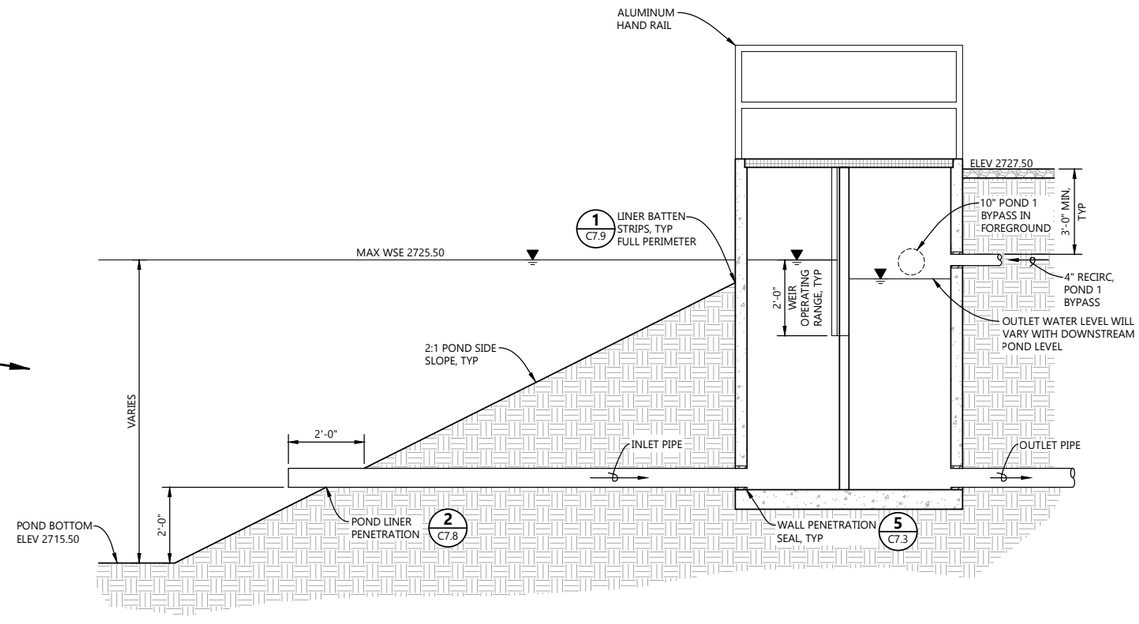
NTS

1





PLAN



SECTION

POND 1 OUTLET WEIR BOX STRUCTURE

NTS

2

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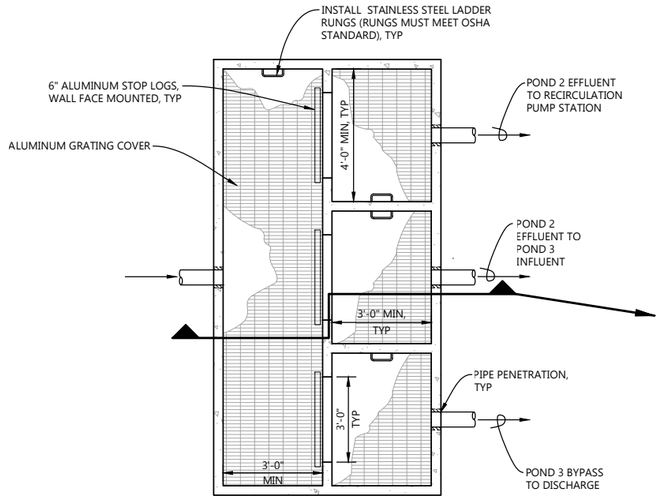
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CIVIL DETAILS

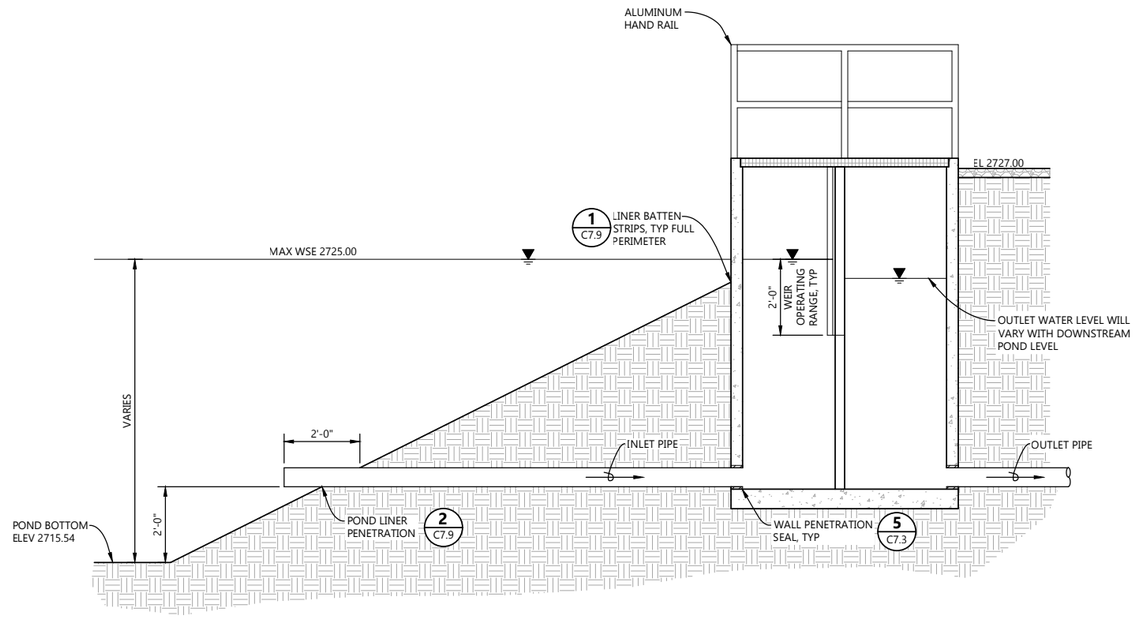
DESIGN	JM
DRAWN	JWF/CDN
CHECK	CRS
DATE	06/2026
PROJ. NO.	525006
SHEET	C7.5

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PLAN

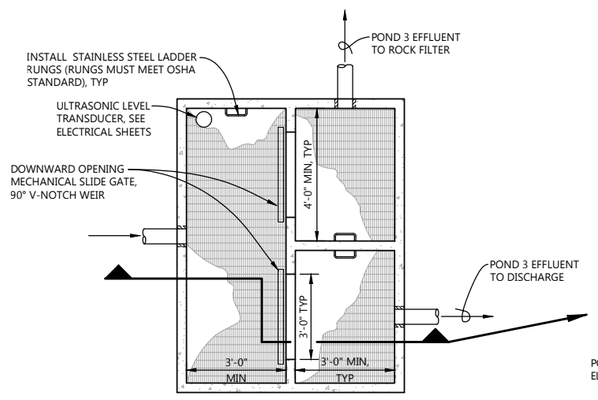


SECTION

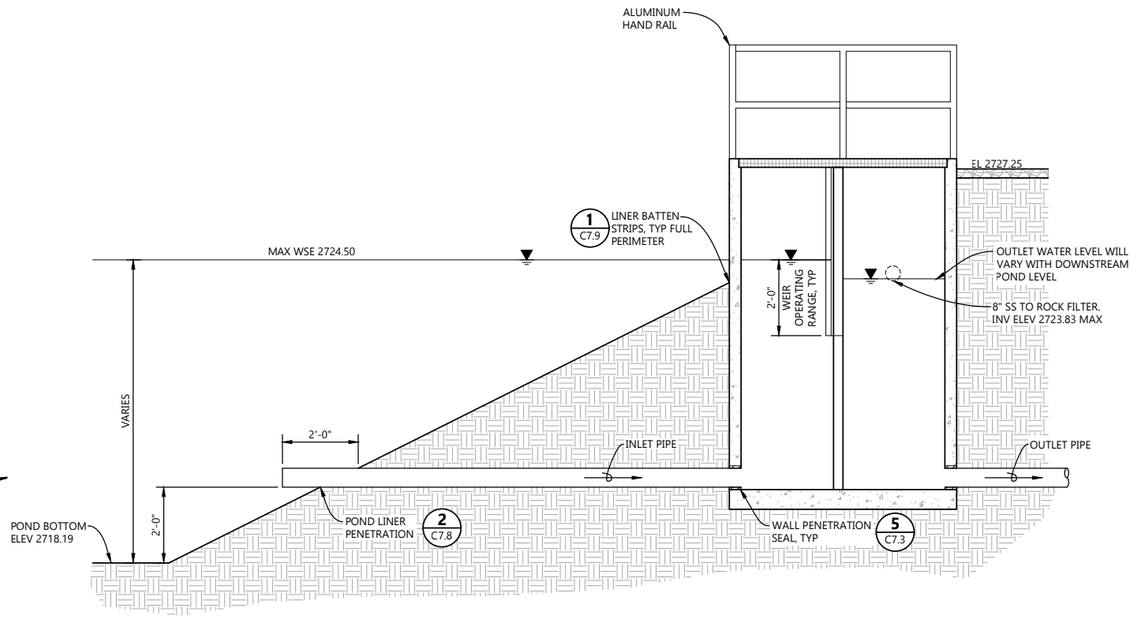
POND 2 OUTLET WEIR BOX STRUCTURE

NTS

1



PLAN



SECTION

POND 3 OUTLET WEIR BOX STRUCTURE

NTS

3

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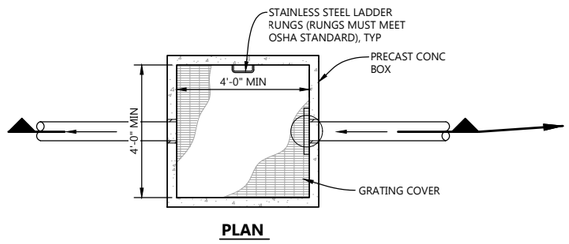
TOWN OF FORT JONES
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FORT JONES, CALIFORNIA

CIVIL DETAILS

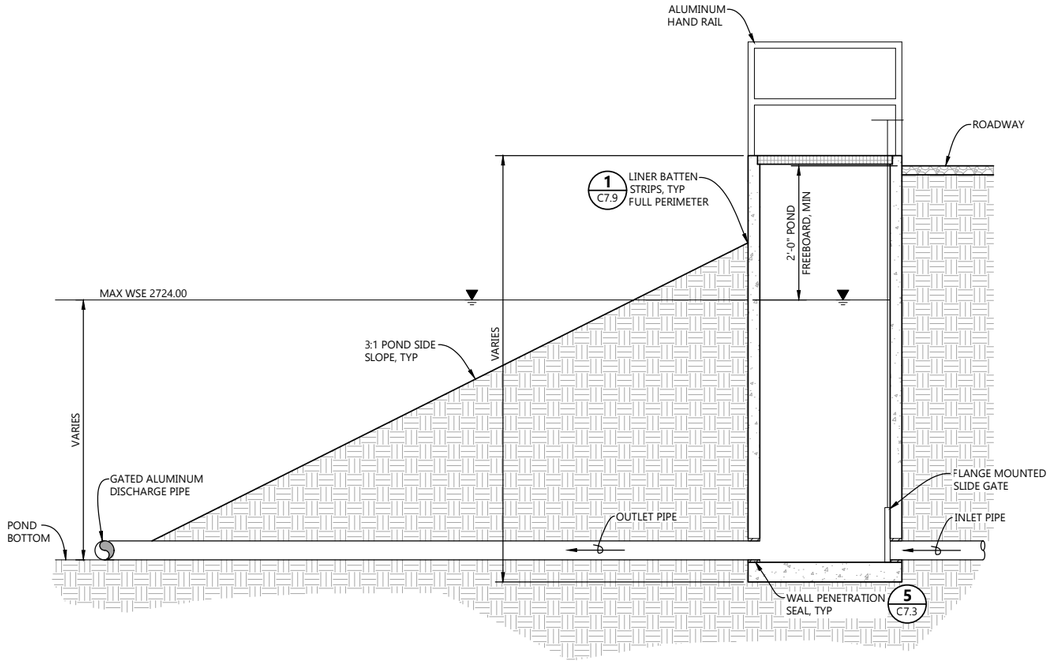
DESIGN	CHECK
JM	CRS
DRAWN	
JWF/CDN	
DATE	06/2026
PROJ. NO.	525006
SHEET	C7.6

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PLAN

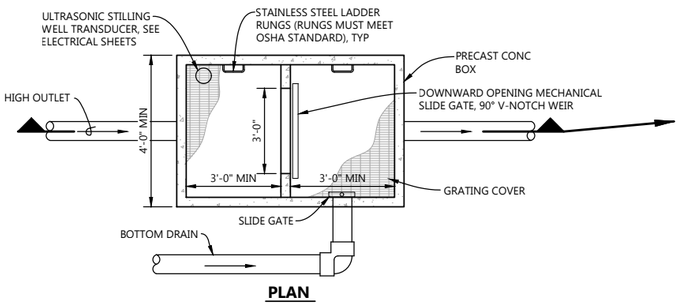


SECTION

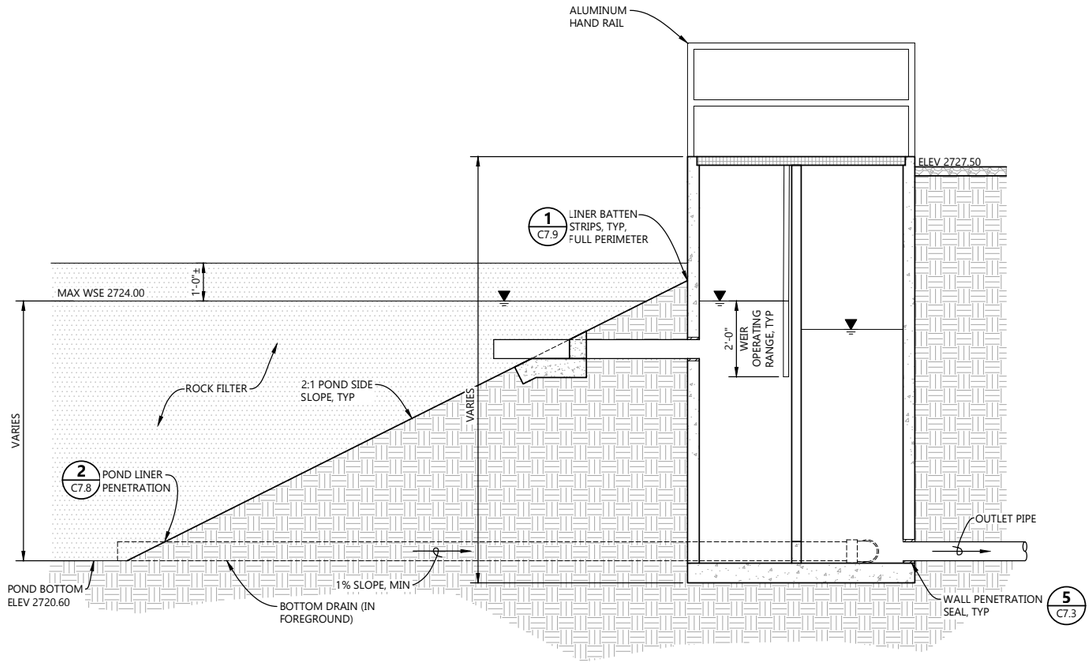
DISCHARGE TO PONDS 4 AND 5 STRUCTURES

NTS

1



PLAN



SECTION

ROCK FILTER OUTLET WEIR BOX STRUCTURE

NTS

2

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CIVIL DETAILS

DESIGN	CHECK
JM	CRS
DRAWN	
JWF/CDN	

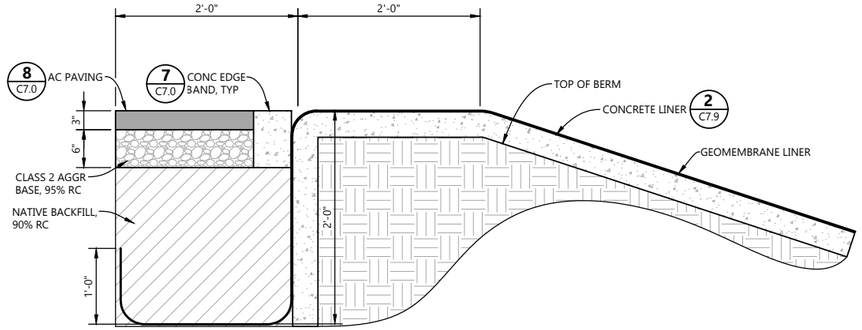
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SHEET **C7.7**

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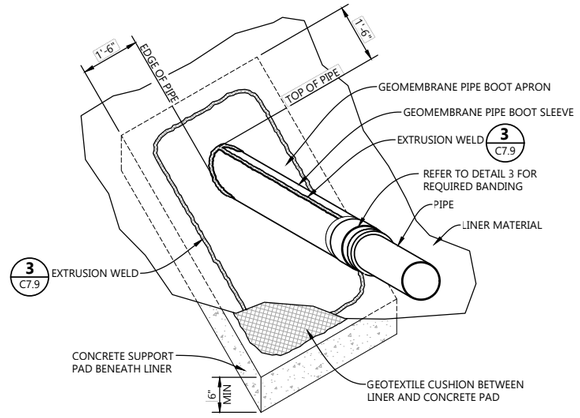


NOTE:
WELD LINER SEAMS INTO ANCHOR TRENCH TO END OF PANEL.

TYPICAL ANCHOR TRENCH

1

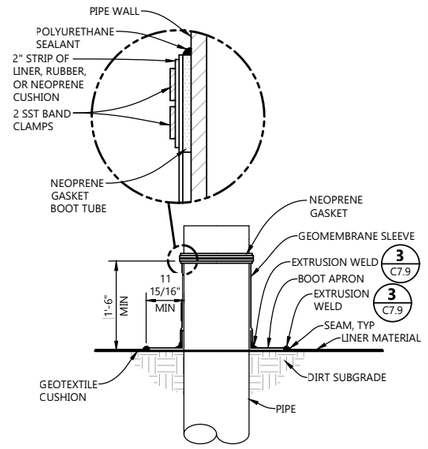
NTS



GEOMEMBRANE PIPE BOOT ISOMETRIC

2

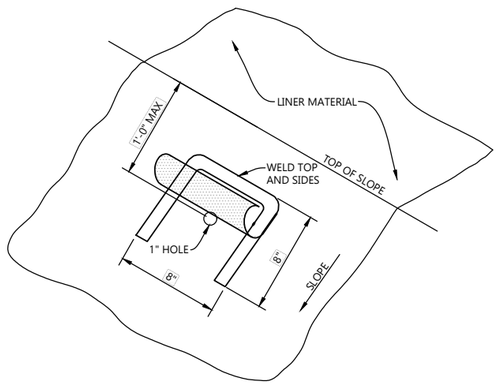
NTS



GEOMEMBRANE PIPE BOOT DETAIL

3

NTS

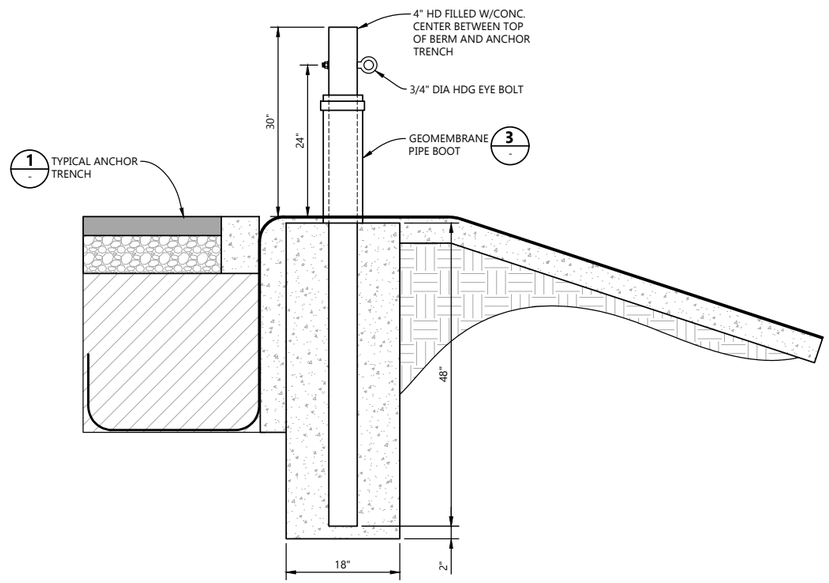


NOTES:
1. VENTS SPACED 100' ON CENTER.
2. LOCATED AT LEAST 2' ABOVE MAXIMUM WATERLINE.

LINER VENT DETAIL

4

NTS



MOORING POST

5

NTS

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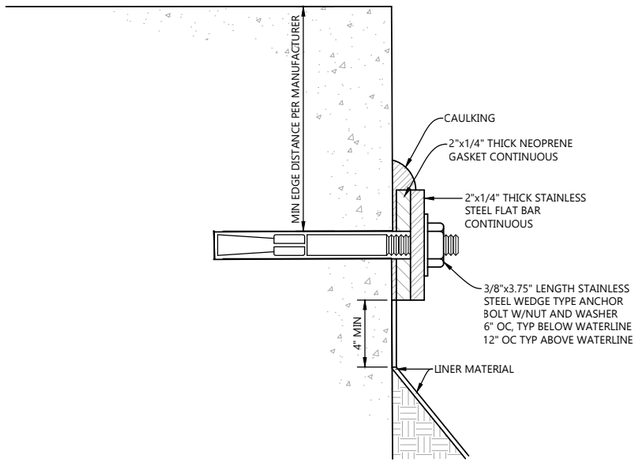
TOWN OF FORT JONES
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FORT JONES, CALIFORNIA

CIVIL DETAILS

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DRAWN	
JWF/CDN	
DATE	06/2026
PROJ. NO.	525006
SHEET	C7.8

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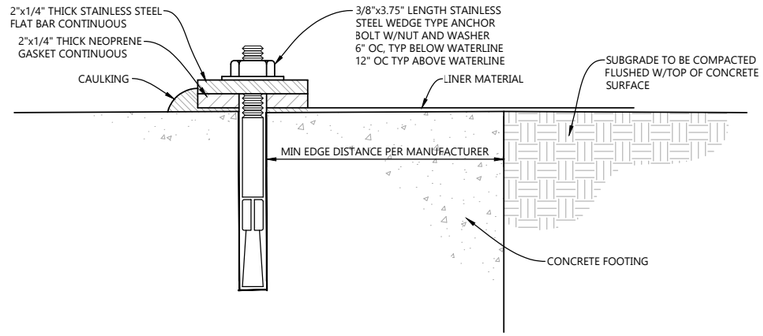
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VERTICAL METAL BATTEN STRIP

NTS

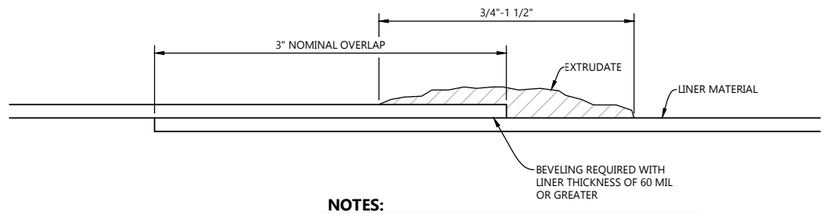
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HORIZONTAL METAL BATTEN STRIP

NTS

2



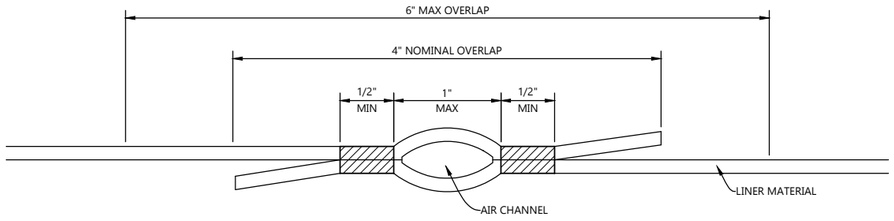
NOTES:

1. LINER SHEETS TACK WELDED TOGETHER AT OVERLAP TO FORM TEMPORARY BOND PRIOR TO WELDING.
2. GRINDING NOT TO EXCEED 1/4" PAST "SQUEEZE-OUT" ON EITHER SIDE. PROPER CARE SHOULD BE TAKEN IN NOT REMOVING TOO MUCH MATERIAL WHEN GRINDING.
3. VACUUM TESTING IS THE NON-DESTRUCTIVE SEAM TEST METHOD FOR EXTRUSION WELDS.

EXTRUSION WELD

NTS

3



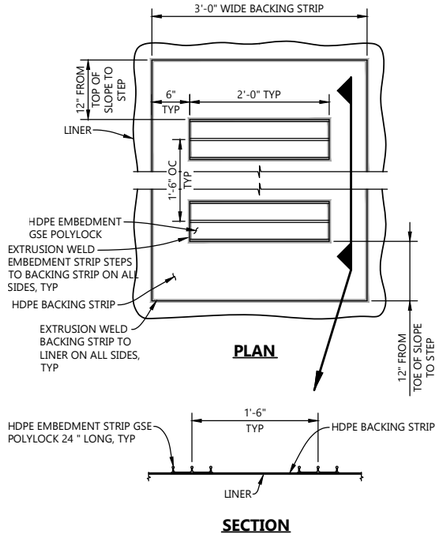
NOTE:

AIR PRESSURE TESTING IS THE METHOD FOR NON-DESTRUCTIVE TESTING DOUBLE FUSION WELDING.

DOUBLE FUSION WELD

NTS

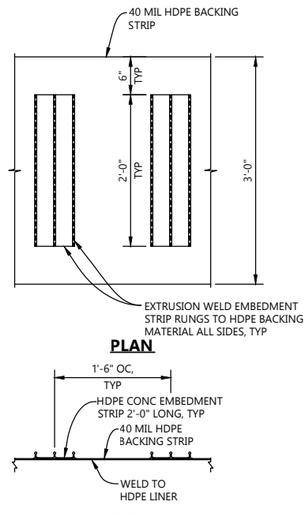
4



GEOMEMBRANE SAFETY LADDER

NTS

5



GEOMEMBRANE SAFETY LADDER

NTS

6

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CIVIL DETAILS

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JM	CRS
DRAWN	
JWF/CDN	

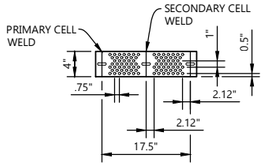
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SHEET **C7.9**

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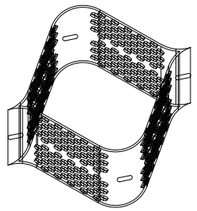
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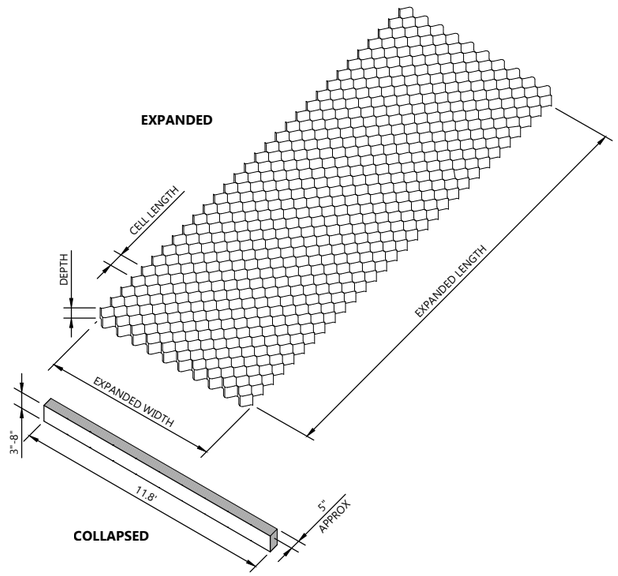
SECTION
(PERFORATED PATTERN 4" COLLAPSED GEOWEB)

NOTES:

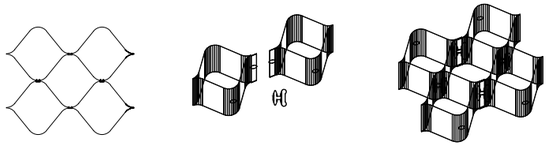
1. CENTER I-SLOT ON PRIMARY AND SECONDARY WELDS.
2. ALL PERFORATIONS ARE 0.39" (10 MM) DIAMETER.
3. GEOCELL OPEN AREA = 21.2% PLUS/MINUS 1.0%.
4. DIMENSIONS ARE SUBJECT TO MANUFACTURER'S TOLERANCES.
5. ALL DIMENSIONS ARE SUBJECT TO MANUFACTURER'S TOLERANCES.



ISOMETRIC
(PERFORATED STRIP WITH I-SLOT)



PERSPECTIVE



PLAN VIEW **ISOMETRIC** **ISOMETRIC**

KEY CONNECTIONS

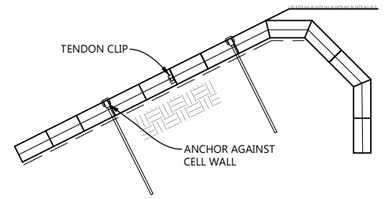
NOTES:

1. THE TOP EDGES OF ADJACENT CELL WALLS SHALL BE FLUSH WHEN CONNECTING.
2. ALIGN THE I-SLOTS FOR INTERLEAF AND END TO END CONNECTIONS.
3. THE GEOCELL PANELS SHALL BE CONNECTED AT EACH INTERLEAF AND END TO END CONNECTION.

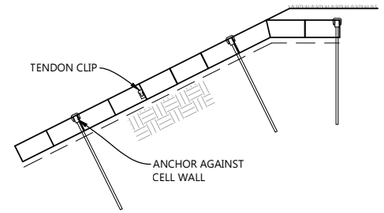
GEOCELL SYSTEM

NTS

1



SECTION
(POND INSTALLATION ANCHOR TRENCH)



SECTION
(SHOULDER BACK STAKE AND CREST ANCHORAGE)

NOTES:

1. CLIPS AND/OR ANCHORS REQUIRED TO TRANSFER THE LOAD TO THE CREST ANCHOR SYSTEM.
2. EARTH ANCHORS SHALL BE INSTALLED PER MANUFACTURER'S REQUIREMENTS.
3. ALL CREST ANCHORAGE REQUIREMENTS SHALL BE PREPARED BY A PROFESSIONAL FAMILIAR WITH ENGINEERING CONCEPTS.
4. PROVIDE A MINIMUM 8 OZ NON-WOVEN GEOTEXTILE LAYER AND INSTALL PER MANUFACTURER RECOMMENDATIONS INCLUDING OVERLAPS.
5. GEOCELL INFILL SHALL BE CONCRETE. ADJUST THE CONCRETE SLUMP IN THE FIELD AS NECESSARY TO ALLOW FOR INSTALLATION. SCREED FLUSH WITH THE TOP OF THE GEOCELL CELL WALLS. DO NOT OVERFILL. LIMIT THE DROP OF INFILL TO PREVENT PANEL DISTORTION.
6. PROVIDE WEEP HOLES OR OTHER DRAINAGE OPTIONS TO PREVENT PORE PRESSURE BUILDUP.
7. REFER TO MANUFACTURER'S INSTALLATION INSTRUCTIONS.

GEOWEB ANCHORS

NTS

2

GEOWEB ANCHORS

NTS

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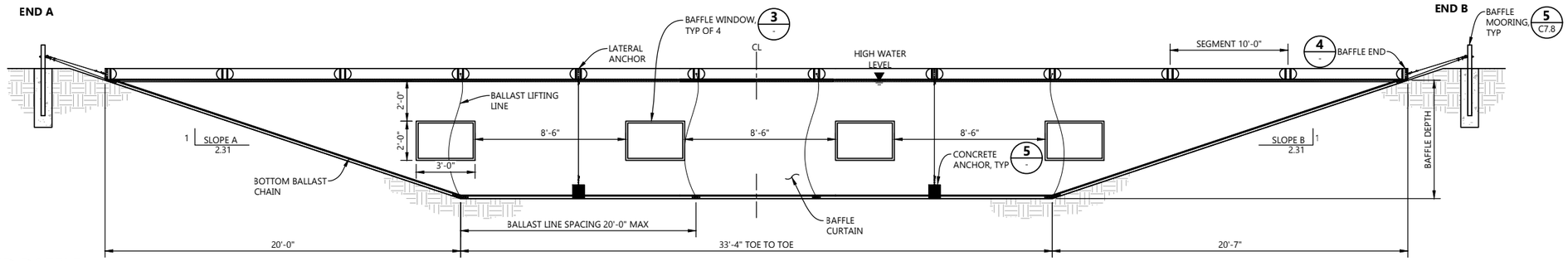
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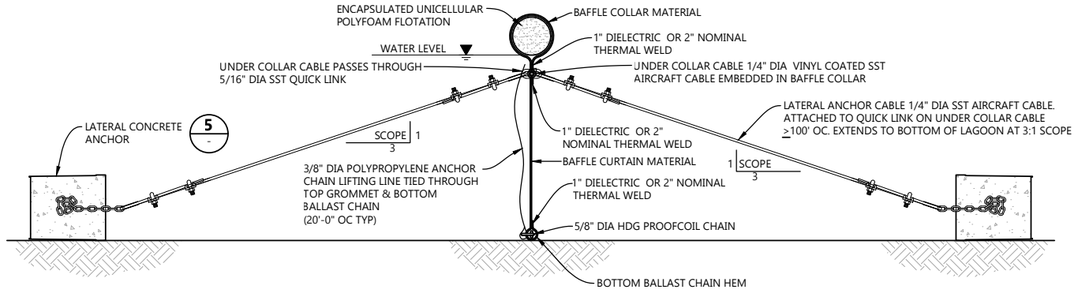
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FLOW AROUND BAFFLE

NTS

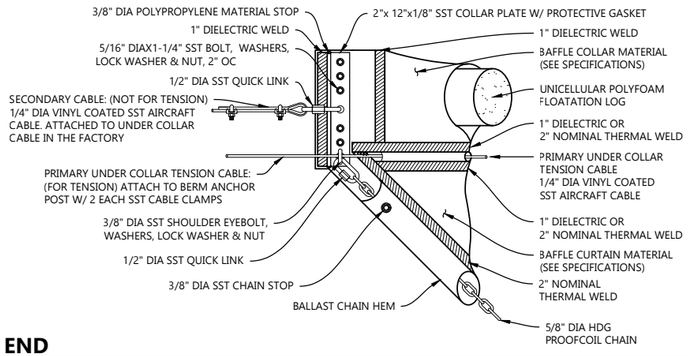
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BAFFLE TYPICAL CROSS SECTION

NTS

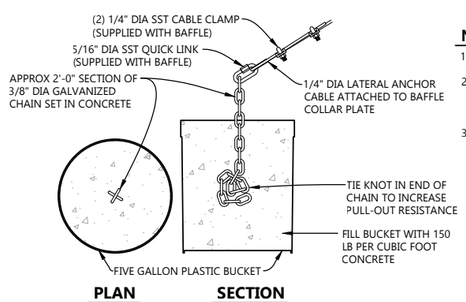
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BAFFLE END

NTS

4



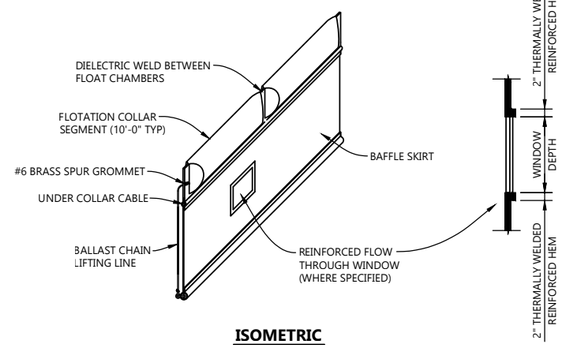
NOTES:

1. TWO REQUIRED PER LATERAL ANCHOR POINT.
2. BOTTOM ANCHOR TO BE CONSTRUCTED FROM FIVE GALLON PLASTIC BUCKET FILLED WITH CONCRETE.
3. FINISHED ANCHOR SHALL WEIGH A MINIMUM OF 100 POUNDS.

LATERAL CONCRETE ANCHOR

NTS

5



ISOMETRIC

NOTES:

1. 2" WIDE THERMALLY WELDED HEM REINFORCEMENT SURROUNDING EACH WINDOW OPENING.
2. WINDOW SHALL BE LOCATED 24" BELOW THE UNDER COLLAR CABLE.

BAFFLE WINDOW

NTS

3

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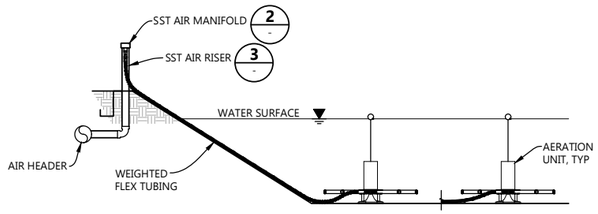
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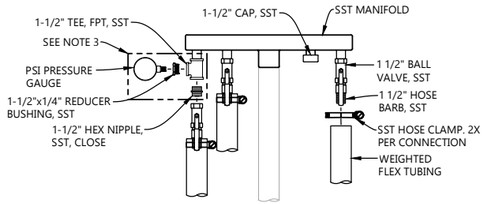
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POND AERATION SYSTEM TYPICAL

NTS

1



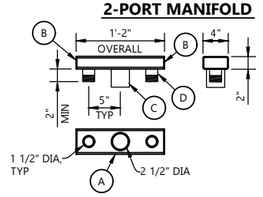
NOTES:

1. 4-PORT MANIFOLD SHOWN. OTHER PORT QUANTITIES SIMILAR. SEE PLANS FOR QUANTITY, SIZE AND LOCATIONS OF MANIFOLDS.
2. INSTALL CAPS ON UNUSED MANIFOLD PORTS.
3. PROVIDE PRESSURE GAUGE ASSEMBLY AT ALL MANIFOLD PORTS.

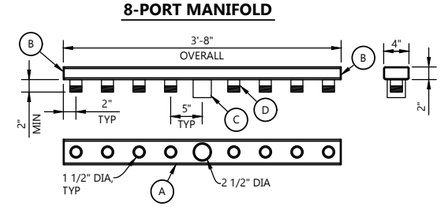
BILL OF MATERIALS

ITEM	DESCRIPTION	MATERIAL
A	2"x4"x1/8" WALL TUBING	304 SST
B	10 GA (1/8" SHEET)x2"x4" LONG END CAP	304 SST
C	2-1/2" FPTxSCH 40 2" HALF COUPLING	304 SST
D	2-1/2" MPTxSCH 40 2" LONG PIPE NIPPLE	304 SST

2-PORT MANIFOLD



8-PORT MANIFOLD



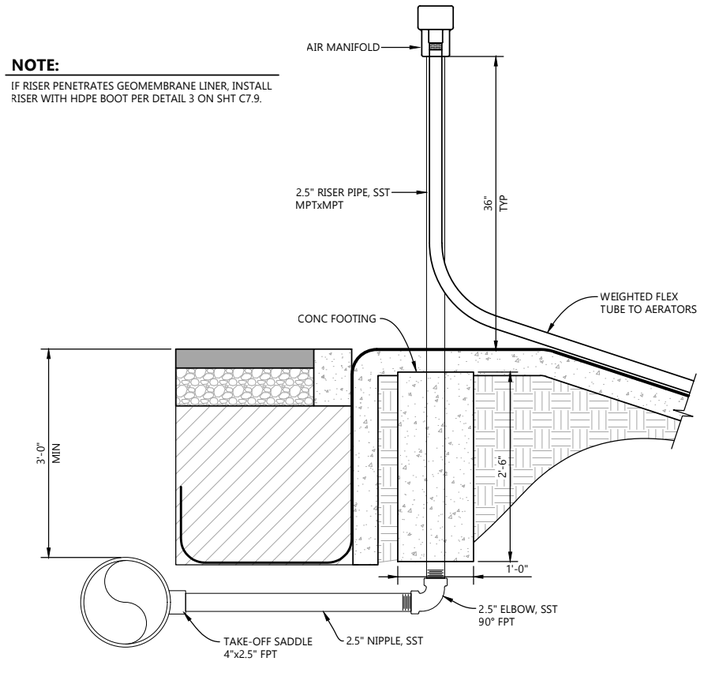
STAINLESS STEEL AIR MANIFOLD

NTS

2

NOTE:

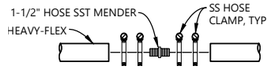
IF RISER PENETRATES GEOMEMBRANE LINER, INSTALL RISER WITH HDPE BOOT PER DETAIL 3 ON SHT C7.9.



STAINLESS STEEL AIR RISER

NTS

3



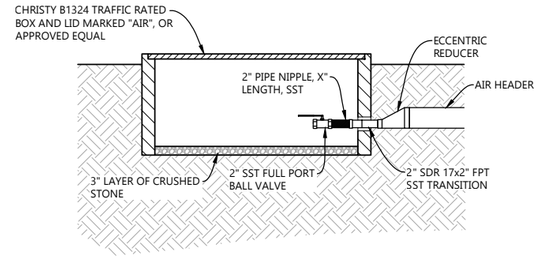
NOTE:

TUBING TYPICALLY PROVIDED IN 200' COILS. ONSITE COUPLING MAY BE REQUIRED. REFER TO LAYOUT.

WEIGHTED FLEX TUBING JOINT

NTS

4



AIR PURGE VALVE

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5

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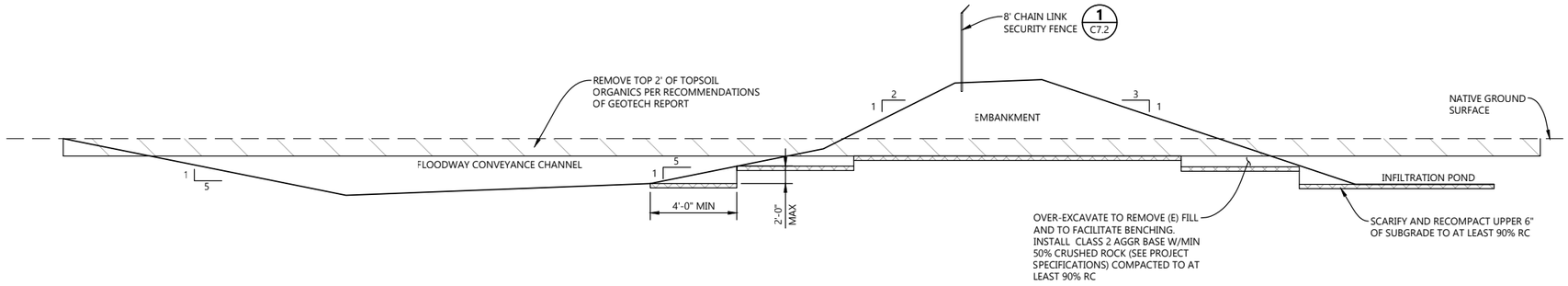
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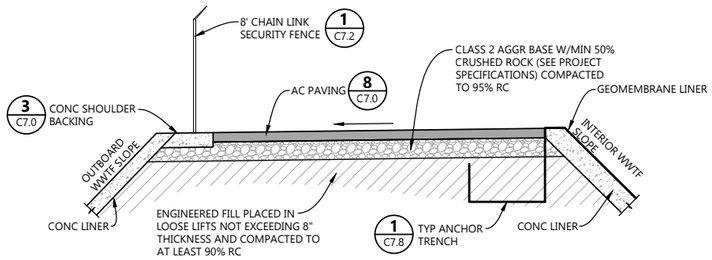
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SECTION 1

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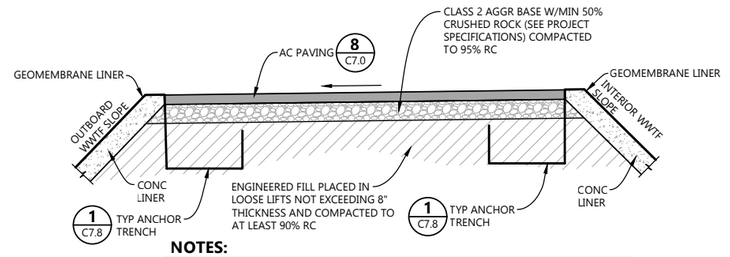


NOTES:

1. SEE GEOTECHNICAL REPORT FOR EARTHWORK REQUIREMENTS.
2. PROJECT ENGINEER OR PROJECT GEOLOGIST SHALL INSPECT AND APPROVE EXCAVATION AND BENCHING PRIOR TO THE INSTALLATION OF ENGINEERED FILL.

SECTION 2

NTS

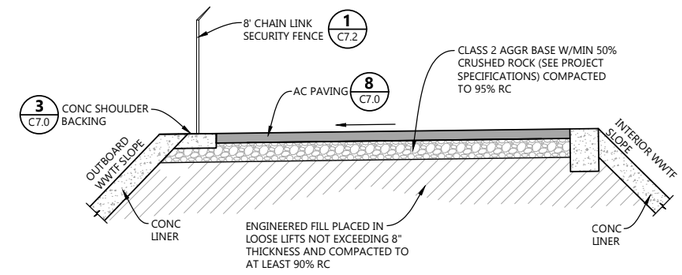


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SECTION 3

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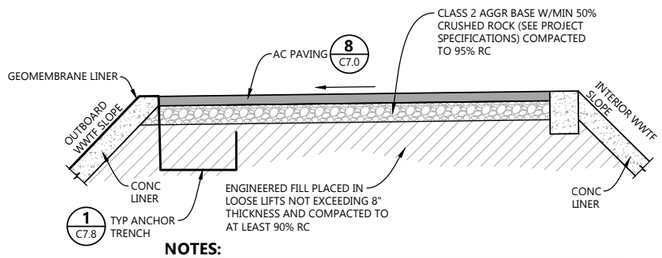


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SECTION 4

NTS

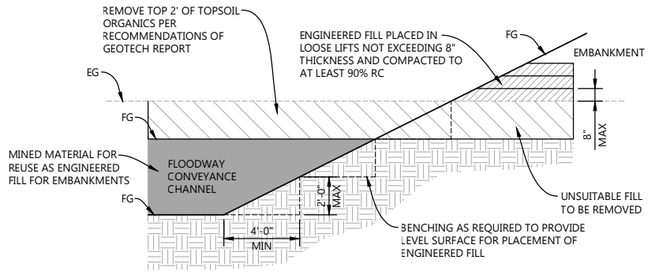


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SECTION 5

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BENCHING

NTS

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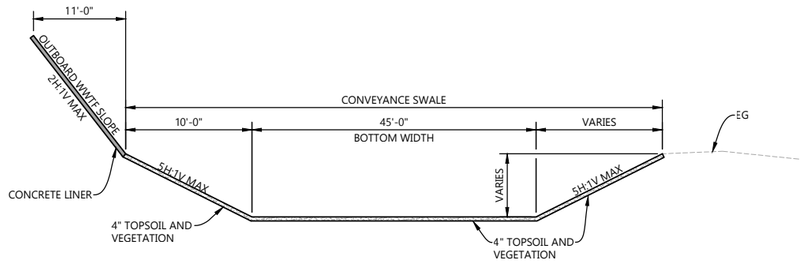
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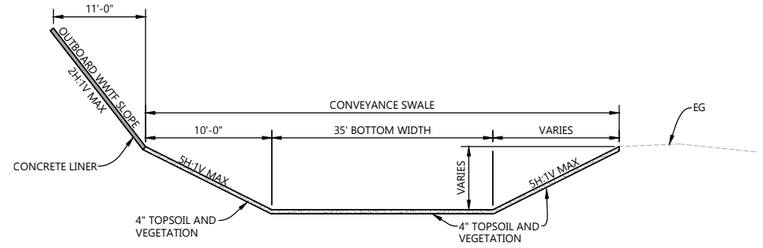
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TYPICAL SWALE SECTION

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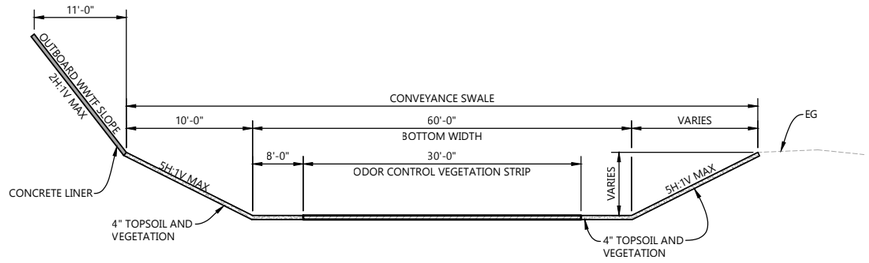
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TYPICAL SWALE SECTION

NTS

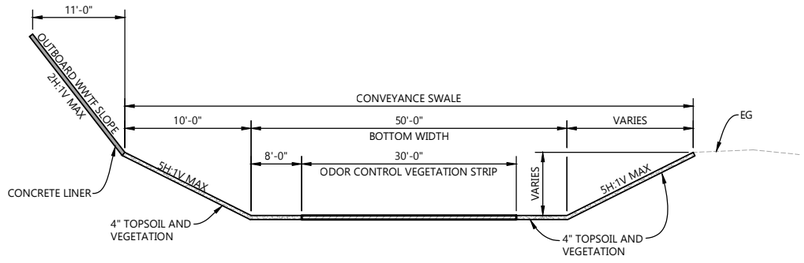
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TYPICAL SWALE SECTION

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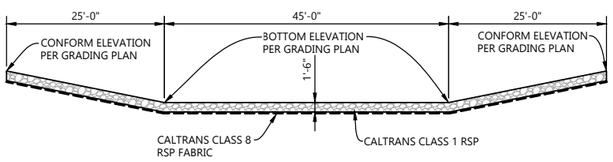
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TYPICAL SWALE SECTION

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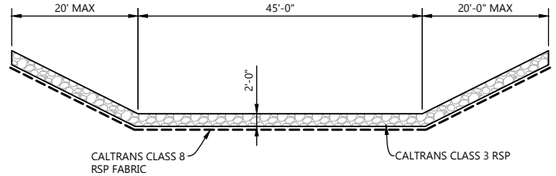
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ROCK FORD

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1



RIP RAP REINFORCEMENT

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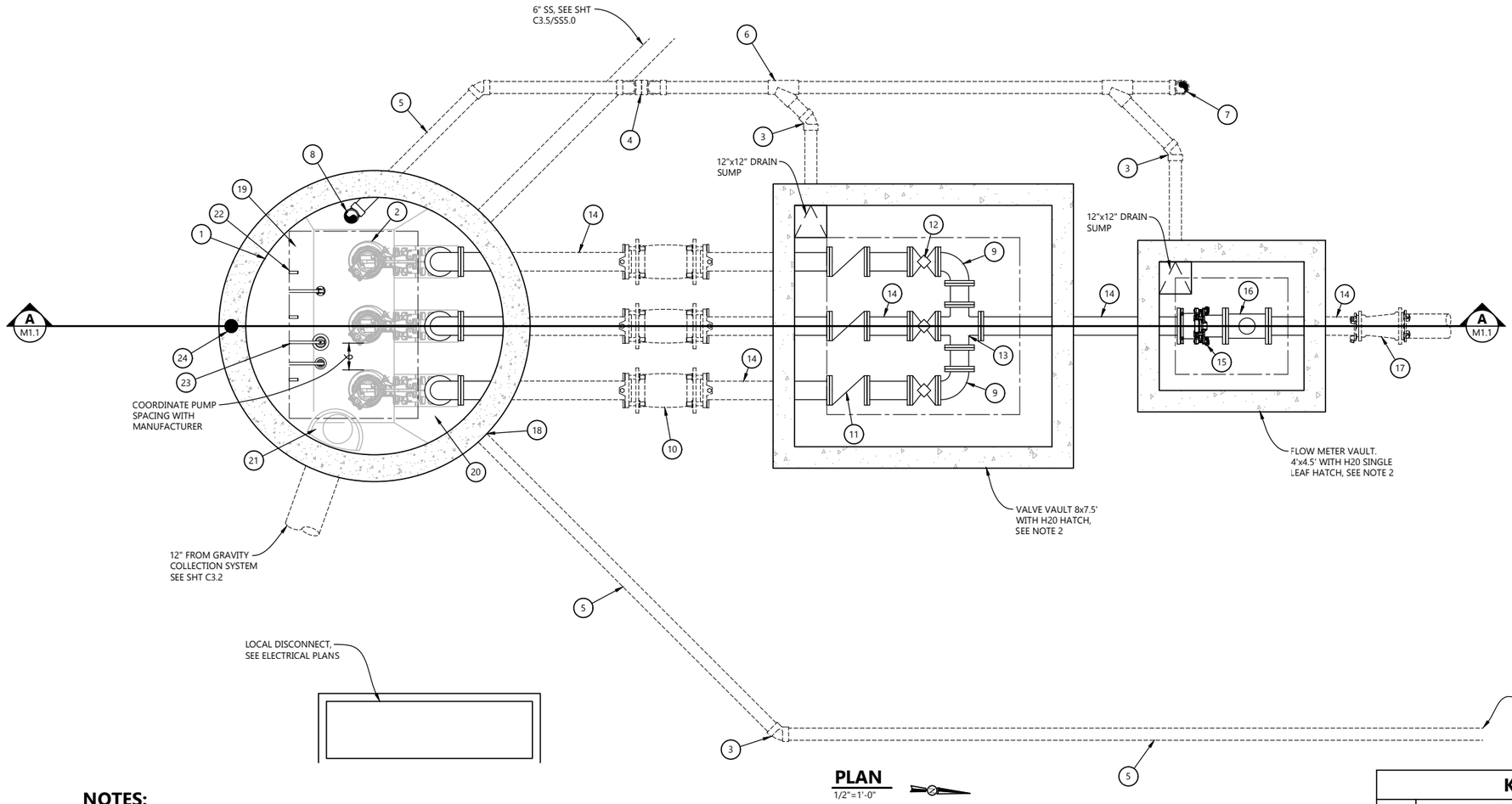
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PLAN
1/2"=1'-0"

NOTES:

1. PUMP STATION SHALL BE A COMPLETE SYSTEM WITH TRIPLEX NON-CLOG PUMPS, VALVING, PIPING, LEVEL SENSING, HATCHES, PRECAST CONCRETE WET WELL & VAULTS AND ALL APPURTENANCES.
2. HATCHES SHALL BE H20 INCIDENTAL LOAD RATED, GAS-TIGHT, PRECAST INTO THE COVERS AND INCLUDE SPRING ASSISTS, LOCK SYSTEM, AND FALL PROTECTION GRATES & UNISTRUT MOUNTS WHERE INDICATED. VERIFY CLEAR OPENING DIMENSIONS WITH PUMP MANUFACTURER FOR PUMP SPACING NEEDS.
3. CONTRACTOR SHALL IDENTIFY AND PERFORM FIELD CONNECTIONS INCLUDING CONCRETE CORING.
4. PREFABRICATED FIBERGLASS BASE INSERT. COORDINATE WITH PUMP BASE LAYOUT. SECURE WITH SST BOLTS TO CONCRETE STRUCTURE AND BACKFILL WITH SLURRY.
5. PROVIDE CORE HOLE AND BOOT FOR ALL WET WELL PENETRATIONS.
6. COORDINATE DAVIT CRANE BASE LOCATION WITH REACH TO ENSURE VERTICAL LIFTING ACHIEVED AT EACH PUMP LOCATION. SUPPLY CAST-IN-PLACE CONCRETE FOUNDATION PER MANUFACTURER'S RECOMMENDATIONS FOR MAXIMUM CRANE CAPACITY.

KEYNOTES

NO.	DESCRIPTION	EST. QUANTITY
1	8' DIAMETER WET WELL	1
2	5 HP NON-CLOG SUBMERSIBLE PUMP	3
3	4" 45° ELBOW, PVC	3
4	4" 90° ELBOW, PVC	4
5	4" PIPE, PVC	VARIOUS
6	4" WYE, PVC	2
7	4" CLEANOUT WITH G5 BOX	1
8	4" TEE, PVC	1
9	6" 90° ELBOW, DIP	5
10	6" RESTRAINED COUPLING	3
11	6" CHECK VALVE	3
12	6" PLUG VALVE	3
13	6" CROSS, DIP	1
14	6" SPOOL, DIP	VARIOUS
15	6" DISMANTLING JOINT	1
16	6" FLOW METER	1
17	8"x6" REDUCER, DIP	1
18	AIR OUTLET TO ODOR CONTROL, SEE NOTE 5	1
19	WET WELL HATCH	1
20	PREFAB FIBERGLASS WET WELL BASE	1
21	12" DROP BOWL	1
22	CABLE HOOKS	3
23	LEVEL INSTRUMENTS	N/A
24	DAVIT CRANE, SEE NOTE 6	1

NOTE: NOT ALL KEYNOTES USED ON THIS SHEET.

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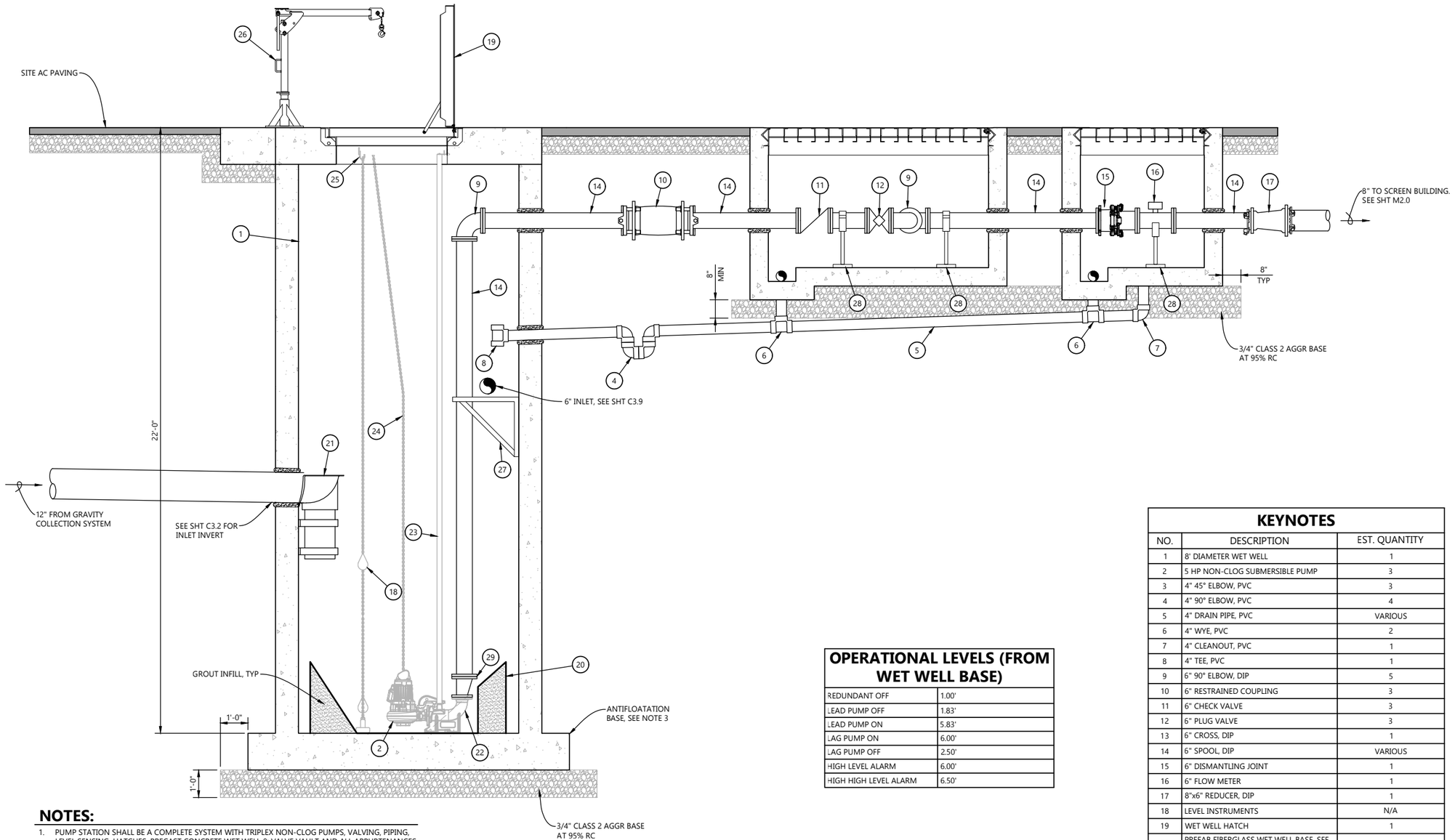
TOWN OF FORT JONES
WASTEWATER IMPROVEMENTS PROJECT
FORT JONES, CALIFORNIA

INFLUENT LIFT STATION PLAN

DESIGN JM	CHECK CRS
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DATE 06/2026	
PROJ. NO. 525006	
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NOTES:

1. PUMP STATION SHALL BE A COMPLETE SYSTEM WITH TRIPLEX NON-CLOG PUMPS, VALVING, PIPING, LEVEL SENSING, HATCHES, PRECAST CONCRETE WET WELL & VALVE VAULT AND ALL APPURTENANCES.
2. HATCHES SHALL BE H20 INCIDENTAL LOAD RATED, PRECAST INTO THE COVERS AND INCLUDE SPRING ASSISTS, LOCK SYSTEM, AND FALL PROTECTION & NUT RAILS. VERIFY CLEAR OPENING DIMENSIONS WITH PUMP MANUFACTURER FOR PUMP SPACING NEEDS.
3. ANTIFLOATATION COLLAR SHALL BE SIZED BY THE PRECAST CONCRETE MANUFACTURER AND ACCOUNT FOR WATER LEVEL AT THE FINISH GROUND SURFACE WITH AN EMPTY BASIN. SUBMIT CA PE STAMPED ANTIBOUYANCY CALCULATIONS FOR REVIEW.
4. BACKFILL WITH CLASS 2 AGGR BASE AND COMPACT TO 95% RELATIVE COMPACTION.
5. CONTRACTOR SHALL IDENTIFY AND PERFORM FIELD CONNECTIONS INCLUDING CONCRETE CORING. ALL WALL PENETRATIONS SHALL HAVE LINK SEALS OR WALL PIPE SPOOLS.
6. CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR SHORING SYSTEM TO ACCOMMODATE EXCAVATION TO THE REQUIRE DEPTH.
7. DAVIT CRANE SHALL BE PORTABLE WITH PEDESTAL BASE. COORDINATE WITH MANUFACTURER FOR MOUNTING/ANCHORAGE DETAILS. CRANE SHALL HAVE AN EXTENDABLE BOOM CAPABLE OF REACHING ALL PUMPS AND SHALL HAVE A CAPACITY OF 2X THE PUMP WEIGHT AT THE FARTHEST REACH. CRANE SHALL BE EQUIPPED WITH A MANUALLY OPERATED WINCH WITH STAINLESS STEEL CABLE AND HOOK OF SUFFICIENT LENGTH TO REMOVE PUMPS.
8. COORDINATE FIBERGLASS WET WELL BASE INSERT WITH PUMP AUTOCOUPLING LAYOUT. SECURE INSERT WITH SST BOLTS TO CONCRETE STRUCTURE AND BACKFILL WITH SLURRY. PROVIDE NOTCHES/HOLES IN INSERT SKIRT TO ALLOW SLURRY TO FLOW THROUGH ENTIRE VOID SPACE.
9. PROVIDE CORE HOLE AND BOOT FOR ALL WET WELL PENETRATIONS.
10. COORDINATE DAVIT CRANE BASE LOCATION WITH REACH TO ENSURE VERTICAL LIFTING ACHIEVED AT EACH PUMP LOCATION. SUPPLY REINFORCED CAST-IN-PLACE CONCRETE FOUNDATION PER MANUFACTURER'S RECOMMENDATIONS FOR MAXIMUM CRANE CAPACITY.

OPERATIONAL LEVELS (FROM WET WELL BASE)

REDUNDANT OFF	1.00'
LEAD PUMP OFF	1.83'
LEAD PUMP ON	5.83'
LAG PUMP ON	6.00'
LAG PUMP OFF	2.50'
HIGH LEVEL ALARM	6.00'
HIGH HIGH LEVEL ALARM	6.50'

SECTION

1/2" = 1'-0"

KEYNOTES

NO.	DESCRIPTION	EST. QUANTITY
1	8' DIAMETER WET WELL	1
2	5 HP NON-CLOG SUBMERSIBLE PUMP	3
3	4" 45° ELBOW, PVC	3
4	4" 90° ELBOW, PVC	4
5	4" DRAIN PIPE, PVC	VARIOUS
6	4" WYE, PVC	2
7	4" CLEANOUT, PVC	1
8	4" TEE, PVC	1
9	6" 90° ELBOW, DIP	5
10	6" RESTRAINED COUPLING	3
11	6" CHECK VALVE	3
12	6" PLUG VALVE	3
13	6" CROSS, DIP	1
14	6" SPOOL, DIP	VARIOUS
15	6" DISMANTLING JOINT	1
16	6" FLOW METER	1
17	8"x6" REDUCER, DIP	1
18	LEVEL INSTRUMENTS	N/A
19	WET WELL HATCH	1
20	PREFAB FIBERGLASS WET WELL BASE, SEE NOTE 8	1
21	12" DROP BOWL	1
22	PUMP BASE W/AUTOCOUPLING ASSEMBLY	3
23	SST GUIDE RAILS	3 SETS
24	SST LIFTING CHAINS	3 LENGTHS
25	SST HOOK RACK	1
26	DAVIT CRANE, SEE NOTES 7 & 10	1
27	INTERMEDIATE PIPE SUPPORT	3
28	PIPE STAND SUPPORT	4
29	4"x6" ECCENTRIC REDUCER	3

NOTE: NOT ALL KEYNOTES USED ON THIS SHEET.

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FORT JONES, CALIFORNIA

INFLUENT LIFT STATION SECTION

DESIGN	CHECK
JM	CRS
DRAWN	
JWF/CDN	

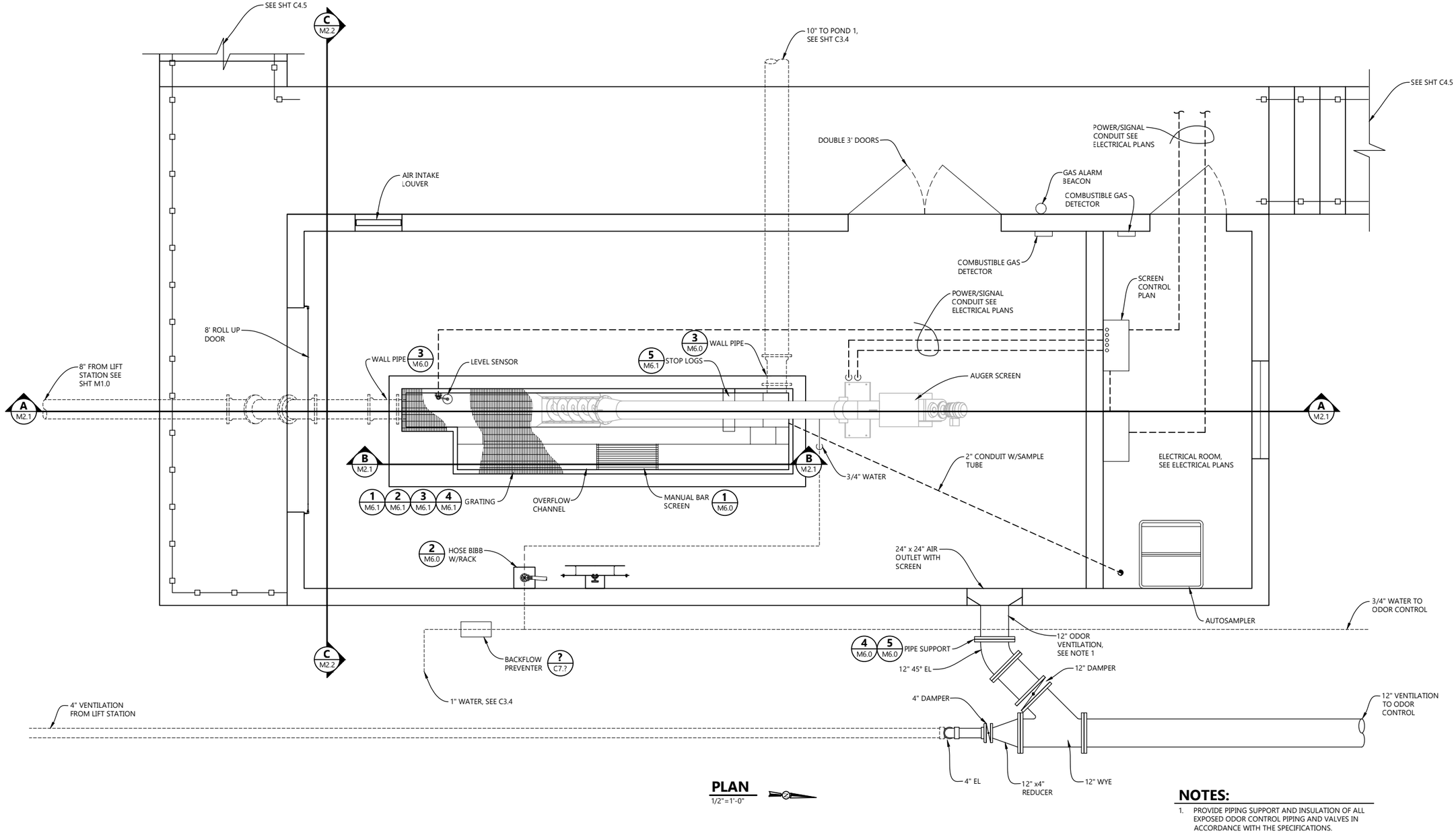
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SHEET **M1.1**

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PLAN

1/2"=1'-0"

NOTES:

1. PROVIDE PIPING SUPPORT AND INSULATION OF ALL EXPOSED ODOR CONTROL PIPING AND VALVES IN ACCORDANCE WITH THE SPECIFICATIONS.

VERIFY SCALES

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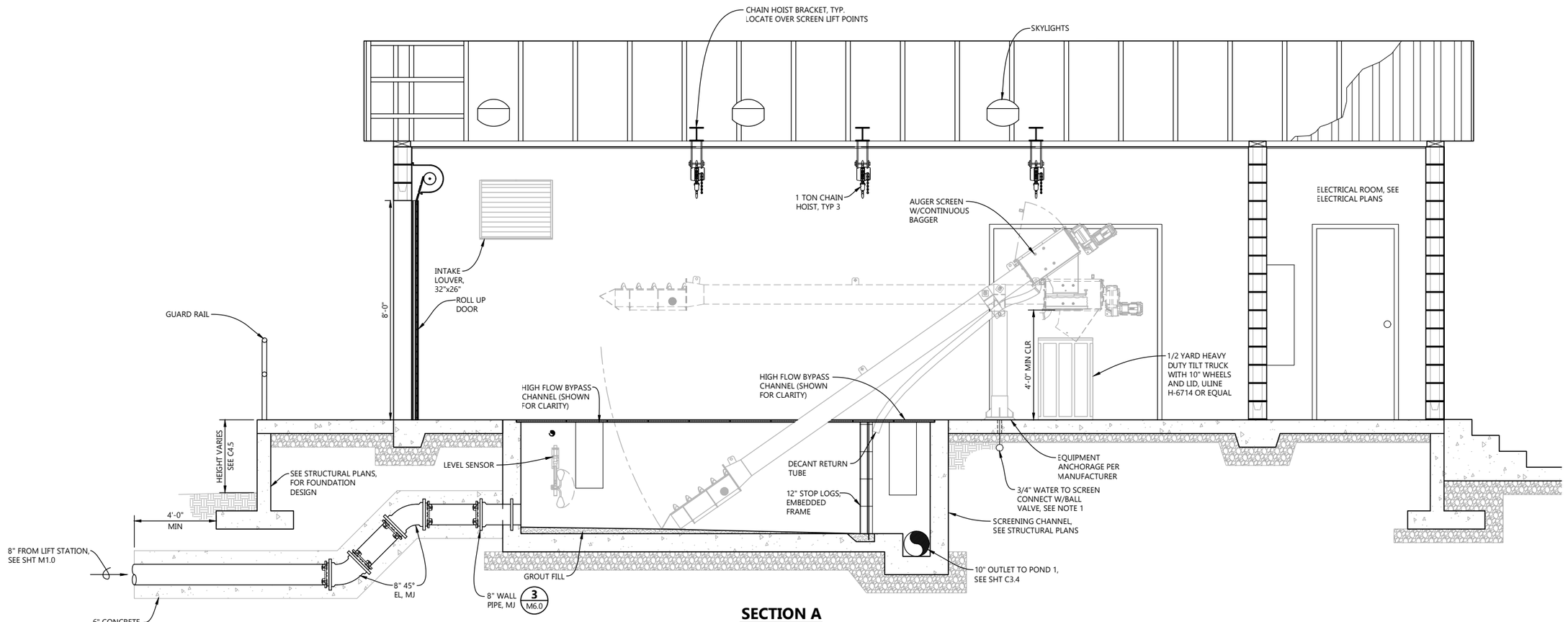
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HEADWORKS PLAN

DESIGN	CHECK
JM	CRS
DRAWN	
JWF/CDN	
DATE	06/2026
PROJ. NO.	525006
SHEET	M2.0

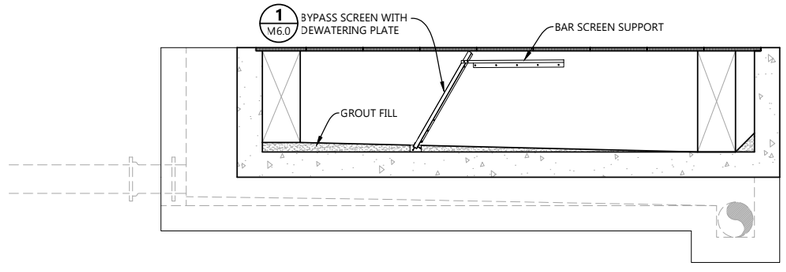
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SECTION A

1/2"=1'-0"



SECTION B

1/2"=1'-0"

NOTES:

1. ALL WATER, POWER, AND SIGNAL CONNECTIONS TO SCREEN SHALL BE FLEXIBLE TO ALLOW FOR FULL ROTATION OF SCREEN.
2. ALL PIPING IN CONCRETE ENCASEMENT SHALL BE DUCTILE IRON WITH POLYETHYLENE WRAP.
3. ALL PIPING SHALL BE RESTRAINED.

VERIFY SCALES

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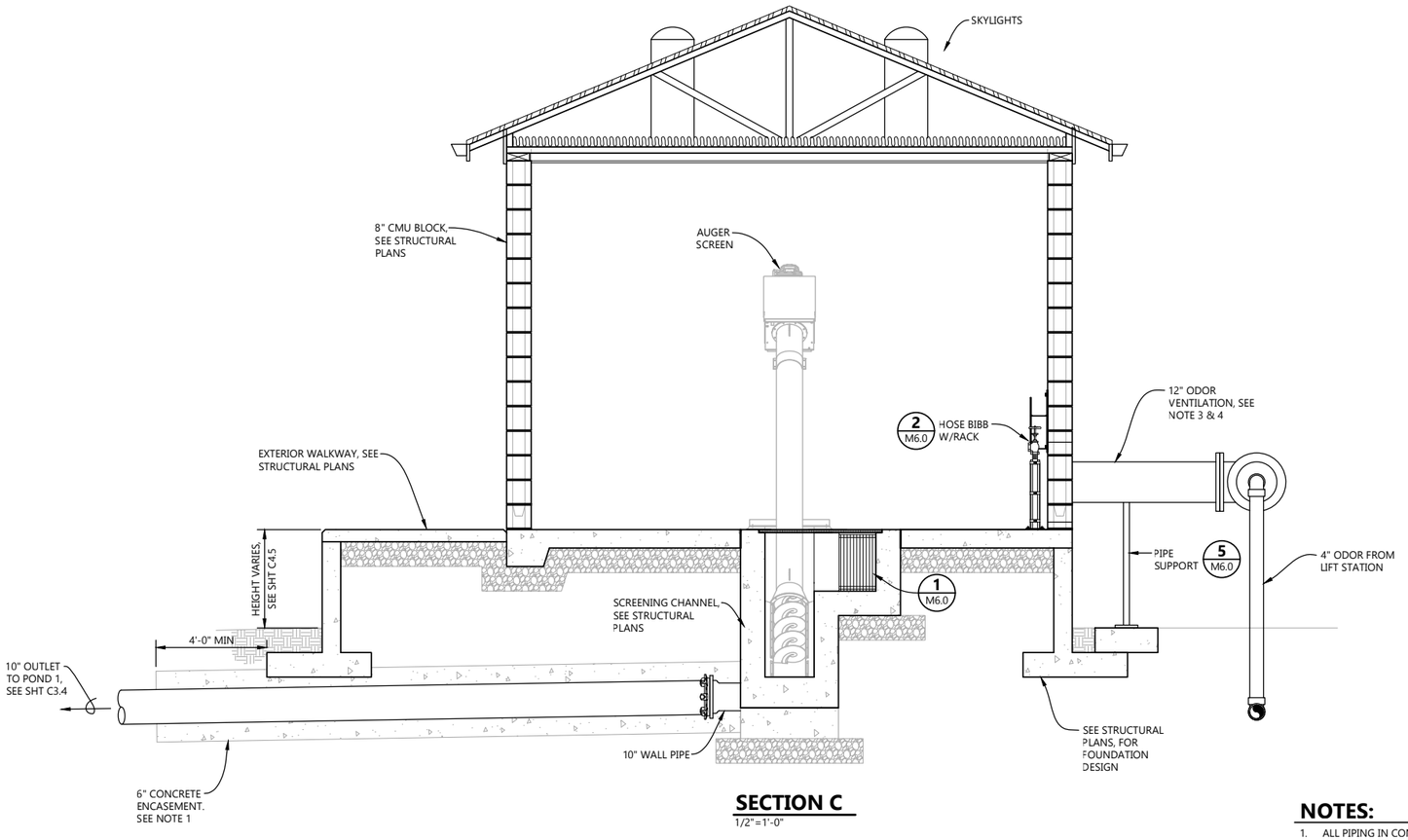
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HEADWORKS SECTIONS

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SECTION C

1/2"=1'-0"

NOTES:

1. ALL PIPING IN CONCRETE ENCASEMENT SHALL BE DUCTILE IRON WITH POLYETHYLENE WRAP.
2. ALL PIPING SHALL BE RESTRAINED.
3. INSULATE ALL EXPOSED ODOR CONTROL PIPING IN ACCORDANCE WITH THE SPECIFICATIONS.
4. PROVIDE INDEPENDENT PIPE SUPPORT. PIPING SHALL NOT BE SUPPORTED BY EQUIPMENT OR DUCT TRANSITIONS

VERIFY SCALES

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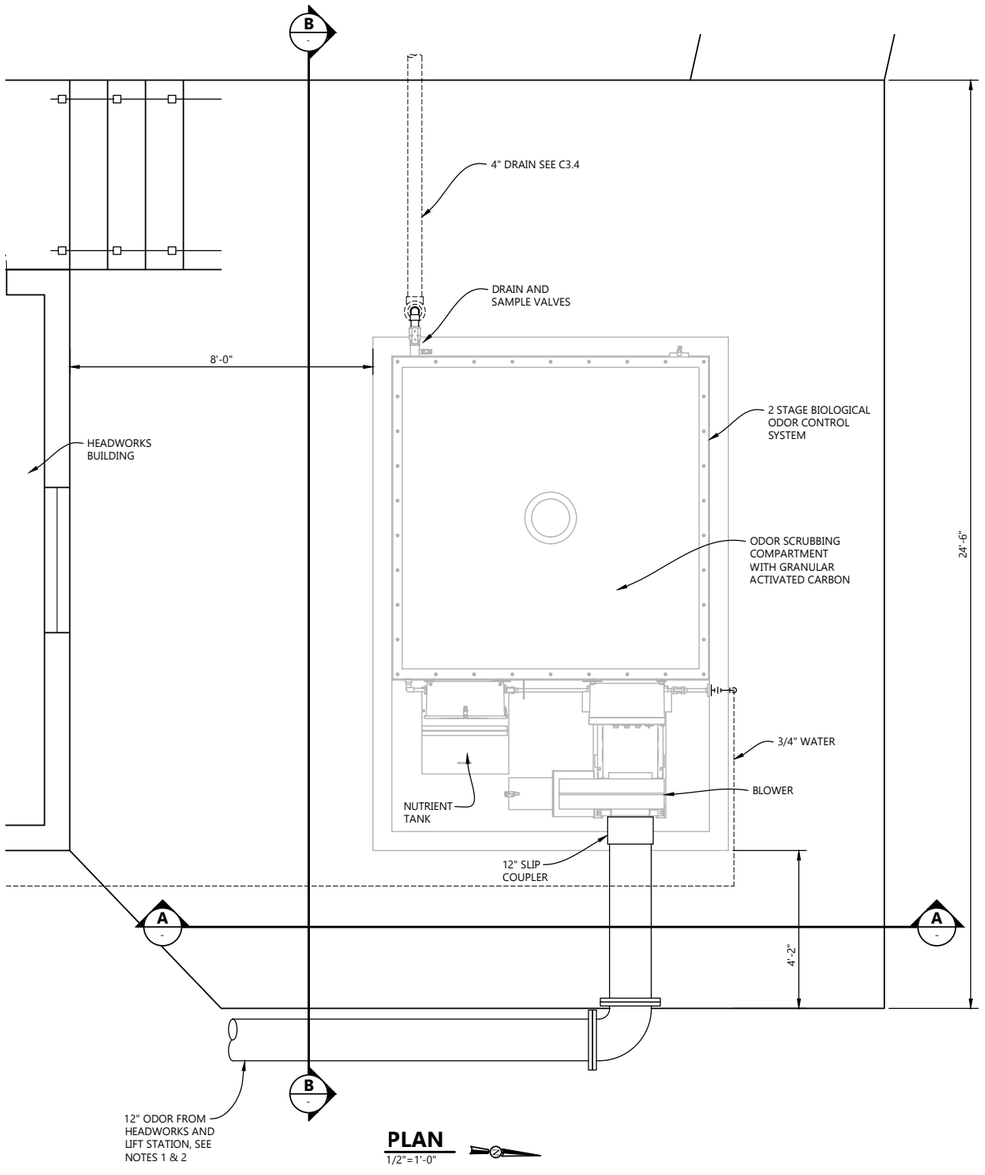
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HEADWORKS SECTIONS AND DETAILS

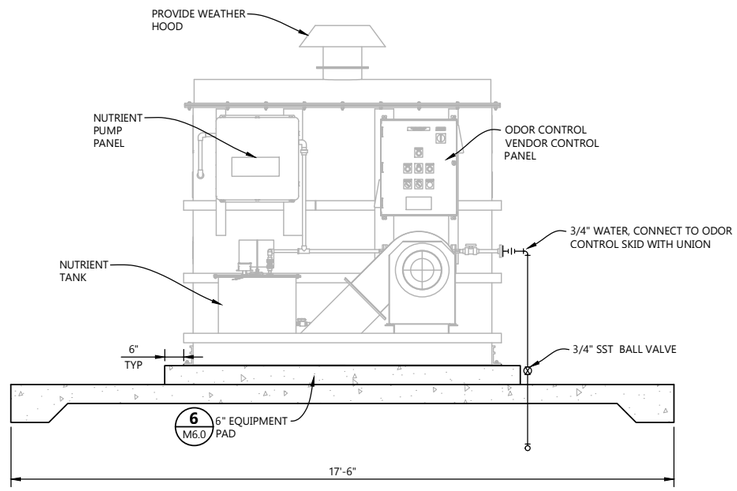
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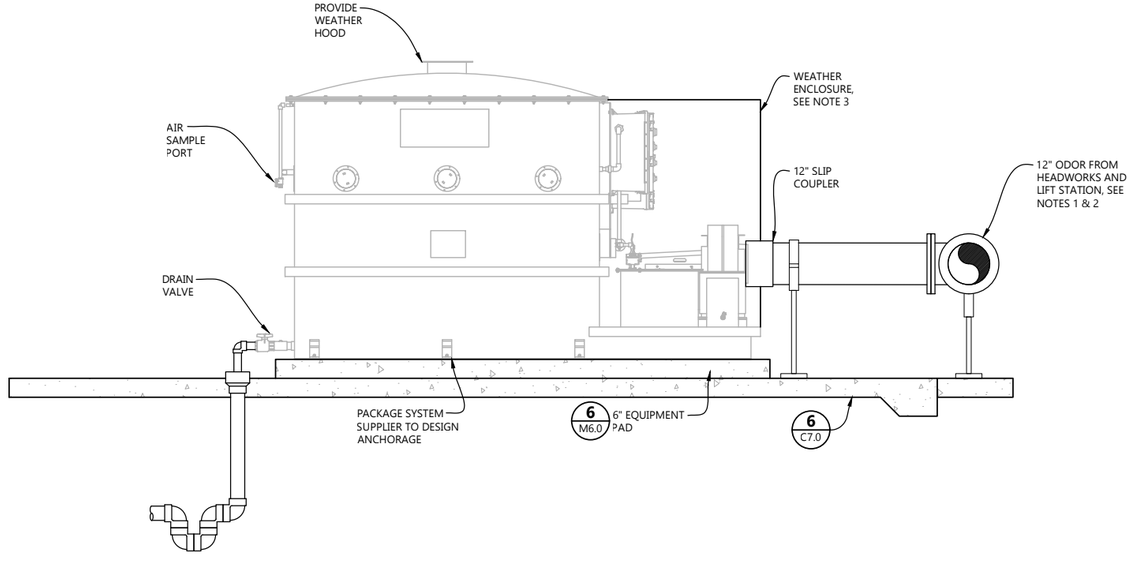
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PLAN
1/2"=1'-0"



SECTION A
1/2"=1'-0"



SECTION B
1/2"=1'-0"

NOTES:

1. INSULATE ALL EXPOSED ODOR CONTROL PIPING IN ACCORDANCE WITH THE SPECIFICATIONS.
2. PROVIDE INDEPENDENT PIPE SUPPORT. PIPING SHALL NOT BE SUPPORTED BY EQUIPMENT OR DUCT TRANSITIONS
3. ODOR CONTROL PACKAGE MANUFACTURER SHALL PROVIDE AN INTEGRAL WEATHER ENCLOSURE FOR THE CONTROL & MECHANICAL COMPONENTS.

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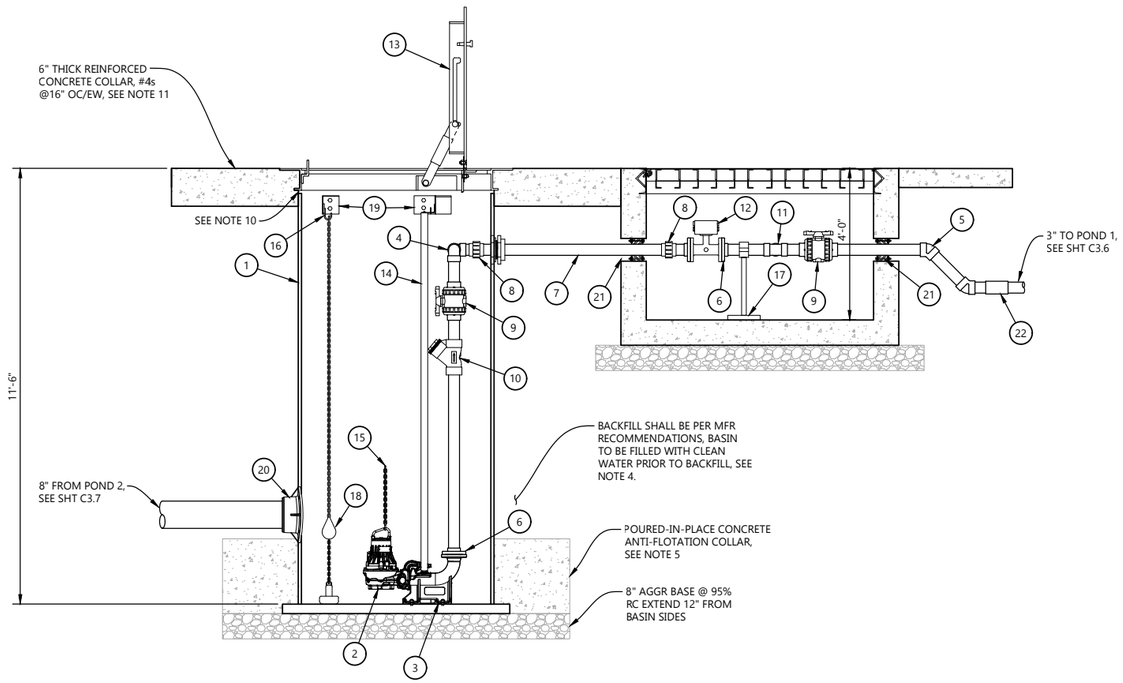
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ODOR CONTROL PLAN AND SECTIONS

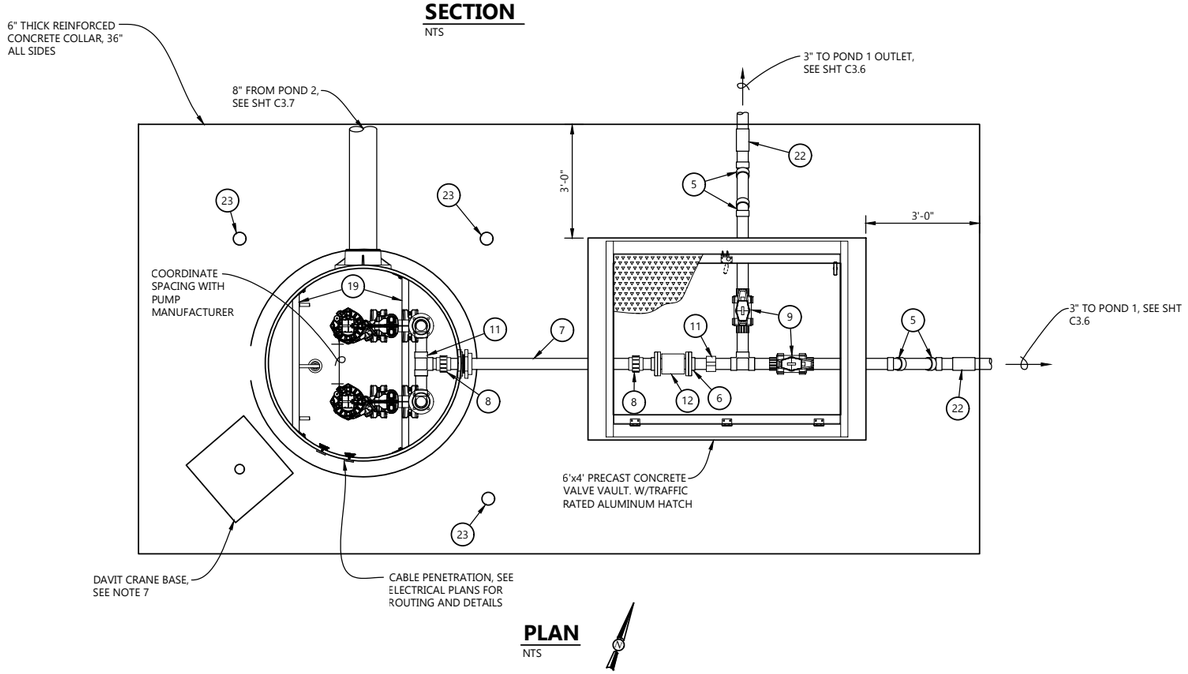
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SECTION
NTS



PLAN
NTS

KEYNOTES

NO.	DESCRIPTION	EST. QUANTITY
1	5' DIAMETER WET WELL	1
2	4 HP NON-CLOG SUBMERSIBLE PUMP	2
3	PUMP BASE W/AUTOCOUPLING ASSEMBLY	2
4	3" 90° EL, PVC	2
5	3" 45° EL, PVC	4
6	3" FLANGE, PVC	4
7	3" PIPING, PVC	VARIOUS
8	3" UNION, PVC	2
9	3" BALL VALVE, TRUE UNION, PVC	4
10	3" CHECK VALVE, PVC	2
11	3" TEE, PVC	2
12	3" FLOW METER	1
13	60" BASIN COVER, SEE NOTE 2	1
14	SST GUIDE RAILS	2 SETS
15	SST LIFTING CHAINS	2 LENGTHS
16	SST HOOK RACK	1
17	PIPE STAND SUPPORT	1
18	LEVEL INSTRUMENTS, SEE ELECTRICAL PLANS	N/A
19	FABRICATED SST BRACKET AND GUIDE RAIL SUPPORTS	2
20	8" PIPE GLAND	1
21	LINK SEAL, SST HARDWARE	3
22	3" PVC TO HDPE FITTING	1
23	REMOVABLE BOLLARD	3

NOTE: NOT ALL KEYNOTES USED ON THIS SHEET.

NOTES:

1. PUMP STATION SHALL BE A COMPLETE PACKAGED SYSTEM WITH DUPLEX PUMPS, AUTOCOUPLING BASES, GUIDE RAILS, VALVING, LEVEL SENSING, PIPING AND PEDESTRIAN RATED HATCH WITH FALL THROUGH PROTECTION. BASIN MANUFACTURER SHALL PROVIDE THICKENED WALL AND FLOOR SECTIONS AT EQUIPMENT MOUNTING LOCATIONS.
2. ALUMINUM BASIN HATCH SHALL BE CAST IN PLACE, WITH ASPHALTIC PAINT, HOLD OPEN ARM, FALL THROUGH PROTECTION, LOCK STAPLE, DIAMOND PLATE, HORIZONTAL LIFT ASSIST MECHANISM, AND NUT RAILS FOR FLOAT AND CABLE HANGERS.
3. BACKFILL MATERIAL AND PROCEDURE SHALL BE IN ACCORDANCE WITH BASIN MANUFACTURER'S INSTRUCTIONS.
4. CONTRACTOR SHALL COORDINATE WITH BASIN MANUFACTURER FOR INLET AND OUTLET CONNECTIONS VIA PIPE STUB OR ADAPTER.
5. CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR SHORING SYSTEM TO ACCOMMODATE EXCAVATION TO THE REQUIRED DEPTH.
6. ANTIFLOATATION COLLAR SHALL BE SIZED BY THE BASIN MANUFACTURER AND ACCOUNT FOR WATER LEVEL AT THE FINISH GROUND SURFACE WITH AN EMPTY BASIN. SUBMIT ANTIBOUYANCY CALCULATIONS FOR REVIEW.
7. DAVIT CRANE SHALL BE PORTABLE WITH A PEDESTAL BASE. COORDINATE WITH MANUFACTURER FOR MOUNTING/ANCHORAGE DETAILS. CRANE SHALL HAVE AN EXTENDABLE BOOM CAPABLE OF REACHING ALL PUMPS AND SHALL HAVE A CAPACITY OF 2X THE PUMP WEIGHT AT THE FARTHEST REACH. CRANE SHALL BE EQUIPPED WITH A 120V MOTOR OPERATED WINCH WITH STAINLESS STEEL CABLE AND HOOK OF SUFFICIENT LENGTH TO REMOVE PUMPS.
8. VALVE VAULT HATCH SHALL BE H20 INCIDENTAL LOAD RATED, PRECAST INTO THE STRUCTURE AND INCLUDE SPRING ASSISTS, AND LOCK SYSTEM.
9. ALL PVC PIPING AND FITTINGS SHALL BE SCHEDULE 80.
10. HATCH SHALL NOT TRANSMIT LOAD ONTO FIBERGLASS BASIN, COORDINATE WITH BASIN MANUFACTURER FOR GAP SIZE.
11. PROVIDE THICKENED CONCRETE SECTION FOR HATCH EMBEDMENT IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.

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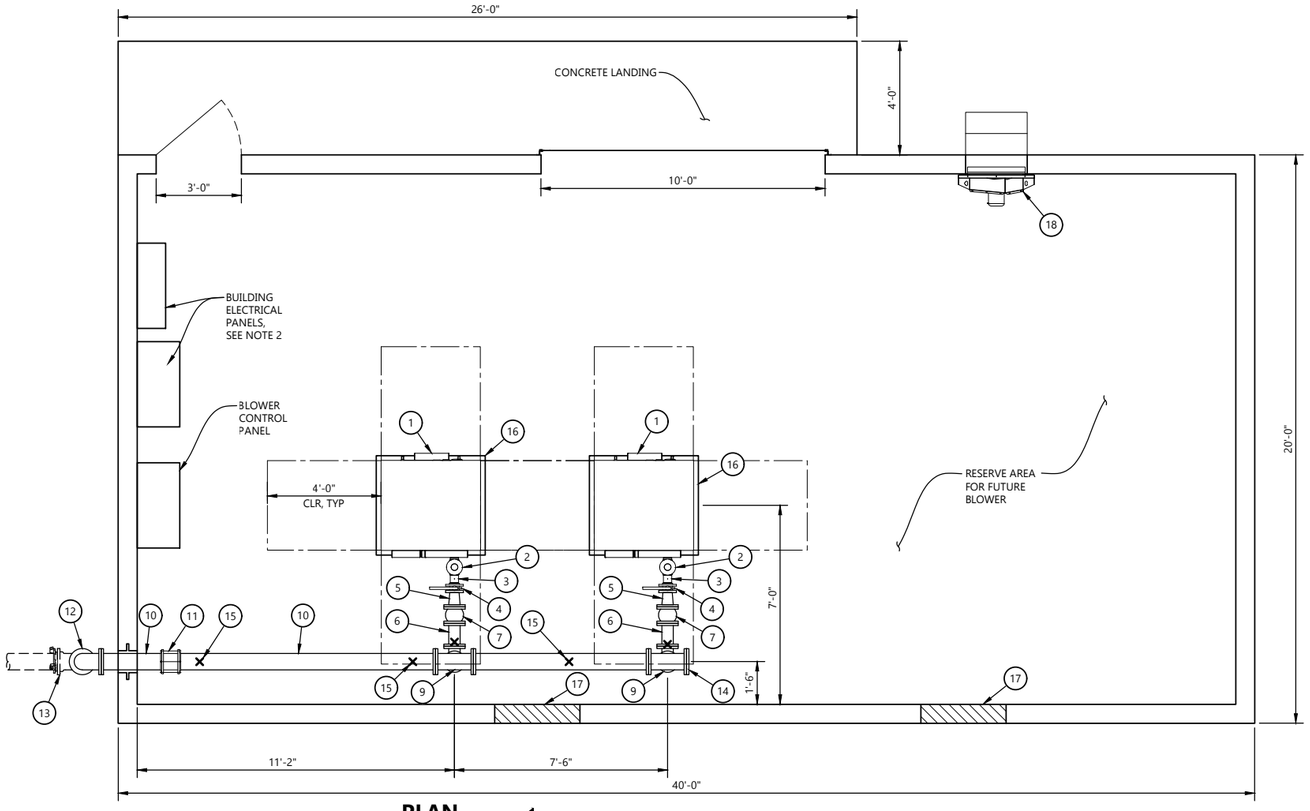
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FORT JONES, CALIFORNIA

RECIRCULATION PUMP STATION PLAN AND SECTION

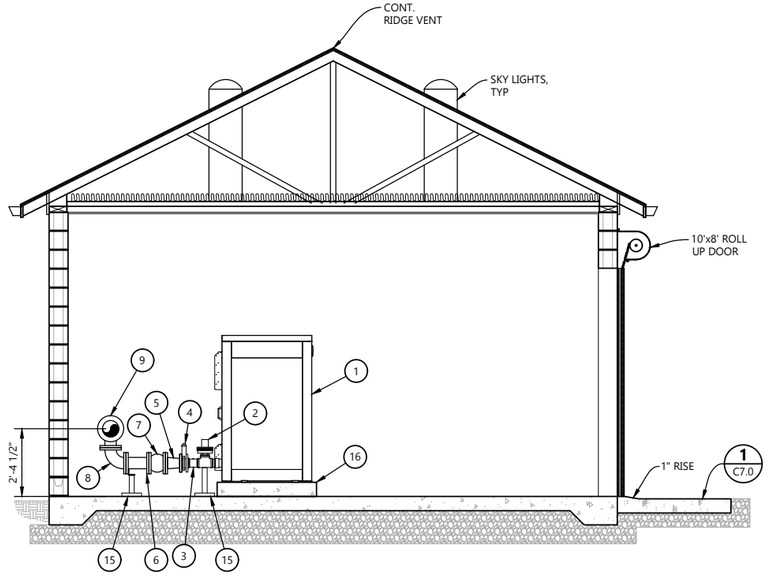
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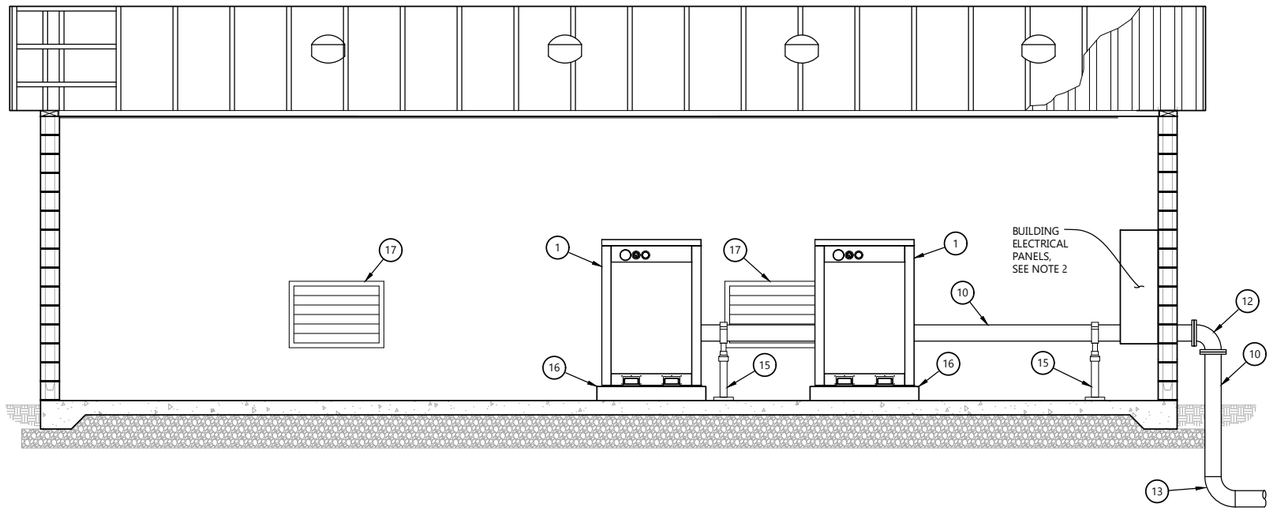
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PLAN
3/8"=1'-0"



SECTION
3/8"=1'-0"



SECTION
3/8"=1'-0"

KEYNOTES

NO.	DESCRIPTION	EST. QUANTITY
1	10 HP AERATION BLOWER	2
2	2" RELIEF VALVE	2
3	3" CHECK VALVE	VARIES
4	3" BUTTERFLY VALVE	2
5	4"x3" REDUCER, FLG, STL	2
6	4" SPOOL, FLG, STL	1
7	4" EXPANSION JOINT	2
8	4" 90° EL, FLG, STL	2
9	6"x4" TEE, FLG, STL	2
10	6" SPOOL, FLG, STL	2
11	6" COUPLING	2
12	6" 90° EL, FLG, STL	2
13	6" 90° EL. WELDED, STL	6
14	6" BLIND FLANGE	1
15	PIPE SUPPORT, STAND OR CRADLE	1
16	6" EQUIPMENT PAD, SEE NOTE 3	2
17	AIR INTAKE LOUVER	2
18	AIR EXHAUST FAN	1

NOTE: NOT ALL KEYNOTES USED ON THIS SHEET.

NOTES:

1. ALL PIPING SHALL BE RESTRAINED.
2. ELECTRICAL PANEL AREA REPRESENTATIONAL ONLY. SEE ELECTRICAL PLANS FOR DIMENSIONS AND LOCATIONS.
3. EQUIPMENT PADS TO EXTEND OUT FROM EQUIPMENT EDGES A MINIMUM OF 3".
4. PROVIDE PIPE INSULATION IN ACCORDANCE WITH THE SPECIFICATIONS

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FORT JONES, CALIFORNIA

BLOWER BUILDING MECHANICAL PLAN AND SECTIONS

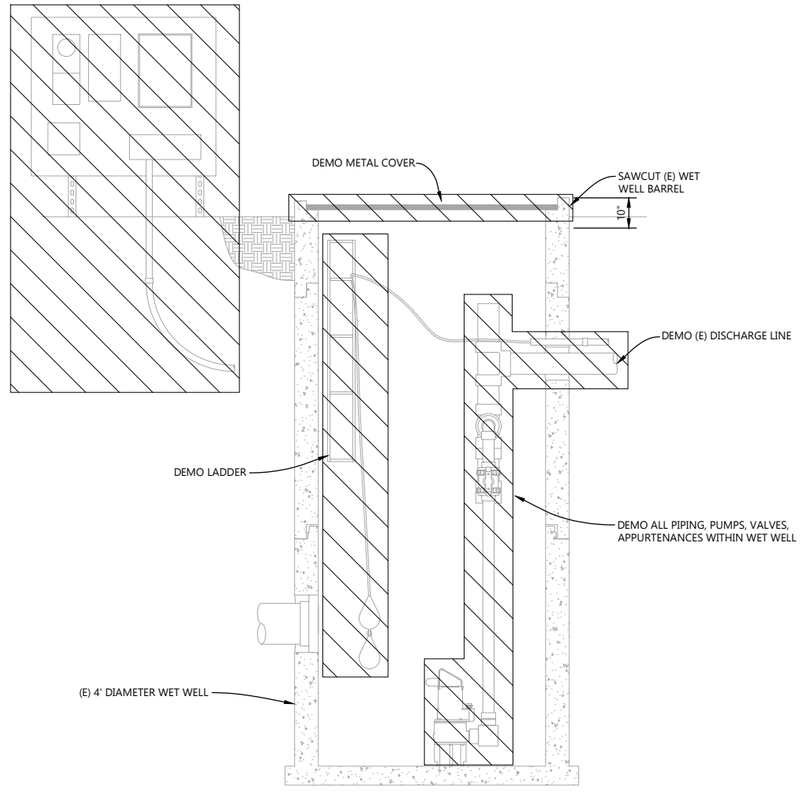
DESIGN JM	CHECK CRS
DRAWN JWF/CDN	
DATE 06/2026	
PROJ. NO. 525006	
SHEET **M4.0**	

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PLAN
1/2"=1'-0"



SECTION A
NTS

NOTES:
1. LIFT STATION SHALL REMAIN IN OPERATION AT ALL TIMES. CONTRACTOR SHALL PROVIDE TEMPORARY BYPASS PUMPING PLAN OR CONSTRUCTION SEQUENCING PLAN.
2. CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS AND TEMPORARY PROTECTIVE MEASURES DURING DEMOLITION AND REPLACEMENT TO PROHIBIT ENTRY OF ALL DEBRIS INTO THE WET WELL. SEVERE DAMAGE TO PUMPS MAY OCCUR IF DEBRIS ENTERS WET WELL OR SUCTION PIPING. CONTRACTOR SHALL BE RESPONSIBLE FOR CLEANING AND FLUSHING OF THE WET WELL AND SUCTION PIPING PRIOR TO STARTING NEW PUMPS.

VERIFY SCALES

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0 1"

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SERPA LIFT STATION DEMOLITION PLAN

DESIGN	CHECK
JM	CRS
DRAWN	
JWF/CDN	

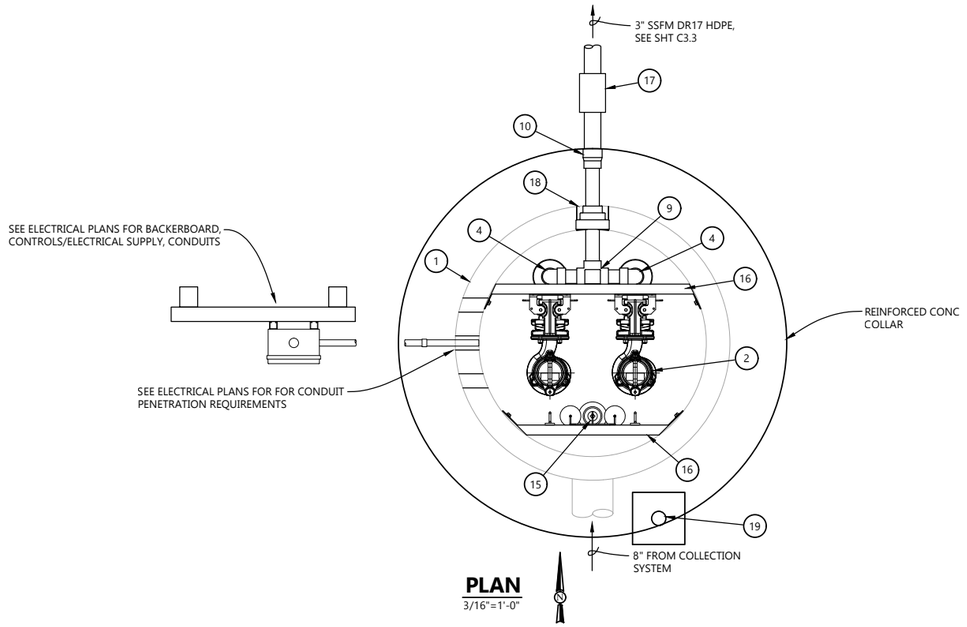
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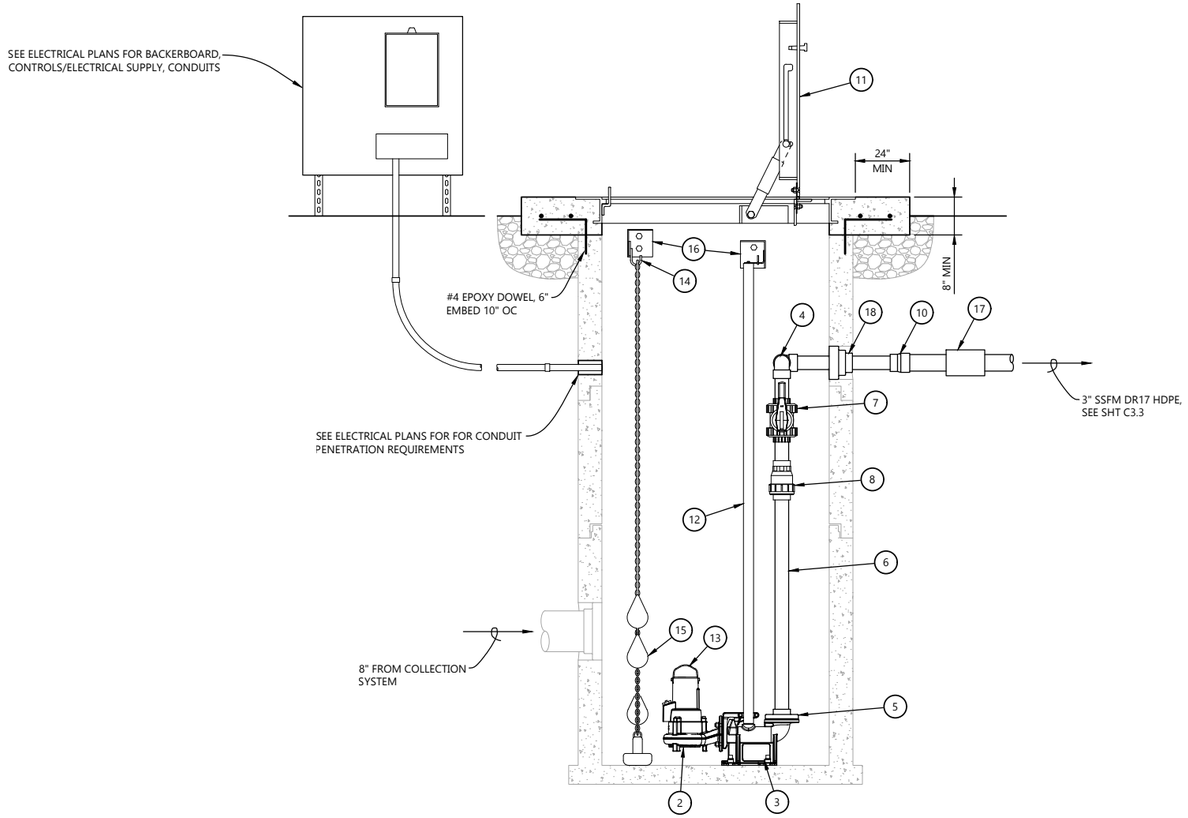
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PLAN
3/16"=1'-0"



SECTION
NTS

KEYNOTES

NO.	DESCRIPTION	EST. QUANTITY
1	(E) 4' DIAMETER WET WELL	1
2	3.8 HP NON-CLOG SUBMERSIBLE PUMP	2
3	PUMP BASE W/AUTOCOUPLING ASSEMBLY	2
4	2.5" 90° EL, PVC	2
5	2.5" FLANGE, PVC	2
6	2.5" PIPING, PVC	VARIOUS
7	2.5" BALL VALVE, TRUE UNION, PVC	2
8	2.5" CHECK VALVE, PVC	2
9	2.5" TEE, PVC	1
10	2.5"x3" REDUCER	1
11	48" BASIN COVER, SEE NOTE 2	1
12	SST GUIDE RAILS	2 SETS
13	SST LIFTING CHAINS	2 LENGTHS
14	SST HOOK RACK	1
15	LEVEL INSTRUMENTS, SEE ELECTRICAL PLANS	N/A
16	BRACKET AND GUIDE RAIL SUPPORTS	2
17	3" PVC TO HDPE FITTING	1
18	PIPE CORE SEAL	1
19	DAVIT CRANE PEDESTAL BASE, SEE NOTE 4	1

NOTE: NOT ALL KEYNOTES USED ON THIS SHEET.

NOTES:

1. PUMP STATION SHALL BE A COMPLETE PACKAGED SYSTEM WITH DUPLEX PUMPS, AUTOCOUPLING BASES, GUIDE RAILS, VALVING, LEVEL SENSING, PIPING AND PEDESTRIAN RATED HATCH WITH FALL THROUGH PROTECTION.
2. ALUMINUM BASIN HATCH SHALL BE CAST IN PLACE, WITH ASPHALTIC PAINT, HOLD OPEN ARM, FALL THROUGH PROTECTION, LOCK STAPLE, DIAMOND PLATE, HORIZONTAL LIFT ASSIST MECHANISM, AND NUT RAILS FOR FLOAT AND CABLE HANGERS. INCLUDE SKIRT FOR NEW CONCRETE COLLAR THICKNESS.
3. ALL PVC PIPING AND FITTINGS SHALL BE SCHEDULE 80.
4. COORDINATE PEDESTAL BASE WITH RECIRCULATION PUMP STATION PORTABLE DAVIT CRANE FOR INTERCOMPATIBILITY. MANUFACTURER TO DESIGN BASE ANCHORAGE. LOCATE BASE TO ENSURE CRANE CAN REACH BOTH PUMPS.

OPERATIONAL LEVELS (FROM WET WELL BASE)

REDUNDANT OFF	-.--'
LEAD PUMP OFF	TOP OF MOTOR
LEAD PUMP ON	-.--'
LAG PUMP ON	-.--'
LAG PUMP OFF	-.--'
HIGH LEVEL ALARM	-.--'
HIGH HIGH LEVEL ALARM	-.--'

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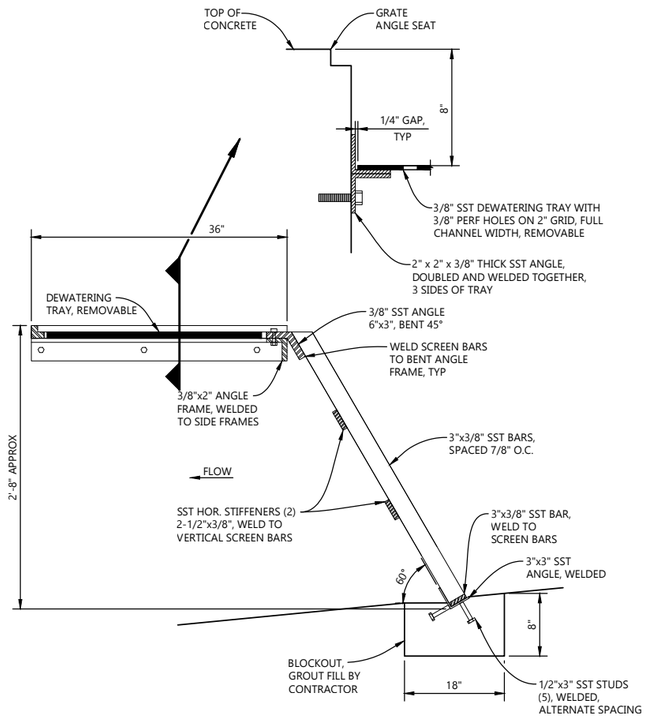
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SERPA LIFT STATION
REHABILITATION PLAN & SECTION

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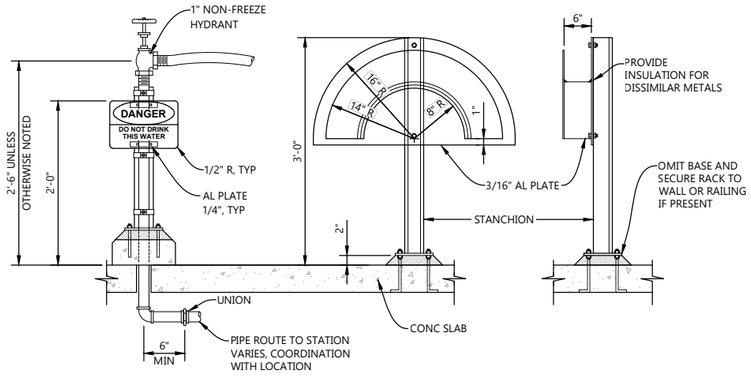
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MANUAL BAR SCREEN

NTS

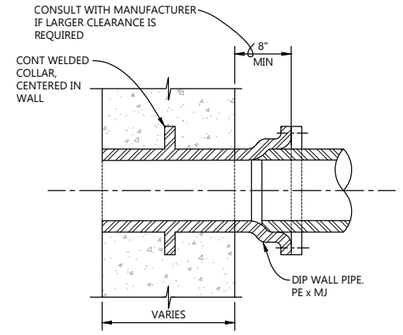
1



HOSE BIBB WITH RACK

NTS

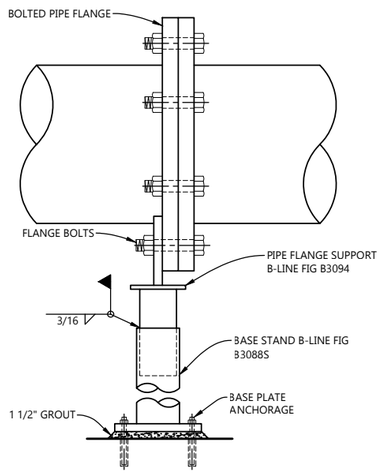
2



WALL PIPE

NTS

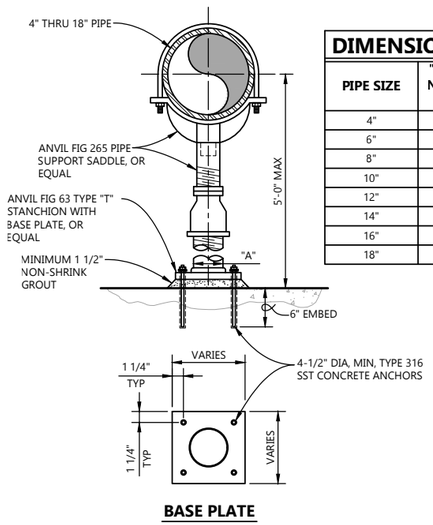
3



PIPE FLANGE SUPPORT

NTS

4



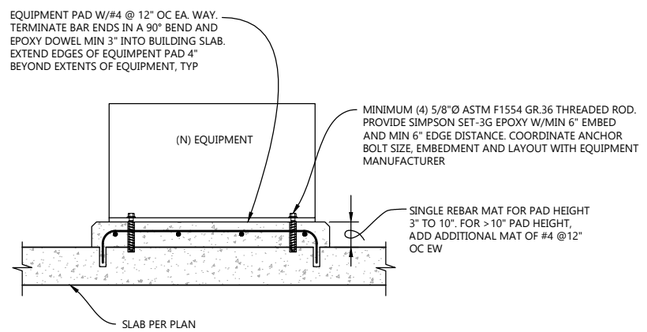
BASE PLATE

DIMENSION TABLE	
PIPE SIZE	**"A" MINIMUM NOMINAL PIPE SIZE**
4"	3"
6"	4"
8"	4"
10"	4"
12"	6"
14"	6"
16"	6"
18"	6"

PIPE SUPPORT ADJUSTABLE SADDLE TYPE

NTS

5



CONCRETE EQUIPMENT PAD

NTS

6

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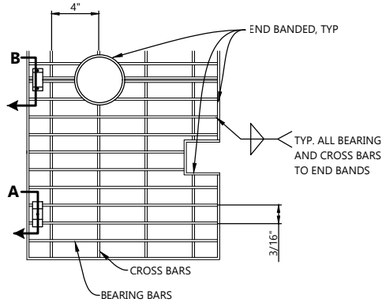
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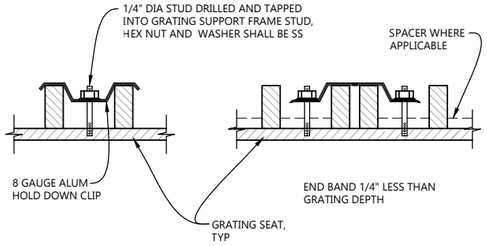
MECHANICAL DETAILS

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SECTION A **SECTION B**

GRATING SCHEDULE	
BEARING BAR SIZE	MAXIMUM CLEAR SPAN
1"x3/16"	2'-6"
1 1/4"x3/16"	3'-6"
1 1/2"x3/16"	4'-0"
1 3/4"x3/16"	5'-0"
2"x3/16"	5'-6"
2 1/4"x3/16"	6'-6"
2 1/2"x3/16"	8'-0"

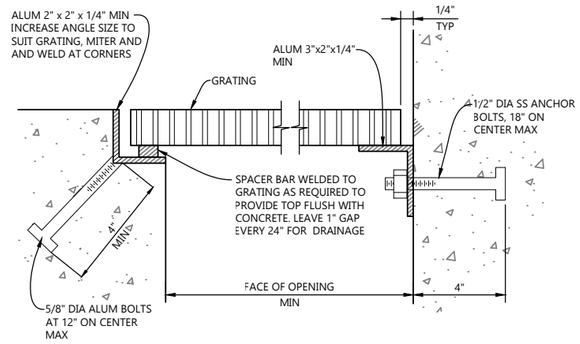
NOTES:

1. GRATING SHALL CONFORM TO THE METAL BAR GRATING MANUAL OF NAAMM. UNLESS OTHERWISE SPECIFIED, GRATING SHALL BE ALUMINUM.
2. GRATING SHALL BE SWAGED AND FORGED.
3. UNLESS OTHERWISE SPECIFIED, PROVIDE 4 GRATING CLIPS APPROX 4" FROM THE CORNERS OF EACH PIECE. ADJACENT PIECES MAY BE ANCHORED WITH ONE CLIP AND TWO STUDS, SEE B
4. GRATING SHALL BE REMOVABLE
5. CLEAR SPAN SHALL BE PLAN DIMENSION, FACE TO FACE OF OPENING.
6. MAX. WEIGHT OF ANY GRATING PANEL = 50 LBS.

GRATING PLAN

NTS

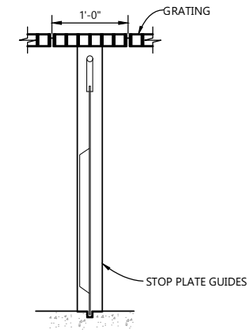
1



GRATING SUPPORT

NTS

2



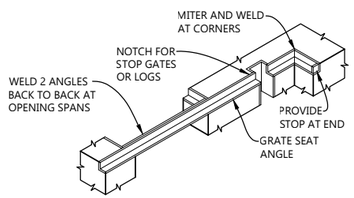
NOTES:

1. PROVIDE MIN. 3/8" GAP BETWEEN GRATES (BOTH SIDES) TO FACILITATE REMOVAL.
2. GRATE ABOVE STOP GATE SHALL BE A MAX OF 12" WIDE.

GRATE BREAKS

NTS

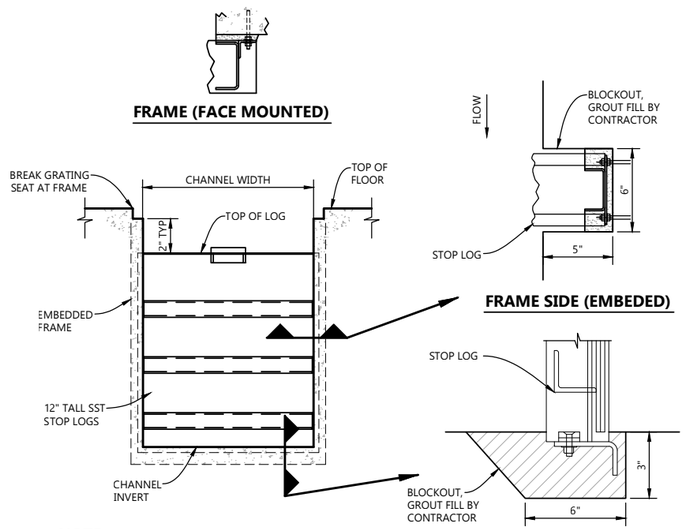
3



GRATE SEAT BREAKS

NTS

4



NOTE:

FRAME DETAILS VARY BY MANUFACTURER. CONTRACTOR SHALL COORDINATE ALL BLOCKOUT REQUIREMENTS WITH MANUFACTURER.

STOP LOG

NTS

5

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MECHANICAL DETAILS

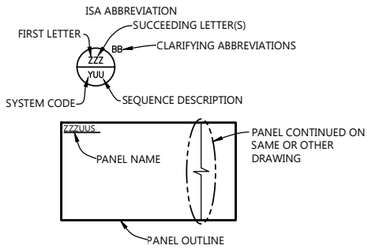
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INSTRUMENTATION IDENTIFICATION

EXAMPLE SYMBOLS



ABBREVIATIONS

AC	ALTERNATING CURRENT
AM	AUTO-MANUAL
BW	FILTER BACKWASH WATER
CL_2	CHEMICAL (TYPICAL: USE STANDARD CHEMICAL ELEMENT ABBREVIATIONS)
DC	DIRECT CURRENT
DO	DISSOLVED OXYGEN
ETM	ELAPSED TIME METER
FCL_2	FREE CHLORINE RESIDUAL
FE	FILTER EFFLUENT
FLT	FAULT
FOR	FORWARD-OFF-REVERSE
FW	FINISHED WATER
FWD	FORWARD
HOA	HAND-OFF-AUTO
HOR	HAND-OFF-REMOTE
HP	HORSEPOWER
ISR	INTRINSICALLY SAFE RELAY
KW	KILOWATT
LOS	LOCKOUT STOP
LR	LOCAL-REMOTE
MA	MANUAL-AUTO
MSC	MANUFACTURER SUPPLIED CABLE
MXR	MIXER
OC	OPEN-CLOSE(D)
OCA	OPEN-CLOSE-AUTO
OCR	OPEN-CLOSE-REMOTE
OO	ON-OFF
OOA	ON-OFF-AUTO
OOR	ON-OFF-REMOTE
ORP	OXIDATION REDUCTION POTENTIAL
PB	PUSH BUTTON
PE	PLANT EFFLUENT
pH	HYDROGEN ION CONCENTRATION
PLC	PROGRAMMABLE LOGIC CONTROLLER
POT	POTENTIOMETER
RDY	READY
REM	REMOTE
REV	REVERSE
RST	RESET
RW	RAW WATER
SC	SPEED CONTROL
SS	START-STOP
TCL_2	TOTAL CHLORINE RESIDUAL
TURB	TURBIDITY
V	VOLT

SELF CONTAINED VALVE & EQUIPMENT TAG NUMBERS

ZZZYUU

ZZZ = EQUIPMENT OR ISA ABBREVIATION

ARV	AIR RELEASE VALVE
BLO	BLOWER
CAV	COMBINATION AIR/VACUUM VALVE
CMP	AIR COMPRESSOR
FCS	FIELD CONTROL STATION
FS	FILTER SCREEN
G	MANUAL GATE
GC	GRIT CLASSIFIER
GEN	POWER GENERATOR
GP	GRIT PUMP
GPW	GRIT PADDLE WHEEL
HB	HEATER BLOWER
LCP	LOCAL CONTROL PANEL
M	MOTOR
MCC	MOTOR CONTROL CENTER
MOV	MOTOR OPERATED VALVE
P	PUMP
PCP	PLANT CONTROL PANEL
PLC	PROGRAMMABLE LOGIC CONTROLLER
PRV	PRESSURE RELIEF VALVE
PSV	PRESSURE SUSTAINING VALVE
RS	RAKE SCREEN
SMP	SAMPLER (AUTOMATED COMPOSITE)
SMX	STATIC MIXER
SOV	SOLENOID OPERATED VALVE
VCP	VENDOR CONTROL PANEL
VFD	VARIABLE FREQUENCY DRIVE
WC	WASHER COMPACTOR

Y = SYSTEM CODE

1	INFLUENT LIFT STATION
2	SCREENING
3	TREATMENT/AERATION
4	RECIRCULATION PUMP STATION
5	NITROGEN REMOVAL SYSTEM (RESERVED)
6	ODOR CONTROL
7	DISINFECTION (RESERVED)
8	PLANT GENERAL
9	COLLECTION SYSTEM

UU= SEQUENCE DESCRIPTION

INSTRUMENTATION IDENTIFICATION LETTERS TABLE

	FIRST LETTER		SUCCEEDING LETTER		
LETTER	MEASURED OR INITIATING VARIABLE	MODIFIER	READOUT OR PASSIVE FUNCTION	OUTPUT FUNCTION	MODIFIER
A	ANALYSIS (+)		ALARM		
B	BURNER, COMBUSTION		USER'S CHOICE	USER'S CHOICE	USER'S CHOICE
C	CONDUCTIVITY			CONTROL	CLOSE/CLOSED
D	DENSITY (S.G.)	DIFFERENTIAL			DEVIATION
E	VOLTAGE		PRIMARY ELEMENT, SENSOR		
F	FLOW RATE	RATIO (FRACTION)			
G	USER'S CHOICE		GLASS, GAUGE VIEWING DEVICE	GATE	
H	HAND (MANUAL)				HIGH
I	CURRENT (ELECTRICAL)		INDICATE		
J	POWER		SCAN		
K	TIME, TIME SCHEDULE	TIME RATE OF CHANGE		CONTROL STATION	
L	LEVEL		LIGHT (PILOT)		LOW
M	MOISTURE	MOMENTARY			MIDDLE, INTERMEDIATE
N	TORQUE		USER'S CHOICE	USER'S CHOICE	USER'S CHOICE
O	USER'S CHOICE		ORIFICE, RESTRICTION		OPEN/OPENED
P	PRESSURE, VACUUM		POINT (TEST) CONNECTION		
Q	QUANTITY	INTEGRATE, TOTALIZE	INTEGRATE, TOTALIZE		
R	RADIATION		RECORD OR PRINT		RUN
S	SPEED, FREQUENCY	SAFETY		SWITCH	STOP
T	TEMPERATURE			TRANSMIT	
U	MULTIVARIABLE		MULTIFUNCTION	MULTIFUNCTION	
V	VIBRATION, MECHANICAL ANALYSIS			VALVE, DAMPER, LOUVER	
W	WEIGHT, FORCE		WELL		
X	ON/OFF OR UNCLASSIFIED	X AXIS	UNCLASSIFIED	UNCLASSIFIED	UNCLASSIFIED
Y	EVENT, STATE OR PRESENCE	Y AXIS		RELAY, COMPUTE, CONVERT	
Z	POSITION	Z AXIS		DRIVE, ACTUATOR, UNCLASSIFIED FINAL CONTROL ELEMENT	

INSTRUMENT OR FUNCTION SYMBOLS TABLE

	PRIMARY LOCATION, NORMALLY ACCESSIBLE TO OPERATOR	FIELD MOUNTED	PRIMARY LOCATION, NORMALLY NOT ACCESSIBLE TO OPERATOR	SECONDARY LOCATION, NORMALLY ACCESSIBLE TO OPERATOR	SECONDARY LOCATION, NORMALLY NOT ACCESSIBLE TO OPERATOR
DISCRETE INSTRUMENTS	ZZZ / UU	ZZZ / UU	ZZZ / UU	ZZZ / UU	ZZZ / UU
SHARED DISPLAY OR CONTROL	ZZZ / UU		ZZZ / UU	ZZZ / UU	ZZZ / UU
PROGRAMMABLE LOGIC CONTROLLER	ZZZ / UU		ZZZ / UU	ZZZ / UU	ZZZ / UU
COMPUTER FUNCTION	ZZZ / UU		ZZZ / UU	ZZZ / UU	ZZZ / UU

SEQUENCE DESCRIPTIONS

SEQUENCE	DESCRIPTION
00	COMMON ALARM
01-09	INDIVIDUAL ITEMS
10	MECHANICAL
20	MECHANICAL
30	MECHANICAL
40	MECHANICAL
50	LEVEL DEVICES
60	PRESSURE DEVICES
70	FLOW DEVICES
80	ANALYTICAL DEVICES
90	SAFETY AND SECURITY

SPECIAL CASES



ON AND OFF EVENT LIGHTS



ON-OFF HAND SWITCH, MAINTAINED CONTACT SWITCH (CONTROLLED DEVICE WILL RESTART ON RETURN OF POWER AFTER POWER FAILURE)



STOP-START HAND SWITCH MOMENTARY CONTACT SWITCHES (CONTROLLED DEVICE WILL NOT RESTART ON RETURN OF POWER AFTER POWER FAILURE)



AUTODIALER PRIORITY #
PC-BASED SOFTWARE

LINE LEGEND

PRIMARY PROCESS (CLOSED CONDUIT, DASHED LINE INDICATES ALTERNATE FLOW STREAM)

SECONDARY PROCESS

BYPASS PROCESS

PROCESS (OPEN CHANNEL)

ANALOG SIGNAL (4 TO 20 mAdc, ETC)

DISCRETE/DIGITAL SIGNAL (ON/OFF, ETC)

PNEUMATIC SIGNAL

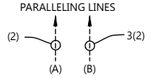
HYDRAULIC SYSTEM SIGNAL

DATA LINK

BUILDING OR FACILITY BOUNDARY

TYPICAL BREAK

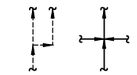
PARALLELING LINES



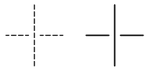
(A) TOTAL OF 2 SIGNALS

(B) 3 TYPICAL SETS OF 2 SIGNALS EACH. TOTAL OF 6 SIGNALS

CONNECTING LINES



NON-CONNECTING LINES



INTERFACE SYMBOLS



A INTERFACE NO (2 DIGITS)

D DESTINATION DRAWING NO

S SOURCE DRAWING NO

INTERFACE TO OR FROM PROCESS EXTERNAL TO PROJECT

PROCESS SIGNAL LINE CONTINUATION N=1,2,3, ETC

PLC SIGNAL INTERFACES

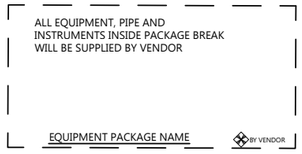
ANALOG INPUT

ANALOG OUTPUT

$\triangle_X$ DISCRETE INPUT

∇_X DISCRETE OUTPUT

VENDOR SUPPLIED EQUIPMENT



VENDOR SUPPLIED EQUIPMENT PACKAGE

VENDOR SCOPE RESPONSIBILITY

MISCELLANEOUS SYMBOLS

VENT TO ATMOSPHERE

AIR GAP

FLEXIBLE CONNECTION

COMPOSITE SAMPLER

CHEMICAL INJECTOR

INLINE STATIC MIXER

INLINE SILENCER

BLIND FLANGE

PIPE CAP

REDUCER/INCREASER

WYE STRAINER

SPIGOT

FILTER

MOTOR STARTER, INTERLOCK, OR LOGIC IN MOTOR CONTROL CENTER

MOTOR STARTER, INTERLOCK, OR LOGIC IN LOCAL CONTROL PANEL

VARIABLE FREQUENCY DRIVE IN LOCAL CONTROL PANEL, MOTOR CONTROL CENTER, OR DRIVE ENCLOSURE

120V — 120 VOLT, 60 HZ POWER

120V UPS — 120 VOLT, UPS POWER

480V — 480 VOLT, 60 HZ POWER

AIR SET XX=SUPPLY PRESSURE IN PSIG

PLUG

RADIO ANTENNA

PULSATION DAMPENER

SAMPLE POINT

HEATER

EXPANSION JOINT

PRESSURE TANK

CALIBRATION COLUMN

VALVE SYMBOLS

BALL

PLUG

ECCENTRIC PLUG

GLOBE

BUTTERFLY

DIAPHRAGM

PINCH

NEEDLE

BALL CHECK

SWING CHECK

XX= NC NORMALLY CLOSED

GATE

ANGLE GATE

AIR AND/OR VACUUM RELEASE

PRESSURE RELIEF

ROTARY

TELESCOPE

MUD

KNIFE GATE

MULTI-PORT VALVE (GATE VALVE SHOWN. FOR OTHER VALVE TYPES, APPROPRIATE VALVE SYMBOL SHOWN.) SEAT PORTS ARE IMPLIED BY INDICATED FLOW PATTERN

REGULATED SIDE PRESSURE CONTROL

PRESSURE REGULATION (CLA-TYPE)

BACKFLOW PREVENTER

FLOAT

ACTUATOR SYMBOLS

MANUAL

ELECTRIC MOTOR

HYDRAULIC

ELECTROHYDRAULIC

SOLENOID

PNEUMATIC

DIAPHRAGM, DIFFERENTIAL PRESSURE

PNEUMATIC DIAPHRAGM SPRING-OPPOSED, SINGLE OR DOUBLE ACTING

VALVE POSITIONER

NOTE: ON LOSS OF PRIMARY POWER (PNEUMATIC, ELECTRICAL, OR HYDRAULIC)

XX= FO FAIL OPEN
FC FAIL CLOSED
FLP FAIL LAST POSITION

GATE SYMBOLS

SLUICE — FABRICATED SLIDE — STOP LOG

BUTTERFLY — FLAP — SHEAR

PRIMARY ELEMENT SYMBOLS

FLUME

WEIR

ORIFICE PLATE

FLOW TUBE

PITOT-STATIC

VORTEX METER

ULTRASONIC FLOWMETER

ELECTROMAGNETIC FLOWMETER

ROTARY FLOWMETER

PROPELLER OR TURBINE METER

THERMAL FLOWMETER

LEVEL (BUBBLER TUBE)

SUBMERSIBLE LEVEL TRANSDUCER

LEVEL (FLOAT)

ROTAMETER

DENSITY METER

GENERIC

LEVEL

PUMP AND COMPRESSOR SYMBOLS

VERTICAL TURBINE PUMP

SUBMERSIBLE CENTRIFUGAL PUMP

CENTRIFUGAL PUMP

VACUUM PUMP

BLOWER OR FAN

PERISTALTIC OR METERING PUMP (POSITIVE DISPLACEMENT)

PROGRESSING CAVITY PUMP

HORIZONTAL CENTRIFUGAL PUMP

DIAPHRAGM PUMP

SCREW PUMP/CONVEYOR

ROTARY PUMP

GEAR PUMP OR BLOWER (POSITIVE DISPLACEMENT)

XX= AS ADJUSTABLE SPEED
CS-1 CONSTANT SPEED (SINGLE SPEED)
CS-2 CONSTANT SPEED (TWO SPEED)

GENERAL NOTES

1. THIS IS A STANDARD LEGEND. THEREFORE, NOT ALL OF THIS INFORMATION MAY BE USED ON THE PROJECT.

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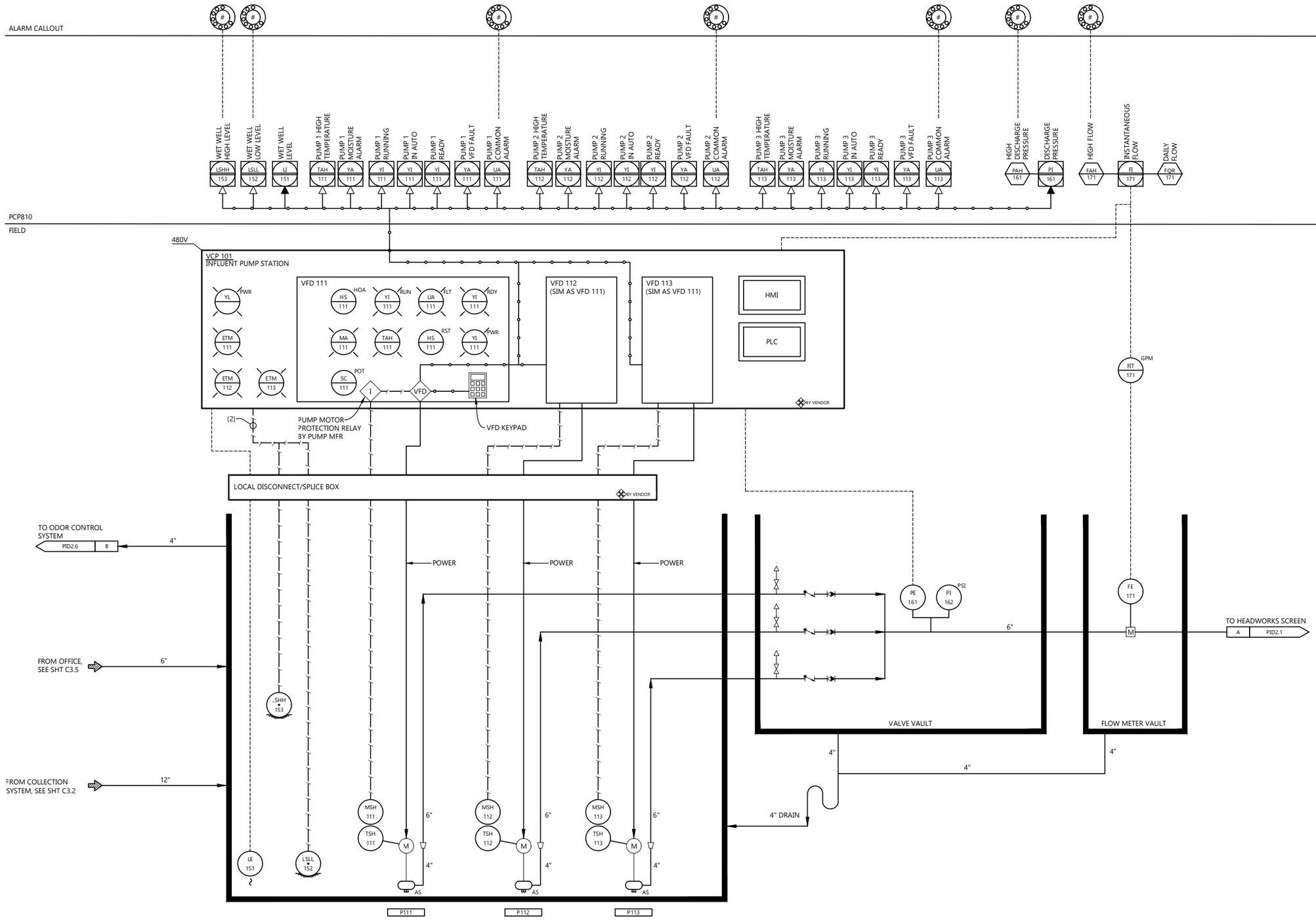
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FORT JONES, CALIFORNIA

PROCESS AND INSTRUMENTATIONS LEGENDS

DESIGN	JM
CHECK	CRS
DRAWN	JWF/CDN
DATE	06/2026
PROJ. NO.	525006
SHEET	PID1.0

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INFLUENT LIFT STATION P&ID

DESIGN	CHECK
JM	CRS
DRAWN	
JWF/CDN	
DATE	
06/2026	
PROJ. NO.	
525006	
SHEET	
PID2.0	

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ALARM CALLOUT

LCP 820
FIELD

SAMPLER FAIL YA 281

SAMPLER FULL YA 281

CHANNEL HIGH LEVEL LAHH 251

SCREEN FAIL UA 211

SCREEN RUNNING YI 211

COMBUSTIBLE GAS DETECT YA 292

SENSOR FAIL YA 292

480V

VCP201
INFLUENT SCREEN

YL PWR

YL 211 RUN

YL 251 HI LVL

YL 291 INTERLOCK BYPASSED

HMI

PLC

ETM 211

YL 211 FLT

PB 211 RST

PB 211B E-STOP

I

BY VENDOR

FCS202
INFLUENT SCREEN
FIELD CONTROL STATION

HS 211 HOA

HS 211 FOR

HS 221 HOA

HS 222 HOA

BY VENDOR

120V

GAS DETECTOR CONTROLLER

OIT

YA 292

PB 292 RST

AE 292

(2)

(2)

POWER

PB 211A E-STOP

ZSO 291

M

TSH 211

M211

S SOV222

UTILITY WATER

S SOV221

LE 251

2" DRAIN

CONTINUOUS BAGGER

COMPOSITE SAMPLER

120V SS SMP281

SUCTION TUBING

FROM INFLUENT LIFT STATION

A PID2.0

14"

AUGER SCREEN

BY VENDOR

MANUAL BAR SCREEN

SCREEN BUILDING INTERIOR

12"

VENT TO ODOR CONTROL SYSTEM

D PID2.6

TO TREATMENT PONDS

C PID2.2

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SCREENING P&ID

DESIGN	CHECK
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PID2.1	

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ALARM CALLOUT

LCP830

FIELD

POND #1 DISSOLVED OXYGEN AI 381

POND #2 DISSOLVED OXYGEN AI 382

DAILY FLOW FQR 351

INSTANTANEOUS FLOW FI 351

POND #2 LEVEL LI 351

POND #2 HIGH LEVEL LAH 351

ROCK FILTER BYPASS DAILY FLOW FQR 352

ROCK FILTER BYPASS INSTANTANEOUS FLOW FI 352

POND #3 LEVEL LI 352

POND #3 HIGH LEVEL LAH 352

DAILY FLOW FQR 353

INSTANTANEOUS FLOW FI 353

ROCK FILTER LEVEL LI 353

ROCK FILTER HIGH LEVEL LAH 353

240V

VCP302
SURFACE AERATION MIXER

M VXR322

AIT 381

AE 381

AIT 382

AE 382

LIT 351 FT

LE 351

LIT 352 FT

LE 352

LIT 353 FT

LE 353

(2)

(2)

(2)

FROM HEADWORKS SCREEN
C PID2.1

FROM BLOWERS
B PID2.3

FROM RECIRCULATION PUMP STATION
PID2.4 C

TO RECIRCULATION PUMP STATION
D PID2.4

POND #1
(AERATION)

POND #1 LEVEL
CONTROL WEIR

POND #2
(AERATION)

POND #2 LEVEL
CONTROL WEIR

POND #3
ROCK FILTER
BYPASS EFFLUENT
WEIR

POND #3
(STORAGE &
EVAPORATION)

POND #3
EFFLUENT WEIR

TO PONDS 4 & 5
(INFILTRATION &
EVAPORATION)

VERIFY SCALES

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0 1"
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TREATMENT PONDS P&ID

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PID2.2	

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ALARM CALLOUT

LCP830

FIELD

480V

VCP301
AERATION BLOWER CONTROL PANEL

BLOWER 1 RUNNING — YI 311
BLOWER 1 READY — YI 311
BLOWER 1 COMMON ALARM — UA 311
BLOWER 1 DISCHARGE PRESSURE — PI 361
BLOWER 1 HIGH PRESSURE — PAH 361
POND #1 DISSOLVED OXYGEN — AI 381
POND #2 DISSOLVED OXYGEN — AI 382
BLOWER 2 RUNNING — YI 312
BLOWER 2 READY — YI 312
BLOWER 2 COMMON ALARM — UA 312
BLOWER 2 DISCHARGE PRESSURE — PI 362
BLOWER 2 HIGH PRESSURE — PAH 362
INSTANTANEOUS FLOW — FI 371

HS 311 HOA
YL 311 RUN
YL 311 FLT
YL 311 RDY
HS 311 RST
PAH 361
TAH 341
ETM 311
SC 311 POT

HMI
PLC

YL PWR

HS 312 HOA
YL 312 RUN
YL 312 FLT
YL 312 RDY
HS 312 RST
PAH 362
TAH 342
ETM 312
SC 312 POT

TT 345

VFD

VFD KEYPAD, TYP

BY VENDOR

120V

BLO311
AERATION BLOWER #1
INSTRUMENT PANEL

PIT 361 | PIT 363 | TIT 341 | PB 311 ESTOP

POWER

TT 343

M

ENCLOSURE FAN

POWER

PT 361 | TT 341

M

S | AS | BLO311

AIR FILTER

S

PT 363

3"

BY VENDOR

120V

3LO312
AERATION BLOWER #2
INSTRUMENT PANEL

PIT 362 | PIT 364 | TIT 343 | PB 312 ESTOP

POWER

TT 344

M

ENCLOSURE FAN

POWER

PT 362 | TT 342

M

S | AS | BLO312

AIR FILTER

S

PT 364

3"

FIT 371 SCFM
FE 371

4"

TO AERATION PONDS
B | PID2.2

BY VENDOR

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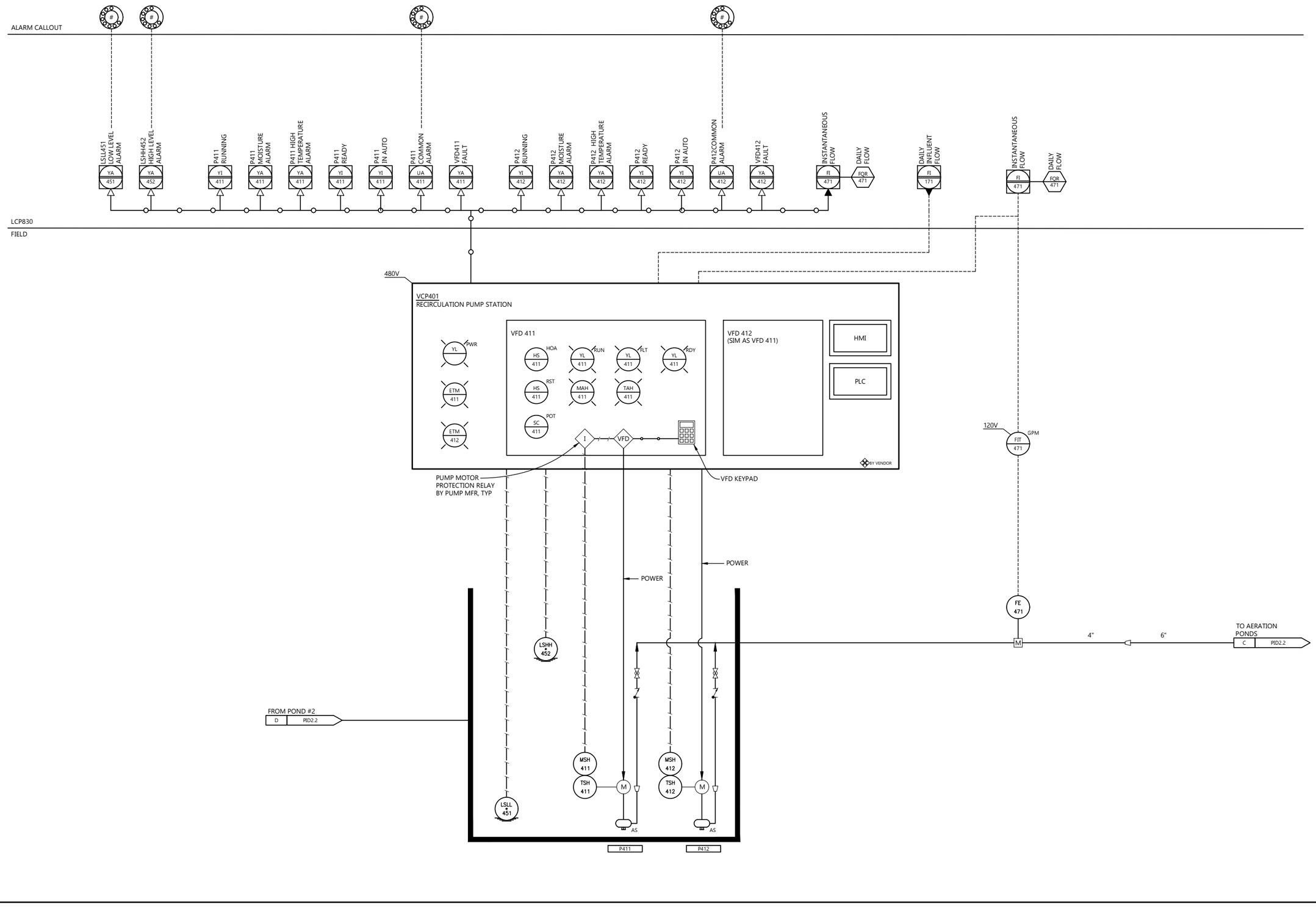
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AERATION P&ID

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PID2.3	

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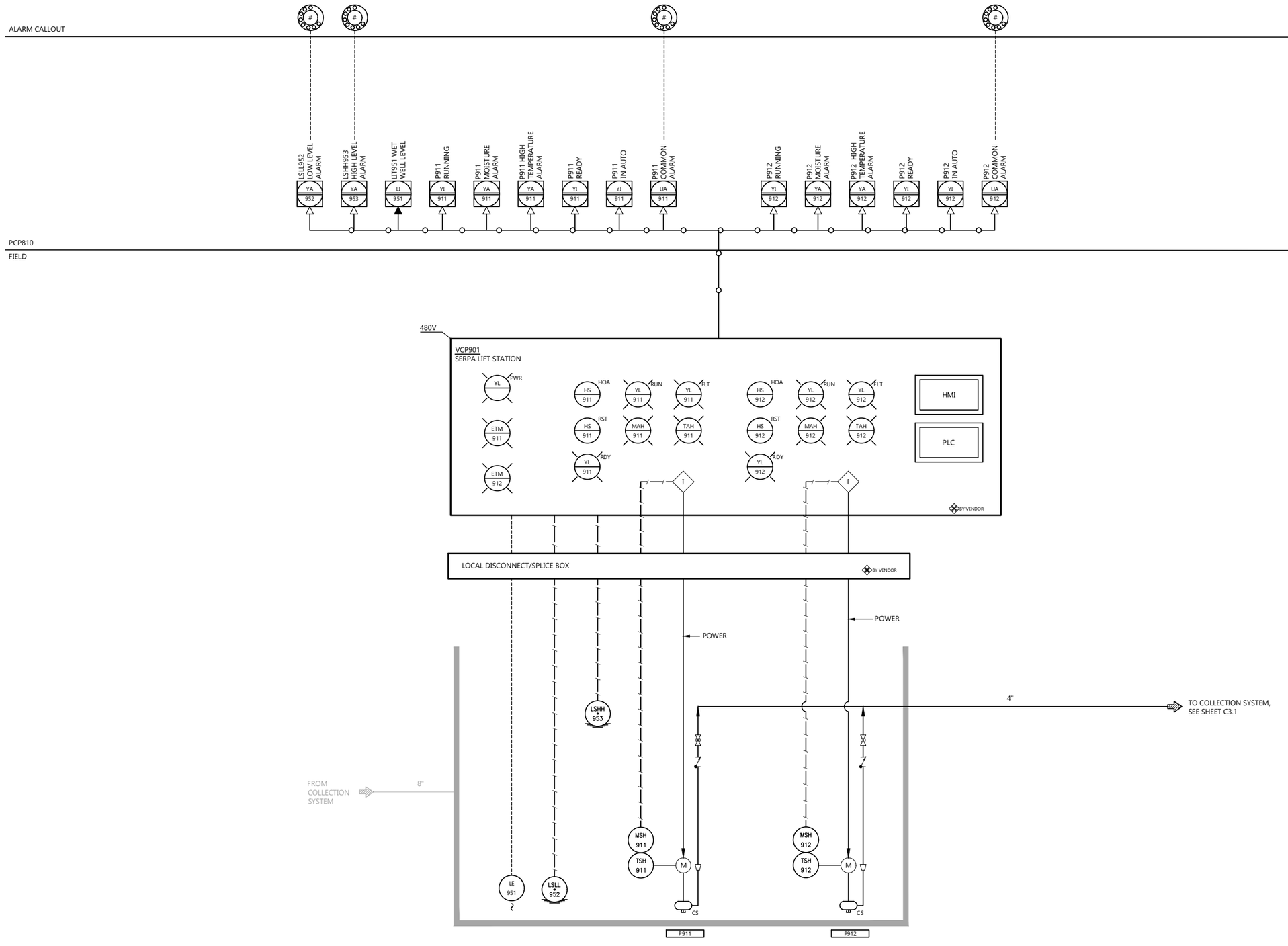
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RECIRCULATION PUMP STATION P&ID

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SHEET	
PID2.4	

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SERPA LIFT STATION P&ID

DESIGN	CHECK
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PROJ. NO.	
525006	
SHEET	
PID2.5	

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ALARM CALLOUT

PCP810

FIELD

FAN START YCR 611

FAN SWITCH IN REMOTE YI 611

FAN FAIL YA 611

FAN RUNNING YI 611

NUTRIENT TANK LOW YA 651

LOW FUEL LS 851

RUNNING YI 811

GENERAL ALARM YA 811

FAIL YA 811

STANDBY DIESEL GENERATOR

GEN811

STANDBY GENERATOR FUEL TANK

LS 851

VCP601
ODOR CONTROL
SYSTEM CONTROL PANEL

HS 611 HOR

YL 611 RUN

YL 611 FLT

SC 611 POT

HS 611 SS

HS 631 OCA

HS 621 HOR

YL 621 RUN

YL 651 LOW LEVEL

BY VENDOR

VFD

I

WATER PANEL
(ON SKID)

PI 661

S

SOV631

FIT 671

P621
NUTRIENT
PUMP

BY VENDOR

3/4" WATER,
SEE C3.5

V

LSL 651

NUTRIENT TANK

SAMPLE PORT

VENT FROM
LIFT STATION

B PID2.0

4"

VENT FROM
SCREEN BUILDING

D PID2.1

12"

12"

BLO611

M

AS

SAMPLE PORT

2" DRAIN

ODOR CONTROL VESSEL

BY VENDOR

4" DRAIN TO INFLUENT
LIFT STATION, SEE C3.5

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ODOR CONTROL P&ID

DESIGN	CHECK
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DATE 06/2026

PROJ. NO. 525006

SHEET **PID2.6**

90% DESIGN-NOT FOR CONSTRUCTION

GENERAL STRUCTURAL NOTES:

1. VERIFICATION: VERIFY ALL DIMENSIONS, ELEVATIONS, AND SITE CONDITIONS BEFORE STARTING WORK. NOTIFY THE OWNER IMMEDIATELY OF ANY DISCREPANCIES.
2. CONFLICTS: NOTES AND DETAILS ON THE DRAWINGS TAKE PRECEDENCE OVER THE GENERAL NOTES AND TYPICAL DETAILS IN CASE OF CONFLICT.
3. SUBSTITUTIONS: PROVIDE MANUFACTURER'S APPROVED PRODUCT EVALUATION REPORTS AND A LIST OF ALL PROPOSED SUBSTITUTIONS TO THE OWNER FOR REVIEW AND APPROVAL BEFORE FABRICATION AND/OR INSTALLATION.
4. SIMILAR WORK: WHERE CONSTRUCTION DETAILS ARE NOT SHOWN OR NOTED FOR ANY PART OF THE WORK, SUCH DETAILS SHALL BE THE SAME AS FOR SIMILAR WORK SHOWN ON THE DRAWINGS.
5. EXCAVATIONS: LOCATE AND PROTECT UNDERGROUND OR CONCEALED CONDUIT, PLUMBING, OR OTHER UTILITIES WHERE NEW WORK IS BEING PERFORMED.
6. CONSTRUCTION METHODS AND PROJECT SAFETY: THE CONTRACT DRAWINGS AND SPECIFICATIONS REPRESENT THE FINISHED STRUCTURE AND DO NOT INDICATE METHODS, PROCEDURES OR SEQUENCE OF CONSTRUCTION. TAKE NECESSARY PRECAUTIONS TO MAINTAIN AND INSURE THE INTEGRITY OF THE STRUCTURE DURING CONSTRUCTION, NEITHER THE OWNER NOR DESIGNER/ENGINEER WILL ENFORCE SAFETY MEASURES OR REGULATIONS. CONTRACTOR SHALL DESIGN, CONSTRUCT AND MAINTAIN ALL SAFETY DEVICES, INCLUDING SHORING AND BRACING, AND SHALL BE SOLELY RESPONSIBLE FOR CONFORMING TO ALL LOCAL, STATE AND FEDERAL SAFETY AND HEALTH STANDARDS, LAWS AND REGULATIONS.
7. CHANGES TO THE DRAWINGS: OBTAIN PRIOR WRITTEN APPROVAL.

DESIGN CRITERIA:

REFERENCE CODES AND STANDARDS:
- 2025 CALIFORNIA BUILDING CODE
- ASCE 7-22 MINIMUM DESIGN LOADS FOR BUILDING AND OTHER STRUCTURES
- ACI 318 CODE REQUIREMENTS FOR REINFORCED CONCRETE
- TMS 402 BUILDING CODE REQUIREMENTS FOR MASONRY STRUCTURES

BUILDING CLASSIFICATION:
- RISK CATEGORY = IV

WIND LOAD PARAMETERS:
- DESIGN WIND SPEED = 101 MPH
- EXPOSURE CATEGORY = C
- IMPORTANCE FACTOR, I_w = 1.0

SEISMIC LOAD PARAMETERS:
- SITE CLASS = CD
- S_S = 0.93
- S_1 = 0.39
- S_{DS} = 0.74
- IMPORTANCE FACTOR, I_E = 1.25
- SEISMIC DESIGN CATEGORY = D

SEISMIC RESPONSE PARAMETERS:
- SEISMIC FORCE RESISTING SYSTEM = SPECIAL REINFORCED MASONRY SHEAR WALLS
- RESPONSE MODIFICATION FACTOR, R = 5
- DESIGN METHOD = EQUIVALENT LATERAL FORCE PROCEDURE
- SEISMIC RESPONSE COEFFICIENT, C_S = 0.185

APPLIED GRAVITY LOADS:
- ROOF LIVE LOAD = 20 PSF

FOUNDATION AND SOIL:

1. FOOTINGS SHALL BEAR ON SUITABLE, UNDISTURBED NATIVE SOILS AND/OR CLEAN FILL COMPACTED IN LIFTS OF ONE FOOT OR LESS TO 95% OF A MODIFIED PROCTOR PER ASTM D1557. SOILS SHALL BE FIRM AND UNYIELDING SOIL.
2. ALL ORGANIC AND DELETERIOUS MATERIAL BENEATH THE FOOTINGS, FOUNDATIONS, AND SLABS TO BE REMOVED AND REPLACED WITH GRANULAR FILL COMPACTED TO 95% RELATIVE COMPACTION. BOTTOM OF FOOTINGS TO BE BELOW LOCALLY PRESCRIBED FROST ZONE, NOT LESS THAN 18". REPLACE ALL OVER-EXCAVATED AREAS WITH GRANULAR MATERIAL COMPACTED IN 12" MAXIMUM LIFTS TO 95% RELATIVE COMPACTION (RC).
3. DESIGN BEARING PRESSURE = 3,000 PSF*
   *SEE THE GEOTECHNICAL REPORT BY SHN DATED APRIL, 2026. IT IS THE CONTRACTOR'S RESPONSIBILITY TO PERFORM ALL PREPARATION AND TASKS GIVEN IN THE GEOTECHNICAL REPORT.

CONCRETE:

1. ALL CONCRETE CONSTRUCTION SHALL CONFORM WITH CHAPTER 19A OF THE CBC AND WITH THE PROVISIONS OF ACI 318.
2. UNLESS OTHERWISE STATED, CONCRETE SHALL BE HARD ROCK CONCRETE AND SHALL MEET THE FOLLOWING DESIGN CRITERIA:
   2.1. MINIMUM 28-DAY COMPRESSIVE STRENGTH = 4,000 PSI
3. REINFORCING SHALL BE PLACED IN ACCORDANCE WITH THE CONCRETE REINFORCING STEEL INSTITUTE (CRSI) "MANUAL OF STANDARD PRACTICE."
4. MINIMUM CLEAR DISTANCE BETWEEN EDGE OF REBAR AND THE NEAREST EXTERIOR EDGE OF THE CONCRETE SHALL BE AS FOLLOWS:
   4.1. EXPOSED TO SOIL = 3" MIN
   4.2. EXPOSED TO WEATHERING = 2" MIN
   4.3. INTERIOR EXPOSURE ONLY 1 1/2" MIN
5. MINIMUM DISTANCE BETWEEN REINFORCING STEEL SHALL BE NO LESS THAN THREE TIMES THE DIAMETER OF THE LARGEST AGGREGATE IN THE CONCRETE MIXTURE.
6. ALL REBAR SPLICED SHALL BE EITHER 55 TIMES THE DIAMETER OF THE BAR OR 36 INCHES, WHICHEVER IS GREATER.
7. ALL REINFORCING STEEL SHALL CONFORM TO ASTM A 615 GRADE 60 (A706 FOR REINF TO BE WELDED).
8. ALL ITEMS TO BE CAST IN CONCRETE SUCH AS REINFORCING DOWELS, BOLTS, ANCHORS, PIPES AND SLEEVES SHALL BE SECURELY POSITIONED IN FORMS BEFORE PLACEMENT OF CONCRETE.
9. WHEN AIR TEMPERATURE IS ABOVE 80 DEGREES FAHRENHEIT, HOT WEATHER CONCRETING - ACI 305R - APPLIES. WHEN THE AVERAGE AIR TEMPERATURE IS BELOW 40 DEGREE FAHRENHEIT, COLD WEATHER CONCRETING - ACI 306R - APPLIES.

MASONRY:

1. ALL MASONRY CONSTRUCTION SHALL CONFORM WITH CHAPTER 21A OF THE CBC AND WITH THE PROVISIONS OF TMS 402.
2. UNLESS OTHERWISE STATED, MASONRY SHALL MEET THE FOLLOWING DESIGN CRITERIA:
   2.1. MINIMUM NET AREA COMPRESSIVE STRENGTH OF CONCRETE MASONRY, F'_M = 2,500 PSI
   2.2. MINIMUM NET AREA COMPRESSIVE STRENGTH OF MASONRY UNIT @ 28 DAYS = 3,250 PSI
   2.3. MINIMUM COMPRESSIVE STRENGTH OF GROUT = 2,000 PSI
3. ALL GROUT FOR CONCRETE MASONRY WALLS AND LINTELS SHALL BE MIXED AND PROPORTIONED IN ACCORDANCE WITH ASTM C476.
4. ALL CONCRETE MASONRY WALLS TO BE REINFORCED AS SHOWN. SEE TYPICAL DETAILS FOR BAR PLACEMENT AT CORNERS, INTERSECTIONS, AND OPENINGS.
5. ALL CELLS OF MASONRY UNITS TO BE GROUTED SOLID.
6. ALL BAR REINFORCING FOR MASONRY SHALL CONFORM TO ASTM A615 GRADE 60.
7. BOND BEAM REINFORCING STEEL TO RUN CONTINUOUS THROUGH CONTROL JOINTS.
8. ALL VERTICAL REINFORCING BARS IN MASONRY WALLS TO BE PLACED IN CENTER OF WALLS USING VERTICAL BAR POSITIONERS SPACED AT INTERVALS NOT EXCEEDING 200 BAR DIAMETERS.
9. AT REINFORCED MASONRY LINTELS, PROVIDE TEMPORARY SHORING TO SUPPORT MASONRY OVER OPENINGS. SHORING TO REMAIN IN PLACE A MINIMUM OF 14 DAYS.
10. CONTRACTOR TO SUBMIT PLAN SHOWING PROPOSED CONTROL JOINT LOCATIONS FOR REVIEW AND APPROVAL PRIOR TO CONSTRUCTION.

WOOD:

1. TOP PLATE ON MASONRY WALL SHALL BE NO. 1 OR BETTER PRESSURE TREATED DOUGLAS FIR.
2. ALL OTHER FRAMING LUMBER SHALL BE NO. 2 OR BETTER DOUGLAS FIR.
3. GABLE PLYWOOD PANELS SHALL BE 15/32" STRUCTURAL SHEATHING, 32/16 EXTERIOR RATED, WITH A MINIMUM PANEL WIDTH OF 24". FASTEN WITH 8d COMMON NAILS (WOOD) OR #8 SELF-DRILLING SHEET METAL SCREWS (STEEL) @ 6" EDGE/12" FIELD. STAGGER ADJOINING PANEL EDGES. CONTRACTOR TO COORDINATE W/ TRUSS MANUFACTURER FOR ATTACHMENT AND PROVIDE BLOCKING AS NECESSARY.
4. ROOF PLYWOOD PANELS SHALL BE 15/32" STRUCTURAL SHEATHING, 32/16 EXTERIOR RATED, WITH A MINIMUM PANEL WIDTH OF 24". FASTEN WITH 8d COMMON NAILS (WOOD) OR #8 SELF-DRILLING SHEET METAL SCREWS (STEEL) @ 6" EDGE/12" FIELD. STAGGER ADJOINING PANEL EDGES. CONTRACTOR TO COORDINATE W/ TRUSS MANUFACTURER FOR ATTACHMENT AND PROVIDE BLOCKING AS NECESSARY.
5. WHERE MANUFACTURED FRAMING CONNECTORS ARE USED, PROVIDE FULL FASTENING OF CONNECTIONS IN ACCORDANCE WITH MANUFACTURER'S INSTALLATION RECOMMENDATIONS.
6. MINIMUM NAILING REQUIRED SHALL BE IN ACCORDANCE WITH CBC TABLE 2304.10.2.

STANDING SEAM ROOF PANELS:

1. PANELS SHALL BE 12" 24 GAUGE TAYLOR METAL PRODUCTS EASY-LOCK W/ KYNAR 500 COATING, OR APPROVED EQUAL.
2. PROVIDE FULL FASTENING OF PANELS IN ACCORDANCE WITH MANUFACTURER'S INSTALLATION RECOMMENDATIONS.
3. COLOR TO BE SELECTED BY OWNER PRIOR TO CONSTRUCTION.

VERIFY SCALES

BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
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PRELIMINARY

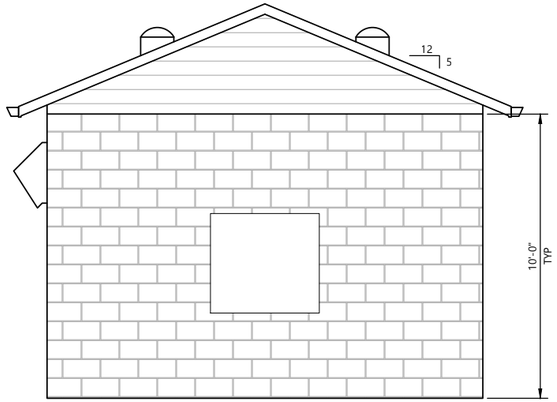
TOWN OF FORT JONES
WASTEWATER IMPROVEMENTS PROJECT
FORT JONES, CALIFORNIA

STRUCTURAL NOTES

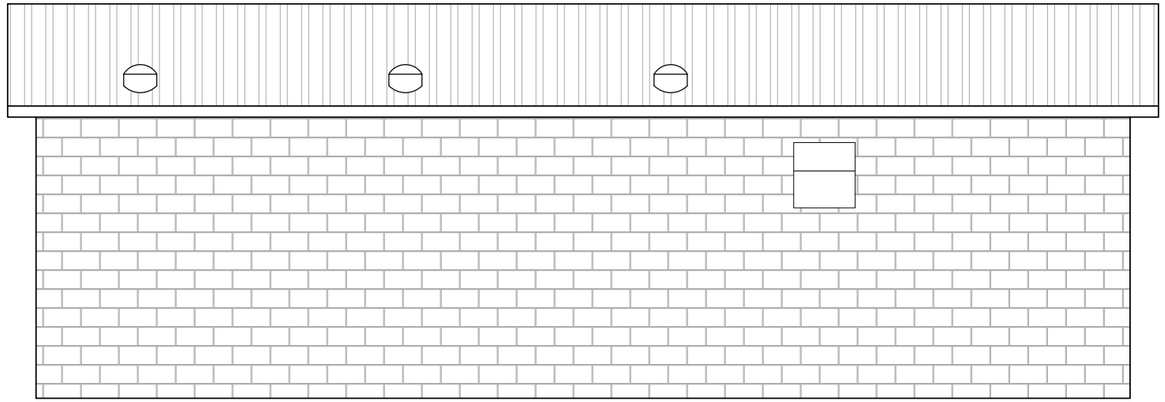
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PEG	CRS
DRAWN	
JWF/CDN	
DATE	
06/2026	
PROJ. NO.	
525006	
SHEET	
S1.0	

90% DESIGN-NOT FOR CONSTRUCTION

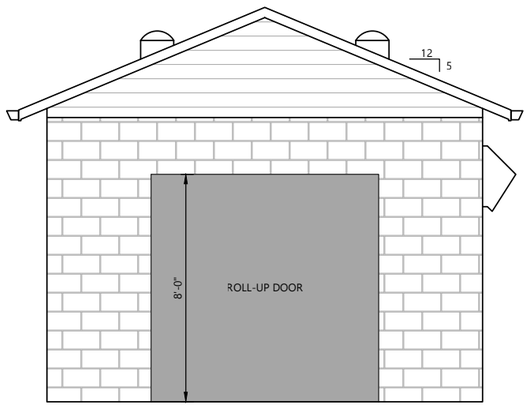
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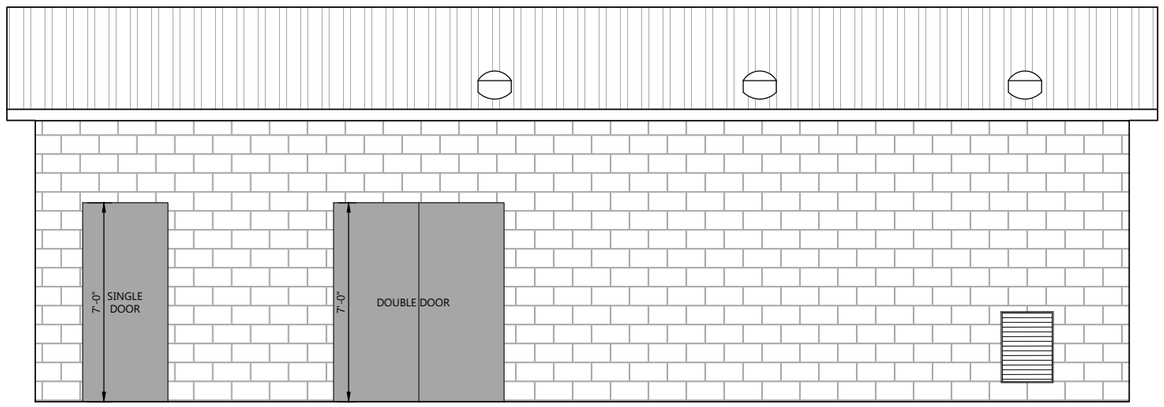
NORTH
3/8"=1'-0"



EAST
3/8"=1'-0"



SOUTH
3/8"=1'-0"



WEST
3/8"=1'-0"

NOTES:

1. SEE SHEET S5.1 FOR REINFORCING SCHEDULE.
2. ALL DIMENSIONS FOR OPENINGS ARE NOMINAL, CONTRACTOR TO ADJUST PER BLOCK CONSTRUCTION. COORDINATE CLEAR OPENINGS FOR LOUVERS WITH REINFORCEMENT.
3. SOLID GROUT ALL CELLS.
4. LINTELS OVER ALL WALL PENETRATIONS PER DETAIL 3 ON SHEET S5.1.

VERIFY SCALES

BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
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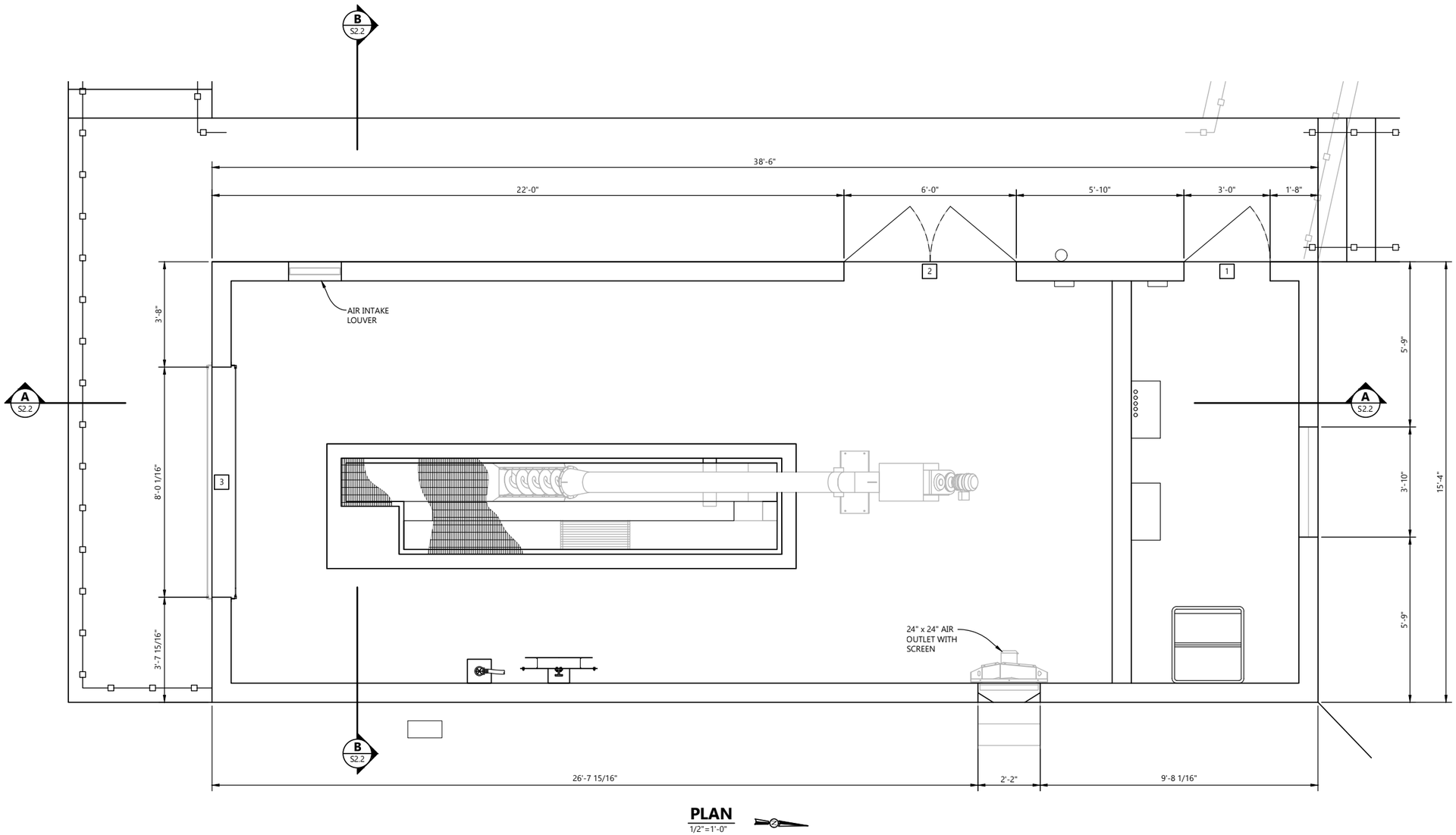
HEADWORKS BUILDING ELEVATIONS

DESIGN	CHECK
JM	CRS
DRAWN	
JWF/CDN	

DATE 06/2026
PROJ. NO. 525006
SHEET **S2.0**

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PLAN
1/2"=1'-0"

DOOR SCHEDULE

SYMBOL	QUANTITY	WIDTH	HEIGHT	THICKNESS	NOTES
1	1	3'-0"	7'-0"	1 3/4"	EXTERIOR, RIGHT OUTSWING
2	1	6'-0"	7'-0"	1 3/4"	EXTERIOR DOUBLE DOOR, OUTSWING
3	1	8'-0"	8'-0"	1 1/2"	EXTERIOR, ROLL UP

INTERIOR FINISH SCHEDULE

ROOM	FLOORS	WALLS	CEILING
ELECTRICAL	CONCRETE	GYPSUM GREENBOARD W/INTERIOR FLAT LATEX PAINT	GYPSUM GREENBOARD W/INTERIOR FLAT LATEX PAINT
SCREEN	CONCRETE	GYPSUM BOARD W/INTERIOR FLAT LATEX PAINT	GYPSUM BOARD W/INTERIOR FLAT LATEX PAINT

VERIFY SCALES

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0 1"
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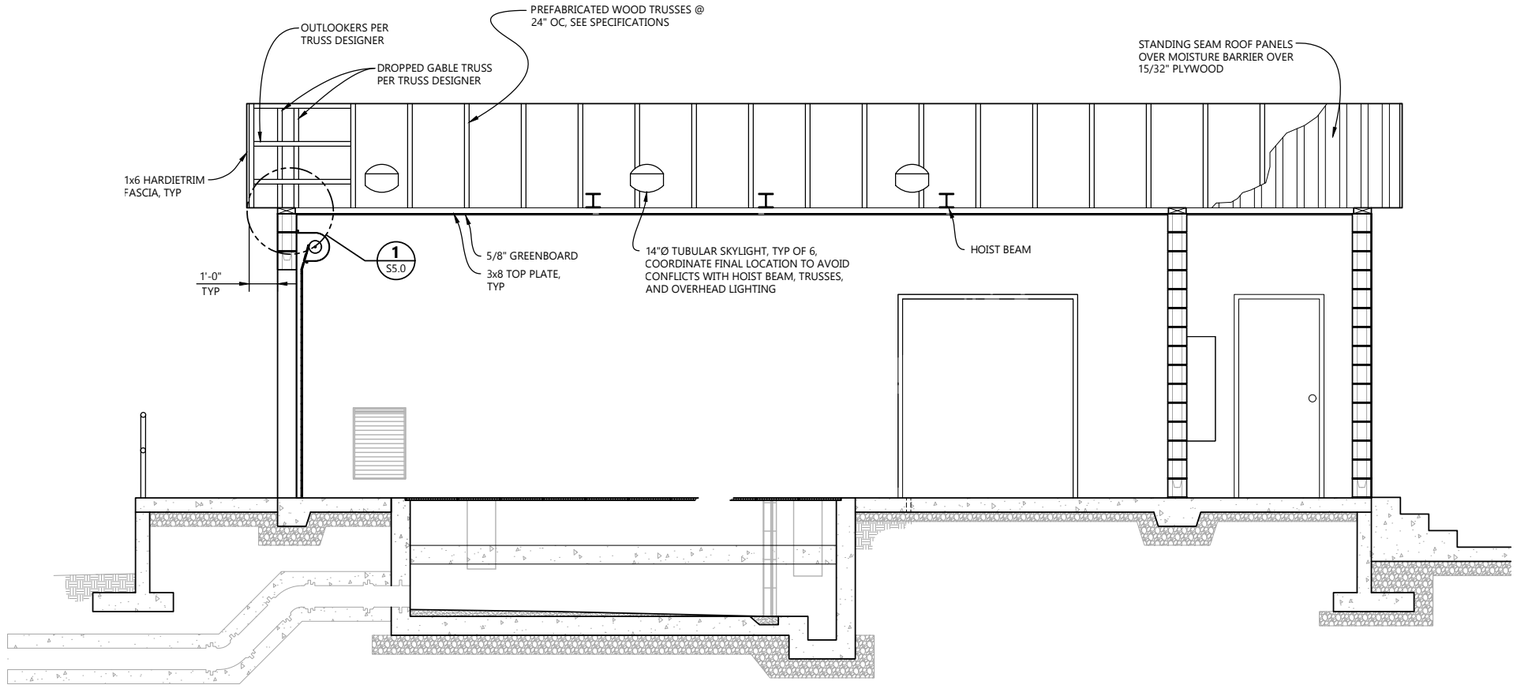
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HEADWORKS BUILDING FLOOR PLAN

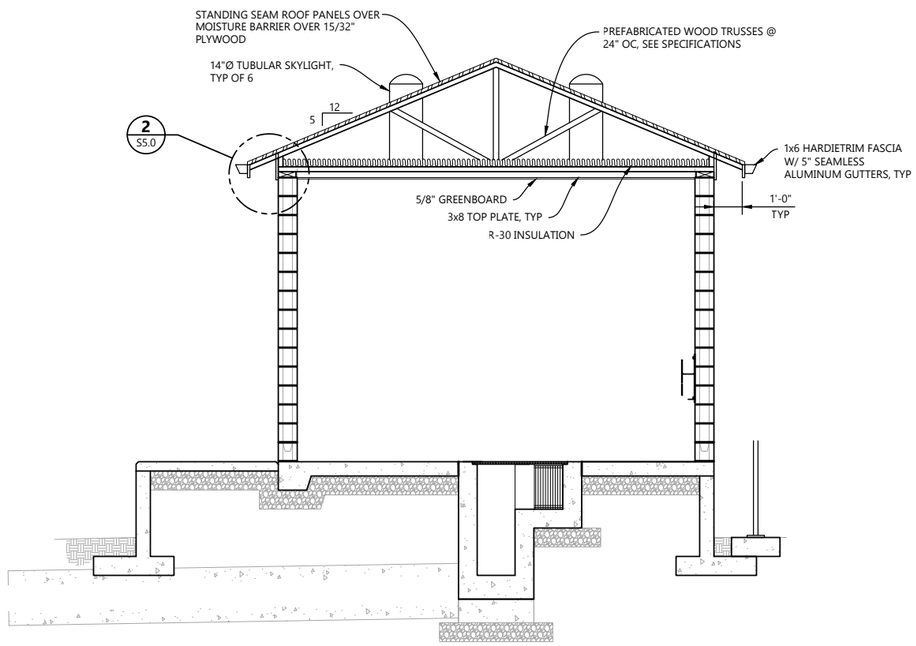
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DRAWN	
JWF/CDN	
DATE	
06/2026	
PROJ. NO.	
525006	
SHEET	
S2.1	

90% DESIGN-NOT FOR CONSTRUCTION

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SECTION A
3/8"=1'-0"



SECTION B
3/8"=1'-0"

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VERIFY SCALES

BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

NO.	DATE	REVISION	BY

PRELIMINARY

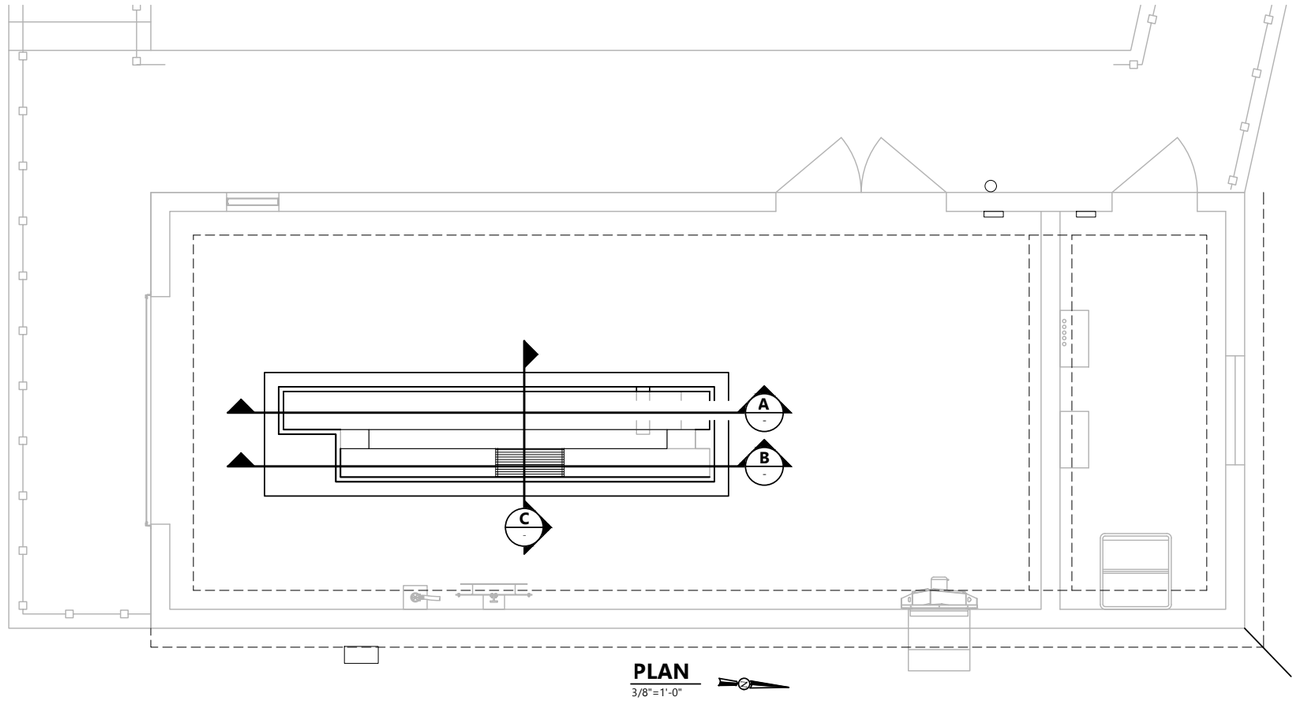
TOWN OF FORT JONES
WASTEWATER IMPROVEMENTS PROJECT
FORT JONES, CALIFORNIA

HEADWORKS BUILDING SECTIONS

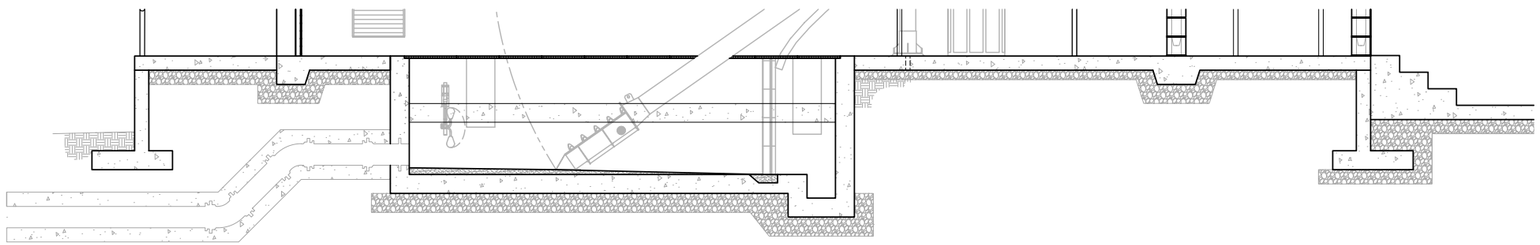
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DRAWN	
JWF/CDN	
DATE	06/2026
PROJ. NO.	525006
SHEET	S2.2

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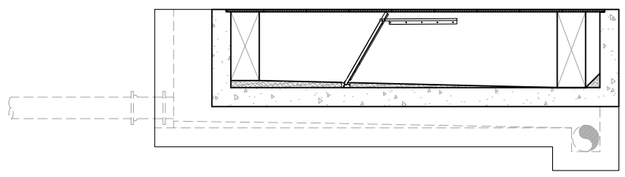
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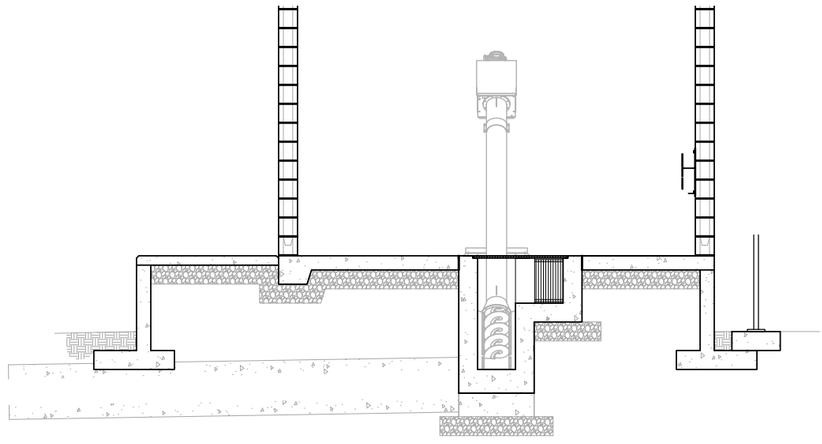
PLAN
3/8"=1'-0"



SECTION A
3/8"=1'-0"



SECTION B
3/8"=1'-0"



SECTION C
3/8"=1'-0"

VERIFY SCALES

BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"

IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

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HEADWORKS UNDERGROUND PLAN

DESIGN	JM
DRAWN	JWF/CDN
CHECK	CRS
DATE	06/2026
PROJ. NO.	525006
SHEET	S2.3

90% DESIGN-NOT FOR CONSTRUCTION

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VERIFY SCALES

BAR IS ONE INCH ON ORIGINAL DRAWING

0 1"

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TOWN OF FORT JONES
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FORT JONES, CALIFORNIA

HEADWORKS UNDERGROUND SECTIONS

DESIGN	CHECK
JM	CRS
DRAWN	
JWF/CDN	

DATE 06/2026

PROJ. NO. 525006

SHEET **S2.4**

90% DESIGN-NOT FOR CONSTRUCTION

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VERIFY SCALES

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FORT JONES, CALIFORNIA

HEADWORKS UNDERGROUND SECTIONS

DESIGN	CHECK
JM	CRS
DRAWN	
JWF/CDN	

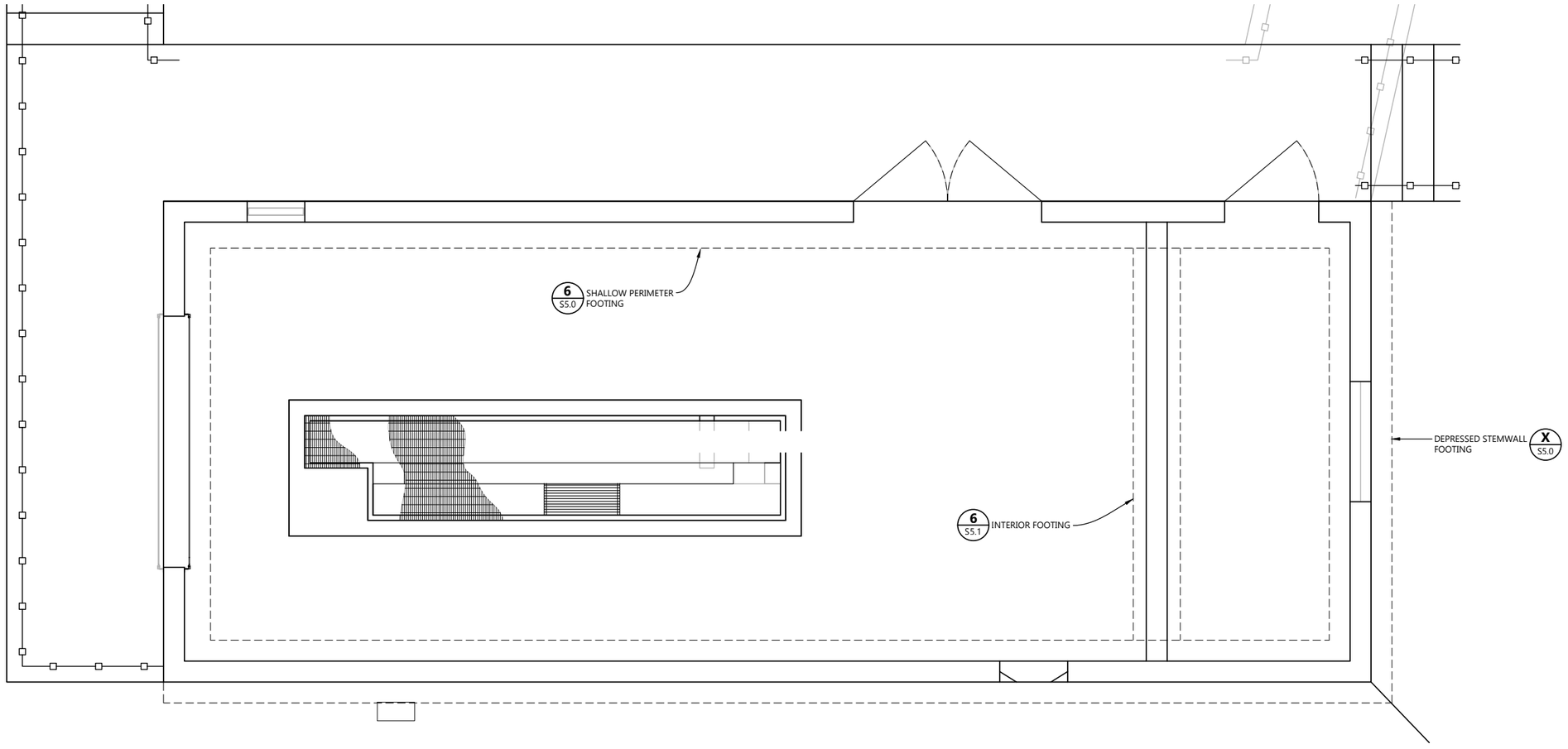
DATE 06/2026

PROJ. NO. 525006

SHEET **S2.5**

90% DESIGN-NOT FOR CONSTRUCTION

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PLAN
1/2"=1'-0"

VERIFY SCALES

BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"

IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

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NO.	DATE	REVISION	BY

PRELIMINARY

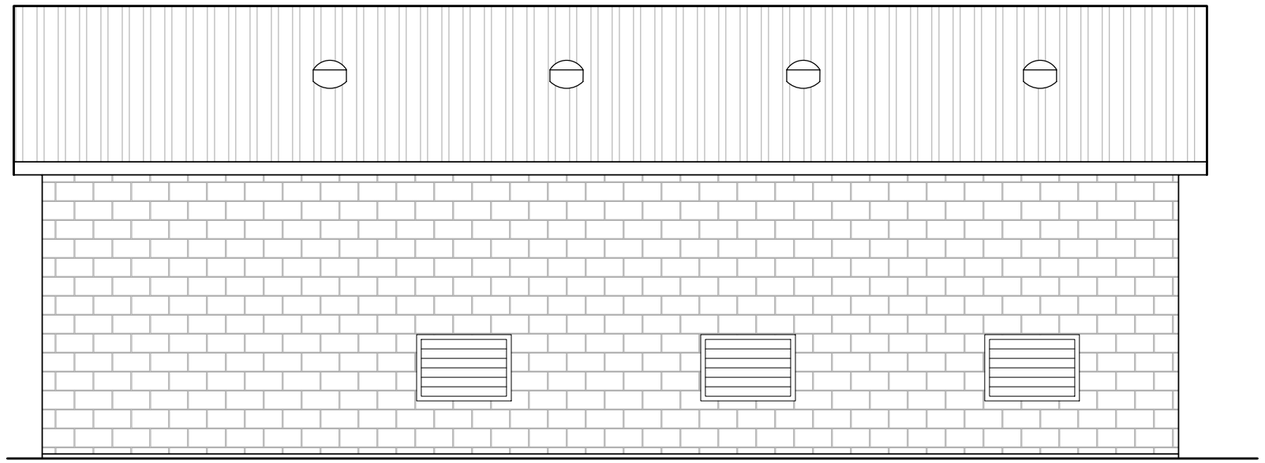
TOWN OF FORT JONES
WASTEWATER IMPROVEMENTS PROJECT
FORT JONES, CALIFORNIA

HEADWORKS FOUNDATION PLAN

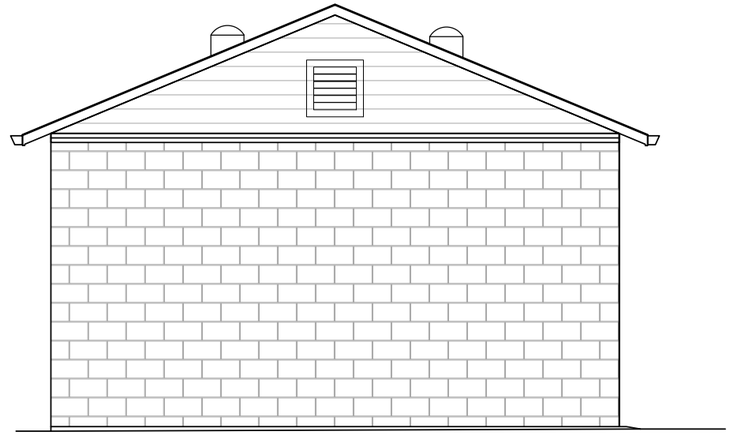
DESIGN	CHECK
JM	CRS
DRAWN	
JWF/CDN	
DATE	06/2026
PROJ. NO.	525006
SHEET	**S2.6**

90% DESIGN-NOT FOR CONSTRUCTION

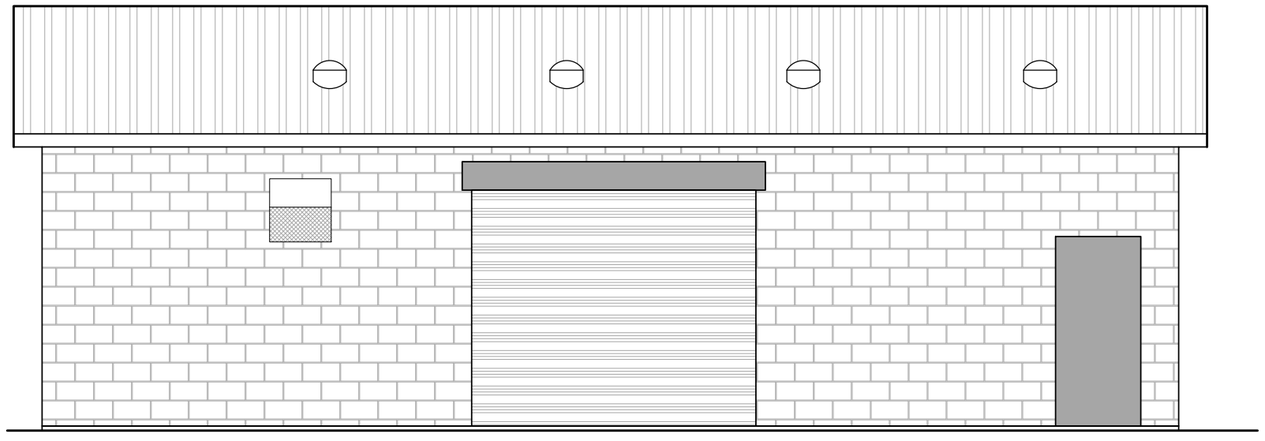
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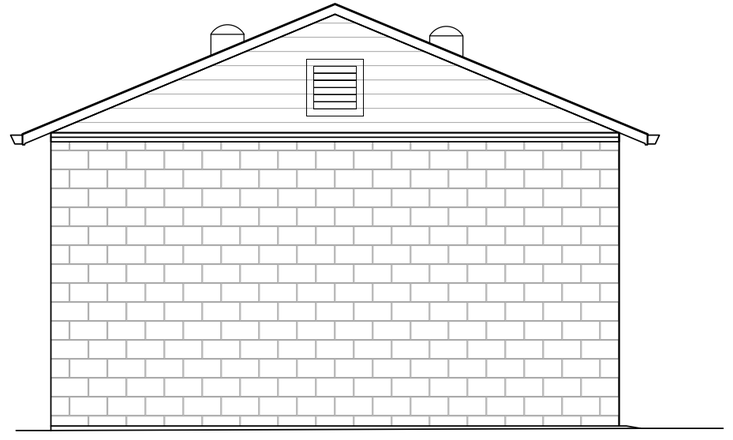
NORTH
3/8"=1'-0"



EAST
3/8"=1'-0"



SOUTH
3/8"=1'-0"



WEST
3/8"=1'-0"

NOTES:

1. SEE SHEET S5.1 FOR REINFORCING SCHEDULE.
2. ALL DIMENSIONS FOR OPENINGS ARE NOMINAL, CONTRACTOR TO ADJUST PER BLOCK CONSTRUCTION. COORDINATE CLEAR OPENINGS FOR LOUVERS WITH REINFORCEMENT.
3. SOLID GROUT ALL CELLS.
4. LINTELS OVER ALL WALL PENETRATIONS PER DETAIL 3 ON SHEET S5.1.

VERIFY SCALES

BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

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FORT JONES, CALIFORNIA

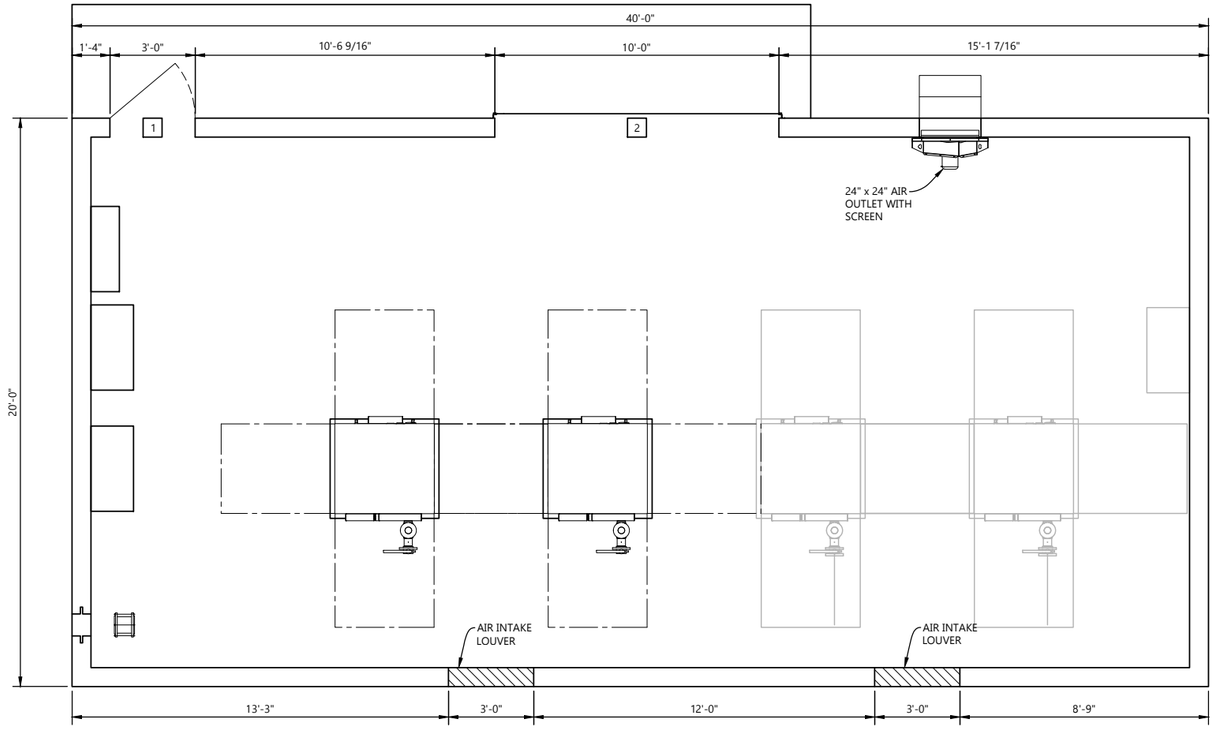
BLOWER BUILDING ELEVATIONS

DESIGN	CHECK
JM	CRS
DRAWN	
JWF/CDN	

DATE 06/2026
PROJ. NO. 525006
SHEET **S3.0**

90% DESIGN-NOT FOR CONSTRUCTION

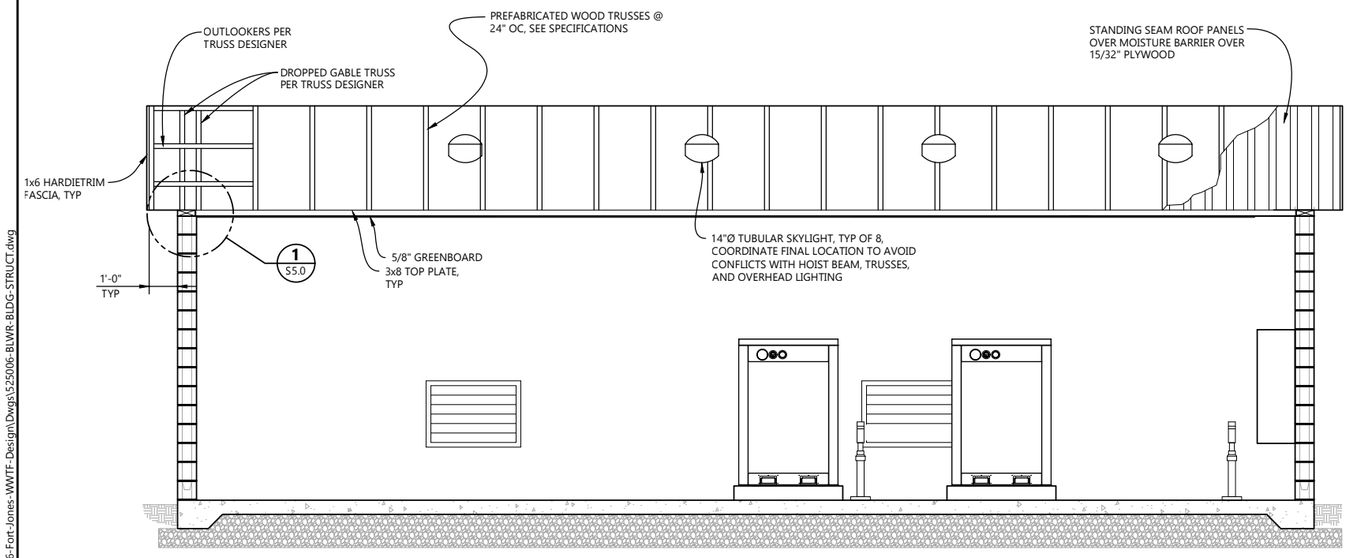
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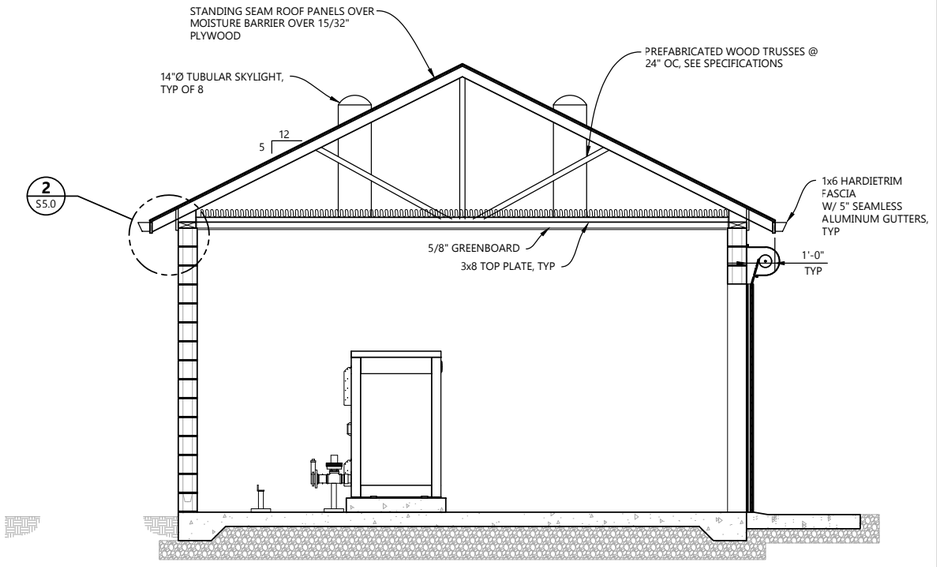
PLAN
3/8"=1'-0"

SYMBOL	QUANTITY	WIDTH	HEIGHT	THICKNESS	NOTES
1	1	3'-0"	6'-8"	1 3/4"	EXTERIOR, RIGHT OUTSWING
2	1	10'-0"	8'-0"	1 1/2"	EXTERIOR, ROLL UP

DOOR SCHEDULE



SECTION
3/8"=1'-0"



SECTION
3/8"=1'-0"

VERIFY SCALES

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0 1"
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PRELIMINARY

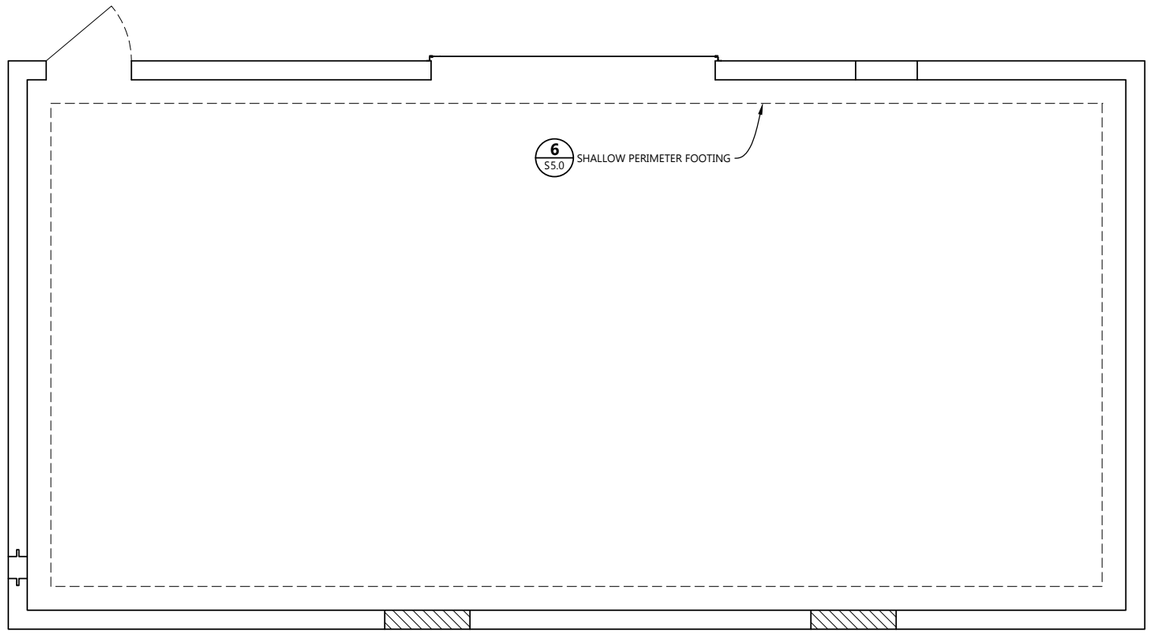
TOWN OF FORT JONES
WASTEWATER IMPROVEMENTS PROJECT
FORT JONES, CALIFORNIA

BLOWER BUILDING FLOOR PLAN AND SECTIONS

DESIGN	CHECK
JM	CRS
DRAWN	
JWF/CDN	
DATE	06/2026
PROJ. NO.	525006
SHEET	S3.1

90% DESIGN-NOT FOR CONSTRUCTION

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PLAN
3/8"=1'-0"

VERIFY SCALES

BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
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FORT JONES, CALIFORNIA

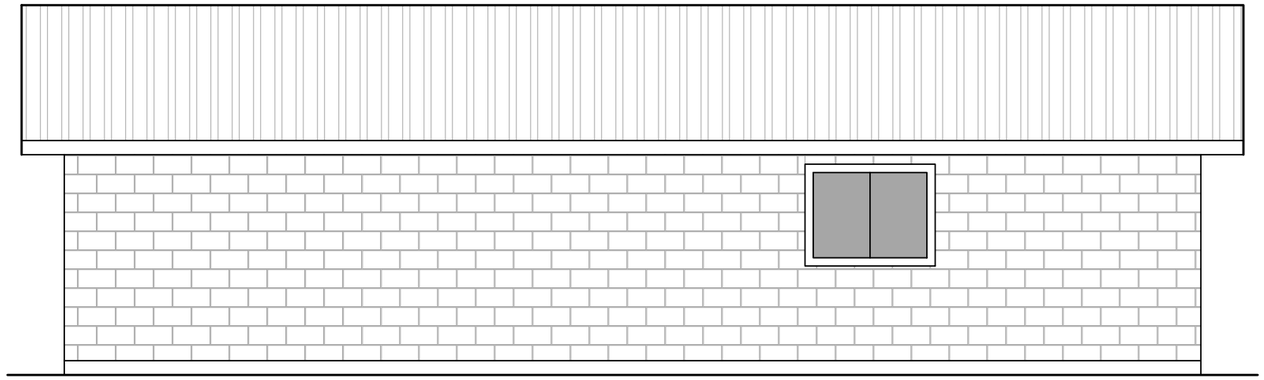
BLOWER BUILDING FOUNDATION PLAN

DESIGN	CHECK
JM	CRS
DRAWN	
JWF/CDN	

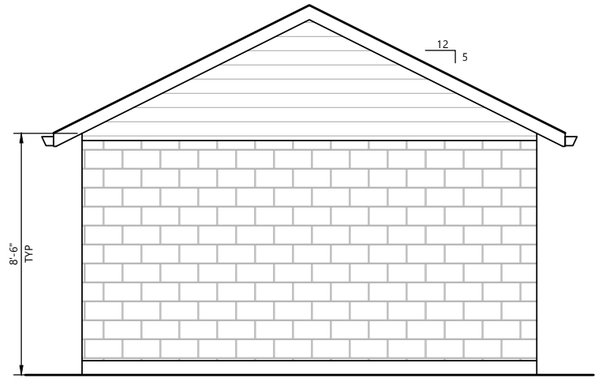
DATE 06/2026
PROJ. NO. 525006
SHEET **S3.2**

90% DESIGN-NOT FOR CONSTRUCTION

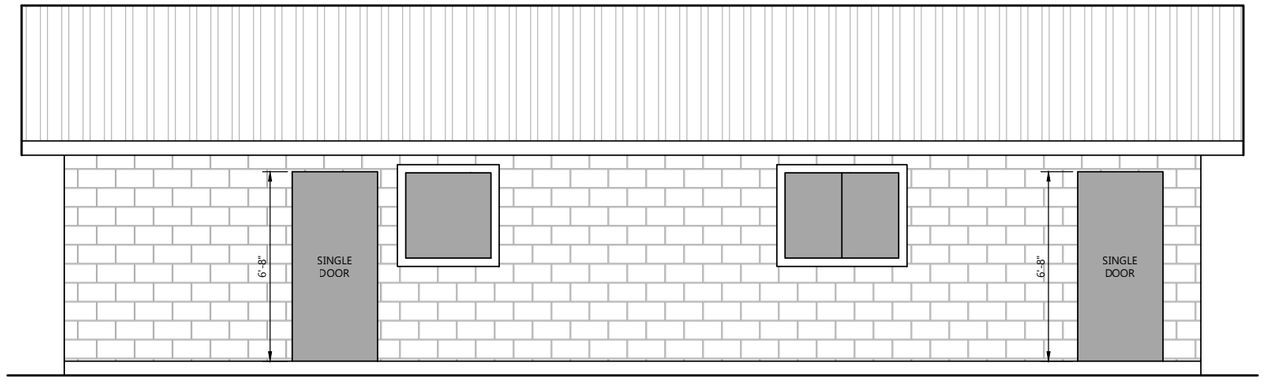
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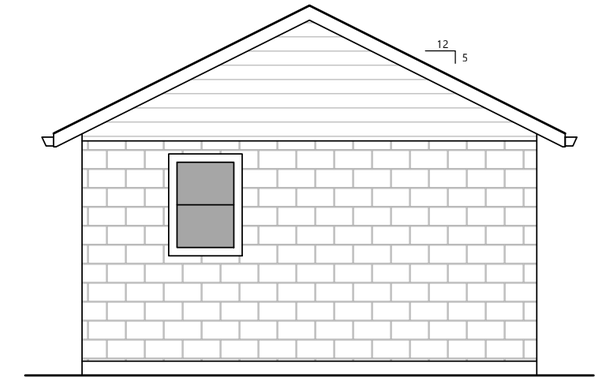
NORTH
3/8"=1'-0"



EAST
3/8"=1'-0"



SOUTH
3/8"=1'-0"



WEST
3/8"=1'-0"

NOTES:

1. SEE SHEET S5.1 FOR REINFORCING SCHEDULE.
2. ALL DIMENSIONS FOR OPENINGS ARE NOMINAL, CONTRACTOR TO ADJUST PER BLOCK CONSTRUCTION. COORDINATE CLEAR OPENINGS FOR LOUVERS WITH REINFORCEMENT.
3. SOLID GROUT ALL CELLS.
4. LINTELS OVER ALL WALL PENETRATIONS PER DETAIL 3 ON SHEET S5.1.

VERIFY SCALES

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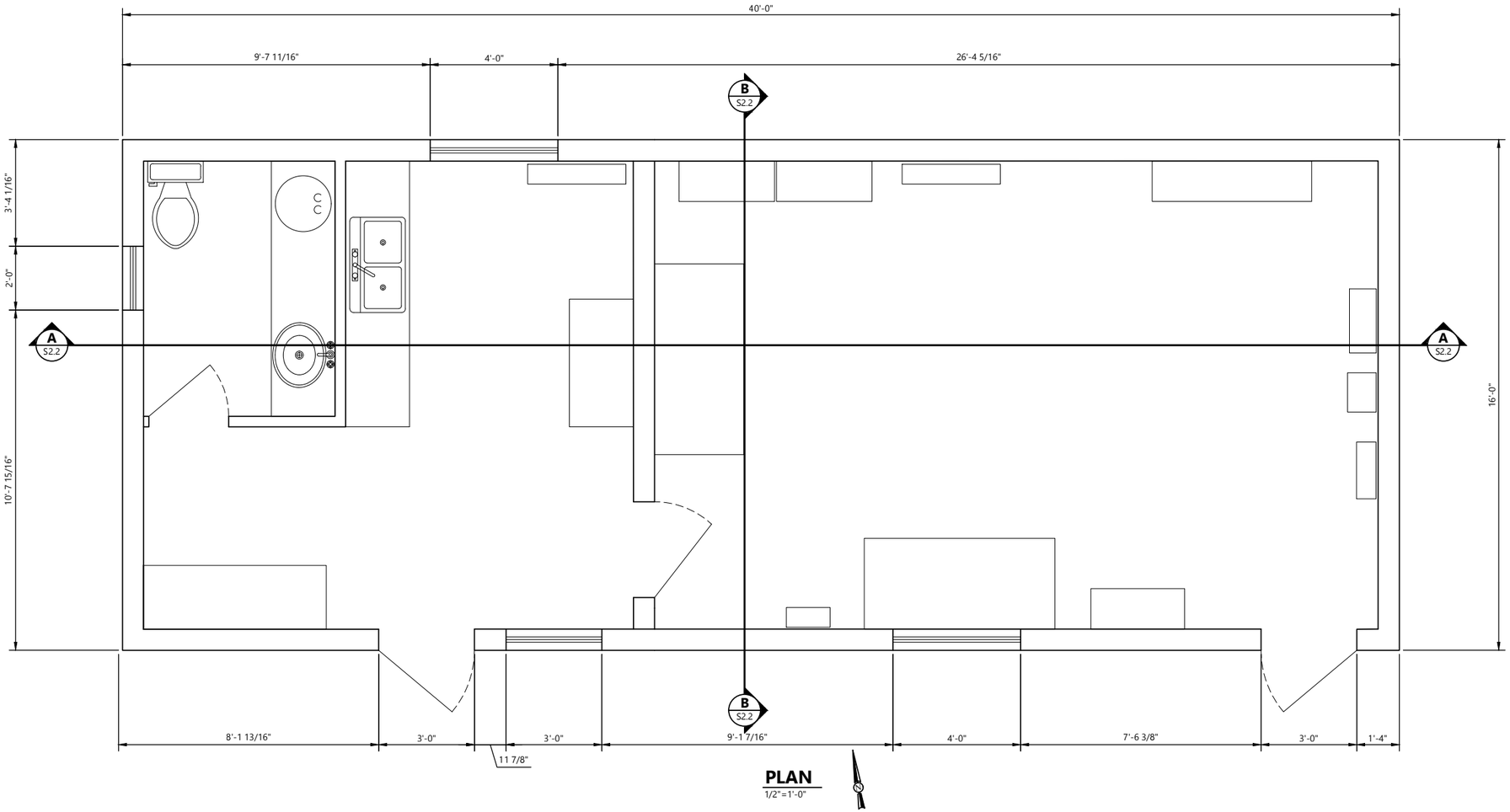
TOWN OF FORT JONES
WASTEWATER IMPROVEMENTS PROJECT
FORT JONES, CALIFORNIA

OFFICE ELECTRICAL ELEVATIONS

DESIGN	CHECK
JM	CRS
DRAWN	
JWF/CDN	
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PLAN
1/2"=1'-0"

FIXTURE SCHEDULE

SYMBOL	QUANTITY	OPERATION	NOTES
A	7	OPERABLE	FIBERGLASS WINDOW
B	24	FIXED	FIBERGLASS WINDOW

WINDOW SCHEDULE

SYMBOL	QUANTITY	WIDTH	HEIGHT	OPERATION	NOTES
A	7	5'-0"	3'-6"	OPERABLE	FIBERGLASS WINDOW
B	24	4'-0"	1'-6"	FIXED	FIBERGLASS WINDOW

DOOR SCHEDULE

SYMBOL	QUANTITY	WIDTH	HEIGHT	THICKNESS	NOTES
1	1	12'-0"	12'-0"		FIBERGLASS PANEL DOOR
2	2	10'-0"	10'-0"		FIBERGLASS PANEL DOOR
3	1	3'-0"	6'-8"	1 3/4"	EXTERIOR, DOOR, LEFT INSWING, CHAPTER 11B COMPLIANCE SEE NOTE 3
4	1	3'-0"	6'-8"	1 3/4"	EXTERIOR, DOOR, RIGHT INSWING, CHAPTER 11B COMPLIANCE SEE NOTE 3
5	1	3'-0"	6'-8"	1 3/4"	INTERIOR, DOOR, RIGHT INSWING
6	1	3'-0"	6'-8"	1 3/4"	INTERIOR, DOOR, RIGHT OUTSWING

INTERIOR FINISH SCHEDULE

ROOM	FLOORS	WALLS	CEILING
RESTROOM	CONCRETE	GYPSUM GREENBOARD W/INTERIOR FLAT LATEX PAINT	GYPSUM GREENBOARD W/INTERIOR FLAT LATEX PAINT
MAIN	CONCRETE	GYPSUM BOARD W/INTERIOR FLAT LATEX PAINT	GYPSUM BOARD W/INTERIOR FLAT LATEX PAINT

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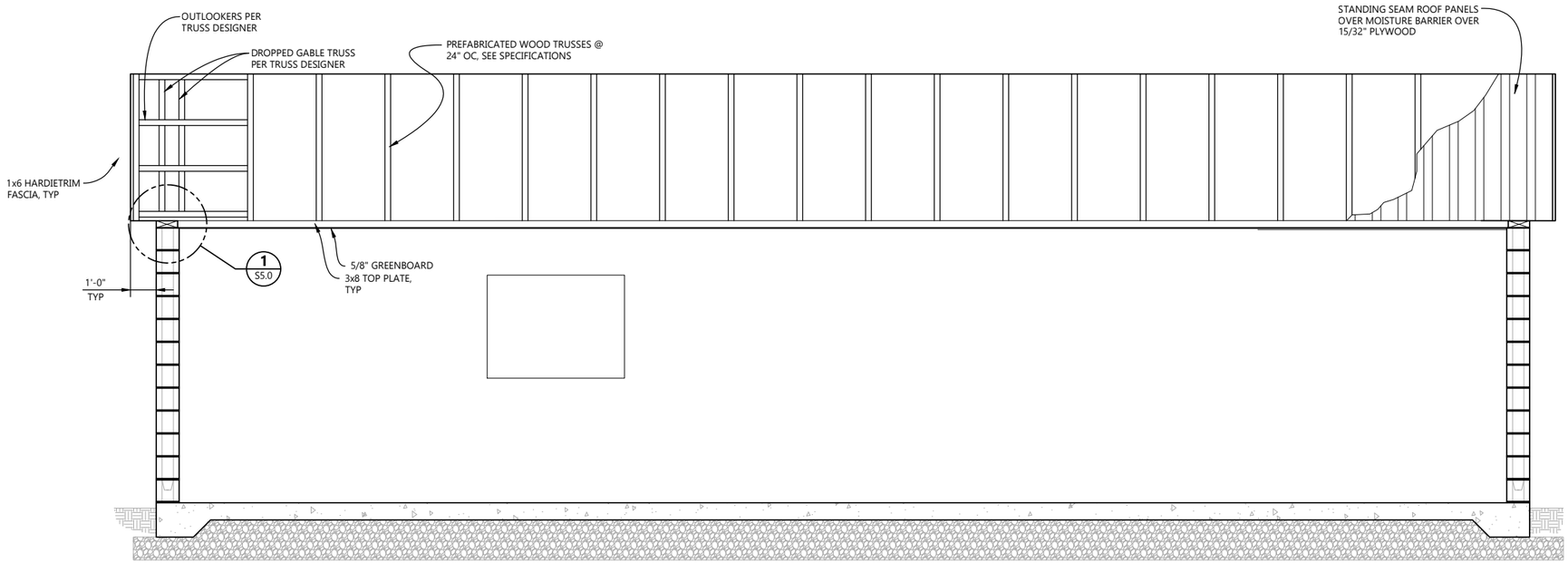
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OFFICE ELECTRICAL FLOOR PLAN

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DRAWN	JWF/CDN
CHECK	CRS
DATE	06/2026
PROJ. NO.	525006
SHEET	S4.1

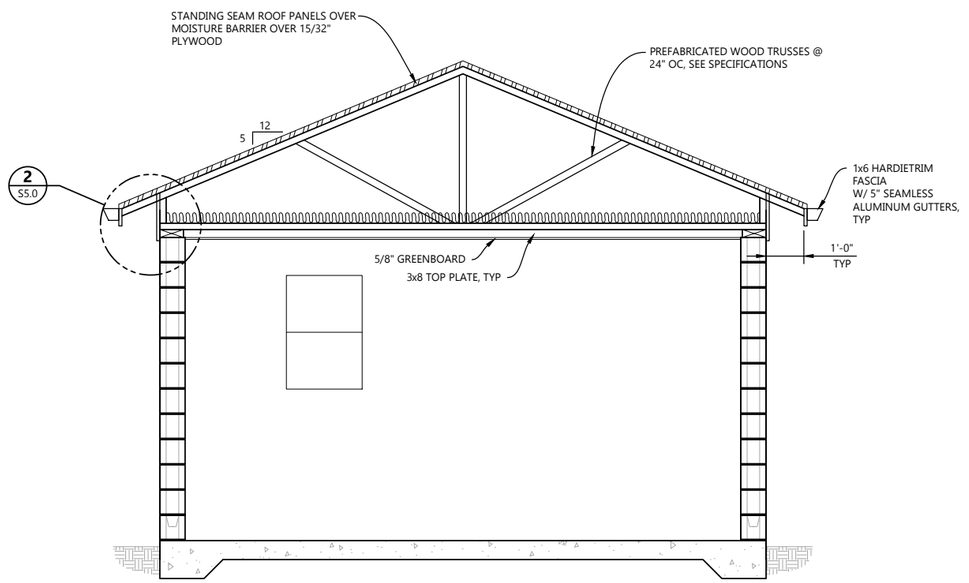
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SECTION A

1/2"=1'-0"



SECTION B

1/2"=1'-0"

VERIFY SCALES

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OFFICE ELECTRICAL SECTIONS

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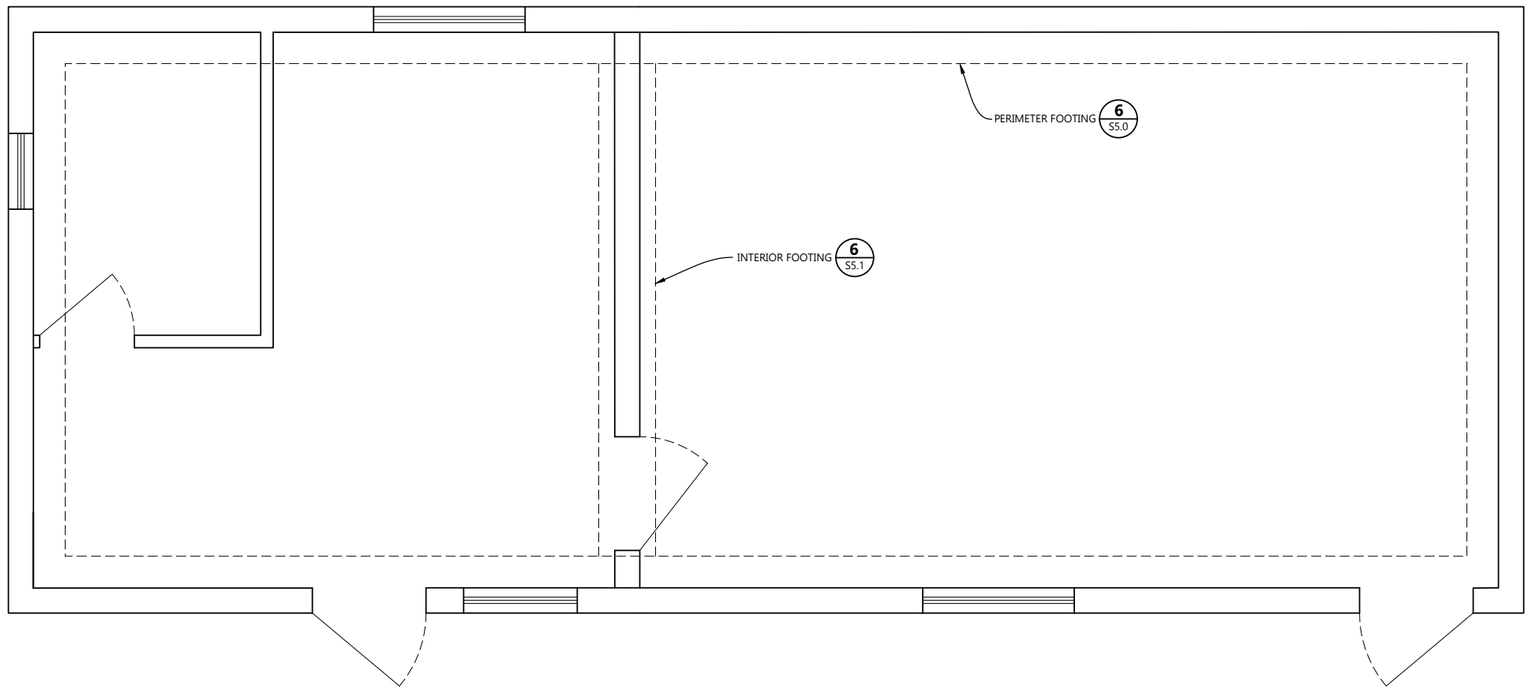
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SHEET **S4.2**

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PLAN
1/2"=1'-0"

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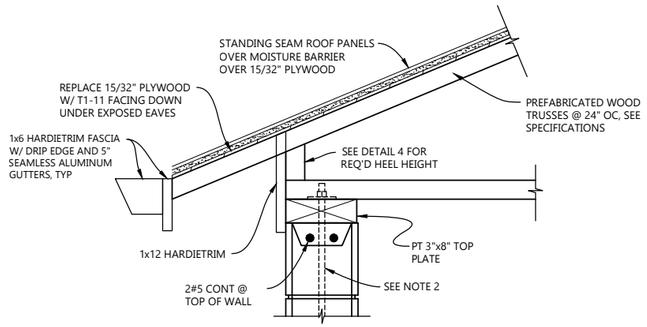
OFFICE ELECTRICAL FOUNDATION PLAN

DESIGN	CHECK
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DRAWN	
JWF/CDN	

DATE 06/2026
PROJ. NO. 525006
SHEET **S4.3**

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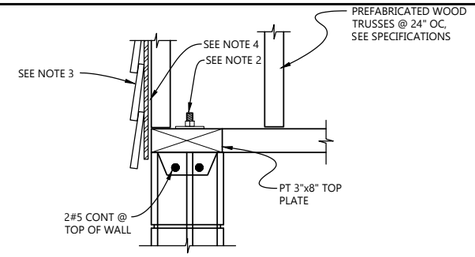
NOTES:

1. TRUSS TO TOP PLATE CONNECTION PER TRUSS MANUFACTURER.
2. 5/8" DIA ANCHOR BOLTS W/15" MIN EMBEDMENT. PLACE IN GROUTED CELLS. DO NOT EXCEED 48" OC SPACING. INSTALL W/ 1/4"x3"x3" WASHER.
3. SEE NOTES ON S1.0 FOR FASTENING OF PLYWOOD SHEATHING AND STANDING SEAM ROOF PANELS.
4. FASTEN HARDIETRIM PER MANUFACTURER RECOMMENDATIONS. PROVIDE BLOCKING AS NEEDED BETWEEN TRUSSES.

CORNER CONNECTION

NTS

1



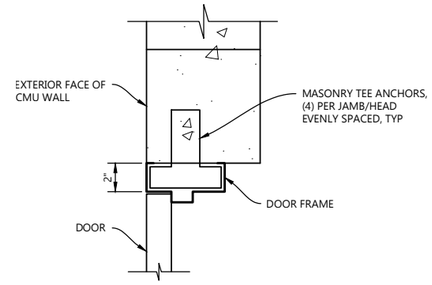
NOTES:

1. TRUSS TO TOP PLATE CONNECTION PER TRUSS MANUFACTURER.
2. 5/8" DIA ANCHOR BOLTS W/15" MIN EMBEDMENT. PLACE IN GROUTED CELLS. DO NOT EXCEED 48" OC SPACING. INSTALL W/1/4"x3"x3" WASHER.
3. HARDIEPLANK LAP SIDING OVER 15/32" PLYWOOD SHEETING. COLOR TO BE DETERMINED BY OWNER. ATTACH PER MANUFACTURER.

CORNER CONNECTION

NTS

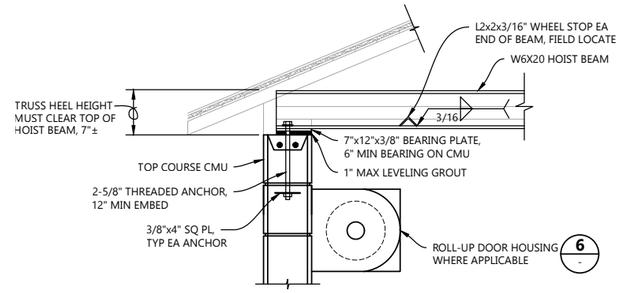
2



DOOR JAMB PLAN VIEW

NTS

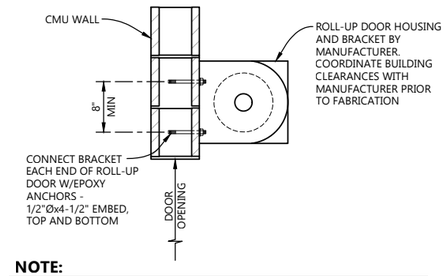
3



HOIST BEAM SUPPORT

NTS

4



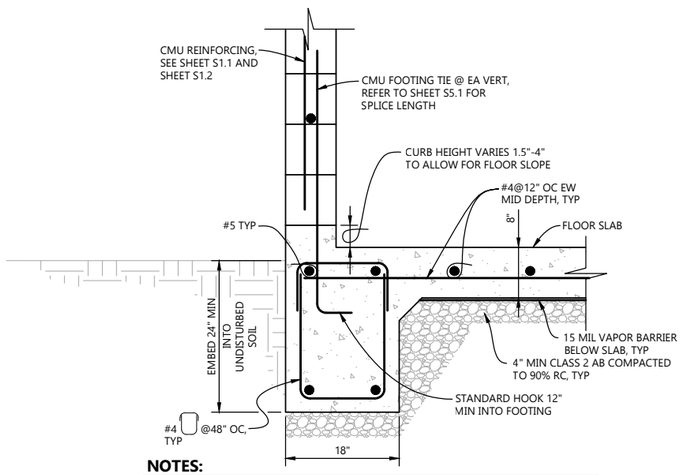
NOTE:

MINIMUM BRACKET CONNECTION SHOWN. ALTERNATE CONNECTION OF EQUAL OR GREATER CAPACITY PROVIDED BY ROLL-UP DOOR MANUFACTURER ACCEPTABLE.

ROLL-UP DOOR BRACKET CONNECTION

NTS

5



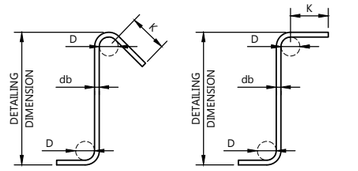
NOTES:

1. SUBGRADE PREPARATION SHALL BE COMPLETED IN ACCORDANCE WITH RECOMMENDATIONS OF THE PROJECT GEOTECHNICAL REPORT.
2. MAINTAIN 3" CLEAR FROM REINFORCEMENT TO EDGE OF CONCRETE, TYP.
3. SEE DETAILS 7 AND 8 FOR CONCRETE REINFORCEMENT BENDS, HOOKS, AND SPLICES.

TYPICAL PERIMETER FOUNDATION AND SLAB

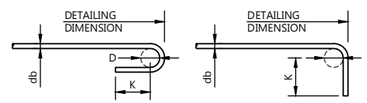
NTS

6



STANDARD HOOKS

BAR SIZE	"D" IN	180° HOOKS "K"	90° HOOKS "K"
#3	2-1/4"	2-1/2"	4-1/2"
#4	3"	2-1/2"	6"
#5	3-3/4"	2-1/2"	7-1/2"
#6	4-1/2"	3"	9"
#7	5-1/4"	3-1/2"	10-1/2"
#8	6"	4"	12"



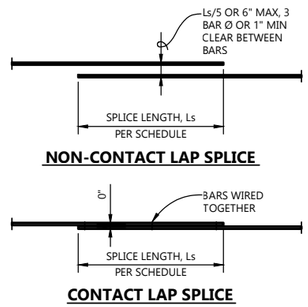
STIRRUP AND TIE HOOKS

BAR SIZE	"D" IN	180° HOOKS "K"	135° HOOKS "K"	90° HOOKS "K"
#3	1-1/2"	2-1/2"	3"	3"
#4	2"	2-1/2"	3"	3"
#5	2-1/2"	2-1/2"	3-3/4"	3-3/4"
#6	4-1/2"	3"	4-1/2"	9"

TYP CONCRETE REBAR BENDS & HOOKS

NTS

7



REBAR LAP SPLICE LENGTHS (Ls)

BAR SIZE	HARD ROCK (REG WT) CONCRETE	
	CLASS B SPLICE, TYP, UNO	TOP BARS (SEE NOTE 1)
#3	22"	28"
#4	29"	37"
#5	36"	47"
#6	43"	56"
#7	63"	81"
#8	72"	93"

NOTES:

1. TOP BARS ARE HORIZONTAL BARS WITH MORE THAN 12" OF FRESH CONCRETE CAST BELOW BARS, IN SAME POUR AS BARS (AS IN DEEP BEAM OR FOOTING POURS, ETC).
2. STAGGER LAPS IN SUCCESSIVE PARALLEL BARS IN SLABS AND WALLS A DISTANCE EQUAL TO THE REQUIRED LAP SPLICE LENGTH, BUT NOT LESS THAN 24" (ALONG LENGTH OF BARS).
3. ALL LAP SPLICES SHALL BE CONTACT OR NON-CONTACT TYPE, AS SHOWN.

TYP CONCRETE REBAR LAP SPLICES

NTS

8

VERIFY SCALES

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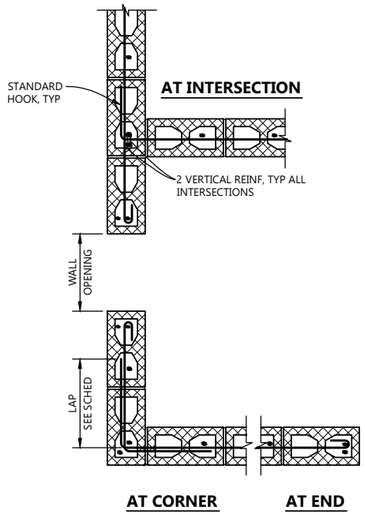
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WASTEWATER IMPROVEMENTS PROJECT
FORT JONES, CALIFORNIA

STRUCTURAL DETAILS

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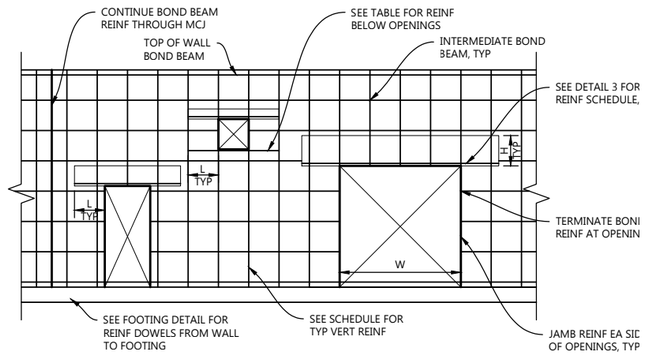
NOTE:

ALL HORIZONTAL REINFORCEMENT SHALL END IN A 90° OR 180° HOOK, WHICH SHALL WRAP AROUND MAIN VERTICAL BAR.

TYP REINFORCEMENT AT CMU WALL (1)

NTS

CMU REINFORCEMENT SCHEDULE		
TYPE	**LOCATION**	**REINFORCEMENT**
VERTICAL	VERTICAL BARS	1-#5 @ 24" OC, UNO
	JAMBS	2-#5
	CORNERS/INTERSECTIONS	2-#5, SEE DETAIL 1
	MCJ	2-#5 EA SIDE
HORIZ	TOP OF WALL BOND BEAM	2-#5
	BELOW OPENINGS	2-#5
	LINTELS	SEE DETAIL 3
	INTERMEDIATE BOND BEAMS	1-#5 @ 24" VERT SPACING, UNO



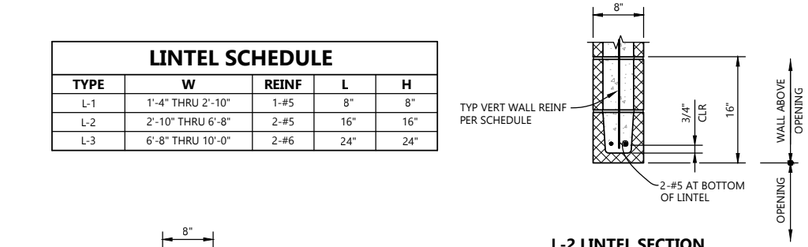
NOTES:

1. GROUT SOLID ALL CELLS.
2. PROVIDE REINFORCING NOTED FOR ALL MASONRY WALLS UNLESS NOTED OTHERWISE.
3. MAINTAIN MINIMUM 3"x3" CONTINUOUS VERTICAL CELL AT EACH REBAR. PLACE WALLS TO MAXIMUM 4'-0" HEIGHT BEFORE GROUTING.
4. STOP GROUT POUR 1/2" BELOW TOP OF COURSE AT EACH GROUT LIFT.
5. SEE DETAIL 4 FOR REQUIRED REINFORCEMENT LAP DISTANCES.
6. FOOTING DOWELS SHALL MATCH SIZE AND SPACING W/ VERTICAL BARS.

CMU REINFORCEMENT SCHEDULE (2)

NTS

LINTEL SCHEDULE				
TYPE	**W**	**REINF**	**L**	**H**
L-1	1'-4" THRU 2'-10"	1-#5	8"	8"
L-2	2'-10" THRU 6'-8"	2-#5	16"	16"
L-3	6'-8" THRU 10'-0"	2-#6	24"	24"



NOTES:

1. SEE DETAIL 2 AND PLAN DRAWINGS FOR DIMENSION OF "W" AND "L".
2. IF "L" IS LESS THAN THE DEVELOPMENT LENGTH OF THE REINFORCEMENT BAR(S), PROVIDE STANDARD 90° BEND
3. WHERE LINTEL TYPE IS NOT SHOWN ON PLAN, PROVIDE LINTELS FROM THE ABOVE SCHEDULE BASED ON MAX CLEAR OPENING. VERIFY W/ ENGINEER PRIOR TO CONSTRUCTION.
4. OPENINGS 12" OR LESS WIDE MAY OCCUR WITHOUT LINTEL REINFORCING AS LONG AS NO REINFORCING IS INTERRUPTED.

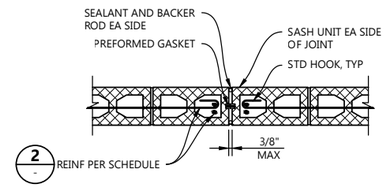
CMU LINTELS (3)

NTS

MASONRY LAP SPLICE LENGTHS F'_M = 2,500 PSI, F_Y = 60,000 PSI		
BAR SIZE	**8" CMU**	
	BAR @ CL	**BAR @ EDGE**
#3	1'-0"	1'-0"
#4	1'-0"	1'-8"
#5	1'-5"	2'-6"
#6	2'-9"	4'-6"
#7	3'-10"	5'-3"

TYP MASONRY REBAR LAP SPLICES (4)

NTS

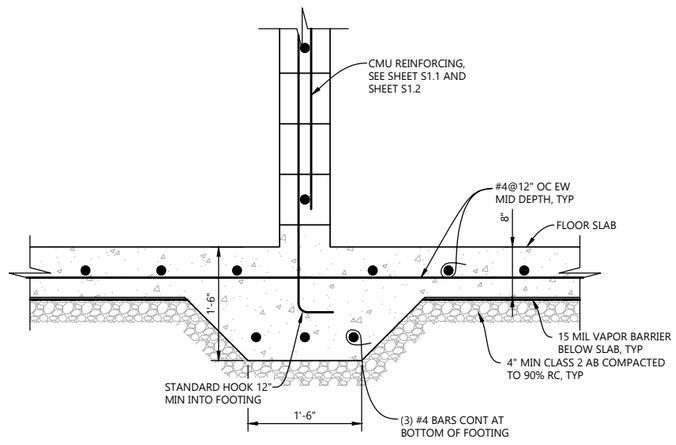


NOTES:

1. BOND BEAM REINFORCEMENT TO EXTEND THROUGH JOINT.
2. MAXIMUM JOINT SPACING SHALL BE 15 FT UNLESS NOTED OTHERWISE.
3. CONTRACTOR TO SUBMIT PLAN SHOWING PROPOSED CONTROL JOINT LOCATIONS FOR REVIEW AND APPROVAL PRIOR TO CONSTRUCTION.

MASONRY CONTROL JOINT - MCJ (5)

NTS



TYPICAL INTERIOR FOOTING (6)

NTS

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SHEET
S5.2

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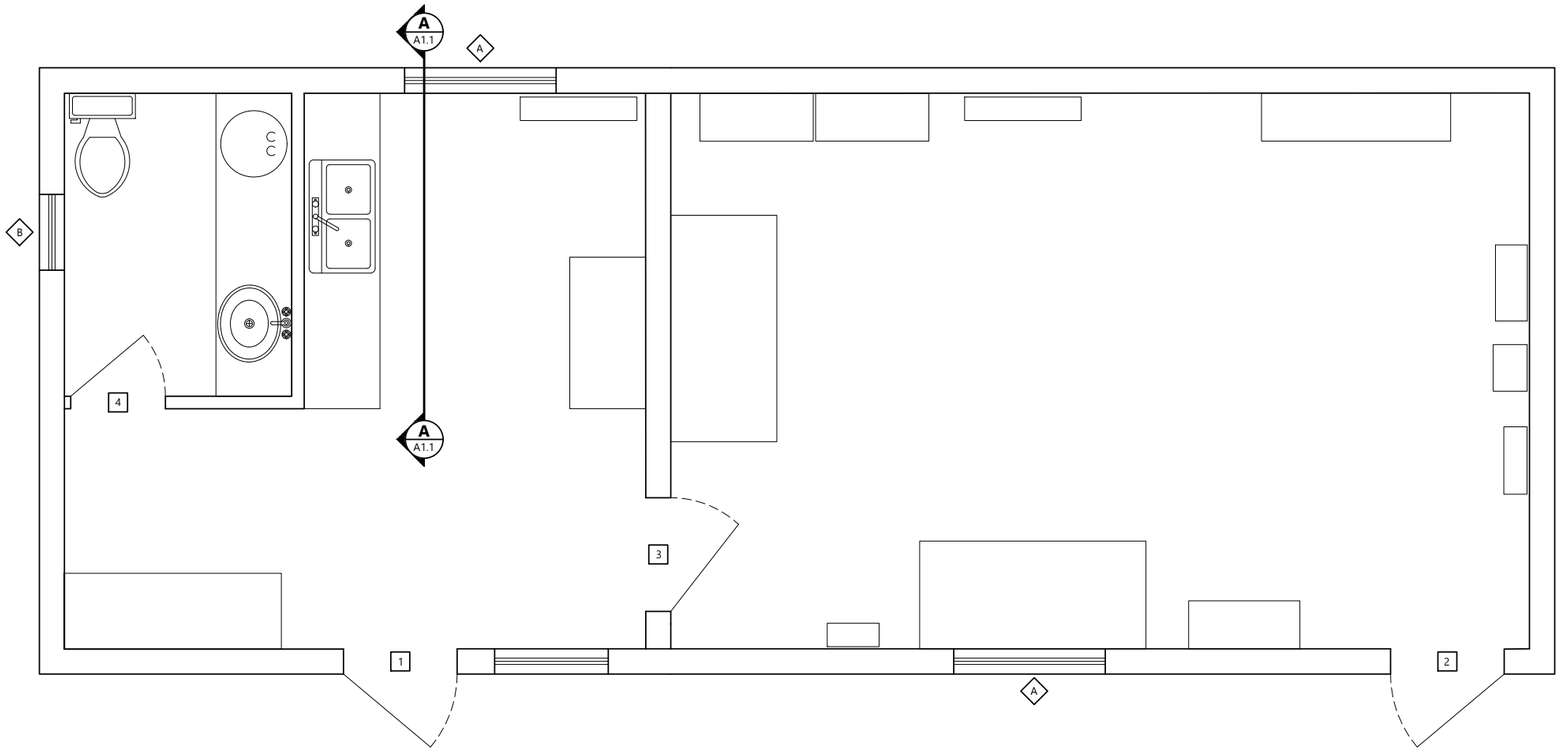
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VERIFY SCALES



PLAN
1/2"=1'-0"

WINDOW SCHEDULE

SYMBOL	QUANTITY	WIDTH	HEIGHT	OPERATION	NOTES
A	1	4'-0"	3'-0"	OPERABLE	SLIDING FIBERGLASS
B	1	2'-0"	3'-0"	OPERABLE	SINGLE-HUNG FIBERGLASS, GLAZED

DOOR SCHEDULE

SYMBOL	QUANTITY	WIDTH	HEIGHT	THICKNESS	NOTES
1	1	3'-0"	6'-8"	1 3/4"	EXTERIOR, LEFT OUTSWING
2	1	3'-0"	6'-8"	1 3/4"	EXTERIOR, RIGHT OUTSWING 1/4 LOUVER
3	1	3'-0"	6'-8"	1 3/8"	INTERIOR, RIGHT INSWING
4	1	2'-6"	6'-8"	1 3/8"	INTERIOR, LEFT INSWING

INTERIOR FINISH SCHEDULE

ROOM	FLOORS	WALLS	CEILING
RESTROOM	CONCRETE	GYPSUM GREENBOARD W/INTERIOR FLAT LATEX PAINT	GYPSUM GREENBOARD W/INTERIOR FLAT LATEX PAINT
MAIN	CONCRETE	GYPSUM BOARD W/INTERIOR FLAT LATEX PAINT	GYPSUM BOARD W/INTERIOR FLAT LATEX PAINT

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NO.	DATE	REVISION	BY

PRELIMINARY

TOWN OF FORT JONES
WASTEWATER IMPROVEMENTS PROJECT
FORT JONES, CALIFORNIA

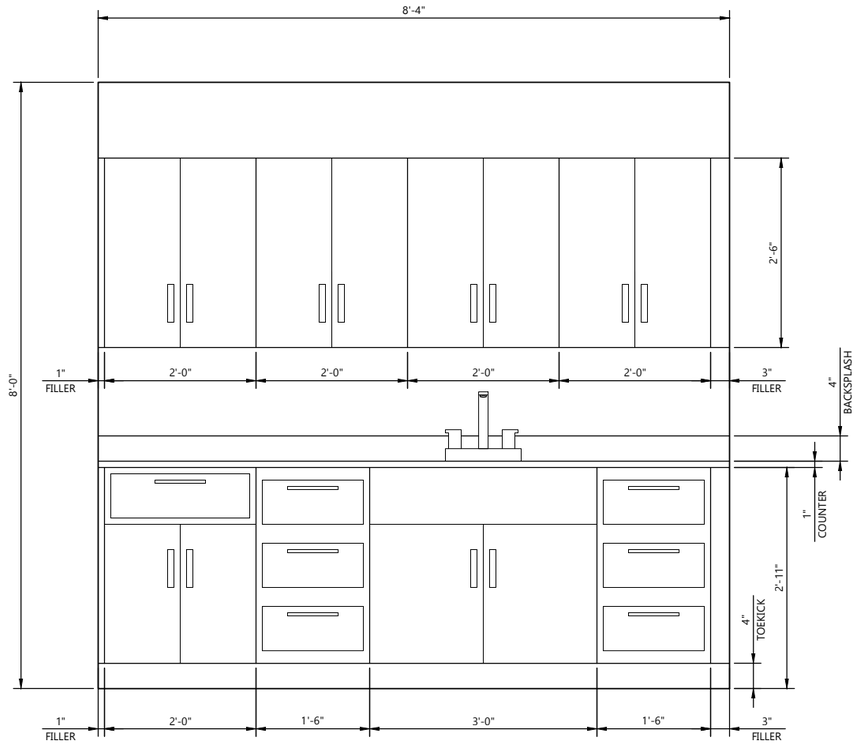
OFFICE ELECTRICAL FINISH SCHEDULES

DESIGN	CHECK
JM	CRS
DRAWN	
JWF/CDN	

DATE 06/2026
PROJ. NO. 525006
SHEET **A1.0**

90% DESIGN-NOT FOR CONSTRUCTION

SAVED: 6/3/2026 8:00 PM JFOSTER, PLOTTED: 6/3/2026 9:41 PM JOHN FOSTER
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SECTION A

1"=1'-0"

VERIFY SCALES

BAR IS ONE INCH ON ORIGINAL DRAWING

0 1"

IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

350 HARTNELL AVE.
SUITE B
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NO.	DATE	REVISION	BY

PRELIMINARY

TOWN OF FORT JONES
WASTEWATER IMPROVEMENTS PROJECT
FORT JONES, CALIFORNIA

OFFICE ELECTRICAL INTERIOR ELEVATIONS

DESIGN	CHECK
JM	CRS
DRAWN	
JWF/CDN	

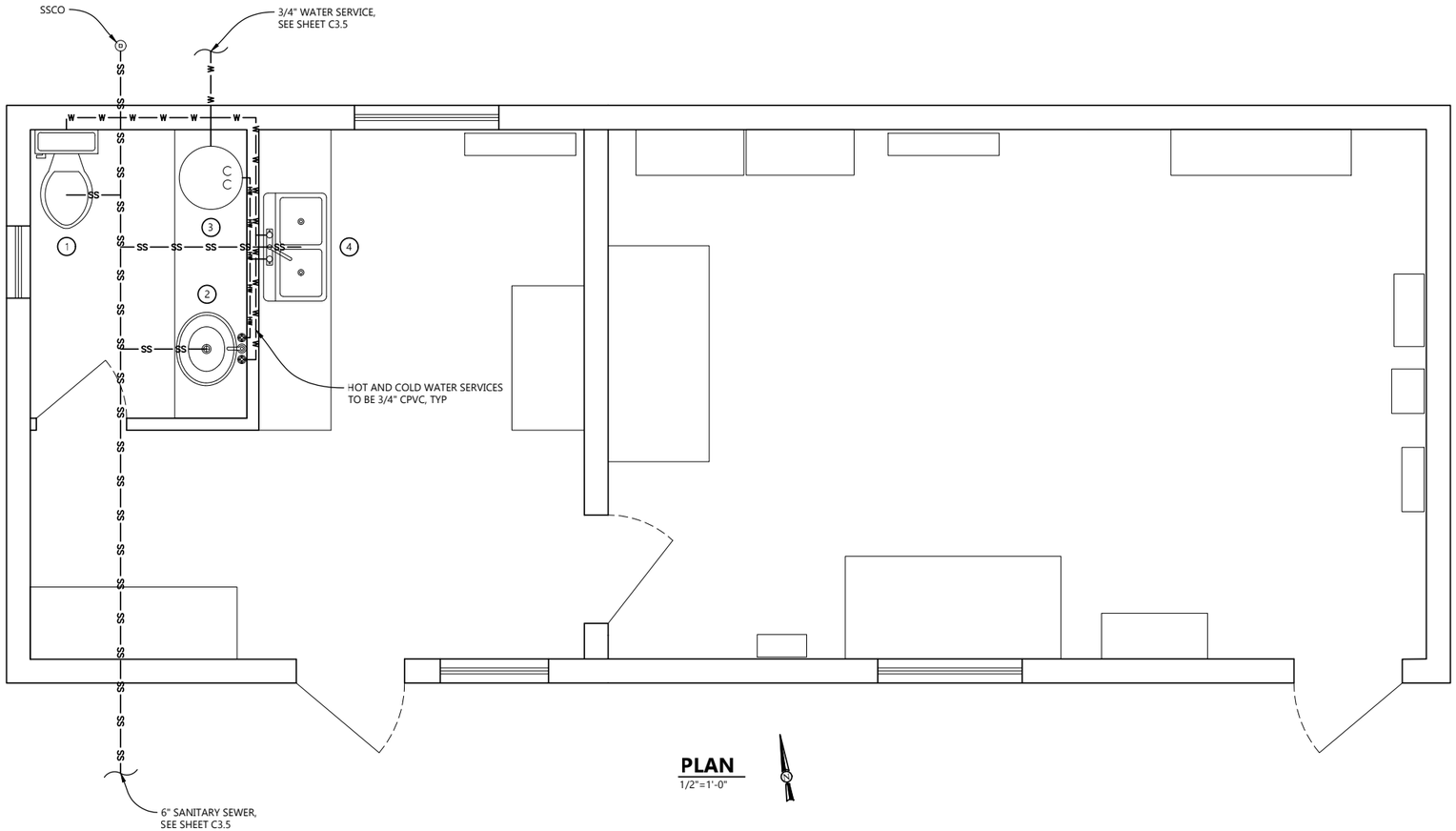
DATE 06/2026

PROJ. NO. 525006

SHEET **A1.1**

90% DESIGN-NOT FOR CONSTRUCTION

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PLAN
1/2"=1'-0"

FIXTURE SCHEDULE

SYMBOL	TYPE	WIDTH	DEPTH	HEIGHT	NOTES
1	FLUSH TOILET	20"	33"	16"	
2	BATHROOM SINK	20"	18"	-	
3	WATER HEATER	-	-	-	7 GALLON POU WATER HEATER, BOSCH TRONIC ES8 OR APPROVED EQUAL
4	LAB SINK	33"	22"	-	

PLUMBING NOTES:

1. CONTRACTOR SHALL PERFORM WORK IN ACCORDANCE WITH THE 2025 CPC.
2. PROVIDE VENT TERMINATION THROUGH ROOF WITH APPROVED FLASHING.
3. PROVIDE ACCESSIBLE SHUTOFF VALVES; LOCATE TO REMAIN ACCESSIBLE AFTER FINISH INSTALLATION.
4. COORDINATE ALL PENETRATIONS WITH MASONS; SLEEVE THROUGH SLABS/WALLS AS REQUIRED.
5. PROVIDE DIELECTRIC UNIONS AS REQUIRED; INSULATE HOT WATER PIPING AND PROVIDE HEAT TRAPS AT WATER HEATER IF APPLICABLE.
6. ALL ABS SEWER SLOPES 1/4" PER FOOT TO DRAIN.
7. ALL VENTS SHALL RISE VERTICALLY A MINIMUM OF 6 INCHES ABOVE THE FLOOD-LEVEL RIM OF THE HIGHEST FIXTURE SERVED PRIOR TO ANY HORIZONTAL OFFSET. CONTRACTOR SHALL VERIFY MINIMUM 6-INCH VERTICAL RISE ABOVE FLOOD-LEVEL RIM OF HIGHEST FIXTURE PRIOR TO OFFSET.
8. NO PIPING SHALL BE INSTALLED WITHIN THE FOOTING BEARING INFLUENCE ZONE. ALL DRAIN PIPING SHALL BE LOCATED BEYOND A 45-DEGREE PLANE PROJECTED DOWNWARD AND OUTWARD FROM THE BOTTOM OF FOOTING.

VERIFY SCALES

BAR IS ONE INCH ON ORIGINAL DRAWING

0 1"

IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

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NO.	DATE	REVISION	BY

PRELIMINARY

TOWN OF FORT JONES
WASTEWATER IMPROVEMENTS PROJECT
FORT JONES, CALIFORNIA

OFFICE ELECTRICAL PLUMBING PLAN

DESIGN JM	CHECK CRS
DRAWN JWF/CDN	
DATE 06/2026	
PROJ. NO. 525006	
SHEET **A1.2**	

90% DESIGN-NOT FOR CONSTRUCTION

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Appendix 2. Construction Drawings

REGRADE EXISTING WWTF

PROPOSED WWTF

Moffett Creek

Scott River Rd

Bridge St

Zone AE

2718 2720 2721 2722 2723 2724 2725.0 2726.0 2727.0 2730 2731 2733

RS 1576 RS 1578 RS 1579 RS 1775 RS 2271 RS 2287 RS 2290 RS 2450 RS 2475

EXPLANATION

PHOTO SOURCE: GOOGLE, 2024

- PROPOSED 1-FT INTERVAL CONTOUR
- PROPOSED 5-FT INTERVAL CONTOUR
- EXISTING 1-FT INTERVAL CONTOUR
- EXISTING 5-FT INTERVAL CONTOUR
- STREAM CENTERLINE
- MODEL CROSS SECTION
- FIRM BASE FLOOD ELEVATION CONTOURS
- FIRM CROSS SECTIONS
- PROPOSED WATER SURFACE ELEVATION REVISION
- PROPOSED BASE FLOOD ELEVATION CONTOURS
- PROPOSED FLOODWAY EXTENTS
- PROPOSED 0.2% ANNUAL CHANCE FLOOD HAZARD
- FEMA 1% ANNUAL CHANCE FLOOD HAZARD, ZONE AE
- 0.2% ANNUAL CHANCE FLOOD HAZARD

N

0 200

1" = 200'

B

CVL_FLD_Fig1_TopoWorkMap — dwudel, 7/1/26

Town of Fort Jones
Regulatory Floodway Impact Analysis Report, Wastewater Improvements
Fort Jones, California

Topographic Work Map

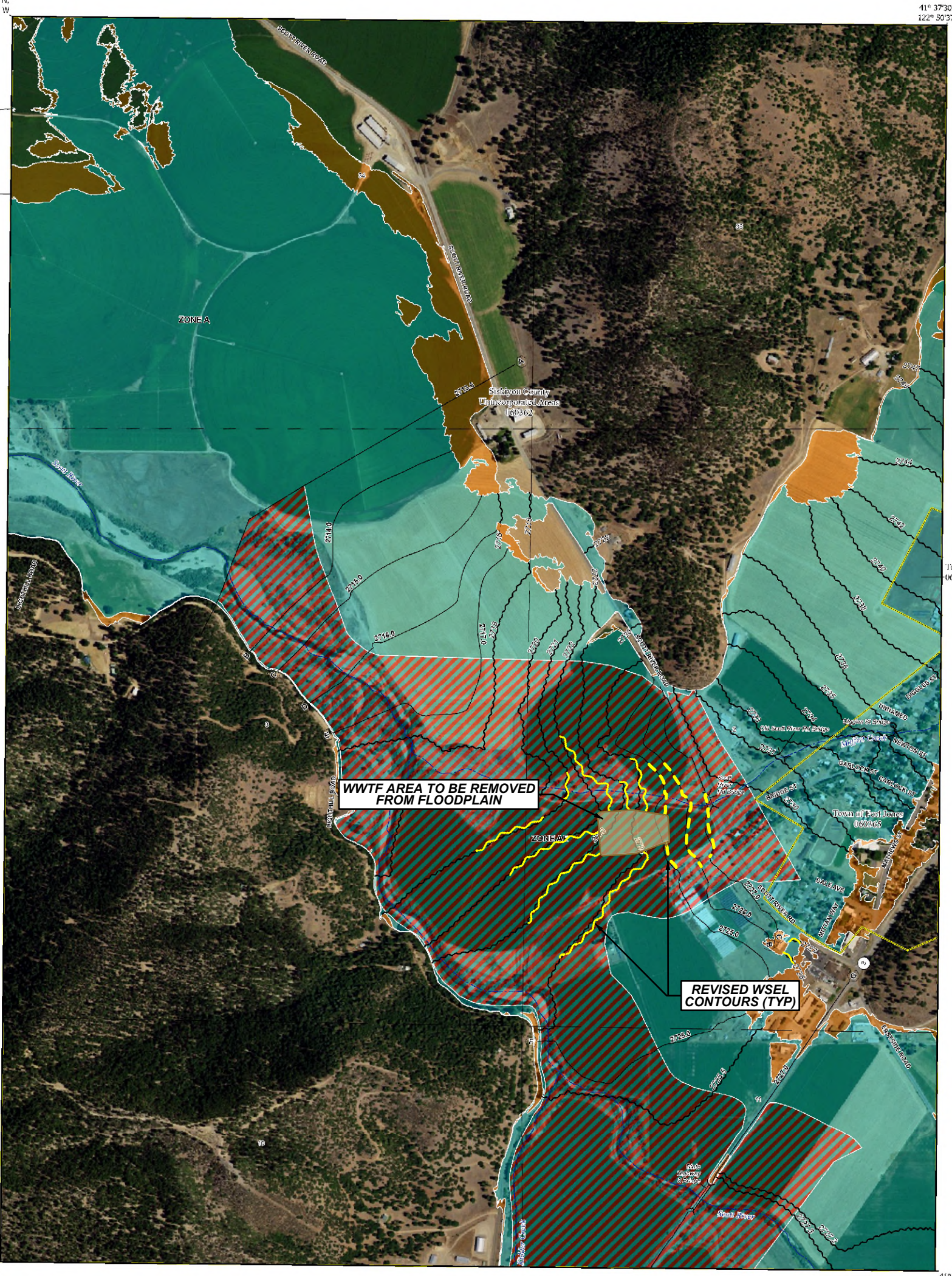
July 2026 - 525006

Figure 1

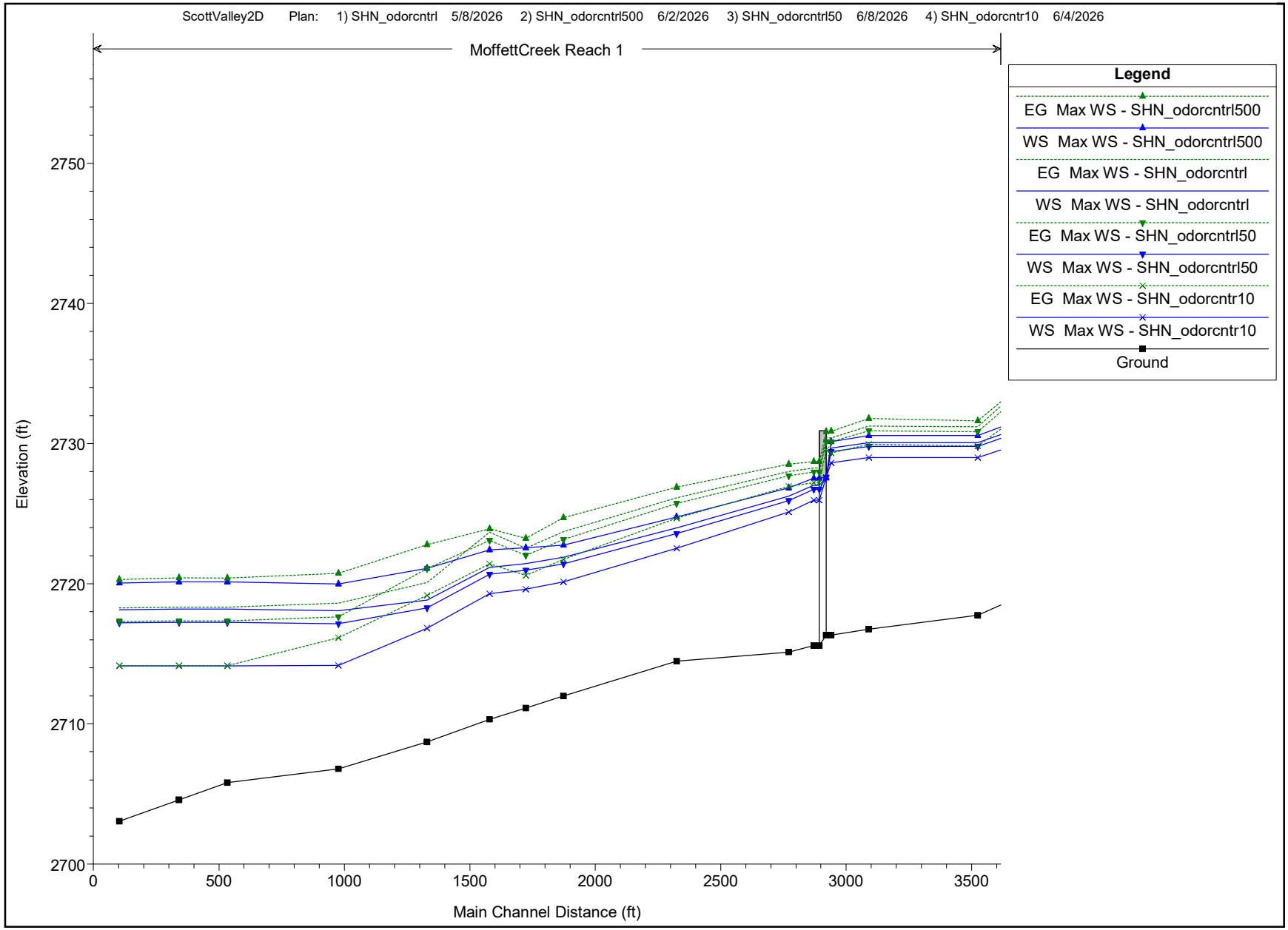
Appendix 3. Annotated FIRM

41° 37'30.02" N,
122° 52'30.05" W

41° 37'30.02" N,
122° 50'37.55" W


ZONE A
ZONE A
ZONE A
SCOTT RIVER ROAD
SCOTT RIVER ROAD
Siskiyou County
Unincorporated Areas
060362
Town of Fort Jones
060365
Town of Fort Jones
060365
WWTF AREA TO BE REMOVED FROM FLOODPLAIN
REVISED WSEL CONTOURS (TYP)
ZONE AE
Scott River
Scott River
Scott River
Scott River
Old Scott River Rd Bridge
Main St Bridge
Main St Bridge
Scott River
Scott River
Scott River
Scott River

Appendix 4.
Flood Profiles and Tables


ScottValley2D Plan: 1) SHN_odorcntrl 5/8/2026 2) SHN_odorcntrl500 6/2/2026 3) SHN_odorcntrl50 6/8/2026 4) SHN_odorcntr10 6/4/2026
MoffettCreek Reach 1
Legend
EG Max WS - SHN_odorcntrl500
WS Max WS - SHN_odorcntrl500
EG Max WS - SHN_odorcntrl
WS Max WS - SHN_odorcntrl
EG Max WS - SHN_odorcntrl50
WS Max WS - SHN_odorcntrl50
EG Max WS - SHN_odorcntr10
WS Max WS - SHN_odorcntr10
Ground
Elevation (ft)
2750
2740
2730
2720
2710
2700
0
500
1000
1500
2000
2500
3000
3500
Main Channel Distance (ft)

HEC-RAS River: MoffettCreek Reach: Reach 1 Profile: Max WS

Reach	River Sta	Profile	Plan	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach 1	13995	Max WS	SHN_odorcntrl	3472.74	2765.85	2778.25		2778.64	0.000553	5.40	725.53	85.40	0.30
Reach 1	13995	Max WS	SHN_odorcntrl500	4890.03	2765.85	2779.86		2780.41	0.000639	6.40	863.12	85.40	0.33
Reach 1	13995	Max WS	SHN_odorcntrl50	3290.26	2765.85	2777.86		2778.25	0.000574	5.36	692.05	85.40	0.30
Reach 1	13995	Max WS	SHN_odorcntr10	2982.43	2765.85	2776.88		2777.30	0.000699	5.52	608.88	85.40	0.33
Reach 1	13993			Lat Struct									
Reach 1	13992			Lat Struct									
Reach 1	13979	Max WS	SHN_odorcntrl	3223.12	2766.65	2778.25		2778.66	0.000556	5.71	672.41	78.10	0.30
Reach 1	13979	Max WS	SHN_odorcntrl500	3989.36	2766.65	2779.86		2780.30	0.000507	5.98	798.24	78.10	0.30
Reach 1	13979	Max WS	SHN_odorcntrl50	3118.44	2766.65	2777.86		2778.28	0.000599	5.78	641.79	78.10	0.31
Reach 1	13979	Max WS	SHN_odorcntr10	2854.24	2766.65	2776.88		2777.34	0.000732	5.99	565.73	78.10	0.34
Reach 1	13837	Max WS	SHN_odorcntrl	2945.35	2766.22	2775.89		2776.57	0.001179	7.25	474.04	63.70	0.43
Reach 1	13837	Max WS	SHN_odorcntrl500	3515.07	2766.22	2777.39		2778.06	0.000960	7.26	569.84	63.70	0.40
Reach 1	13837	Max WS	SHN_odorcntrl50	2842.47	2766.22	2775.45		2776.16	0.001319	7.42	446.14	63.70	0.45
Reach 1	13837	Max WS	SHN_odorcntr10	2562.23	2766.22	2774.37		2775.18	0.001770	7.84	377.46	63.70	0.51
Reach 1	13541	Max WS	SHN_odorcntrl	5300.83	2766.23	2775.19		2777.11	0.003096	11.56	500.94	63.90	0.69
Reach 1	13541	Max WS	SHN_odorcntrl500	6327.82	2766.23	2776.58		2778.57	0.002652	11.81	589.70	63.90	0.66
Reach 1	13541	Max WS	SHN_odorcntrl50	4928.09	2766.23	2774.69		2776.58	0.003280	11.44	469.25	63.90	0.70
Reach 1	13541	Max WS	SHN_odorcntr10	3982.58	2766.23	2773.41		2775.21	0.003886	11.12	387.33	63.90	0.75
Reach 1	13211	Max WS	SHN_odorcntrl	5143.06	2763.91	2772.70		2774.70	0.003721	12.48	509.82	70.90	0.76
Reach 1	13211	Max WS	SHN_odorcntrl500	6842.89	2763.91	2774.15		2776.61	0.003748	13.92	612.70	70.90	0.78
Reach 1	13211	Max WS	SHN_odorcntrl50	4728.33	2763.91	2772.24		2774.16	0.003852	12.23	476.93	70.90	0.76
Reach 1	13211	Max WS	SHN_odorcntr10	3690.51	2763.91	2771.01		2772.76	0.004291	11.55	390.07	70.90	0.78
Reach 1	13110	Max WS	SHN_odorcntrl	5961.80	2763.88	2771.98		2773.87	0.003851	11.64	591.03	89.40	0.75
Reach 1	13110	Max WS	SHN_odorcntrl500	7612.16	2763.88	2773.08		2775.37	0.003862	12.79	689.81	89.40	0.77
Reach 1	13110	Max WS	SHN_odorcntrl50	5466.96	2763.88	2771.51		2773.35	0.004072	11.46	549.28	89.40	0.77
Reach 1	13110	Max WS	SHN_odorcntr10	4196.53	2763.88	2770.23		2771.94	0.004943	11.02	434.75	89.40	0.82
Reach 1	13005	Max WS	SHN_odorcntrl	6866.29	2763.06	2771.56		2772.89	0.002769	10.12	752.64	106.40	0.64
Reach 1	13005	Max WS	SHN_odorcntrl500	8662.36	2763.06	2772.65		2774.24	0.002790	11.07	868.08	106.40	0.65
Reach 1	13005	Max WS	SHN_odorcntrl50	6255.32	2763.06	2771.07		2772.34	0.002906	9.92	699.65	106.40	0.65
Reach 1	13005	Max WS	SHN_odorcntr10	4670.72	2763.06	2769.65		2770.80	0.003532	9.48	549.32	106.40	0.69
Reach 1	12776	Max WS	SHN_odorcntrl	9028.82	2762.00	2771.54		2772.88	0.002160	9.99	992.02	119.90	0.58
Reach 1	12776	Max WS	SHN_odorcntrl500	10991.03	2762.00	2772.58		2774.14	0.002182	10.78	1115.64	119.90	0.60
Reach 1	12776	Max WS	SHN_odorcntrl50	8195.62	2762.00	2771.04		2772.28	0.002186	9.68	931.37	119.90	0.58
Reach 1	12776	Max WS	SHN_odorcntr10	5997.51	2762.00	2769.57		2770.58	0.002316	8.79	754.97	119.90	0.58
Reach 1	12673	Max WS	SHN_odorcntrl	8911.94	2761.88	2771.24		2774.41	0.005191	15.51	810.05	100.30	0.91

HEC-RAS River: MoffettCreek Reach: Reach 1 Profile: Max WS (Continued)

Reach	River Sta	Profile	Plan	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach 1	12673	Max WS	SHN_odorcntrl500	10751.14	2761.88	2772.23		2775.92	0.005280	16.76	909.54	100.30	0.93
Reach 1	12673	Max WS	SHN_odorcntrl50	8123.94	2761.88	2770.75		2773.73	0.005217	14.99	761.49	100.30	0.90
Reach 1	12673	Max WS	SHN_odorcntr10	5979.68	2761.88	2769.34		2771.75	0.005281	13.40	620.17	100.30	0.88
Reach 1	12473	Max WS	SHN_odorcntrl	9140.31	2761.18	2769.47		2771.87	0.005154	14.24	756.29	100.30	0.89
Reach 1	12473	Max WS	SHN_odorcntrl500	10875.11	2761.18	2770.36		2773.09	0.005102	15.20	845.77	100.30	0.90
Reach 1	12473	Max WS	SHN_odorcntrl50	8358.33	2761.18	2769.03		2771.29	0.005223	13.81	712.16	100.30	0.88
Reach 1	12473	Max WS	SHN_odorcntr10	6229.40	2761.18	2767.78		2769.62	0.005383	12.43	586.69	100.30	0.87
Reach 1	12272	Max WS	SHN_odorcntrl	10480.85	2759.64	2767.94		2769.84	0.003992	12.15	961.12	144.29	0.77
Reach 1	12272	Max WS	SHN_odorcntrl500	12615.78	2759.64	2768.84		2770.98	0.003835	12.82	1090.55	144.29	0.77
Reach 1	12272	Max WS	SHN_odorcntrl50	9510.12	2759.64	2767.51		2769.30	0.004094	11.84	898.35	144.29	0.77
Reach 1	12272	Max WS	SHN_odorcntr10	6982.36	2759.64	2766.30		2767.79	0.004451	10.93	723.49	144.29	0.78
Reach 1	12107	Max WS	SHN_odorcntrl	10179.53	2757.97	2767.50		2769.49	0.003648	12.63	910.99	121.50	0.75
Reach 1	12107	Max WS	SHN_odorcntrl500	12268.20	2757.97	2768.48		2770.73	0.003566	13.39	1029.35	121.50	0.76
Reach 1	12107	Max WS	SHN_odorcntrl50	9228.38	2757.97	2767.03		2768.89	0.003699	12.25	853.77	121.50	0.75
Reach 1	12107	Max WS	SHN_odorcntr10	6723.92	2757.97	2765.67		2767.20	0.003927	11.20	688.52	121.50	0.75
Reach 1	11948	Max WS	SHN_odorcntrl	8562.35	2758.40	2766.79		2769.28	0.004520	13.46	687.95	90.06	0.83
Reach 1	11948	Max WS	SHN_odorcntrl500	10312.75	2758.40	2767.74		2770.61	0.004467	14.40	773.41	90.06	0.84
Reach 1	11948	Max WS	SHN_odorcntrl50	7771.90	2758.40	2766.34		2768.65	0.004558	13.00	646.79	90.06	0.83
Reach 1	11948	Max WS	SHN_odorcntr10	5677.91	2758.40	2764.98		2766.85	0.004814	11.75	525.02	90.06	0.82
Reach 1	11652	Max WS	SHN_odorcntrl	8188.68	2756.66	2765.03		2767.48	0.004754	13.71	668.45	91.00	0.85
Reach 1	11652	Max WS	SHN_odorcntrl500	9962.56	2756.66	2765.84		2768.78	0.005017	15.01	742.07	91.00	0.89
Reach 1	11652	Max WS	SHN_odorcntrl50	7379.36	2756.66	2764.63		2766.85	0.004636	13.09	631.68	91.00	0.83
Reach 1	11652	Max WS	SHN_odorcntr10	5180.04	2756.66	2763.37		2765.01	0.004361	11.26	517.04	91.00	0.78
Reach 1	11560	Max WS	SHN_odorcntrl	9796.68	2755.44	2764.15		2766.78	0.005729	14.71	769.12	116.80	0.92
Reach 1	11560	Max WS	SHN_odorcntrl500	11986.41	2755.44	2764.82	2764.61	2768.05	0.006230	16.20	848.08	116.80	0.98
Reach 1	11560	Max WS	SHN_odorcntrl50	8796.52	2755.44	2763.80		2766.17	0.005512	14.00	728.60	116.80	0.90
Reach 1	11560	Max WS	SHN_odorcntr10	6073.93	2755.44	2762.68		2764.37	0.004989	11.97	598.37	116.80	0.83
Reach 1	11494	Max WS	SHN_odorcntrl	11372.19	2755.51	2764.35		2766.06	0.003653	12.30	1105.66	157.10	0.75
Reach 1	11494	Max WS	SHN_odorcntrl500	13879.43	2755.51	2765.22		2767.24	0.003717	13.25	1242.51	157.10	0.77
Reach 1	11494	Max WS	SHN_odorcntrl50	10223.45	2755.51	2763.91		2765.49	0.003638	11.84	1037.01	157.10	0.74
Reach 1	11494	Max WS	SHN_odorcntr10	7074.58	2755.51	2762.56		2763.77	0.003673	10.51	824.75	157.10	0.72
Reach 1	11371	Max WS	SHN_odorcntrl	12373.96	2753.85	2764.35		2766.63	0.003650	13.29	1045.55	135.27	0.76
Reach 1	11371	Max WS	SHN_odorcntrl500	14870.27	2753.85	2765.22		2767.87	0.003748	14.27	1163.38	135.27	0.78
Reach 1	11371	Max WS	SHN_odorcntrl50	11199.21	2753.85	2763.91		2766.01	0.003597	12.79	986.43	135.27	0.74
Reach 1	11371	Max WS	SHN_odorcntr10	7915.53	2753.85	2762.56		2764.14	0.003402	11.19	805.08	131.40	0.70
Reach 1	11197	Max WS	SHN_odorcntrl	12729.83	2754.60	2763.08		2765.19	0.004121	12.75	1113.90	157.50	0.79

HEC-RAS River: MoffettCreek Reach: Reach 1 Profile: Max WS (Continued)

Reach	River Sta	Profile	Plan	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach 1	11197	Max WS	SHN_odorcntrl500	15245.98	2754.60	2763.84		2766.30	0.004266	13.78	1233.91	157.50	0.82
Reach 1	11197	Max WS	SHN_odorcntrl50	11555.49	2754.60	2762.71		2764.65	0.004037	12.23	1054.84	157.50	0.78
Reach 1	11197	Max WS	SHN_odorcntr10	8265.00	2754.60	2761.57		2763.01	0.003705	10.53	876.38	157.50	0.73
Reach 1	10500	Max WS	SHN_odorcntrl	11681.86	2750.22	2761.63		2763.46	0.003060	13.00	1540.06	194.30	0.71
Reach 1	10500	Max WS	SHN_odorcntrl500	13730.69	2750.22	2762.37		2764.47	0.003234	13.99	1684.83	194.30	0.74
Reach 1	10500	Max WS	SHN_odorcntrl50	10728.51	2750.22	2761.27		2762.97	0.002958	12.49	1470.70	194.30	0.69
Reach 1	10500	Max WS	SHN_odorcntr10	8094.91	2750.22	2760.24		2761.55	0.002585	10.87	1270.19	194.30	0.64
Reach 1	10376	Max WS	SHN_odorcntrl	10363.67	2749.99	2760.91		2764.01	0.004734	15.94	931.80	109.88	0.88
Reach 1	10376	Max WS	SHN_odorcntrl500	11935.33	2749.99	2761.67		2765.14	0.004851	16.93	1015.76	109.88	0.90
Reach 1	10376	Max WS	SHN_odorcntrl50	9640.81	2749.99	2760.55		2763.47	0.004659	15.44	892.36	109.88	0.87
Reach 1	10376	Max WS	SHN_odorcntr10	7647.65	2749.99	2759.54		2761.92	0.004340	13.87	781.49	109.88	0.82
Reach 1	10107	Max WS	SHN_odorcntrl	9568.73	2748.81	2758.06		2760.62	0.004647	13.91	958.13	158.20	0.85
Reach 1	10107	Max WS	SHN_odorcntrl500	10881.19	2748.81	2758.66		2761.41	0.004627	14.52	1052.41	158.20	0.85
Reach 1	10107	Max WS	SHN_odorcntrl50	8973.48	2748.81	2757.79		2760.24	0.004646	13.60	914.48	158.20	0.84
Reach 1	10107	Max WS	SHN_odorcntr10	7420.29	2748.81	2757.06		2759.23	0.004562	12.66	799.62	158.20	0.82
Reach 1	9806	Max WS	SHN_odorcntrl	9478.53	2747.19	2757.12		2758.54	0.002536	10.79	1022.63	151.92	0.63
Reach 1	9806	Max WS	SHN_odorcntrl500	10893.56	2747.19	2757.83		2759.36	0.002489	11.23	1130.34	151.92	0.63
Reach 1	9806	Max WS	SHN_odorcntrl50	8843.43	2747.19	2756.79		2758.16	0.002558	10.57	972.52	151.92	0.63
Reach 1	9806	Max WS	SHN_odorcntr10	7219.26	2747.19	2755.92		2757.14	0.002590	9.92	840.63	151.92	0.62
Reach 1	9623	Max WS	SHN_odorcntrl	8919.07	2745.79	2756.61		2758.43	0.002862	11.51	864.17	113.40	0.67
Reach 1	9623	Max WS	SHN_odorcntrl500	10259.78	2745.79	2757.34		2759.34	0.002856	12.10	947.06	113.40	0.68
Reach 1	9623	Max WS	SHN_odorcntrl50	8315.20	2745.79	2756.27		2758.00	0.002864	11.23	825.38	113.40	0.66
Reach 1	9623	Max WS	SHN_odorcntr10	6781.34	2745.79	2755.36		2756.87	0.002857	10.44	722.31	113.40	0.65
Reach 1	9360	Max WS	SHN_odorcntrl	8251.72	2744.36	2755.55		2757.48	0.003185	12.99	763.10	101.97	0.71
Reach 1	9360	Max WS	SHN_odorcntrl500	9416.56	2744.36	2756.20		2758.31	0.003186	13.52	830.33	104.53	0.72
Reach 1	9360	Max WS	SHN_odorcntrl50	7719.77	2744.36	2755.25		2757.08	0.003178	12.72	732.04	101.15	0.70
Reach 1	9360	Max WS	SHN_odorcntr10	6306.01	2744.36	2754.43		2755.99	0.003032	11.74	650.14	99.11	0.68
Reach 1	9167	Max WS	SHN_odorcntrl	7711.50	2743.91	2754.66		2757.03	0.003400	13.13	663.26	90.93	0.74
Reach 1	9167	Max WS	SHN_odorcntrl500	8746.02	2743.91	2755.28		2757.88	0.003457	13.79	719.36	90.93	0.75
Reach 1	9167	Max WS	SHN_odorcntrl50	7254.71	2743.91	2754.37		2756.64	0.003374	12.82	637.26	90.93	0.73
Reach 1	9167	Max WS	SHN_odorcntr10	6140.95	2743.91	2753.65		2755.66	0.003281	12.00	571.70	90.93	0.71
Reach 1	8834	Max WS	SHN_odorcntrl	7060.48	2742.85	2753.34		2756.37	0.004236	14.97	548.13	75.13	0.83
Reach 1	8834	Max WS	SHN_odorcntrl500	7947.32	2742.85	2753.92		2757.20	0.004299	15.66	591.86	75.13	0.85
Reach 1	8834	Max WS	SHN_odorcntrl50	6650.39	2742.85	2753.06		2755.97	0.004207	14.64	526.95	75.13	0.82
Reach 1	8834	Max WS	SHN_odorcntr10	5581.09	2742.85	2752.29		2754.85	0.004076	13.65	469.40	72.52	0.80
Reach 1	8488	Max WS	SHN_odorcntrl	6429.53	2741.66	2751.38		2754.04	0.004156	13.88	519.51	78.63	0.81

HEC-RAS River: MoffettCreek Reach: Reach 1 Profile: Max WS (Continued)

Reach	River Sta	Profile	Plan	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach 1	8488	Max WS	SHN_odorcntrl500	7266.39	2741.66	2751.91		2754.84	0.004283	14.62	562.17	80.80	0.82
Reach 1	8488	Max WS	SHN_odorcntrl50	6056.74	2741.66	2751.13		2753.67	0.004105	13.54	500.09	75.25	0.80
Reach 1	8488	Max WS	SHN_odorcntr10	5100.77	2741.66	2750.47		2752.67	0.003908	12.55	451.34	72.70	0.77
Reach 1	8118	Max WS	SHN_odorcntrl	6092.69	2740.75	2750.02		2752.44	0.003870	12.98	514.66	73.52	0.77
Reach 1	8118	Max WS	SHN_odorcntrl500	6859.09	2740.75	2750.50		2753.19	0.004013	13.70	550.32	73.52	0.79
Reach 1	8118	Max WS	SHN_odorcntrl50	5753.21	2740.75	2749.80		2752.10	0.003793	12.63	498.56	73.52	0.76
Reach 1	8118	Max WS	SHN_odorcntr10	4890.54	2740.75	2749.24		2751.22	0.003531	11.65	457.47	73.52	0.73
Reach 1	7783	Max WS	SHN_odorcntrl	4950.06	2738.79	2749.32		2750.11	0.001179	7.51	722.96	90.40	0.43
Reach 1	7783	Max WS	SHN_odorcntrl500	5498.33	2738.79	2749.82		2750.68	0.001203	7.86	767.63	90.40	0.44
Reach 1	7783	Max WS	SHN_odorcntrl50	4699.91	2738.79	2749.10		2749.85	0.001160	7.34	703.07	90.40	0.43
Reach 1	7783	Max WS	SHN_odorcntr10	4051.25	2738.79	2748.55		2749.20	0.001087	6.81	653.08	90.40	0.41
Reach 1	7615	Max WS	SHN_odorcntrl	3806.58	2737.95	2749.32	2744.89	2750.07	0.000987	7.11	578.56	68.60	0.39
Reach 1	7615	Max WS	SHN_odorcntrl500	4048.12	2737.95	2749.82	2745.15	2750.58	0.000943	7.18	612.46	68.60	0.39
Reach 1	7615	Max WS	SHN_odorcntrl50	3681.81	2737.95	2749.11	2744.76	2749.84	0.000998	7.05	563.54	68.60	0.39
Reach 1	7615	Max WS	SHN_odorcntr10	3303.22	2737.95	2748.55	2744.38	2749.23	0.000985	6.74	525.53	68.60	0.39
Reach 1	7592			Bridge									
Reach 1	7569	Max WS	SHN_odorcntrl	3806.57	2737.54	2747.21		2748.31	0.001821	8.74	478.06	71.80	0.52
Reach 1	7569	Max WS	SHN_odorcntrl500	4047.93	2737.54	2747.64		2748.75	0.001729	8.79	508.93	71.80	0.51
Reach 1	7569	Max WS	SHN_odorcntrl50	3681.67	2737.54	2747.01		2748.10	0.001852	8.68	463.84	71.80	0.53
Reach 1	7569	Max WS	SHN_odorcntr10	3303.02	2737.54	2746.48		2747.51	0.001881	8.38	426.03	70.84	0.52
Reach 1	7336	Max WS	SHN_odorcntrl	3645.01	2737.57	2745.89		2747.03	0.002158	8.90	468.52	77.70	0.56
Reach 1	7336	Max WS	SHN_odorcntrl500	3960.53	2737.57	2746.37		2747.53	0.002045	9.01	505.58	77.70	0.55
Reach 1	7336	Max WS	SHN_odorcntrl50	3500.73	2737.57	2745.68		2746.81	0.002206	8.83	451.96	77.70	0.57
Reach 1	7336	Max WS	SHN_odorcntr10	3114.02	2737.57	2745.13		2746.20	0.002311	8.59	408.99	77.70	0.57
Reach 1	6946	Max WS	SHN_odorcntrl	3580.34	2735.75	2745.28		2746.32	0.001581	8.56	468.63	70.63	0.50
Reach 1	6946	Max WS	SHN_odorcntrl500	3931.47	2735.75	2745.77		2746.86	0.001558	8.80	503.25	70.63	0.50
Reach 1	6946	Max WS	SHN_odorcntrl50	3423.71	2735.75	2745.05		2746.07	0.001593	8.45	452.68	70.63	0.50
Reach 1	6946	Max WS	SHN_odorcntr10	3026.87	2735.75	2744.45		2745.41	0.001632	8.16	410.02	70.63	0.50
Reach 1	6640	Max WS	SHN_odorcntrl	3819.34	2734.45	2744.74		2745.60	0.001222	7.82	548.08	70.90	0.44
Reach 1	6640	Max WS	SHN_odorcntrl500	4187.03	2734.45	2745.22		2746.13	0.001229	8.10	581.76	70.90	0.45
Reach 1	6640	Max WS	SHN_odorcntrl50	3648.39	2734.45	2744.52		2745.35	0.001215	7.68	532.48	70.90	0.44
Reach 1	6640	Max WS	SHN_odorcntr10	3195.15	2734.45	2743.91		2744.66	0.001197	7.30	489.18	70.90	0.43
Reach 1	6295	Max WS	SHN_odorcntrl	3898.56	2732.82	2744.50		2745.49	0.001254	8.65	529.05	61.60	0.46
Reach 1	6295	Max WS	SHN_odorcntrl500	4216.63	2732.82	2744.96		2746.01	0.001258	8.90	557.50	61.60	0.46
Reach 1	6295	Max WS	SHN_odorcntrl50	3747.08	2732.82	2744.29		2745.25	0.001246	8.51	515.98	61.60	0.45
Reach 1	6295	Max WS	SHN_odorcntr10	3322.70	2732.82	2743.70		2744.58	0.001209	8.09	480.13	61.60	0.44

HEC-RAS River: MoffettCreek Reach: Reach 1 Profile: Max WS (Continued)

Reach	River Sta	Profile	Plan	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach 1	6000	Max WS	SHN_odorcntrl	4481.93	2731.88	2744.01	2740.02	2744.94	0.001110	8.29	616.46	69.40	0.43
Reach 1	6000	Max WS	SHN_odorcntrl500	4718.82	2731.88	2744.48	2740.29	2745.40	0.001054	8.29	648.87	69.40	0.42
Reach 1	6000	Max WS	SHN_odorcntrl50	4352.16	2731.88	2743.80	2739.83	2744.72	0.001125	8.24	601.89	69.40	0.43
Reach 1	6000	Max WS	SHN_odorcntr10	3935.66	2731.88	2743.24	2739.36	2744.10	0.001123	7.97	562.88	69.40	0.43
Reach 1	5970			Bridge									
Reach 1	5940	Max WS	SHN_odorcntrl	4481.96	2732.09	2740.96		2742.48	0.002580	10.46	478.40	74.69	0.63
Reach 1	5940	Max WS	SHN_odorcntrl500	4718.83	2732.09	2741.30		2742.82	0.002460	10.48	503.94	75.64	0.62
Reach 1	5940	Max WS	SHN_odorcntrl50	4352.22	2732.09	2740.79		2742.29	0.002613	10.39	465.95	71.98	0.63
Reach 1	5940	Max WS	SHN_odorcntr10	3935.49	2732.09	2740.25		2741.69	0.002712	10.12	428.55	68.48	0.64
Reach 1	5928	Max WS	SHN_odorcntrl	4503.89	2730.63	2740.50		2741.96	0.002255	10.17	492.22	70.92	0.59
Reach 1	5928	Max WS	SHN_odorcntrl500	4743.05	2730.63	2740.84		2742.32	0.002173	10.23	516.92	71.46	0.59
Reach 1	5928	Max WS	SHN_odorcntrl50	4372.27	2730.63	2740.33		2741.77	0.002278	10.09	480.25	70.66	0.59
Reach 1	5928	Max WS	SHN_odorcntr10	3946.64	2730.63	2739.78		2741.16	0.002343	9.82	442.50	67.94	0.60
Reach 1	5714	Max WS	SHN_odorcntrl	4687.36	2730.73	2739.54		2741.38	0.003086	11.36	471.80	74.02	0.69
Reach 1	5714	Max WS	SHN_odorcntrl500	4956.05	2730.73	2739.88		2741.74	0.002992	11.47	496.89	74.94	0.68
Reach 1	5714	Max WS	SHN_odorcntrl50	4536.33	2730.73	2739.38		2741.18	0.003098	11.24	460.05	73.55	0.69
Reach 1	5714	Max WS	SHN_odorcntr10	4032.85	2730.73	2738.84		2740.52	0.003135	10.81	420.58	71.59	0.68
Reach 1	5318	Max WS	SHN_odorcntrl	4473.95	2728.39	2738.25		2740.13	0.002993	11.68	442.29	70.58	0.68
Reach 1	5318	Max WS	SHN_odorcntrl500	4640.59	2728.39	2738.60		2740.45	0.002796	11.58	468.50	76.10	0.66
Reach 1	5318	Max WS	SHN_odorcntrl50	4379.38	2728.39	2738.10		2739.98	0.003050	11.66	431.86	69.26	0.69
Reach 1	5318	Max WS	SHN_odorcntr10	4006.64	2728.39	2737.59		2739.39	0.003126	11.36	398.19	63.18	0.69
Reach 1	4849	Max WS	SHN_odorcntrl	3785.67	2725.94	2736.89		2738.08	0.001683	9.60	456.55	55.10	0.52
Reach 1	4849	Max WS	SHN_odorcntrl500	4144.68	2725.94	2737.42		2738.68	0.001668	9.88	485.65	55.10	0.53
Reach 1	4849	Max WS	SHN_odorcntrl50	3622.67	2725.94	2736.68		2737.83	0.001667	9.42	445.04	55.10	0.52
Reach 1	4849	Max WS	SHN_odorcntr10	3399.16	2725.94	2736.08		2737.27	0.001861	9.56	411.65	55.10	0.54
Reach 1	4776	Max WS	SHN_odorcntrl	3521.95	2726.82	2736.68	2732.88	2737.35	0.002405	6.67	553.68	74.58	0.40
Reach 1	4776	Max WS	SHN_odorcntrl500	3821.81	2726.82	2737.14	2733.16	2737.85	0.002348	6.83	588.58	74.58	0.40
Reach 1	4776	Max WS	SHN_odorcntrl50	3372.38	2726.82	2736.49	2732.74	2737.14	0.002379	6.54	540.10	74.58	0.40
Reach 1	4776	Max WS	SHN_odorcntr10	3235.58	2726.82	2735.81	2732.62	2736.54	0.002954	6.88	489.34	73.96	0.44
Reach 1	4741			Bridge									
Reach 1	4718	Max WS	SHN_odorcntrl	3522.01	2724.47	2734.87		2735.69	0.001299	7.32	495.09	63.54	0.44
Reach 1	4718	Max WS	SHN_odorcntrl500	3821.59	2724.47	2735.66		2736.46	0.001134	7.25	545.64	64.42	0.41
Reach 1	4718	Max WS	SHN_odorcntrl50	3372.20	2724.47	2734.53		2735.35	0.001362	7.31	473.93	63.17	0.44
Reach 1	4718	Max WS	SHN_odorcntr10	3235.51	2724.47	2733.70		2734.64	0.001793	7.83	421.76	61.80	0.50

HEC-RAS River: MoffettCreek Reach: Reach 1 Profile: Max WS (Continued)

Reach	River Sta	Profile	Plan	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach 1	4666	Max WS	SHN_odorcntrl	3888.85	2723.83	2734.64		2735.67	0.001612	9.16	503.80	66.95	0.51
Reach 1	4666	Max WS	SHN_odorcntrl500	4302.72	2723.83	2735.49		2736.50	0.001426	9.09	562.16	69.30	0.48
Reach 1	4666	Max WS	SHN_odorcntrl50	3689.37	2723.83	2734.27		2735.30	0.001684	9.14	479.68	65.90	0.52
Reach 1	4666	Max WS	SHN_odorcntr10	3425.16	2723.83	2733.36		2734.52	0.002136	9.64	420.54	63.88	0.57
Reach 1	4472	Max WS	SHN_odorcntrl	4812.02	2721.90	2734.09		2735.25	0.001559	9.73	579.79	66.70	0.51
Reach 1	4472	Max WS	SHN_odorcntrl500	5340.84	2721.90	2734.94		2736.12	0.001448	9.84	636.34	66.70	0.49
Reach 1	4472	Max WS	SHN_odorcntrl50	4538.46	2721.90	2733.74		2734.87	0.001570	9.57	556.37	66.70	0.51
Reach 1	4472	Max WS	SHN_odorcntr10	4007.38	2721.90	2732.82		2733.93	0.001737	9.50	494.73	66.70	0.52
Reach 1	4196	Max WS	SHN_odorcntrl	5781.98	2721.38	2733.52		2734.90	0.001632	10.10	661.80	76.10	0.52
Reach 1	4196	Max WS	SHN_odorcntrl500	6350.27	2721.38	2734.34		2735.73	0.001510	10.17	724.29	76.10	0.51
Reach 1	4196	Max WS	SHN_odorcntrl50	5443.10	2721.38	2733.21		2734.52	0.001610	9.85	637.91	76.10	0.52
Reach 1	4196	Max WS	SHN_odorcntr10	4668.69	2721.38	2732.40		2733.58	0.001587	9.30	576.41	76.10	0.51
Reach 1	3794	Max WS	SHN_odorcntrl	6501.02	2719.18	2732.81		2733.73	0.000997	8.40	886.81	86.30	0.42
Reach 1	3794	Max WS	SHN_odorcntrl500	6685.01	2719.18	2733.72		2734.54	0.000809	7.93	965.87	86.30	0.38
Reach 1	3794	Max WS	SHN_odorcntrl50	6098.18	2719.18	2732.53		2733.38	0.000957	8.11	862.46	86.30	0.41
Reach 1	3794	Max WS	SHN_odorcntr10	5028.84	2719.18	2731.87		2732.54	0.000804	7.16	805.51	86.30	0.37
Reach 1	3742	Max WS	SHN_odorcntrl	7132.01	2718.70	2732.75	2727.72	2733.62	0.000894	7.89	1047.01	114.58	0.39
Reach 1	3742	Max WS	SHN_odorcntrl500	7175.89	2718.70	2733.72	2727.75	2734.44	0.000677	7.21	1158.17	114.58	0.35
Reach 1	3742	Max WS	SHN_odorcntrl50	6660.17	2718.70	2732.48	2727.35	2733.28	0.000850	7.58	1015.85	114.58	0.38
Reach 1	3742	Max WS	SHN_odorcntr10	5337.60	2718.70	2731.87	2726.43	2732.46	0.000668	6.49	945.27	114.58	0.34
Reach 1	3680			Bridge									
Reach 1	3649	Max WS	SHN_odorcntrl	7132.10	2718.74	2730.86		2733.19	0.003082	12.58	620.50	89.03	0.68
Reach 1	3649	Max WS	SHN_odorcntrl500	7175.78	2718.74	2731.39		2733.45	0.002571	11.88	667.97	89.03	0.63
Reach 1	3649	Max WS	SHN_odorcntrl50	6660.30	2718.74	2730.57		2732.77	0.002995	12.18	594.79	89.03	0.67
Reach 1	3649	Max WS	SHN_odorcntr10	5337.49	2718.74	2729.74		2731.47	0.002615	10.75	529.80	73.67	0.62
Reach 1	3525	Max WS	SHN_odorcntrl	7082.43	2717.75	2730.06		2731.20	0.001424	8.99	876.19	106.90	0.49
Reach 1	3525	Max WS	SHN_odorcntrl500	7219.39	2717.75	2730.58		2731.63	0.001235	8.64	931.68	106.90	0.46
Reach 1	3525	Max WS	SHN_odorcntrl50	6600.15	2717.75	2729.80		2730.85	0.001360	8.64	847.96	106.90	0.47
Reach 1	3525	Max WS	SHN_odorcntr10	5285.22	2717.75	2729.01		2729.83	0.001177	7.63	764.96	103.00	0.43
Reach 1	3090	Max WS	SHN_odorcntrl	7292.38	2716.75	2730.06		2731.25	0.001350	9.41	913.80	101.50	0.48
Reach 1	3090	Max WS	SHN_odorcntrl500	7793.93	2716.75	2730.58		2731.80	0.001311	9.54	966.48	101.50	0.47
Reach 1	3090	Max WS	SHN_odorcntrl50	6852.27	2716.75	2729.80		2730.91	0.001299	9.09	886.98	101.50	0.47
Reach 1	3090	Max WS	SHN_odorcntr10	5736.83	2716.75	2729.01		2729.95	0.001194	8.32	806.82	101.50	0.44
Reach 1	2940	Max WS	SHN_odorcntrl	7284.40	2716.34	2729.68	2725.00	2730.41	0.000810	7.45	1149.15	130.60	0.37
Reach 1	2940	Max WS	SHN_odorcntrl500	7681.29	2716.34	2730.14	2725.23	2730.87	0.000778	7.48	1209.38	130.60	0.37
Reach 1	2940	Max WS	SHN_odorcntrl50	6991.24	2716.34	2729.43	2724.84	2730.14	0.000811	7.35	1115.74	130.60	0.37

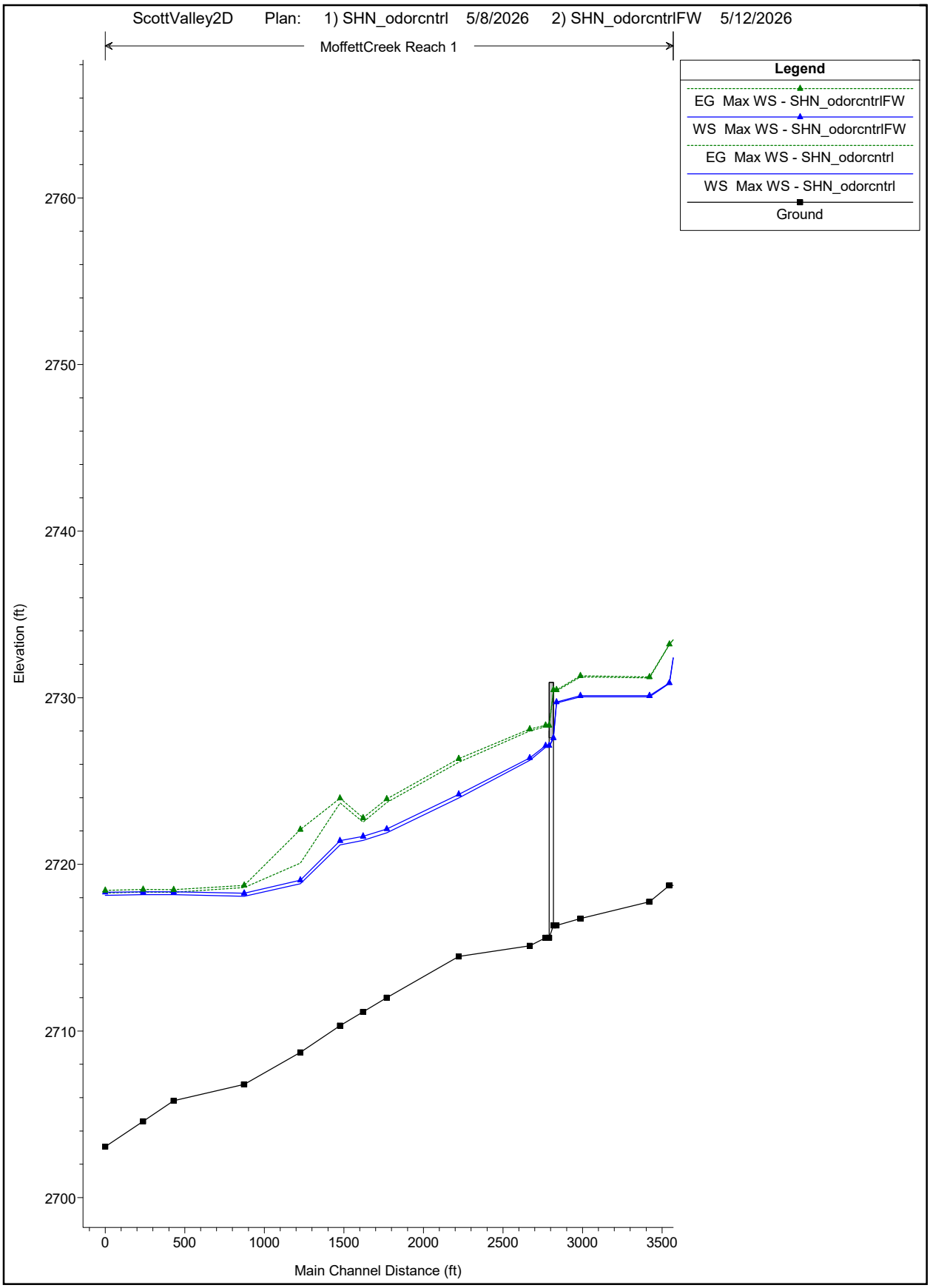
HEC-RAS River: MoffettCreek Reach: Reach 1 Profile: Max WS (Continued)

Reach	River Sta	Profile	Plan	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach 1	2940	Max WS	SHN_odorcntr10	6264.72	2716.34	2728.63	2724.38	2729.32	0.000857	7.22	1011.25	130.60	0.38
Reach 1	2901			Bridge									
Reach 1	2871	Max WS	SHN_odorcntrl	7284.16	2715.59	2727.02		2728.26	0.001792	10.14	873.56	127.70	0.54
Reach 1	2871	Max WS	SHN_odorcntrl500	7681.42	2715.59	2727.53		2728.72	0.001629	9.97	938.82	127.70	0.52
Reach 1	2871	Max WS	SHN_odorcntrl50	6991.27	2715.59	2726.74		2727.98	0.001853	10.13	837.55	127.70	0.55
Reach 1	2871	Max WS	SHN_odorcntr10	6264.87	2715.59	2725.97		2727.21	0.002009	10.03	745.17	110.13	0.56
Reach 1	2771	Max WS	SHN_odorcntrl	7274.12	2715.11	2726.25		2728.01	0.002662	11.57	721.91	95.73	0.65
Reach 1	2771	Max WS	SHN_odorcntrl500	7658.88	2715.11	2726.84		2728.53	0.002387	11.39	779.47	99.20	0.62
Reach 1	2771	Max WS	SHN_odorcntrl50	7009.57	2715.11	2725.93		2727.71	0.002793	11.60	691.87	95.00	0.66
Reach 1	2771	Max WS	SHN_odorcntr10	6329.86	2715.11	2725.11		2726.94	0.003198	11.70	614.65	93.22	0.70
Reach 1	2325	Max WS	SHN_odorcntrl	7999.18	2714.47	2723.98		2726.13	0.003552	12.79	706.46	97.50	0.75
Reach 1	2325	Max WS	SHN_odorcntrl500	8851.43	2714.47	2724.76		2726.90	0.003179	12.78	782.23	97.50	0.72
Reach 1	2325	Max WS	SHN_odorcntrl50	7551.29	2714.47	2723.58		2725.73	0.003764	12.78	667.56	97.50	0.76
Reach 1	2325	Max WS	SHN_odorcntr10	6399.40	2714.47	2722.53		2724.69	0.004475	12.78	566.29	94.55	0.82
Reach 1	1873	Max WS	SHN_odorcntrl	9897.40	2712.00	2721.89		2723.71	0.003130	11.92	1166.30	198.72	0.70
Reach 1	1873	Max WS	SHN_odorcntrl500	11785.26	2712.00	2722.76		2724.72	0.003071	12.55	1339.42	201.00	0.70
Reach 1	1873	Max WS	SHN_odorcntrl50	8930.02	2712.00	2721.42		2723.16	0.003174	11.58	1072.76	195.58	0.70
Reach 1	1873	Max WS	SHN_odorcntr10	6698.40	2712.00	2720.14		2721.75	0.003470	10.86	824.05	192.28	0.71
Reach 1	1723	Max WS	SHN_odorcntrl	10468.93	2711.14	2721.44		2722.53	0.004042	9.94	1527.51	256.19	0.58
Reach 1	1723	Max WS	SHN_odorcntrl500	9850.52	2711.14	2722.57		2723.24	0.002156	7.85	1822.11	261.96	0.43
Reach 1	1723	Max WS	SHN_odorcntrl50	9430.29	2711.14	2720.97		2722.03	0.004129	9.69	1408.39	253.88	0.58
Reach 1	1723	Max WS	SHN_odorcntr10	6772.49	2711.14	2719.62		2720.60	0.004537	9.06	1070.65	245.81	0.59
Reach 1	1579	Max WS	SHN_odorcntrl	10468.91	2710.32	2721.17	2720.67	2723.68	0.005854	13.89	1064.91	197.53	0.78
Reach 1	1579	Max WS	SHN_odorcntrl500	9970.59	2710.32	2722.41		2723.91	0.003151	11.03	1311.08	199.30	0.58
Reach 1	1579	Max WS	SHN_odorcntrl50	9430.23	2710.32	2720.68	2720.38	2723.09	0.005889	13.46	969.35	189.93	0.78
Reach 1	1579	Max WS	SHN_odorcntr10	6772.46	2710.32	2719.29	2719.03	2721.42	0.006066	12.27	712.64	178.47	0.77
Reach 1	1329	Max WS	SHN_odorcntrl	6843.47	2708.72	2718.83		2720.08	0.002115	9.38	817.43	130.24	0.57
Reach 1	1329	Max WS	SHN_odorcntrl500	10712.87	2708.72	2721.10		2722.78	0.002159	11.10	1139.31	150.30	0.60
Reach 1	1329	Max WS	SHN_odorcntrl50	9445.95	2708.72	2718.29	2717.86	2721.08	0.005132	13.98	747.84	123.77	0.87
Reach 1	1329	Max WS	SHN_odorcntr10	6775.75	2708.72	2716.82	2716.52	2719.17	0.005518	12.67	576.84	112.38	0.88
Reach 1	976	Max WS	SHN_odorcntrl	9044.61	2706.79	2718.08		2718.61	0.001002	6.92	1676.61	286.37	0.40
Reach 1	976	Max WS	SHN_odorcntrl500	14803.69	2706.79	2719.98		2720.74	0.001118	8.26	2238.29	299.20	0.43
Reach 1	976	Max WS	SHN_odorcntrl50	7113.07	2706.79	2717.15		2717.63	0.001032	6.56	1412.67	282.01	0.40
Reach 1	976	Max WS	SHN_odorcntr10	7084.61	2706.79	2714.17	2714.34	2716.14	0.006665	12.49	675.10	180.80	0.94
Reach 1	533	Max WS	SHN_odorcntrl	9318.84	2705.81	2718.18		2718.33	0.000178	3.15	3151.70	348.88	0.17

HEC-RAS River: MoffettCreek Reach: Reach 1 Profile: Max WS (Continued)

Reach	River Sta	Profile	Plan	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach 1	533	Max WS	SHN_odorcntrl500	15529.17	2705.81	2720.13		2720.40	0.000266	4.31	3835.76	354.10	0.22
Reach 1	533	Max WS	SHN_odorcntrl50	7205.56	2705.81	2717.25		2717.35	0.000148	2.70	2827.97	340.04	0.15
Reach 1	533	Max WS	SHN_odorcntr10	1841.69	2705.81	2714.14		2714.15	0.000040	1.08	1796.38	321.21	0.07
Reach 1	341	Max WS	SHN_odorcntrl	9330.03	2704.57	2718.18		2718.33	0.000162	3.23	3085.23	304.10	0.17
Reach 1	341	Max WS	SHN_odorcntrl500	15578.68	2704.57	2720.13		2720.43	0.000258	4.52	3677.62	304.10	0.22
Reach 1	341	Max WS	SHN_odorcntrl50	7203.85	2704.57	2717.25		2717.35	0.000127	2.72	2804.37	294.49	0.15
Reach 1	341	Max WS	SHN_odorcntr10	1841.68	2704.57	2714.14		2714.15	0.000027	1.00	1926.63	276.32	0.06
Reach 1	103	Max WS	SHN_odorcntrl	11224.35	2703.05	2718.14		2718.28	0.000128	3.09	3925.31	357.10	0.15
Reach 1	103	Max WS	SHN_odorcntrl500	17905.89	2703.05	2720.05		2720.30	0.000198	4.21	4606.29	357.10	0.19
Reach 1	103	Max WS	SHN_odorcntrl50	8810.66	2703.05	2717.22		2717.32	0.000104	2.65	3594.63	357.10	0.13
Reach 1	103	Max WS	SHN_odorcntr10	2410.46	2703.05	2714.14		2714.15	0.000023	1.03	2494.03	357.10	0.06

Appendix 5. Encroachment Profiles and Tables


ScottValley2D Plan: 1) SHN_odorcntrl 5/8/2026 2) SHN_odorcntrlFW 5/12/2026
MoffettCreek Reach 1
Legend
EG Max WS - SHN_odorcntrlFW
WS Max WS - SHN_odorcntrlFW
EG Max WS - SHN_odorcntrl
WS Max WS - SHN_odorcntrl
Ground
Elevation (ft)
2760
2750
2740
2730
2720
2710
2700
0
500
1000
1500
2000
2500
3000
3500
Main Channel Distance (ft)

HEC-RAS River: MoffettCreek Reach: Reach 1 Profile: Max WS

Reach	River Sta	Profile	Plan	W.S. Elev	Prof Delta WS	E.G. Elev	Top Wdth Act	Q Left	Q Channel	Q Right	Enc Sta L	Ch Sta L	Ch Sta R	Enc Sta R
				(ft)	(ft)	(ft)	(ft)	(cfs)	(cfs)	(cfs)	(ft)	(ft)	(ft)	(ft)
Reach 1	13995	Max WS	SHN_odorcntrl	2778.25		2778.64	85.40	422.97	2682.95	366.82		21.10	69.60	
Reach 1	13995	Max WS	SHN_odorcntrlFW	2778.25		2778.65	85.40	425.36	2697.86	368.89		21.10	69.60	
Reach 1	13993			Lat Struct										
Reach 1	13992			Lat Struct										
Reach 1	13979	Max WS	SHN_odorcntrl	2778.25		2778.66	78.10	455.63	2163.62	603.87		21.50	56.18	
Reach 1	13979	Max WS	SHN_odorcntrlFW	2778.25		2778.66	78.10	456.73	2168.63	605.30		21.50	56.18	
Reach 1	13837	Max WS	SHN_odorcntrl	2775.89		2776.57	63.70	355.62	2121.94	467.79		16.70	49.70	
Reach 1	13837	Max WS	SHN_odorcntrlFW	2775.88		2776.56	63.70	356.41	2127.70	469.01		16.70	49.70	
Reach 1	13541	Max WS	SHN_odorcntrl	2775.19		2777.11	63.90	334.81	4735.20	230.81		10.40	57.50	
Reach 1	13541	Max WS	SHN_odorcntrlFW	2775.18		2777.10	63.90	334.01	4726.90	230.36		10.40	57.50	
Reach 1	13211	Max WS	SHN_odorcntrl	2772.70		2774.70	70.90	498.98	3928.04	716.04		14.40	51.70	
Reach 1	13211	Max WS	SHN_odorcntrlFW	2772.70		2774.69	70.90	498.23	3924.39	715.22		14.40	51.70	
Reach 1	13110	Max WS	SHN_odorcntrl	2771.98		2773.87	89.40	495.46	5030.32	436.01		21.90	80.30	
Reach 1	13110	Max WS	SHN_odorcntrlFW	2771.98		2773.87	89.40	495.30	5029.29	435.85		21.90	80.30	
Reach 1	13005	Max WS	SHN_odorcntrl	2771.56		2772.89	106.40	5347.49	1307.63	211.17		83.60	100.10	
Reach 1	13005	Max WS	SHN_odorcntrlFW	2771.56		2772.89	106.40	5346.58	1307.45	211.14		83.60	100.10	
Reach 1	12776	Max WS	SHN_odorcntrl	2771.54		2772.88	119.90	6945.55	1643.76	439.51		90.40	108.40	
Reach 1	12776	Max WS	SHN_odorcntrlFW	2771.54		2772.87	119.90	6942.71	1643.14	439.31		90.40	108.40	
Reach 1	12673	Max WS	SHN_odorcntrl	2771.24		2774.41	100.30	1078.86	7341.40	491.68		39.70	91.60	
Reach 1	12673	Max WS	SHN_odorcntrlFW	2771.23		2774.41	100.30	1078.24	7337.82	491.37		39.70	91.60	
Reach 1	12473	Max WS	SHN_odorcntrl	2769.47		2771.87	100.30	4945.56	3639.17	555.58		58.50	90.30	
Reach 1	12473	Max WS	SHN_odorcntrlFW	2769.47		2771.87	100.30	4944.07	3638.08	555.41		58.50	90.30	
Reach 1	12272	Max WS	SHN_odorcntrl	2767.94		2769.84	144.29	7023.30	3076.46	381.09		102.10	134.90	
Reach 1	12272	Max WS	SHN_odorcntrlFW	2767.95		2769.84	144.29	7022.48	3075.98	381.04		102.10	134.90	
Reach 1	12107	Max WS	SHN_odorcntrl	2767.50		2769.49	121.50	2474.23	3471.58	4233.72		32.20	63.70	
Reach 1	12107	Max WS	SHN_odorcntrlFW	2767.50		2769.49	121.50	2475.05	3472.61	4235.15		32.20	63.70	
Reach 1	11948	Max WS	SHN_odorcntrl	2766.79		2769.28	90.06	365.64	3327.96	4868.74		6.50	36.90	
Reach 1	11948	Max WS	SHN_odorcntrlFW	2766.79		2769.28	90.06	365.65	3328.19	4869.25		6.50	36.90	
Reach 1	11652	Max WS	SHN_odorcntrl	2765.03		2767.48	91.00	3854.24	3968.26	366.17		47.60	83.40	
Reach 1	11652	Max WS	SHN_odorcntrlFW	2765.03		2767.48	91.00	3854.34	3968.37	366.18		47.60	83.40	
Reach 1	11560	Max WS	SHN_odorcntrl	2764.15		2766.78	116.80	5989.96	3470.51	336.20		79.60	109.60	
Reach 1	11560	Max WS	SHN_odorcntrlFW	2764.15		2766.78	116.80	5992.62	3471.87	336.36		79.60	109.60	
Reach 1	11494	Max WS	SHN_odorcntrl	2764.35		2766.06	157.10	7697.60	3271.79	402.80		116.40	148.10	
Reach 1	11494	Max WS	SHN_odorcntrlFW	2764.35		2766.07	157.10	7699.92	3272.62	402.92		116.40	148.10	
Reach 1	11371	Max WS	SHN_odorcntrl	2764.35		2766.63	135.27	6557.88	5570.49	245.59		78.60	122.20	
Reach 1	11371	Max WS	SHN_odorcntrlFW	2764.35		2766.63	135.27	6559.72	5571.78	245.72		78.60	122.20	
Reach 1	11197	Max WS	SHN_odorcntrl	2763.08		2765.19	157.50	6083.98	5891.45	754.41		79.50	136.80	
Reach 1	11197	Max WS	SHN_odorcntrlFW	2763.08		2765.19	157.50	6084.95	5892.27	754.61		79.50	136.80	
Reach 1	10500	Max WS	SHN_odorcntrl	2761.63		2763.46	194.30	3166.36	7267.42	1248.09		119.90	173.30	
Reach 1	10500	Max WS	SHN_odorcntrlFW	2761.63		2763.46	194.30	3167.67	7269.40	1248.62		119.90	173.30	
Reach 1	10376	Max WS	SHN_odorcntrl	2760.91		2764.01	109.88	2130.53	7726.93	506.21		53.20	100.60	
Reach 1	10376	Max WS	SHN_odorcntrlFW	2760.91		2764.01	109.88	2131.22	7728.58	506.37		53.20	100.60	
Reach 1	10107	Max WS	SHN_odorcntrl	2758.06		2760.62	158.20	1236.52	7931.19	401.03		74.30	142.20	
Reach 1	10107	Max WS	SHN_odorcntrlFW	2758.06		2760.62	158.20	1236.95	7932.78	401.20		74.30	142.20	
Reach 1	9806	Max WS	SHN_odorcntrl	2757.12		2758.54	151.92	4733.34	4424.81	320.38		93.20	138.10	
Reach 1	9806	Max WS	SHN_odorcntrlFW	2757.12		2758.54	151.92	4734.73	4425.86	320.52		93.20	138.10	
Reach 1	9623	Max WS	SHN_odorcntrl	2756.61		2758.43	113.40	1663.02	7043.79	212.26		38.40	104.70	
Reach 1	9623	Max WS	SHN_odorcntrlFW	2756.61		2758.43	113.40	1663.59	7045.56	212.34		38.40	104.70	
Reach 1	9360	Max WS	SHN_odorcntrl	2755.55		2757.48	101.97	4987.25	2184.90	1079.57		65.90	82.00	
Reach 1	9360	Max WS	SHN_odorcntrlFW	2755.55		2757.48	101.97	4988.30	2185.36	1079.80		65.90	82.00	
Reach 1	9167	Max WS	SHN_odorcntrl	2754.66		2757.03	90.93	377.24	6325.93	1008.33		18.30	67.50	
Reach 1	9167	Max WS	SHN_odorcntrlFW	2754.66		2757.03	90.93	377.36	6326.91	1008.63		18.30	67.50	
Reach 1	8834	Max WS	SHN_odorcntrl	2753.34		2756.37	75.13	449.70	5751.45	859.32		18.70	56.80	
Reach 1	8834	Max WS	SHN_odorcntrlFW	2753.34		2756.37	75.13	449.93	5752.45	859.59		18.70	56.80	
Reach 1	8488	Max WS	SHN_odorcntrl	2751.38		2754.04	78.63	499.57	5354.87	575.09		24.60	66.40	
Reach 1	8488	Max WS	SHN_odorcntrlFW	2751.38		2754.04	78.66	499.75	5355.92	575.30		24.60	66.40	
Reach 1	8118	Max WS	SHN_odorcntrl	2750.02		2752.44	73.52	260.21	5496.31	336.17		13.10	61.30	
Reach 1	8118	Max WS	SHN_odorcntrlFW	2750.02		2752.44	73.52	260.35	5497.16	336.29		13.10	61.30	
Reach 1	7783	Max WS	SHN_odorcntrl	2749.32		2750.11	90.40	749.21	3992.15	208.70		24.30	80.90	
Reach 1	7783	Max WS	SHN_odorcntrlFW	2749.33		2750.11	90.40	749.38	3992.63	208.74		24.30	80.90	
Reach 1	7615	Max WS	SHN_odorcntrl	2749.32		2750.07	68.60	84.15	3558.76	163.67		10.00	59.15	
Reach 1	7615	Max WS	SHN_odorcntrlFW	2749.33		2750.07	68.60	84.18	3559.10	163.71		10.00	59.15	

HEC-RAS River: MoffettCreek Reach: Reach 1 Profile: Max WS (Continued)

Reach	River Sta	Profile	Plan	W.S. Elev	Prof Delta WS	E.G. Elev	Top Wdth Act	Q Left	Q Channel	Q Right	Enc Sta L	Ch Sta L	Ch Sta R	Enc Sta R
				(ft)	(ft)	(ft)	(ft)	(cfs)	(cfs)	(cfs)	(ft)	(ft)	(ft)	(ft)
Reach 1	7592 BR U	Max WS	SHN_odorcntrl	2748.96		2749.77	20.60	62.18	3673.42	70.95		10.00	59.15	
Reach 1	7592 BR U	Max WS	SHN_odorcntrlFW	2748.96		2749.77	20.60	62.19	3673.77	70.97		10.00	59.15	
Reach 1	7592 BR D	Max WS	SHN_odorcntrl	2748.96		2749.59	23.80	139.36	3596.24	70.95		13.67	59.62	
Reach 1	7592 BR D	Max WS	SHN_odorcntrlFW	2748.96		2749.59	23.80	139.38	3596.58	70.97		13.67	59.62	
Reach 1	7569	Max WS	SHN_odorcntrl	2747.21		2748.31	71.80	117.39	3487.69	201.49		13.67	59.62	
Reach 1	7569	Max WS	SHN_odorcntrlFW	2747.21		2748.31	71.80	117.40	3488.11	201.51		13.67	59.62	
Reach 1	7336	Max WS	SHN_odorcntrl	2745.89		2747.03	77.70	125.79	3324.37	194.85		14.30	62.50	
Reach 1	7336	Max WS	SHN_odorcntrlFW	2745.89		2747.03	77.70	125.85	3324.62	194.89		14.30	62.50	
Reach 1	6946	Max WS	SHN_odorcntrl	2745.28		2746.32	70.63	156.72	3173.85	249.77		14.70	55.00	
Reach 1	6946	Max WS	SHN_odorcntrlFW	2745.28		2746.32	70.63	156.74	3174.27	249.80		14.70	55.00	
Reach 1	6640	Max WS	SHN_odorcntrl	2744.74		2745.60	70.90	251.02	3254.26	314.07		13.30	56.00	
Reach 1	6640	Max WS	SHN_odorcntrlFW	2744.75		2745.60	70.90	251.09	3254.63	314.15		13.30	56.00	
Reach 1	6295	Max WS	SHN_odorcntrl	2744.50		2745.49	61.60	408.68	3106.87	383.01		15.40	47.50	
Reach 1	6295	Max WS	SHN_odorcntrlFW	2744.50		2745.49	61.60	408.76	3107.20	383.09		15.40	47.50	
Reach 1	6000	Max WS	SHN_odorcntrl	2744.01		2744.94	69.40	683.60	3512.40	285.92		20.09	56.42	
Reach 1	6000	Max WS	SHN_odorcntrlFW	2744.01		2744.94	69.40	683.71	3512.61	285.99		20.09	56.42	
Reach 1	5970 BR U	Max WS	SHN_odorcntrl	2744.00		2744.92		506.84	3778.37	196.92		20.09	56.42	
Reach 1	5970 BR U	Max WS	SHN_odorcntrlFW	2744.00		2744.92		506.89	3778.67	196.95		20.09	56.42	
Reach 1	5970 BR D	Max WS	SHN_odorcntrl	2744.00		2744.55		374.04	3721.68	386.42		17.10	59.30	
Reach 1	5970 BR D	Max WS	SHN_odorcntrlFW	2744.00		2744.55		374.07	3721.97	386.46		17.10	59.30	
Reach 1	5940	Max WS	SHN_odorcntrl	2740.96		2742.48	74.69	363.55	3753.34	365.06		17.10	59.30	
Reach 1	5940	Max WS	SHN_odorcntrlFW	2740.96		2742.48	74.69	363.60	3753.53	365.18		17.10	59.30	
Reach 1	5928	Max WS	SHN_odorcntrl	2740.50		2741.96	70.92	234.50	3938.17	331.23		17.10	59.40	
Reach 1	5928	Max WS	SHN_odorcntrlFW	2740.50		2741.96	70.92	234.52	3938.50	331.26		17.10	59.40	
Reach 1	5714	Max WS	SHN_odorcntrl	2739.54		2741.38	74.02	222.68	4201.10	263.58		19.00	62.50	
Reach 1	5714	Max WS	SHN_odorcntrlFW	2739.54		2741.38	74.03	222.73	4201.45	263.66		19.00	62.50	
Reach 1	5318	Max WS	SHN_odorcntrl	2738.25		2740.13	70.58	235.40	3827.03	411.52		20.10	56.00	
Reach 1	5318	Max WS	SHN_odorcntrlFW	2738.25		2740.13	70.60	235.38	3827.17	411.64		20.10	56.00	
Reach 1	4849	Max WS	SHN_odorcntrl	2736.89		2738.08	55.10	627.13	2703.24	455.30		14.60	41.70	
Reach 1	4849	Max WS	SHN_odorcntrlFW	2736.89		2738.09	55.10	627.21	2703.56	455.35		14.60	41.70	
Reach 1	4776	Max WS	SHN_odorcntrl	2736.68		2737.35	74.58	37.42	3405.62	78.91		7.25	66.98	
Reach 1	4776	Max WS	SHN_odorcntrlFW	2736.68		2737.35	74.58	37.43	3406.08	78.95		7.25	66.98	
Reach 1	4741 BR U	Max WS	SHN_odorcntrl	2736.67		2737.35		3.97	3517.96			7.25	66.98	
Reach 1	4741 BR U	Max WS	SHN_odorcntrlFW	2736.68		2737.35		4.04	3518.45			7.25	66.98	
Reach 1	4741 BR D	Max WS	SHN_odorcntrl	2736.67		2737.30		3.97	3465.93	52.03		8.17	61.87	
Reach 1	4741 BR D	Max WS	SHN_odorcntrlFW	2736.68		2737.30		4.04	3466.41	52.03		8.17	61.87	
Reach 1	4718	Max WS	SHN_odorcntrl	2734.87		2735.69	63.54	9.43	3450.95	61.63		8.17	61.87	
Reach 1	4718	Max WS	SHN_odorcntrlFW	2734.87		2735.69	63.54	9.43	3451.23	61.65		8.17	61.87	
Reach 1	4666	Max WS	SHN_odorcntrl	2734.64		2735.67	66.95	1320.45	2224.15	344.26		30.80	54.80	
Reach 1	4666	Max WS	SHN_odorcntrlFW	2734.64		2735.67	66.95	1320.69	2224.42	344.35		30.80	54.80	
Reach 1	4472	Max WS	SHN_odorcntrl	2734.09		2735.25	66.70	2188.20	2268.68	355.13		33.70	54.00	
Reach 1	4472	Max WS	SHN_odorcntrlFW	2734.09		2735.26	66.70	2188.57	2268.89	355.26		33.70	54.00	
Reach 1	4196	Max WS	SHN_odorcntrl	2733.52		2734.90	76.10	580.04	4696.90	505.04		15.80	56.00	
Reach 1	4196	Max WS	SHN_odorcntrlFW	2733.52		2734.90	76.10	580.22	4697.54	505.27		15.80	56.00	
Reach 1	3794	Max WS	SHN_odorcntrl	2732.81		2733.73	86.30	610.63	4635.64	1254.75		12.40	56.20	
Reach 1	3794	Max WS	SHN_odorcntrlFW	2732.81		2733.73	86.30	610.83	4636.57	1255.16		12.40	56.20	
Reach 1	3742	Max WS	SHN_odorcntrl	2732.75		2733.62	114.58	311.46	6120.08	700.47		9.15	71.26	
Reach 1	3742	Max WS	SHN_odorcntrlFW	2732.76		2733.62	114.58	311.60	6122.44	701.08		9.15	71.26	
Reach 1	3680 BR U	Max WS	SHN_odorcntrl	2732.75		2733.62		10.03	6783.34	339.13		9.15	71.26	
Reach 1	3680 BR U	Max WS	SHN_odorcntrlFW	2732.76		2733.62		10.07	6787.67	339.29		9.15	71.26	
Reach 1	3680 BR D	Max WS	SHN_odorcntrl	2732.75		2733.55		238.03	6778.48	115.99		15.20	65.65	
Reach 1	3680 BR D	Max WS	SHN_odorcntrlFW	2732.76		2733.55		238.17	6782.81	116.05		15.20	65.65	
Reach 1	3649	Max WS	SHN_odorcntrl	2730.86		2733.19	89.03	360.94	6670.30	100.86		15.20	65.65	
Reach 1	3649	Max WS	SHN_odorcntrlFW	2730.89		2733.21	89.03	363.19	6668.36	103.83		15.20	65.65	
Reach 1	3525	Max WS	SHN_odorcntrl	2730.06		2731.20	106.90	711.67	6082.23	288.54		27.20	90.70	
Reach 1	3525	Max WS	SHN_odorcntrlFW	2730.12		2731.24	106.90	717.10	6070.87	290.93		27.20	90.70	
Reach 1	3090	Max WS	SHN_odorcntrl	2730.06		2731.25	101.50	366.07	5998.64	927.67		12.50	65.50	
Reach 1	3090	Max WS	SHN_odorcntrlFW	2730.12		2731.31	101.50	370.03	6026.62	940.08		12.50	65.50	
Reach 1	2940	Max WS	SHN_odorcntrl	2729.68		2730.41	130.60	613.14	5583.66	1087.61		25.33	85.96	
Reach 1	2940	Max WS	SHN_odorcntrlFW	2729.74		2730.47	130.60	621.23	5624.87	1103.37		25.33	85.96	
Reach 1	2901 BR U	Max WS	SHN_odorcntrl	2727.59		2730.41		461.32	5916.81	906.27		25.33	85.96	
Reach 1	2901 BR U	Max WS	SHN_odorcntrlFW	2727.59		2730.46		465.44	5969.66	914.37		25.33	85.96	

HEC-RAS River: MoffettCreek Reach: Reach 1 Profile: Max WS (Continued)

Reach	River Sta	Profile	Plan	W.S. Elev	Prof Delta WS	E.G. Elev	Top Wdth Act	Q Left	Q Channel	Q Right	Enc Sta L	Ch Sta L	Ch Sta R	Enc Sta R
				(ft)	(ft)	(ft)	(ft)	(cfs)	(cfs)	(cfs)	(ft)	(ft)	(ft)	(ft)
Reach 1	2901 BR D	Max WS	SHN_odorcntrl	2727.02		2728.26	50.16	514.66	3836.45	2933.29		26.22	65.83	
Reach 1	2901 BR D	Max WS	SHN_odorcntrlFW	2727.13		2728.35	37.48	540.13	4026.29	2783.06		26.22	65.83	
Reach 1	2871	Max WS	SHN_odorcntrl	2727.02		2728.26	127.70	500.80	4358.10	2425.26		26.22	65.83	
Reach 1	2871	Max WS	SHN_odorcntrlFW	2727.13		2728.35	127.70	511.28	4374.45	2463.39		26.22	65.83	
Reach 1	2771	Max WS	SHN_odorcntrl	2726.25		2728.01	95.73	219.34	5177.92	1876.87		12.30	57.30	
Reach 1	2771	Max WS	SHN_odorcntrlFW	2726.38		2728.11	96.04	225.58	5205.87	1904.64		12.30	57.30	
Reach 1	2325	Max WS	SHN_odorcntrl	2723.98		2726.13	97.50	2299.88	5153.98	545.32		37.70	82.10	
Reach 1	2325	Max WS	SHN_odorcntrlFW	2724.19		2726.34	97.50	2386.80	5275.54	572.46		37.70	82.10	
Reach 1	1873	Max WS	SHN_odorcntrl	2721.89		2723.71	198.72	306.16	7898.49	1692.75		17.00	90.70	
Reach 1	1873	Max WS	SHN_odorcntrlFW	2722.11		2723.93	201.00	323.20	8102.17	1812.81		17.00	90.70	
Reach 1	1723	Max WS	SHN_odorcntrl	2721.44		2722.53	256.19	378.38	6717.54	3373.01		35.60	110.50	
Reach 1	1723	Max WS	SHN_odorcntrlFW	2721.69		2722.79	257.41	413.67	6961.48	3620.20		35.60	110.50	
Reach 1	1579	Max WS	SHN_odorcntrl	2721.17		2723.68	197.53	747.59	8605.46	1115.86		45.40	108.50	
Reach 1	1579	Max WS	SHN_odorcntrlFW	2721.42		2723.97	199.30	806.85	8926.72	1261.10		45.40	108.50	
Reach 1	1329	Max WS	SHN_odorcntrl	2718.83		2720.08	130.24	175.16	6050.28	618.03		9.40	85.10	
Reach 1	1329	Max WS	SHN_odorcntrlFW	2719.06		2722.09	131.77	293.78	9707.37	1030.07		9.40	85.10	
Reach 1	976	Max WS	SHN_odorcntrl	2718.08		2718.61	286.37	219.57	4720.48	4104.55		24.20	96.40	
Reach 1	976	Max WS	SHN_odorcntrlFW	2718.26		2718.74	287.58	219.30	4536.32	4059.01		24.20	96.40	
Reach 1	533	Max WS	SHN_odorcntrl	2718.18		2718.33	348.88	87.49	8234.38	996.97		19.90	269.80	
Reach 1	533	Max WS	SHN_odorcntrlFW	2718.36		2718.49	349.12	87.16	7936.25	981.58		19.90	269.80	
Reach 1	341	Max WS	SHN_odorcntrl	2718.18		2718.33	304.10	1327.65	7918.00	84.39		78.90	286.40	
Reach 1	341	Max WS	SHN_odorcntrlFW	2718.36		2718.49	304.10	1291.38	7598.42	85.44		78.90	286.40	
Reach 1	103	Max WS	SHN_odorcntrl	2718.14		2718.28	357.10	1003.06	9890.16	331.13		72.80	317.30	
Reach 1	103	Max WS	SHN_odorcntrlFW	2718.32		2718.45	357.10	979.43	9489.47	327.32		72.80	317.30	

HEC-RAS River: MoffettCreek Reach: Reach 1 Profile: Max WS

Reach	River Sta	Profile	Plan	Prof Delta WS	Top Wdth Act	K Perc L	Enc Sta L	Dist Center L	Center Station	Dist Center R	Enc Sta R	K Perc R	Enc WD
				(ft)	(ft)		(ft)	(ft)	(ft)	(ft)	(ft)		(ft)
Reach 1	13995	Max WS	SHN_odorcntrl		85.40				45.35				
Reach 1	13995	Max WS	SHN_odorcntrlFW		85.40				45.35				
Reach 1	13993			Lat Struct									
Reach 1	13992			Lat Struct									
Reach 1	13979	Max WS	SHN_odorcntrl		78.10				38.84				
Reach 1	13979	Max WS	SHN_odorcntrlFW		78.10				38.84				
Reach 1	13837	Max WS	SHN_odorcntrl		63.70				33.20				
Reach 1	13837	Max WS	SHN_odorcntrlFW		63.70				33.20				
Reach 1	13541	Max WS	SHN_odorcntrl		63.90				33.95				
Reach 1	13541	Max WS	SHN_odorcntrlFW		63.90				33.95				
Reach 1	13211	Max WS	SHN_odorcntrl		70.90				33.05				
Reach 1	13211	Max WS	SHN_odorcntrlFW		70.90				33.05				
Reach 1	13110	Max WS	SHN_odorcntrl		89.40				51.10				
Reach 1	13110	Max WS	SHN_odorcntrlFW		89.40				51.10				
Reach 1	13005	Max WS	SHN_odorcntrl		106.40				91.85				
Reach 1	13005	Max WS	SHN_odorcntrlFW		106.40				91.85				
Reach 1	12776	Max WS	SHN_odorcntrl		119.90				99.40				
Reach 1	12776	Max WS	SHN_odorcntrlFW		119.90				99.40				
Reach 1	12673	Max WS	SHN_odorcntrl		100.30				65.65				
Reach 1	12673	Max WS	SHN_odorcntrlFW		100.30				65.65				
Reach 1	12473	Max WS	SHN_odorcntrl		100.30				74.40				
Reach 1	12473	Max WS	SHN_odorcntrlFW		100.30				74.40				
Reach 1	12272	Max WS	SHN_odorcntrl		144.29				118.50				
Reach 1	12272	Max WS	SHN_odorcntrlFW		144.29				118.50				
Reach 1	12107	Max WS	SHN_odorcntrl		121.50				47.95				
Reach 1	12107	Max WS	SHN_odorcntrlFW		121.50				47.95				
Reach 1	11948	Max WS	SHN_odorcntrl		90.06				21.70				
Reach 1	11948	Max WS	SHN_odorcntrlFW		90.06				21.70				
Reach 1	11652	Max WS	SHN_odorcntrl		91.00				65.50				
Reach 1	11652	Max WS	SHN_odorcntrlFW		91.00				65.50				
Reach 1	11560	Max WS	SHN_odorcntrl		116.80				94.60				
Reach 1	11560	Max WS	SHN_odorcntrlFW		116.80				94.60				
Reach 1	11494	Max WS	SHN_odorcntrl		157.10				132.25				
Reach 1	11494	Max WS	SHN_odorcntrlFW		157.10				132.25				
Reach 1	11371	Max WS	SHN_odorcntrl		135.27				100.40				
Reach 1	11371	Max WS	SHN_odorcntrlFW		135.27				100.40				
Reach 1	11197	Max WS	SHN_odorcntrl		157.50				108.15				
Reach 1	11197	Max WS	SHN_odorcntrlFW		157.50				108.15				
Reach 1	10500	Max WS	SHN_odorcntrl		194.30				146.60				
Reach 1	10500	Max WS	SHN_odorcntrlFW		194.30				146.60				
Reach 1	10376	Max WS	SHN_odorcntrl		109.88				76.90				
Reach 1	10376	Max WS	SHN_odorcntrlFW		109.88				76.90				
Reach 1	10107	Max WS	SHN_odorcntrl		158.20				108.25				
Reach 1	10107	Max WS	SHN_odorcntrlFW		158.20				108.25				
Reach 1	9806	Max WS	SHN_odorcntrl		151.92				115.65				
Reach 1	9806	Max WS	SHN_odorcntrlFW		151.92				115.65				
Reach 1	9623	Max WS	SHN_odorcntrl		113.40				71.55				
Reach 1	9623	Max WS	SHN_odorcntrlFW		113.40				71.55				
Reach 1	9360	Max WS	SHN_odorcntrl		101.97				73.95				
Reach 1	9360	Max WS	SHN_odorcntrlFW		101.97				73.95				
Reach 1	9167	Max WS	SHN_odorcntrl		90.93				42.90				
Reach 1	9167	Max WS	SHN_odorcntrlFW		90.93				42.90				
Reach 1	8834	Max WS	SHN_odorcntrl		75.13				37.75				
Reach 1	8834	Max WS	SHN_odorcntrlFW		75.13				37.75				
Reach 1	8488	Max WS	SHN_odorcntrl		78.63				45.50				
Reach 1	8488	Max WS	SHN_odorcntrlFW		78.66				45.50				
Reach 1	8118	Max WS	SHN_odorcntrl		73.52				37.20				
Reach 1	8118	Max WS	SHN_odorcntrlFW		73.52				37.20				
Reach 1	7783	Max WS	SHN_odorcntrl		90.40				52.60				
Reach 1	7783	Max WS	SHN_odorcntrlFW		90.40				52.60				
Reach 1	7615	Max WS	SHN_odorcntrl		68.60				34.58				
Reach 1	7615	Max WS	SHN_odorcntrlFW		68.60				34.58				

HEC-RAS River: MoffettCreek Reach: Reach 1 Profile: Max WS (Continued)

Reach	River Sta	Profile	Plan	Prof Delta WS	Top Wdth Act	K Perc L	Enc Sta L	Dist Center L	Center Station	Dist Center R	Enc Sta R	K Perc R	Enc WD
				(ft)	(ft)		(ft)	(ft)	(ft)	(ft)	(ft)		(ft)
Reach 1	7592 BR U	Max WS	SHN_odorcntrl		20.60				34.58				
Reach 1	7592 BR U	Max WS	SHN_odorcntrlFW		20.60				34.58				
Reach 1	7592 BR D	Max WS	SHN_odorcntrl		23.80				36.65				
Reach 1	7592 BR D	Max WS	SHN_odorcntrlFW		23.80				36.65				
Reach 1	7569	Max WS	SHN_odorcntrl		71.80				36.65				
Reach 1	7569	Max WS	SHN_odorcntrlFW		71.80				36.65				
Reach 1	7336	Max WS	SHN_odorcntrl		77.70				38.40				
Reach 1	7336	Max WS	SHN_odorcntrlFW		77.70				38.40				
Reach 1	6946	Max WS	SHN_odorcntrl		70.63				34.85				
Reach 1	6946	Max WS	SHN_odorcntrlFW		70.63				34.85				
Reach 1	6640	Max WS	SHN_odorcntrl		70.90				34.65				
Reach 1	6640	Max WS	SHN_odorcntrlFW		70.90				34.65				
Reach 1	6295	Max WS	SHN_odorcntrl		61.60				31.45				
Reach 1	6295	Max WS	SHN_odorcntrlFW		61.60				31.45				
Reach 1	6000	Max WS	SHN_odorcntrl		69.40				38.26				
Reach 1	6000	Max WS	SHN_odorcntrlFW		69.40				38.26				
Reach 1	5970 BR U	Max WS	SHN_odorcntrl						38.26				
Reach 1	5970 BR U	Max WS	SHN_odorcntrlFW						38.26				
Reach 1	5970 BR D	Max WS	SHN_odorcntrl						38.20				
Reach 1	5970 BR D	Max WS	SHN_odorcntrlFW						38.20				
Reach 1	5940	Max WS	SHN_odorcntrl		74.69				38.20				
Reach 1	5940	Max WS	SHN_odorcntrlFW		74.69				38.20				
Reach 1	5928	Max WS	SHN_odorcntrl		70.92				38.25				
Reach 1	5928	Max WS	SHN_odorcntrlFW		70.92				38.25				
Reach 1	5714	Max WS	SHN_odorcntrl		74.02				40.75				
Reach 1	5714	Max WS	SHN_odorcntrlFW		74.03				40.75				
Reach 1	5318	Max WS	SHN_odorcntrl		70.58				38.05				
Reach 1	5318	Max WS	SHN_odorcntrlFW		70.60				38.05				
Reach 1	4849	Max WS	SHN_odorcntrl		55.10				28.15				
Reach 1	4849	Max WS	SHN_odorcntrlFW		55.10				28.15				
Reach 1	4776	Max WS	SHN_odorcntrl		74.58				37.12				
Reach 1	4776	Max WS	SHN_odorcntrlFW		74.58				37.12				
Reach 1	4741 BR U	Max WS	SHN_odorcntrl						37.12				
Reach 1	4741 BR U	Max WS	SHN_odorcntrlFW						37.12				
Reach 1	4741 BR D	Max WS	SHN_odorcntrl						35.02				
Reach 1	4741 BR D	Max WS	SHN_odorcntrlFW						35.02				
Reach 1	4718	Max WS	SHN_odorcntrl		63.54				35.02				
Reach 1	4718	Max WS	SHN_odorcntrlFW		63.54				35.02				
Reach 1	4666	Max WS	SHN_odorcntrl		66.95				42.80				
Reach 1	4666	Max WS	SHN_odorcntrlFW		66.95				42.80				
Reach 1	4472	Max WS	SHN_odorcntrl		66.70				43.85				
Reach 1	4472	Max WS	SHN_odorcntrlFW		66.70				43.85				
Reach 1	4196	Max WS	SHN_odorcntrl		76.10				35.90				
Reach 1	4196	Max WS	SHN_odorcntrlFW		76.10				35.90				
Reach 1	3794	Max WS	SHN_odorcntrl		86.30				34.30				
Reach 1	3794	Max WS	SHN_odorcntrlFW		86.30				34.30				
Reach 1	3742	Max WS	SHN_odorcntrl		114.58				40.20				
Reach 1	3742	Max WS	SHN_odorcntrlFW		114.58				40.20				
Reach 1	3680 BR U	Max WS	SHN_odorcntrl						40.20				
Reach 1	3680 BR U	Max WS	SHN_odorcntrlFW						40.20				
Reach 1	3680 BR D	Max WS	SHN_odorcntrl						40.42				
Reach 1	3680 BR D	Max WS	SHN_odorcntrlFW						40.42				
Reach 1	3649	Max WS	SHN_odorcntrl		89.03				40.42				
Reach 1	3649	Max WS	SHN_odorcntrlFW		89.03				40.42				
Reach 1	3525	Max WS	SHN_odorcntrl		106.90				58.95				
Reach 1	3525	Max WS	SHN_odorcntrlFW		106.90				58.95				
Reach 1	3090	Max WS	SHN_odorcntrl		101.50				39.00				
Reach 1	3090	Max WS	SHN_odorcntrlFW		101.50				39.00				
Reach 1	2940	Max WS	SHN_odorcntrl		130.60				55.65				
Reach 1	2940	Max WS	SHN_odorcntrlFW		130.60				55.65				
Reach 1	2901 BR U	Max WS	SHN_odorcntrl						55.65				
Reach 1	2901 BR U	Max WS	SHN_odorcntrlFW						55.65				

HEC-RAS River: MoffettCreek Reach: Reach 1 Profile: Max WS (Continued)

Reach	River Sta	Profile	Plan	Prof Delta WS	Top Wdth Act	K Perc L	Enc Sta L	Dist Center L	Center Station	Dist Center R	Enc Sta R	K Perc R	Enc WD
				(ft)	(ft)		(ft)	(ft)	(ft)	(ft)	(ft)		(ft)
Reach 1	2901 BR D	Max WS	SHN_odorcntrl		50.16				46.02				
Reach 1	2901 BR D	Max WS	SHN_odorcntrlFW		37.48				46.02				
Reach 1	2871	Max WS	SHN_odorcntrl		127.70				46.02				
Reach 1	2871	Max WS	SHN_odorcntrlFW		127.70				46.02				
Reach 1	2771	Max WS	SHN_odorcntrl		95.73				34.80				
Reach 1	2771	Max WS	SHN_odorcntrlFW		96.04				34.80				
Reach 1	2325	Max WS	SHN_odorcntrl		97.50				59.90				
Reach 1	2325	Max WS	SHN_odorcntrlFW		97.50				59.90				
Reach 1	1873	Max WS	SHN_odorcntrl		198.72				53.85				
Reach 1	1873	Max WS	SHN_odorcntrlFW		201.00				53.85				
Reach 1	1723	Max WS	SHN_odorcntrl		256.19				73.05				
Reach 1	1723	Max WS	SHN_odorcntrlFW		257.41				73.05				
Reach 1	1579	Max WS	SHN_odorcntrl		197.53				76.95				
Reach 1	1579	Max WS	SHN_odorcntrlFW		199.30				76.95				
Reach 1	1329	Max WS	SHN_odorcntrl		130.24				47.25				
Reach 1	1329	Max WS	SHN_odorcntrlFW		131.77				47.25				
Reach 1	976	Max WS	SHN_odorcntrl		286.37				60.30				
Reach 1	976	Max WS	SHN_odorcntrlFW		287.58				60.30				
Reach 1	533	Max WS	SHN_odorcntrl		348.88				144.85				
Reach 1	533	Max WS	SHN_odorcntrlFW		349.12				144.85				
Reach 1	341	Max WS	SHN_odorcntrl		304.10				182.65				
Reach 1	341	Max WS	SHN_odorcntrlFW		304.10				182.65				
Reach 1	103	Max WS	SHN_odorcntrl		357.10				195.05				
Reach 1	103	Max WS	SHN_odorcntrlFW		357.10				195.05				

HEC-RAS River: MoffettCreek Reach: Reach 1 Profile: Max WS

Reach	River Sta	Profile	Plan	Top Wdth Act	Area	Vel Total	W.S. Elev	Base WS	Prof Delta WS
				(ft)	(sq ft)	(ft/s)	(ft)	(ft)	(ft)
Reach 1	13995	Max WS	SHN_odorcntrl	85.40	725.53	4.79	2778.25	2778.25	
Reach 1	13995	Max WS	SHN_odorcntrlFW	85.40	725.61	4.81	2778.25	2778.25	
Reach 1	13993			Lat Struct					
Reach 1	13992			Lat Struct					
Reach 1	13979	Max WS	SHN_odorcntrl	78.10	672.41	4.79	2778.25	2778.25	
Reach 1	13979	Max WS	SHN_odorcntrlFW	78.10	672.49	4.80	2778.25	2778.25	
Reach 1	13837	Max WS	SHN_odorcntrl	63.70	474.04	6.21	2775.89	2775.89	
Reach 1	13837	Max WS	SHN_odorcntrlFW	63.70	473.71	6.23	2775.88	2775.88	
Reach 1	13541	Max WS	SHN_odorcntrl	63.90	500.94	10.58	2775.19	2775.19	
Reach 1	13541	Max WS	SHN_odorcntrlFW	63.90	500.50	10.57	2775.18	2775.18	
Reach 1	13211	Max WS	SHN_odorcntrl	70.90	509.82	10.09	2772.70	2772.70	
Reach 1	13211	Max WS	SHN_odorcntrlFW	70.90	509.40	10.09	2772.70	2772.70	
Reach 1	13110	Max WS	SHN_odorcntrl	89.40	591.03	10.09	2771.98	2771.98	
Reach 1	13110	Max WS	SHN_odorcntrlFW	89.40	590.85	10.09	2771.98	2771.98	
Reach 1	13005	Max WS	SHN_odorcntrl	106.40	752.64	9.12	2771.56	2771.56	
Reach 1	13005	Max WS	SHN_odorcntrlFW	106.40	752.43	9.12	2771.56	2771.56	
Reach 1	12776	Max WS	SHN_odorcntrl	119.90	992.02	9.10	2771.54	2771.54	
Reach 1	12776	Max WS	SHN_odorcntrlFW	119.90	991.79	9.10	2771.54	2771.54	
Reach 1	12673	Max WS	SHN_odorcntrl	100.30	810.05	11.00	2771.24	2771.24	
Reach 1	12673	Max WS	SHN_odorcntrlFW	100.30	809.83	11.00	2771.23	2771.23	
Reach 1	12473	Max WS	SHN_odorcntrl	100.30	756.29	12.09	2769.47	2769.47	
Reach 1	12473	Max WS	SHN_odorcntrlFW	100.30	756.29	12.08	2769.47	2769.47	
Reach 1	12272	Max WS	SHN_odorcntrl	144.29	961.12	10.90	2767.94	2767.94	
Reach 1	12272	Max WS	SHN_odorcntrlFW	144.29	961.26	10.90	2767.95	2767.95	
Reach 1	12107	Max WS	SHN_odorcntrl	121.50	910.99	11.17	2767.50	2767.50	
Reach 1	12107	Max WS	SHN_odorcntrlFW	121.50	911.11	11.18	2767.50	2767.50	
Reach 1	11948	Max WS	SHN_odorcntrl	90.06	687.95	12.45	2766.79	2766.79	
Reach 1	11948	Max WS	SHN_odorcntrlFW	90.06	688.12	12.44	2766.79	2766.79	
Reach 1	11652	Max WS	SHN_odorcntrl	91.00	668.45	12.25	2765.03	2765.03	
Reach 1	11652	Max WS	SHN_odorcntrlFW	91.00	668.45	12.25	2765.03	2765.03	
Reach 1	11560	Max WS	SHN_odorcntrl	116.80	769.12	12.74	2764.15	2764.15	
Reach 1	11560	Max WS	SHN_odorcntrlFW	116.80	769.24	12.74	2764.15	2764.15	
Reach 1	11494	Max WS	SHN_odorcntrl	157.10	1105.66	10.29	2764.35	2764.35	
Reach 1	11494	Max WS	SHN_odorcntrlFW	157.10	1105.82	10.29	2764.35	2764.35	
Reach 1	11371	Max WS	SHN_odorcntrl	135.27	1045.55	11.83	2764.35	2764.35	
Reach 1	11371	Max WS	SHN_odorcntrlFW	135.27	1045.68	11.84	2764.35	2764.35	
Reach 1	11197	Max WS	SHN_odorcntrl	157.50	1113.90	11.43	2763.08	2763.08	
Reach 1	11197	Max WS	SHN_odorcntrlFW	157.50	1114.06	11.43	2763.08	2763.08	
Reach 1	10500	Max WS	SHN_odorcntrl	194.30	1540.06	7.59	2761.63	2761.63	
Reach 1	10500	Max WS	SHN_odorcntrlFW	194.30	1540.44	7.59	2761.63	2761.63	
Reach 1	10376	Max WS	SHN_odorcntrl	109.88	931.80	11.12	2760.91	2760.91	
Reach 1	10376	Max WS	SHN_odorcntrlFW	109.88	932.04	11.12	2760.91	2760.91	

HEC-RAS River: MoffettCreek Reach: Reach 1 Profile: Max WS (Continued)

Reach	River Sta	Profile	Plan	Top Wdth Act	Area	Vel Total	W.S. Elev	Base WS	Prof Delta WS
				(ft)	(sq ft)	(ft/s)	(ft)	(ft)	(ft)
Reach 1	10107	Max WS	SHN_odorcntrl	158.20	958.13	9.99	2758.06	2758.06	
Reach 1	10107	Max WS	SHN_odorcntrlFW	158.20	958.28	9.99	2758.06	2758.06	
Reach 1	9806	Max WS	SHN_odorcntrl	151.92	1022.63	9.27	2757.12	2757.12	
Reach 1	9806	Max WS	SHN_odorcntrlFW	151.92	1022.78	9.27	2757.12	2757.12	
Reach 1	9623	Max WS	SHN_odorcntrl	113.40	864.17	10.32	2756.61	2756.61	
Reach 1	9623	Max WS	SHN_odorcntrlFW	113.40	864.28	10.32	2756.61	2756.61	
Reach 1	9360	Max WS	SHN_odorcntrl	101.97	763.10	10.81	2755.55	2755.55	
Reach 1	9360	Max WS	SHN_odorcntrlFW	101.97	763.10	10.82	2755.55	2755.55	
Reach 1	9167	Max WS	SHN_odorcntrl	90.93	663.26	11.63	2754.66	2754.66	
Reach 1	9167	Max WS	SHN_odorcntrlFW	90.93	663.34	11.63	2754.66	2754.66	
Reach 1	8834	Max WS	SHN_odorcntrl	75.13	548.13	12.88	2753.34	2753.34	
Reach 1	8834	Max WS	SHN_odorcntrlFW	75.13	548.22	12.88	2753.34	2753.34	
Reach 1	8488	Max WS	SHN_odorcntrl	78.63	519.51	12.38	2751.38	2751.38	
Reach 1	8488	Max WS	SHN_odorcntrlFW	78.66	519.59	12.38	2751.38	2751.38	
Reach 1	8118	Max WS	SHN_odorcntrl	73.52	514.66	11.84	2750.02	2750.02	
Reach 1	8118	Max WS	SHN_odorcntrlFW	73.52	514.74	11.84	2750.02	2750.02	
Reach 1	7783	Max WS	SHN_odorcntrl	90.40	722.96	6.85	2749.32	2749.32	
Reach 1	7783	Max WS	SHN_odorcntrlFW	90.40	723.04	6.85	2749.33	2749.33	
Reach 1	7615	Max WS	SHN_odorcntrl	68.60	578.56	6.58	2749.32	2749.32	
Reach 1	7615	Max WS	SHN_odorcntrlFW	68.60	578.63	6.58	2749.33	2749.33	
Reach 1	7592 BR U	Max WS	SHN_odorcntrl	20.60	378.60	10.05	2748.96	2748.96	
Reach 1	7592 BR U	Max WS	SHN_odorcntrlFW	20.60	378.61	10.06	2748.96	2748.96	
Reach 1	7592 BR D	Max WS	SHN_odorcntrl	23.80	399.32	9.53	2748.96	2748.96	
Reach 1	7592 BR D	Max WS	SHN_odorcntrlFW	23.80	399.32	9.53	2748.96	2748.96	
Reach 1	7569	Max WS	SHN_odorcntrl	71.80	478.06	7.96	2747.21	2747.21	
Reach 1	7569	Max WS	SHN_odorcntrlFW	71.80	478.06	7.96	2747.21	2747.21	
Reach 1	7336	Max WS	SHN_odorcntrl	77.70	468.52	7.78	2745.89	2745.89	
Reach 1	7336	Max WS	SHN_odorcntrlFW	77.70	468.59	7.78	2745.89	2745.89	
Reach 1	6946	Max WS	SHN_odorcntrl	70.63	468.63	7.64	2745.28	2745.28	
Reach 1	6946	Max WS	SHN_odorcntrlFW	70.63	468.63	7.64	2745.28	2745.28	
Reach 1	6640	Max WS	SHN_odorcntrl	70.90	548.08	6.97	2744.74	2744.74	
Reach 1	6640	Max WS	SHN_odorcntrlFW	70.90	548.17	6.97	2744.75	2744.75	
Reach 1	6295	Max WS	SHN_odorcntrl	61.60	529.05	7.37	2744.50	2744.50	
Reach 1	6295	Max WS	SHN_odorcntrlFW	61.60	529.11	7.37	2744.50	2744.50	
Reach 1	6000	Max WS	SHN_odorcntrl	69.40	616.46	7.27	2744.01	2744.01	
Reach 1	6000	Max WS	SHN_odorcntrlFW	69.40	616.53	7.27	2744.01	2744.01	
Reach 1	5970 BR U	Max WS	SHN_odorcntrl		439.83	10.19	2744.00	2744.00	
Reach 1	5970 BR U	Max WS	SHN_odorcntrlFW		439.83	10.19	2744.00	2744.00	
Reach 1	5970 BR D	Max WS	SHN_odorcntrl		493.94	9.07	2744.00	2744.00	
Reach 1	5970 BR D	Max WS	SHN_odorcntrlFW		493.94	9.07	2744.00	2744.00	
Reach 1	5940	Max WS	SHN_odorcntrl	74.69	478.40	9.37	2740.96	2740.96	
Reach 1	5940	Max WS	SHN_odorcntrlFW	74.69	478.47	9.37	2740.96	2740.96	
Reach 1	5928	Max WS	SHN_odorcntrl	70.92	492.22	9.15	2740.50	2740.50	

HEC-RAS River: MoffettCreek Reach: Reach 1 Profile: Max WS (Continued)

Reach	River Sta	Profile	Plan	Top Wdth Act	Area	Vel Total	W.S. Elev	Base WS	Prof Delta WS
				(ft)	(sq ft)	(ft/s)	(ft)	(ft)	(ft)
Reach 1	5928	Max WS	SHN_odorcntrlFW	70.92	492.22	9.15	2740.50	2740.50	
Reach 1	5714	Max WS	SHN_odorcntrl	74.02	471.80	9.94	2739.54	2739.54	
Reach 1	5714	Max WS	SHN_odorcntrlFW	74.03	471.87	9.93	2739.54	2739.54	
Reach 1	5318	Max WS	SHN_odorcntrl	70.58	442.29	10.12	2738.25	2738.25	
Reach 1	5318	Max WS	SHN_odorcntrlFW	70.60	442.35	10.11	2738.25	2738.25	
Reach 1	4849	Max WS	SHN_odorcntrl	55.10	456.55	8.29	2736.89	2736.89	
Reach 1	4849	Max WS	SHN_odorcntrlFW	55.10	456.55	8.29	2736.89	2736.89	
Reach 1	4776	Max WS	SHN_odorcntrl	74.58	553.68	6.36	2736.68	2736.68	
Reach 1	4776	Max WS	SHN_odorcntrlFW	74.58	553.75	6.36	2736.68	2736.68	
Reach 1	4741 BR U	Max WS	SHN_odorcntrl		407.09	8.65	2736.67	2736.67	
Reach 1	4741 BR U	Max WS	SHN_odorcntrlFW		407.09	8.65	2736.68	2736.68	
Reach 1	4741 BR D	Max WS	SHN_odorcntrl		494.98	7.12	2736.67	2736.67	
Reach 1	4741 BR D	Max WS	SHN_odorcntrlFW		494.98	7.12	2736.68	2736.68	
Reach 1	4718	Max WS	SHN_odorcntrl	63.54	495.09	7.11	2734.87	2734.87	
Reach 1	4718	Max WS	SHN_odorcntrlFW	63.54	495.15	7.11	2734.87	2734.87	
Reach 1	4666	Max WS	SHN_odorcntrl	66.95	503.80	7.72	2734.64	2734.64	
Reach 1	4666	Max WS	SHN_odorcntrlFW	66.95	503.87	7.72	2734.64	2734.64	
Reach 1	4472	Max WS	SHN_odorcntrl	66.70	579.79	8.30	2734.09	2734.09	
Reach 1	4472	Max WS	SHN_odorcntrlFW	66.70	579.92	8.30	2734.09	2734.09	
Reach 1	4196	Max WS	SHN_odorcntrl	76.10	661.80	8.74	2733.52	2733.52	
Reach 1	4196	Max WS	SHN_odorcntrlFW	76.10	661.95	8.74	2733.52	2733.52	
Reach 1	3794	Max WS	SHN_odorcntrl	86.30	886.81	7.33	2732.81	2732.81	
Reach 1	3794	Max WS	SHN_odorcntrlFW	86.30	886.98	7.33	2732.81	2732.81	
Reach 1	3742	Max WS	SHN_odorcntrl	114.58	1047.01	6.81	2732.75	2732.75	
Reach 1	3742	Max WS	SHN_odorcntrlFW	114.58	1047.26	6.81	2732.76	2732.76	
Reach 1	3680 BR U	Max WS	SHN_odorcntrl		748.25	9.53	2732.75	2732.75	
Reach 1	3680 BR U	Max WS	SHN_odorcntrlFW		748.25	9.54	2732.76	2732.76	
Reach 1	3680 BR D	Max WS	SHN_odorcntrl		607.51	11.74	2732.75	2732.75	
Reach 1	3680 BR D	Max WS	SHN_odorcntrlFW		607.51	11.74	2732.76	2732.76	
Reach 1	3649	Max WS	SHN_odorcntrl	89.03	620.50	11.49	2730.86	2730.86	
Reach 1	3649	Max WS	SHN_odorcntrlFW	89.03	623.00	11.45	2730.89	2730.89	
Reach 1	3525	Max WS	SHN_odorcntrl	106.90	876.19	8.08	2730.06	2730.06	
Reach 1	3525	Max WS	SHN_odorcntrlFW	106.90	883.03	8.02	2730.12	2730.12	
Reach 1	3090	Max WS	SHN_odorcntrl	101.50	913.80	7.98	2730.06	2730.06	
Reach 1	3090	Max WS	SHN_odorcntrlFW	101.50	920.29	7.97	2730.12	2730.12	
Reach 1	2940	Max WS	SHN_odorcntrl	130.60	1149.15	6.34	2729.68	2729.68	
Reach 1	2940	Max WS	SHN_odorcntrlFW	130.60	1156.74	6.35	2729.74	2729.74	
Reach 1	2901 BR U	Max WS	SHN_odorcntrl		760.00	9.58	2727.59	2727.59	
Reach 1	2901 BR U	Max WS	SHN_odorcntrlFW		760.00	9.67	2727.59	2727.59	
Reach 1	2901 BR D	Max WS	SHN_odorcntrl	50.16	821.18	8.87	2727.02	2727.02	
Reach 1	2901 BR D	Max WS	SHN_odorcntrlFW	37.48	825.68	8.90	2727.13	2727.13	
Reach 1	2871	Max WS	SHN_odorcntrl	127.70	873.56	8.34	2727.02	2727.02	
Reach 1	2871	Max WS	SHN_odorcntrlFW	127.70	887.09	8.28	2727.13	2727.13	

HEC-RAS River: MoffettCreek Reach: Reach 1 Profile: Max WS (Continued)

Reach	River Sta	Profile	Plan	Top Wdth Act	Area	Vel Total	W.S. Elev	Base WS	Prof Delta WS
				(ft)	(sq ft)	(ft/s)	(ft)	(ft)	(ft)
Reach 1	2771	Max WS	SHN_odorcntrl	95.73	721.91	10.08	2726.25	2726.25	
Reach 1	2771	Max WS	SHN_odorcntrlFW	96.04	734.85	9.98	2726.38	2726.38	
Reach 1	2325	Max WS	SHN_odorcntrl	97.50	706.46	11.32	2723.98	2723.98	
Reach 1	2325	Max WS	SHN_odorcntrlFW	97.50	726.95	11.33	2724.19	2724.19	
Reach 1	1873	Max WS	SHN_odorcntrl	198.72	1166.30	8.49	2721.89	2721.89	
Reach 1	1873	Max WS	SHN_odorcntrlFW	201.00	1210.61	8.46	2722.11	2722.11	
Reach 1	1723	Max WS	SHN_odorcntrl	256.19	1527.51	6.85	2721.44	2721.44	
Reach 1	1723	Max WS	SHN_odorcntrlFW	257.41	1592.21	6.91	2721.69	2721.69	
Reach 1	1579	Max WS	SHN_odorcntrl	197.53	1064.91	9.83	2721.17	2721.17	
Reach 1	1579	Max WS	SHN_odorcntrlFW	199.30	1114.36	9.87	2721.42	2721.42	
Reach 1	1329	Max WS	SHN_odorcntrl	130.24	817.43	8.37	2718.83	2718.83	
Reach 1	1329	Max WS	SHN_odorcntrlFW	131.77	846.89	13.03	2719.06	2719.06	
Reach 1	976	Max WS	SHN_odorcntrl	286.37	1676.61	5.39	2718.08	2718.08	
Reach 1	976	Max WS	SHN_odorcntrlFW	287.58	1729.36	5.10	2718.26	2718.26	
Reach 1	533	Max WS	SHN_odorcntrl	348.88	3151.70	2.96	2718.18	2718.18	
Reach 1	533	Max WS	SHN_odorcntrlFW	349.12	3212.03	2.80	2718.36	2718.36	
Reach 1	341	Max WS	SHN_odorcntrl	304.10	3085.23	3.02	2718.18	2718.18	
Reach 1	341	Max WS	SHN_odorcntrlFW	304.10	3137.80	2.86	2718.36	2718.36	
Reach 1	103	Max WS	SHN_odorcntrl	357.10	3925.31	2.86	2718.14	2718.14	
Reach 1	103	Max WS	SHN_odorcntrlFW	357.10	3989.22	2.71	2718.32	2718.32	

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