Draft Initial Study Checklist
Proposed Mitigated Negative Declaration

Alturas Wastewater Treatment Plant Improvement Project

November 2021

INITIAL STUDY CHECKLIST
PROPOSED MITIGATED NEGATIVE DECLARATION

Alturas Wastewater Treatment Plant Improvement Project

Lead Agency:

City of Alturas
200 W. North Street
Alturas, CA 96101
(530) 233-2377

Technical Assistance By:

SHN Consulting Engineers & Geologists, Inc.
350 Hartnell Avenue, Suite B
Redding, CA 96002

November 2021

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Abbreviations and Acronyms

§	Section
^{o}F	Degrees Fahrenheit
AB	Assembly Bill
ADWF	Average Dry Weather Flow
ADT	Average Daily Traffic
AF	Acre feet
AFY	Acre feet per year
AMS	American Meteorological Society
A-P Act	Alquist-Priolo Earthquake Fault Zoning Act
API	Area of Potential Impacts
APN	Assessor's Parcel Number
AB	Assembly Bill
BAAQMD	Bay Area Air Quality Management District
BAU	Business as Usual
BLM	Bureau of Land Management
BMP	Best Management Practices
CA	California
CAA	Clean Air Act
CAAQS	California Ambient Air Quality Standards
CalEEMod	California Emissions Estimator Model
Cal EPA	California Environmental Protection Agency
CAL FIRE	California Department of Forestry and Fire Protection
Cal OSHA	California Occupational Health and Safety
Caltrans	California Department of Transportation
CAO	Cleanup and Abatement Order
CAPCOA	California Air Pollution Control Officers Association
CARB	California Air Resources Board
CBC	California Building Code
CBSC	California Building Standards Commission
CCR	California Code of Regulations
CDFW	California Department of Fish & Wildlife
CEC	California Energy Commission
CERS	California Environmental Reporting System
CEQA	California Environmental Quality Act
CFC	California Fire Code
CGS	California Geological Survey
CH_4	Methane
CHP	California Highway Patrol
City	City of Alturas
CNDDB	California Natural Diversity Data Base
CNPS	California Native Plant Society
CO	Carbon Monoxide
CO_2	Carbon Dioxide
CO_2e	Carbon Dioxide equivalent
County	Modoc County
CPRA	California Public Records Act
CPUC	California Public Utilities Commission
CRHR	California Register of Historic Resources
CUPA	Certified Unified Program Agency
CVRWQCB	Central Valley Regional Water Quality Control Board
CWA	Clean Water Act
dBA	Decibel
DOF	California Department of Finance

Abbreviations and Acronyms, Continued

DOI	United States Department of the Interior
DTSC	California Department of Toxic Substances
DZC	DZC Archeology and Cultural Resource Management
ECHO	Enforcement and Compliance History Online
EIR	Environmental Impact Report
EO	Executive Order
EPA	United States Environmental Protection Agency
ESA	Endangered Species Act
ESL	Environmental Study Limits
FAA	Federal Aviation Administration
FEMA	Federal Emergency Management Agency
FHSZ	Fire Hazard Severity Zone
FHWA	Federal Highway Administration
FOIA	Freedom of Information Act
FMMP	Farmland Mapping and Monitoring Program
FRA	Federal Response Area
FRAP	Fire and Resource Assessment Program
FTA	Federal Transit Administration
GHG	Greenhouse Gas
GPD	Gallons per day
GSA	Groundwater Sustainability Agency
GSP	Groundwater Sustainability Plan
HAP	Hazardous Air Pollutants
HCFs	Hydrofluorocarbons
HMBP	Hazardous Material Business Plan
IGP	Industrial General Permit
IRP	Integrated Resource Plan
ITE	Institute of Transportation Engineers
LAFCO	Modoc County Local Agency Formation Commission
L_{eq}	Equivalent Sound Level
LESA	California Agricultural Land Evaluation and Site Assessment
L_{max}	Maximum Noise Level
LOS	Level of Service
LRA	Local Response Area
LwA	A-weighted sound power level
MCAQMD	Mendocino County Air Quality Management District
MCAPCD	Modoc County Air Pollution Control District
MCL	Maximum Contaminate Level
MFHSZ	Moderate Fire Hazard Severity Zone
MG/yr	Megagrams per year
MGD	Million Gallons per day
MND	Mitigated Negative Declaration
MNWR	Modoc National Wildlife Refuge
MRP	Mitigation and Reporting Program
MSL	Mean Sea Level
MT	Metric tons
MMT	Million metric tons
$MTCO_2e$/yr	Metric tons of CO_2 equivalent per year
NAAQS	National Ambient Air Quality Standards
NAHC	Native American Heritage Commission
NO_x	Nitrous Oxides
N_2O	Nitrous Oxide
ND	Negative Declaration

Abbreviations and Acronyms, Continued

NMOC	Non-methane Organic Compounds
NOA	Naturally occurring asbestos
NOAA	National Oceanic and Atmospheric Administration
NOI	Notice of Intent
NHPA	National Historic Preservation Act
NPAB	Northeast Plateau Air Basin
NPDES	National Pollution Discharge Elimination System
NPPA	California Native Plant Protection Act
NRHP	National Register of Historic Places
NWP	Nationwide Permit
O_3	Ozone
OES	Office of Emergency Services
OHV	Off-Highway Vehicle
OPR	Governor's Office of Planning and Research
OSHA	Occupational Health and Safety
PFAS	Per- and Polyfluoroalkyl Substances
PFCs	Perfluorocarbons
PG&E	Pacific Gas & Electric Company
PM	Particulate matter
PPM	Micrograms per cubic meter
PRC	Public Resources Code
RCRA	Resource Conservation and Recovery Act
REC	Renewable Energy Credit
ROG	Reactive organic gases
RPS	Renewable Portfolio Standard
RWQCB	Regional Water Quality Control Board
SAA	Streambed Alteration Agreement
SB	Senate Bill
SCH	State Clearinghouse
SDWA	Safe Drinking Water Act
SF_6	Sulfur Hexafluoride
SGMA	Sustainable Groundwater Management Act
SGP	Sustainable Groundwater Plan
SHN	SHN Consulting Engineers and Geologists, Inc.
SHMA	Seismic Hazards Mapping Act
SMARA	Surface Mining and Reclamation Act
SOI	Sphere of Influence
SR	State Route
SRA	State Responsibility Area
SSURGO	Soil Survey Geographic
SVEC	Surprise Valley Electrification Corporation
SWPPP	Stormwater Pollution Prevention Plan
SWRCB	State Water Resources Control Board
TAC	Toxic Air Contaminates
TCR	Tribal Cultural Resources
TSO	Time Schedule Order
TSS	Total Suspended Solids
U	Unclassified (Zone Classification)
US	United States
USACE	United States Army Corps of Engineers
USDOT	United States Department of Transportation
USEPA	United State Environmental Protection Agency
USFWS	United States Fish and Wildlife Service

USGS	United States Geological Survey
VHFHSZ	Very High Fire Hazard Severity Zone
VOC	Volatile Organic Compound
VMT	Vehicle Miles Traveled
WDR	Waste Discharge Requirements
WRCC	Western Regional Climate Center
WWTP	Wastewater Treatment Plant

Environmental Checklist Form

1. **Project Title:** Alturas Wastewater Treatment Plant Improvement Project

2. **Lead Agency Name and Address:**

   City of Alturas
   200 W. North Street
   Alturas, CA 96101

3. **Contact Person and Phone Number:**

   Joe Picotte
   Director of Public Works
   (530) 233-2377
   jpicotte@cityofalturas.us

4. **Project Location:** The City of Alturas (City) currently owns and operates a wastewater treatment plant (WWTP) just south of the city limits, on County Road 54 (N. West Street), in unincorporated Modoc County. The existing WWTP facility is located along the north bank of the North Fork Pit River at its confluence with the South Fork Pit River and provides primary and secondary treatment with treated effluent discharged to the Pit River.

   The project study area which includes the existing WWTP, proposed pipeline and new offsite aerations ponds and land application consists of approximately 106 acres. The 106-acre study area is situated in Sections 14, 22, 23, and 27, Township 42 North, Range 12 East, of the U.S. Geological Survey's Alturas, CA, 7.5-minute quadrangle. The site ranges in elevation between 4,360 and 4,490 feet above mean sea level (msl). The study area consists of a portion of the developed WWTP parcel, approximately 1.4 miles of road right-of-way along County Road 54, and approximately 70 undeveloped acres at the proposed new treatment and disposal site.

5. **Applicant's Name and Address:**

   City of Alturas
   Public Works Department
   200 W. North Street
   Alturas, CA 96101
   (530) 233-2377

6. **General Plan Designation:** Rural Residential (RR) – Modoc County

7. **Zoning:** Unclassified (U) – Modoc County

8. **Description of Project:** The City has had difficulty meeting permitted effluent limits for various constituents, including zinc, copper, aluminum, biological oxygen demand, total suspended solids, total coliform, toxicity, and total suspended solids. Therefore, the City is proposing improvements to WWTP to enhance system efficiency and comply with Central Valley Regional Water Quality Control Board (CVRWQCB) requirements.

   As currently proposed, the City would decommission the existing WWTP; pump the raw wastewater to new, offsite aeration ponds; and dispose of the treated wastewater through land discharge via evaporation and percolation ponds at a new offsite location. The new offsite treatment and disposal facility would be located on a portion of Modoc County Assessor's Parcel Number (APN) 022-130-042, which is on the northwest side of County Road 54, over a mile southwest from the City's existing WWTP. A new pipeline would be constructed along County Road 54 from the existing WWTP to the new location. All construction would occur within the existing County Road 54 right-of-way. The new force main would be attached to two existing bridges where County Road 54 crosses over the North and South Forks of the Pit River. No in-water work would be required.

Aeration treatment ponds and treated effluent evaporation/percolation (disposal) ponds will be constructed on APN 022-130-042. This parcel will be purchased by the City for use in wastewater treatment and disposal and consists of approximately 270.4 acres of land currently used for livestock grazing; however, the area to be converted for purpose of implementing the proposed project is limited to 70 total acres. The existing building located on APN 022-130-042 consists of an approximate 672 square foot former residence and has been historically used to manage onsite grazing and agricultural activities. The building has existing utility connections for electricity, water, and an onsite septic system.

Implementation of the proposed project will also require an amendment to the City of Alturas General Plan SOI, a general plan land use amendment from Modoc County General Plan Rural Residential (RR) designation to the Public Facilities (City of Alturas), and a concurrent pre-zone of the entire property from Unclassified (U) to Agriculture (AG). Upon City purchase of the subject property and prior to initiation of construction, the City will submit an application "non-contiguous City-owned territory for municipal purposes" (GC Section 56742) to LAFCO for consideration.

9. **Surrounding Land Uses and Setting:** Existing land uses within a one-mile radius of the proposed project consist of undeveloped grazing lands and rolling open space lands with weedy, grazed, sagebrush scrub communities. No existing residents or other sensitive land uses are located immediately adjacent to or within the immediate project vicinity.

10. **Other public agencies whose approval is required (e.g., permits, financing approval, or participation agreement):** The City of Alturas as Lead Agency for the proposed project has discretionary authority over the primary project proposal. To implement this project, the City may need to obtain, at a minimum, discretionary permits, or approvals from the following agencies:

    - California Department of Fish and Wildlife
    - Central Valley Regional Water Quality Control Board
    - Modoc County Air Pollution Control District
    - Modoc County Local Agency Formation Commission
    - Modoc County Public Works Department
    - State Water Resources Control Board – Division of Water Rights
    - United States Army Corps of Engineers

11. **Tribal Consultation:** On May 1, 2020, the City initiated environmental review under CEQA for the proposed Alturas Wastewater Treatment Plant Improvement project. Although there are no tribes that have notified the City for inclusion on the City's Assembly Bill (AB) 52 notification list, the City sent a project notification letter to the Pit River Tribe, a California Native American Tribe that is traditionally and culturally affiliated with the geographic area of the proposed project, on May 4, pursuant to Public Resources Code (PRC) 21080.3.1. No responses were received requesting initiation of consultation under the provisions of AB 52.

    On September 21, 2020, as part of their research efforts in preparing the Cultural Resources Inventory Report, DZC Archaeology and Cultural Resource Management (DZC) circulated project notifications to the following individuals listed by the NAHC for the project area. (1) Vi Riley, Cultural Resources Coordinator, Alturas Rancheria of Pit River Indians (2) Alturas Rancheria, Tribal Administrator/Environmental Coord. Alturas Rancheria of Pit River Indians, (3) Richard Lash, Chairperson, Cedarville Rancheria of Northern Paiute Indians, (4) Bernold Pollard, Chairperson, Ford Bidwell Indian Community of Paiute, (5) Agnes Gonzales, Chairperson, Pit River Tribe of California, (6) Charles White, Tribal Administrator, Pit River Tribe of California, and Natalie Forrest-Perez, Tribal Historic Preservation Officer (THPO), Pit River Tribe of California. The Request for Comment provided each individual listed with a project description, location map, a request to respond to respond to the City within 30 days, should the tribe wish to engage in formal government-to government Consultation.

    Between July 22 and July 29, 2020, email correspondence between Dimitra Zalarvis-Chase and Natalie Forrest-Perez consisted of scheduling of the Cultural Resource Survey, a site visit with a Native American monitor representing the Pit River Tribe of California during the survey, and a meeting to discuss results of the cultural resource survey. On September 4, 2020, an internet Zoom meeting took place between Dimitra Zalarvis-Chase and Natalie Forest-Perez. Together, both parties consulted project location and site record maps, survey results, and project descriptions and plans. Natalie Forest-Perez concurred with DZC's findings regarding the nature and location of resources and requested the presence of a Native American monitor representing the Kosalektawi Band during all ground disturbing activities occurring within the boundaries of any resources that intersect the Area of Potential Impacts (API). Refer to Section V, CULTURAL RESOURCES, and Section XVIII, TRIBAL CULTURAL RESOURCES.

As of December 1, 2020, no response was received from (1) Vi Riley, Cultural Resources Coordinator, Alturas Rancheria of Pit River Indians (2) Alturas Rancheria, Tribal Administrator/Environmental Coord. Alturas Rancheria of Pit River Indians, (3) Richard Lash, Chairperson, Cedarville Rancheria of Northern Paiute Indians, (4) Bernold Pollard, Chairperson, Ford Bidwell Indian Community of Paiute, (5) Agnes Gonzales, Chairperson, Pit River Tribe of California, (6) Charles White, Tribal Administrator, Pit River Tribe of California.

12. **Purpose of this Document:** This document analyzes the environmental effects of the proposed Alturas Wastewater Treatment Plant Improvement project and makes appropriate findings in accordance with Section 15070 of the State CEQA Guidelines. In addition, this document has been prepared to the degree of specificity appropriate to the current proposed action, as required by Section 15146 of the State CEQA Guidelines. The analysis considers the actions associated with the proposed project to determine the short-term and long-term effects associated with their implementation.

Section 1.0
Introduction and Purpose

1.1 Introduction

The City of Alturas (City), 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 Alturas Wastewater Treatment Plant Improvement Project (proposed project). Details about the proposed project are included in Section 2.0, 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. This Initial Study supports a MND pursuant to CEQA Guidelines Section 15070.

The City intends to apply for funding through the State Water Resources Control Board (SWRCB) Clean Water State Revolving Fund (CWSRF) Program, partially funded by the U.S. Environmental Protection Agency (USEPA). In accordance with the Operating Agreement between the SWRCB and USEPA, and the State Environmental Review Process, this Initial Study has been prepared to address certain federal environmental regulations (federal cross-cutters), including regulations guiding the General Conformity Rule for the Clean Air Act (CAA), the Federal Endangered Species Act (FESA), and the National Historic Preservation Act (NHPA). These requirements are addressed in Section III, AIR QUALITY, Section IV, BIOLOGICAL RESOURCES, and Section V, CULTURAL RESOURCES, of this Initial Study.

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 City of Alturas 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 (ND). 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 a 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 City 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 City has prepared a MND and has issued a Notice of Intent to adopt the MND for the project. The time available for public comment on the Initial Study and MND is shown on the Notice of Intent (NOI).

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 City of Alturas Planning and Zoning Division.

- City of Alturas General Plan (updated November 2014)
- City of Alturas Municipal Code (updated August 2019)
- Modoc County General Plan Goals, Policies, and Action Program (September 1988)
- Modoc County Local Hazard Mitigation Plan (April 2016)
- Modoc County Municipal Code (updated January 2020)

1.5 Project Environmental Studies

As part of the preparation of this Initial Study, the following studies, which are included in Section 6.0, TECHNICAL APPENDICES, were prepared or utilized to develop baseline information and project-related impact discussions. These studies are available for inspection at the City of Alturas Planning and Zoning Division, 200 W. North Street, Alturas, CA 96101, during normal business hours (9:00 a.m. to 5:00 p.m. Monday through Friday).

- *Aquatic Resource Delineation Report, Alturas Wastewater Treatment Plant, Modoc County, California*. ENPLAN. October 2020.
- *Biological Study Report, Alturas Wastewater Treatment Plan (WWTP) Improvement Project*. ENPLAN. October 2020.
- *Cultural Resource Inventory Report for the City of Alturas Wastewater Facilities Improvement Project, Modoc County, California*. DZC Archeology and Cultural Resource Management. December 2020.
- *Final Wastewater Preliminary Engineering Report*. SHN Consulting Engineers and Geologists, Inc. November 2020.

It is important to note that information contained in the cultural resources documentation 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 attached to this initial Study. Professionally qualified individuals, as determined by the California Office of Historic Preservation, may contact the City of Alturas Planning and Zoning Division directly in order to inquire about its availability.

1.6 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 City will circulate the Initial Study to the State Clearinghouse (SCH) of the Governor's Office of Planning and Research (OPR) for distribution and a 30-day review period. During the review period, written comments may be submitted to:

City of Alturas	Joe Picotte
Public Works Department	Director of Public Works
200 W. North Street	(530) 233-2377
Alturas, CA 96101	jpicotte@cityofalturas.us

Section 2.0
Project Description

2.1 Project Location and Setting

Regional Setting

Modoc County lies within the far northeast corner of California and has a total area of 4,203 square miles (3,910 square miles of land and 286 square miles of water) and is contiguous to the states of Oregon and Nevada (refer to Figure 2-1, REGIONAL VICINITY). The County is bordered by Klamath and Lake Counties to the north; Washoe County to the east; and Lassen, Shasta, and Siskiyou Counties to the south, southwest, and west, respectively. There are 2.25 persons per square mile, making this one of the most sparsely populated counties in California.

Elevations in Modoc County vary from approximately 4,170 feet above mean sea level (msl) to approximately 9,856 feet above msl. A significant feature within the county is known as the Modoc Plateau, a volcanic table land (elevation 4,000 - 6,000 feet above msl) consisting of a thick accumulation of lava flows and tuff beds along with many small volcanic cones.

Modoc County has an existing population of approximately 9,570 persons based on the January 1, 2020 population estimates provided by the California Department of Finance (DOF). The county seat and only incorporated city is Alturas. Modoc County maintains approximately 5,279 existing housing units and 2.42 persons per household (DOF, 2020b). Of these, approximately 1,405 housing units are within the City of Alturas (DOF, 2020b). A large portion of Modoc County is federal land. Several federal agencies, including the United States Forest Service (USFS), Bureau of Land Management (BLM), National Park Service (NPS), Bureau of Indian Affairs (BIA), and the United States Fish and Wildlife Service (USFWS), have employees assigned throughout the county, and their operations are a significant part of the area's economy and services.

The City of Altura's 2020 population is 2,826 people and has remained static since 2010 (2,827 people). Between January 2019 and January 2020, the City's population declined from 2,849 to 2,826 (DOF, 2020a). This reflects a declined by about 0.7% compared to about 1% for all of Modoc County.

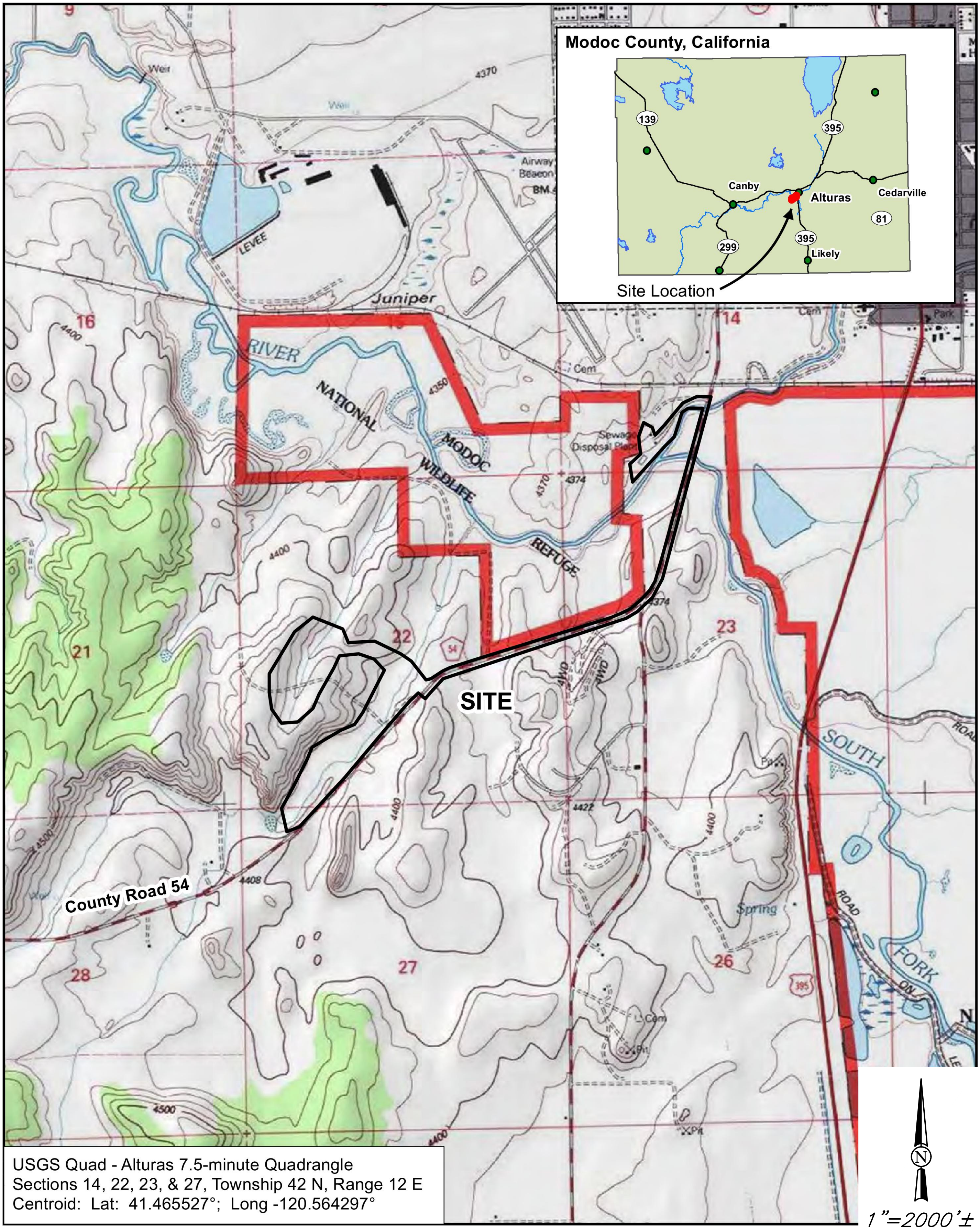
Local Setting

The proposed project is located in unincorporated Modoc County, southeast of the City of Alturas (refer to Figure 2-2, SITE VICINITY). Existing land uses within the area are comprised of grazing land and open space lands that are characterized by rolling terrain with weedy, grazed, sagebrush scrub communities. The average July maximum temperature in the City of Alturas is 88.2°F and the average minimum temperature in January is 16.5°F. No existing residents or other sensitive land uses are located adjacent to or within the immediate project vicinity. County Road 54 (Centerville Road) provides the principal means of vehicular travel in the project area. This general east-west two-lane improved roadway begins at State Route 299 (SR-299) in the unincorporated community of Canby and provides west bound access to the proposed project area, including the City's existing wastewater treatment plant (WWTP) facility.

Project Location

The City of Alturas currently owns and operates its WWTP just south of the City limits, on County Road 54, in unincorporated Modoc County (Figure 2-2). The existing WWTP is located along the north bank of the North Fork Pit River at its confluence with the South Fork Pit River and provides primary and secondary treatment with treated effluent discharged to the Pit River. This property is also used for the City's dog pound and for storage of excess City equipment. Portions of the existing WWTP are within the 100-year floodplain as defined by the Federal Emergency Management Agency (FEMA) (refer to Figure 2-3, FEMA FLOODPLAIN).

The project study area which includes the existing WWTP, proposed pipeline and new offsite aerations ponds and land application are consists of approximately 106 acres (refer to Figure 2-4, PROJECT STUDY AREA). The 106-acre study area is situated in Sections 14, 22, 23, and 27, Township 42 North, Range 12 East, of the U.S. Geological Survey's Alturas, CA, 7.5-minute quadrangle. The site ranges in elevation between 4,360 and 4,490 feet above msl. The study area consists of a portion of the developed WWTP parcel, approximately 1.4 miles of road right-of-way along County Road 54, and approximately 70 undeveloped acres at the proposed new treatment and disposal site. The facility location includes one single parcel, Assessor's Parcel Number (APN) 022-130-042.



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Alturas WWTP Improvement Project		Regional Vicinity
August 2021	Source: Enplan, October 2020	Figure 2-1

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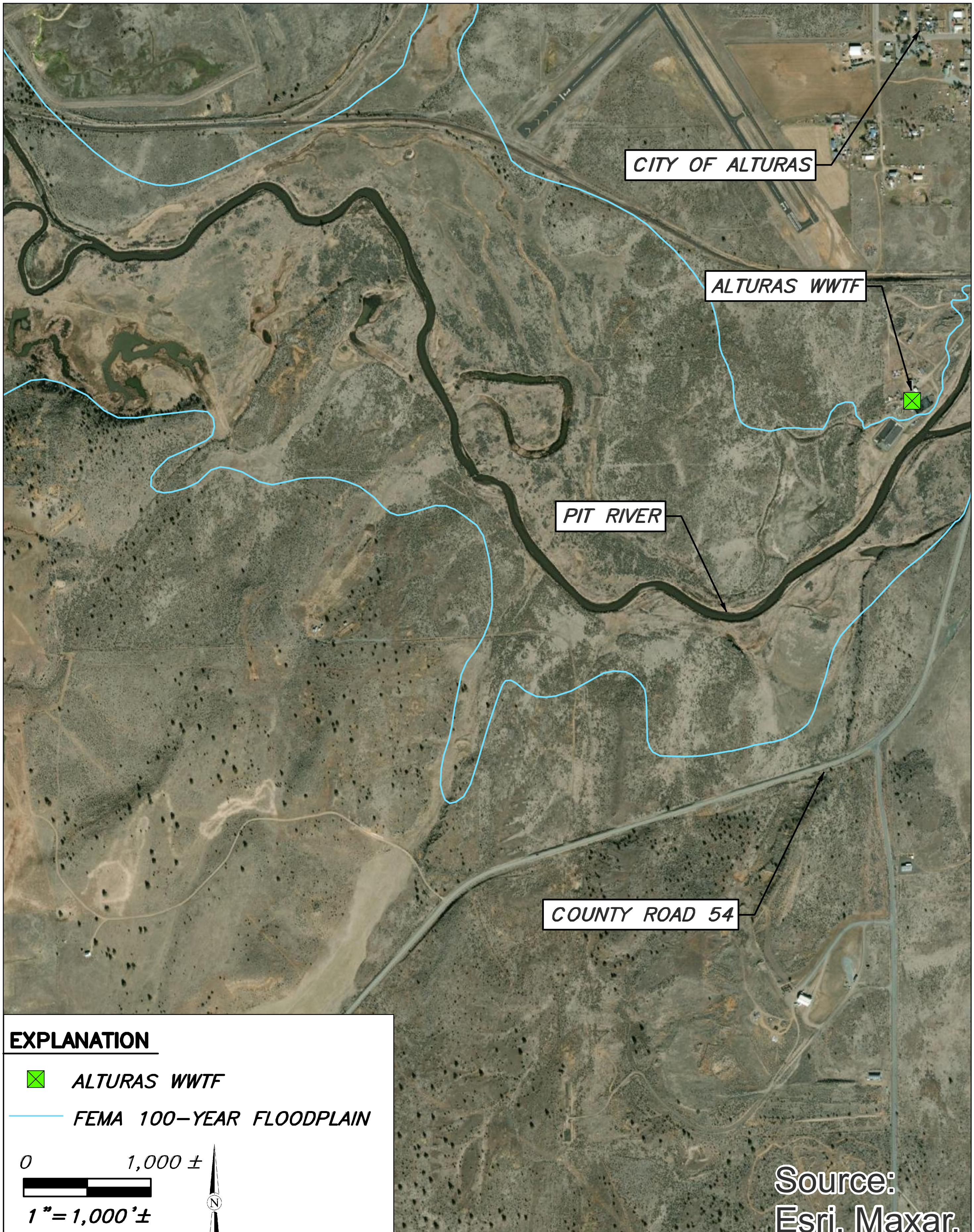
SHN	Alturas WWTP Improvement Project	Site Vicinity
August 2021	Source: SHN, 2019	Figure 2-2



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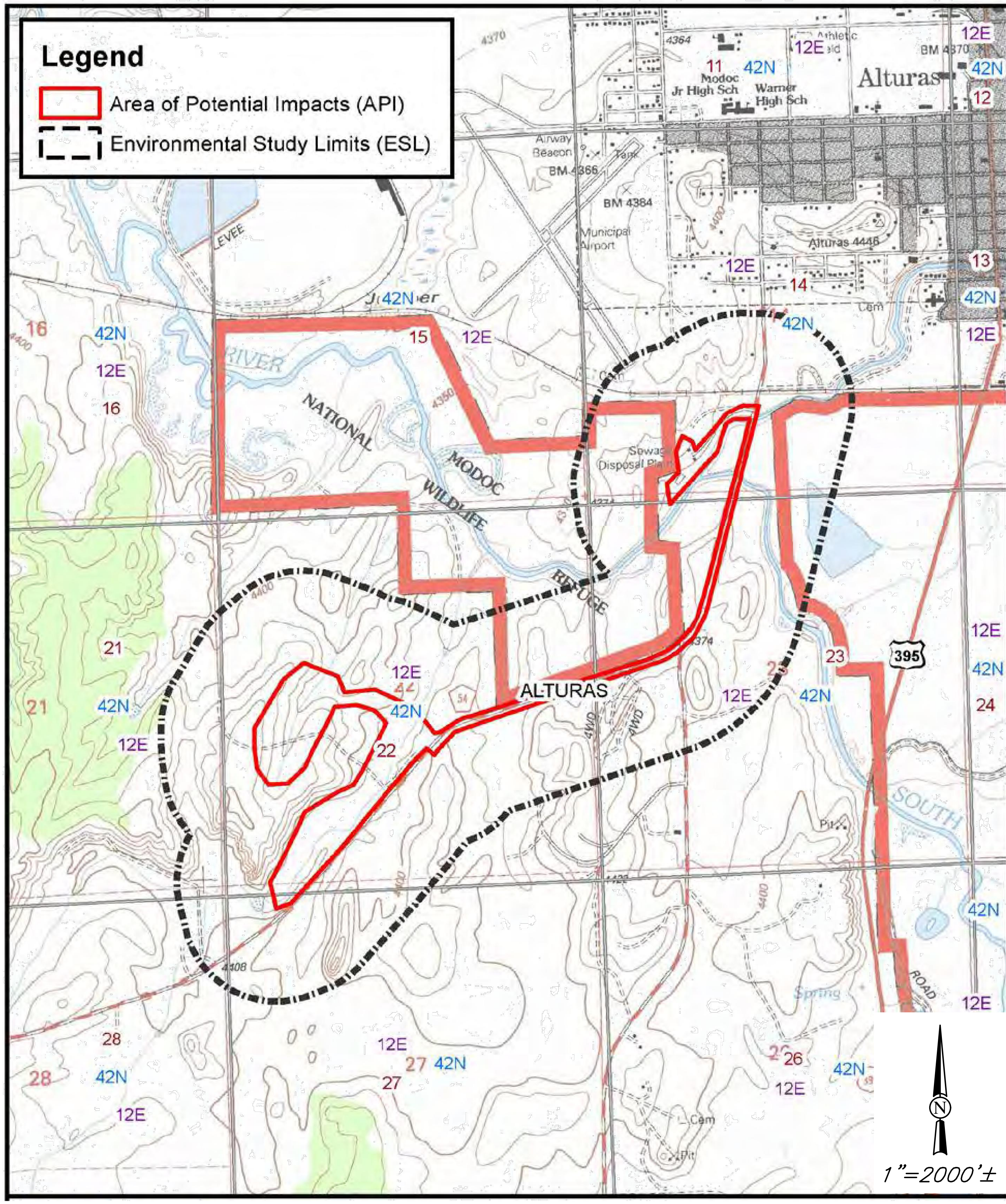
SHN	Alturas WWTP Improvement Project	FEMA Floodplain
	August 2021	Source: SHN, 2019	Figure 2-3



Alturas WWTP Improvement Project		Project Study Area
August 2021	Source: DZC, December 2020	Figure 2-4

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2.2 Existing WWTP Plant

The exact year when the original WWTP was constructed is not known; however, improvements were first constructed in 1965 with subsequent improvements completed in 1974 and 2006. The existing WWTP was originally designed for an average dry weather flow (ADWF) of 0.5 million gallons per day (MGD), with a peak day flow of 1.0 MGD. Current ADWF is approximately 0.33 MGD, and peak daily flows have been as high as 1.2 MGD. The existing WWTP is a Class II trickling filter facility with the following major components:

- Headworks (including grit removal)
- Grinder
- Influent Pump Station
- Primary Clarifier
- Trickling Filter
- Secondary Clarifiers
- Digester
- Sludge Drying Beds
- Disinfection
- Outfall (including high water pump station)

A site plan of the current WWTP is presented in Figure 2-5, EXISTING WWTP FACILITY. Figure 2-6, PROCESS FLOW DIAGRAM, illustrates the existing treatment process used onsite.

The City's WWTP has been regulated by the Central Valley Regional Water Quality Control Board (CVRWQCB) under Waste Discharge Requirements (WDR) Order No. R5-2014-0033 (NPDES No. CA0078921). At the time the WDRs were issued, it was recognized that the City was not able to comply immediately with the effluent requirements for copper, zinc, and total coliform. The City has had compliance schedules to meet effluent limits for copper and zinc since 2006 in the permit or Time Schedule Orders (TSO). Therefore, TSO R5-2014-0034-01 (as amended by Order No. R5-2015-0111) was issued by the CVRWQCB. This TSO gave interim compliance limits for copper, zinc, and total coliform. The final compliance date for copper and zinc was May 18,2020.

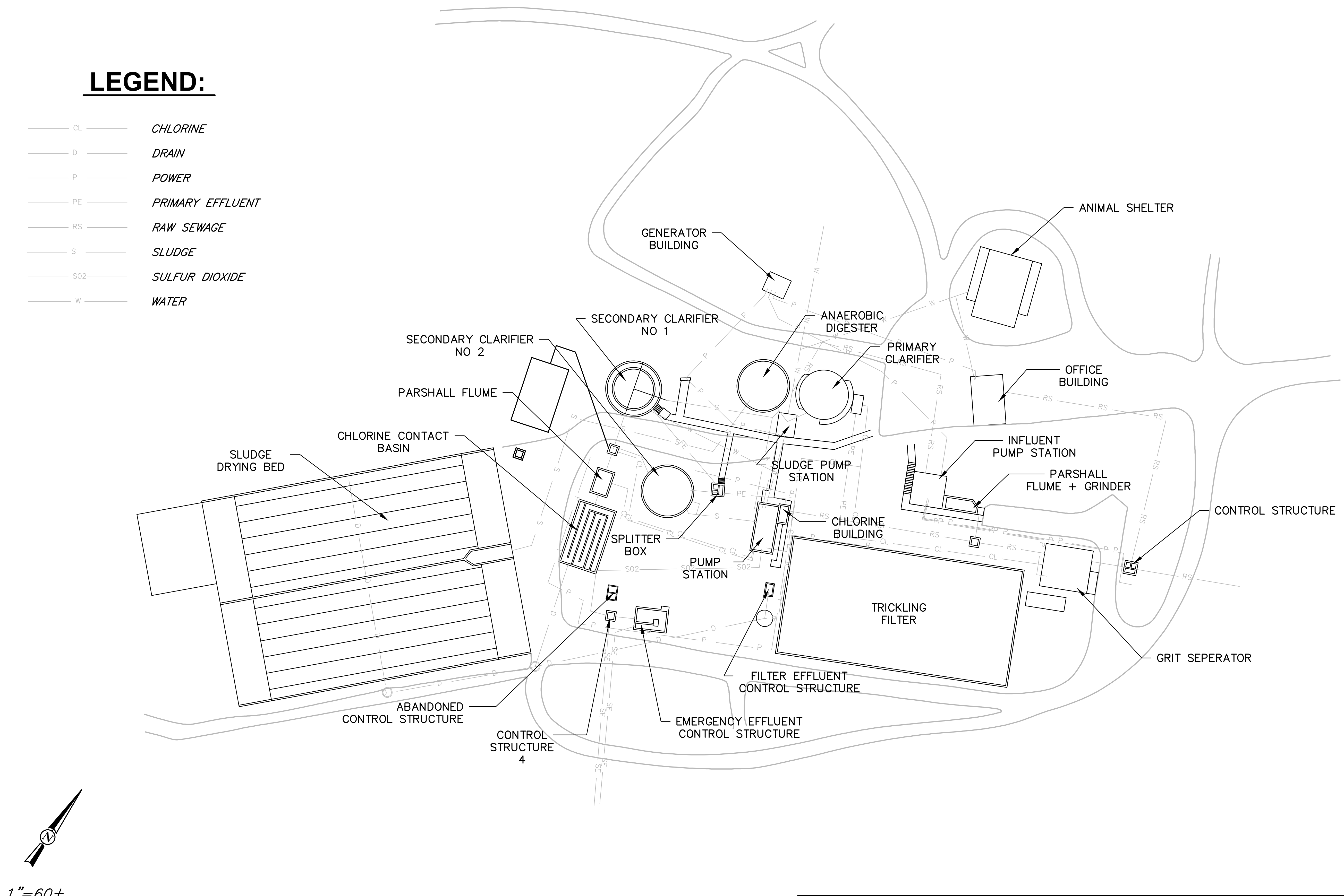
A review of effluent water quality data for 2015-2018 revealed that effluent water quality often did not meet the regulatory limits stipulated in the WDR and TSO for the following constituents: Aluminum, copper, zinc, BOD, TSS, and toxicity. The City was assessed $15,000 in civil liability for effluent limitation violations of copper and zinc in 2015. The $15,000 was treated as a permanently suspended administrative civil liability since the City completed a compliance project designed to correct the violations.

On April 1, 2020, the CVRWQCB issued a new permit under WDR Order No. R5-2020-0004, which provides interim limits through March 31, 2030 for the following constituents: Chronic Whole Effluent Toxicity, biological oxygen demand (BOD), total suspended solids (TSS), and ammonia.

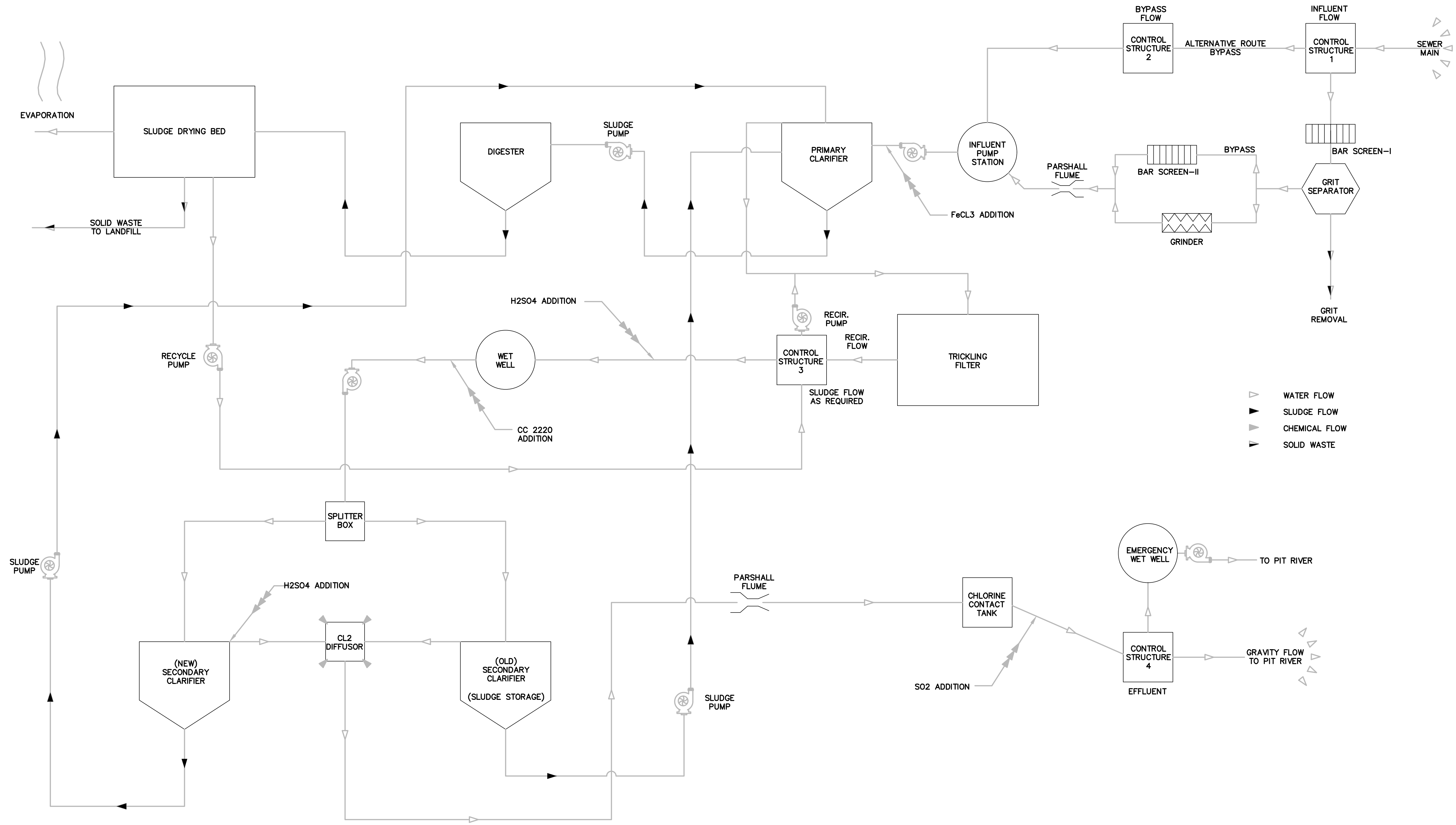
The City has had historical challenges meeting the chronic toxicity with nine out of 36 toxicity tests since 2014 having failed. The newly issued permit has the following compliance schedule for chronic toxicity:

- Until March 31, 2030, chronic whole effluent toxicity shall not exceed 16 toxicity units and a percent effect of 25% at 6.25% effluent, any endpoint as the median of up to three consecutive chronic toxicity tests within a six-week period.
- After March 31, 2030, chronic whole effluent toxicity shall not exceed 1 toxicity units and a percent effect of 25% at 100% effluent for any endpoint as the median of up to three consecutive chronic toxicity tests within a six-week period.

Suspected reasons for the toxicity violations have included ammonia and, most recently, surfactants. Other potential causes include chlorine, metals, non-polar organics, other treatment chemicals, and total dissolved solids. The most recent *Toxicity Identification Evaluation* completed by Pacific EcoRisk in August 2019 from samples collected July 8 and 10, 2019 concluded the following:



SHN	Alturas WWTP Improvement Project	Existing WWTP Facility
	August 2021 · Source: SHN, 2019	Figure 2-5



SHN	Alturas WWTP Improvement Project	Process Flow Diagram
August 2021	Source: SHN, 2019	Figure 2-6

> *"Toxicity was persistent with a 54.4% reduction in growth relative to the laboratory control…By weight of evidence, the combined visual observation of foam during air sparging and the overall improvements in cell growth from all treatments suggest that surface-active compounds (i.e., surfactants) may be causing or contributing to toxicity. Further analysis of all treatments for anionic and nonionic surfactants is recommended."*

The CVRWQCB has indicated that if the City continues to discharge to the Pit River, future permits will include effluent limits for previously nonregulated constituents which include arsenic, Bis (2-ethylhexyl) phthalate, ammonia, and nitrate+nitrite. Significant upgrades to the existing WWTP would be required to address these new effluent limits.

2.3 Project Purpose and Need

The City's existing WWTP serves a population of approximately 2,600 persons. As previously described above, treated effluent is currently discharged to the Pit River under WDR Order R5-2014-0033 and NPDES Permit No. CA0078921, issued by the CVRWQCB.

The City has had difficulty meeting permitted effluent limits for various constituents, including zinc, copper, aluminum, BOD, TSS, total coliform, and toxicity. TSO R5-2014-0034-01 (as amended by Order No. R5-2015-0111) was issued specifying interim limits for zinc, copper, and total coliform. The City obtained a Proposition 1 Wastewater Planning Grant (Agreement No. D17-04002) from the State Water Resources Control Board (SWRCB) Division of Financial Assistance (DFA) to assist the City in developing wastewater treatment plant improvements that will achieve regulatory compliance.

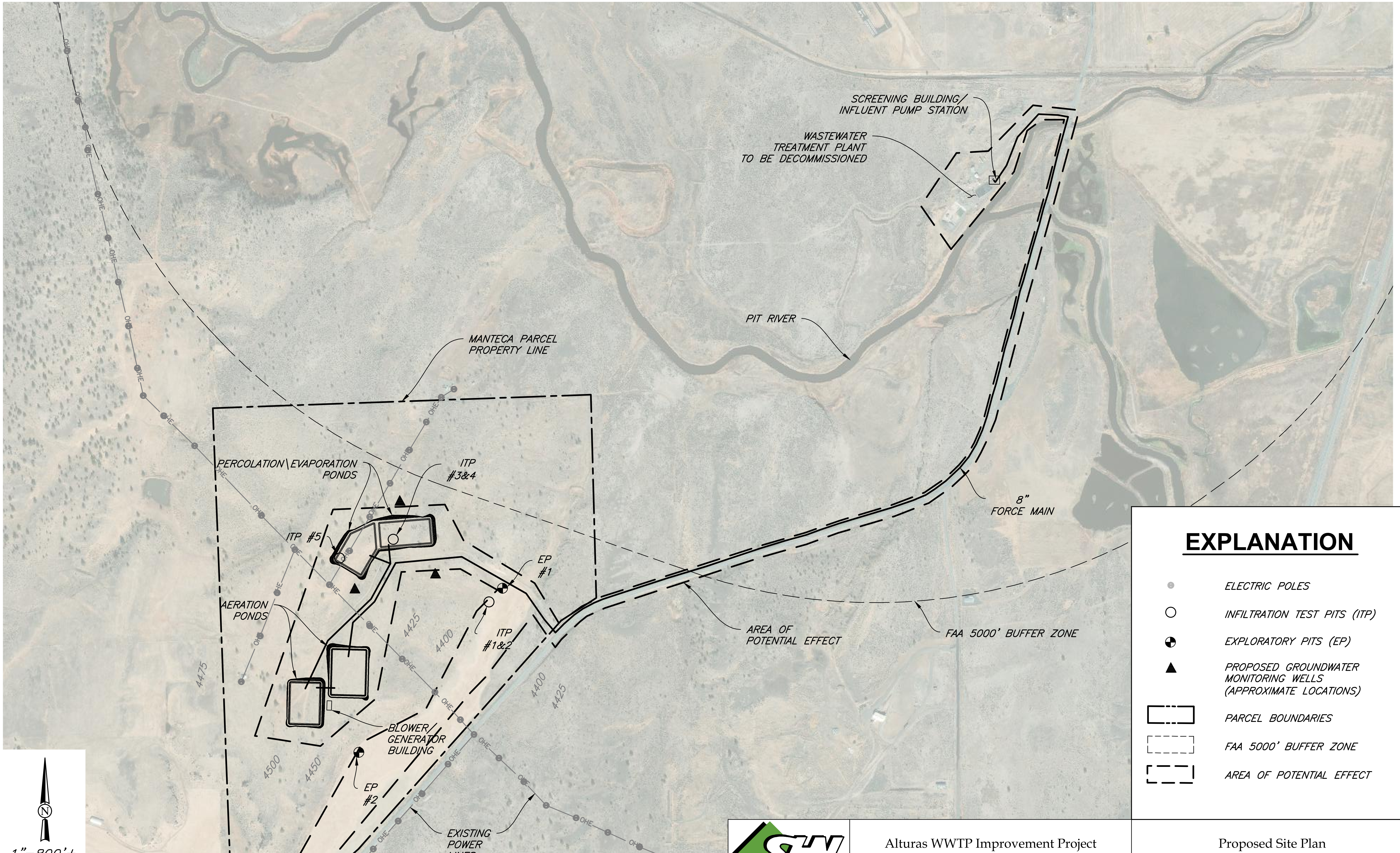
Using funding from the Proposition 1 grant, the City developed a Preliminary Wastewater Engineering Report (PER) that evaluated several alternatives that would allow the City to upgrade the WWTP and come into regulatory compliance (refer to Appendix A, *Final Wastewater Preliminary Engineering Report*). The CVRWQCB has indicated that the Pit River is a sensitive water body and would prefer to see the City use land disposal for the effluent and eliminate the permitted discharge to the river. Due to the frequency of the City's effluent exceeding regulatory levels, the CVRWQCB is concerned with the City's ability to meet the current and future effluent limits if they continue to discharge to the Pit River. A copy of the PER is included as Appendix A. Based on the studies completed in the PER, the City has chosen Alternative 3 as the proposed project.

2.4 Description of the Proposed Project

The proposed project (identified as Alternative 3 in the PER, Appendix A) consists of decommissioning the existing WWTP and moving treatment to a new offsite location where new aeration ponds would treat wastewater and the effluent would be disposed of in new evaporation and percolation ponds. Project features include the decommissioning of the existing WWTP and creating a new headworks, installation of a new influent pump station, construction of a new force main wastewater line, and construction of new aeration and evaporation/percolation (disposal) ponds (refer to Figure 2-7, PROPOSED SITE PLAN). These elements are further described below, with a summary of anticipated impacts displayed in Table 2-1, ALTURAS WASTEWATER TREATMENT FACILITY – PROJECT COMPONENTS. Aeration treatment ponds and treated effluent evaporation/percolation (disposal) ponds will be constructed on Modoc County Assessor's Parcel Number (APN) 022-130-042. This parcel will be purchased by the City for use in wastewater treatment and disposal and consists of approximately 270.4 acres of land currently used for livestock grazing.

Decommissioning of Existing WWTP

The existing WWTP will be decommissioned once the new facilities are installed and brought online. Decommissioning consists of removal of all existing mechanical equipment (pumps, motors, screens, etc.); the existing structures will remain in-place. Decommissioning also includes termination of raw wastewater flows to the existing facility. The remaining facility will be retained by the City for repurposing for other uses. Area of impact from decommissioning is anticipated to be approximately 0.5 acres, all of which has been previously disturbed by development and use of the existing WWTP.



SHN	Alturas WWTP Improvement Project	Proposed Site Plan
August 2021	Source: SHN, 2019	Figure 2-7

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Table 2-1
ALTURAS WASTEWATER TREATMENT FACILITY – PROJECT COMPONENTS

Project Component	Location	Ground Disturbing Activity	Length (feet)	Width (feet)	Depth (feet)	Height (feet)	Notes
Existing WWTP Decommissioning	Existing WWTP	Removal of Mechanical Equipment	Varies	Varies	Varies	NA	Removal of existing mechanical equipment for salvage value; structures will remain for other uses. Estimated total area within the treatment plant that may be disturbed is 0.5 acres. Impacts to the site have occurred from previously approved projects and ongoing uses as a WWTP.
Headworks	Existing WWTP	New Headworks Building	30	15	12	15	Piping at headworks connect to control structure and pump station.
		Trenching for Piping	20	10	12	NA	
Pump Station	Existing WWTP	New Pump Station	20	10	12	NA	Pump station will be above and below ground. Piping to connect pump station to new force main pipeline.
		Trenching for Piping	20	10	12	NA	
Force Main Pipeline	Shoulders of County Road 54 and APN 022-130-042 Access Road	Excavation and installation of HDPE 8-inch diameter pipe.	11,000	10	4	NA	Force main impacts will be trench excavation. Impacts consist of trench, excavated material for backfill, and area of impact from excavation equipment.
Aeration Ponds (Treatment)	APN 022-130-042	Excavation of two aeration ponds	400 (each)	240 (each)	14 (each)	NA	Aeration ponds have HDPE liner installed along with aeration piping on bottom of pond.
		Piping between ponds and to percolation ponds	500	10	4	NA	
		Blower Building	20	20	5	15	
Evaporation/Percolation Ponds (Disposal)	APN 022-130-042	Excavation of two evap/perc ponds	205 (each)	250 (each)	12	NA	Evaporation/Percolation ponds have no liner.
		Piping between ponds	70	10	4	NA	
Treatment Facility Office	Existing 672 square foot building at APN 022-130-042	None. Reuse of existing structure with interior and minor exterior work to the structure.	NA	NA	NA	Existing Structure	Existing structure will be repurposed for the City's treatment facility office. Improvements will be minor upgrades to the interior and exterior of the structure for modernization and weather proofing. No new construction would occur.

Source: SHN Consulting Engineers and Geologists, Inc. January 2021.

New Headworks and Pumpstation

Both the headworks and pump station facilities are expected impact a total of approximately 0.02 acres.

Headworks. The new headworks and pump station would be located near the existing WWTP control structure (refer to Figure 2-8). The existing wastewater raw sewage line would remain in-place to provide sewage to the headworks. The new headworks will consist of a new concrete structure built over the existing sewer line with a screw press screen and dewatering unit. The purpose of the screw press screen is to screen out solids from the wastewater stream that cannot be digested and treated in the ponds. Solids such as plastics, metals, rocks, and other debris will be removed by screening and pressing the wastewater to separate out solids and liquids. The solid 'screenings' will be conveyed and further dewatered where they will be placed into a dumpster. The dumpster will be emptied on a weekly basis by removal of solids to an approved municipal landfill. Wastewater from the headworks is directed to the pump station.

Pump Station. Wastewater from the headworks will be piped to the new pump station, which will pump wastewater through a new 8-inch force main pipeline to the new treatment and disposal area. The new effluent pump station would be a package lift station located adjacent to the existing raw sewage control structure. The pump station would be installed below grade to allow gravity flow of wastewater from the headworks to the pump station wet well. Wastewater would then be pumped through the new force main pipeline to the treatment facilities. Figure 2-8 provides the location of the pump station in relation to the headworks and the new force main.

SHN	Alturas WWTP Improvement Project	New Headworks & Pump Station
August 2021	Source: SHN, 2019	Figure 2-8

Wastewater Force Main

A new 8-inch diameter force main would run from the pump station along the existing WWTP access road to County Road 54, where it would run along the road shoulder for approximately 1.4 miles to the entrance of the disposal property. Once at the disposal property, the force main will continue for approximately 3,000 feet along an existing unpaved road where it will terminate at the location of the new aeration treatment ponds.

Figure 2-7 provides an overview of the pipeline alignment and Figure 2-8 provides a detail of the treatment property where the pipeline terminates. The new force main will cross the North Fork Pit River on the County Road 54 bridge under authorization of a Modoc County Encroachment Permit. The force main will consist of high density polyethylene (HPDE) pipe except where crossing over the Pit River, where it will be constructed with ductile iron pipe.

The force main will be placed in a new utility trench, approximately 24 inches wide and 4.5 feet in depth. The pipe will be bedded in sand or gravel and have 3 feet of soil cover over the top of the pipe. Anticipated area of direct impact of the trench is 0.51 acres along the shoulder of the existing WWTP access road, County Road 54, and the access road to the new WWTP facility. Total area of impact is estimated at 1.7 acres (at 10 feet wide disturbance area), based upon the use of a backhoe for trench excavation, the excavation of the trench and the placement of excavation material adjacent to the trench for later use in pipe cover.

Treatment and Disposal Ponds

As previously mentioned above, aeration treatment ponds and treated effluent evaporation/percolation (disposal) ponds will be constructed on APN 022-130-042 once purchased by the City. The treatment and disposal ponds are discussed below. Figure 2-8 provides and overview of the treatment and disposal areas.

Treatment Ponds. The proposed project will construct two wastewater aeration (treatment) ponds. Aeration of the wastewater will provide the mechanical and biological breakdown of the wastewater needed prior to disposal. The ponds will be 400-feet long by 240-feet wide each, with a 3:1 side slope and a 12 foot water depth. Each pond will hold approximately 6.7 million gallons of wastewater (20.6 acre-feet). Each pond will be lined with a 60 millimeter HDPE liner, with coarse and fine bubble aerators installed on the pond bottoms. Aeration will occur by way of three blowers housed in a new blower building providing air to the bubblers. The new blower building will be approximately 400 square feet in size.

Power for the operation of the aeration blowers will be provided by existing onsite power provided by the local electric utility. A new power drop will be required as part of the construction of the blower building and will occur as part of the future construction of the project. Aeration is expected to occur 24 hours per day in both ponds.

Disposal Ponds. The proposed project will also construct two wastewater evaporation/percolation (disposal) ponds; these ponds would not be lined. The purpose of these ponds is to accept the treated wastewater effluent from the aerated ponds and allow this effluent to both evaporate to air and percolate into the local soil. Evaporation rates will vary depending on time of year (hot/dry periods will evaporate faster); percolation rates have been estimated from field tests to be in excess of 400 feet per year at the site.

Each pond will have an approximate storage area between 1.1 and 1.5 acres in size, equating to a maximum storage capacity of approximately 2.9 million gallons (9.0 acre-feet). These evaporation/percolation ponds are not anticipated have a static water level, as evaporation and percolation 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.

Total area of anticipated impact from the creation of the 4 ponds (treatment and disposal) is estimate at 7.4 acres, with another 2.5 acres of anticipated disturbance around the ponds for construction and other facility improvements for an estimated total area of impact of approximately 10 acres.

Existing Building Renovation. The existing building located on APN 022-130-042 is approximately 672 square feet with an existing bathroom. The facility has been previously used as a residence to manage activities at the site. The building has existing utility connections for electricity, water, and an onsite septic system. The City proposes to repurpose this existing building as its treatment facility office. Anticipated work on the existing structure would be to interior spaces to provide routine maintenance and upgrades for use as a City facility. Work is anticipated to include painting, flooring and potentially communications equipment upgrades. Exterior work to the facility may include painting, maintenance to the roof, exterior walls, and windows to provide water tightness. Security lights may be installed at the building entrance door. There is sufficient parking at the site.

Since the structure has existing utilities located at the site, there will be no need for excavations or other site development work. Once upgrades/improvements are completed, the City will use the building for staff use during operations and maintenance of the new wastewater treatment facility.

Sphere of Influence Amendment

The proposed project site is located approximately 1.4 miles outside of the City's Sphere of Influence (SOI), within unincorporated Modoc County. Implementation of the proposed project would require an approved SOI amendment in addition to a general plan amendment from Rural Residential (RR) (Modoc County) to Public Facilities (City of Alturas) and a concurrent pre-zone of the entire property from Unclassified (U) to Agriculture (AG). Table 2-2, PROPOSED SOI AMENDMENT AND PRE-ZONE, illustrates the various land use approvals.

Table 2-2
PROPOSED SOI AMENDMENT AND PRE-ZONE

Existing County General Plan Land Use Designation	Proposed City General Plan Designation[1]	Sphere of Influence Amendment[2]	Existing County Zoning	Proposed City Pre-Zoning[3]
Rural Residential (RR)	Public Facility (PF)	Yes	Unclassified (U)	Agriculture (AG)

1. Public Utility Service Facilities are conditionally allowed in the Agricultural (AG) zone subject to issuance of a use permit by the City.
2. Once property is acquired by the City, LAFCO approval of a non-contiguous sphere of influence amendment request is required.
3. Pre-zoning of the site by the City is required before LAFCO can take action on the sphere of influence amendment.

Upon City purchase of the subject property and prior to initiation of construction, the City will submit an application "non-contiguous City-owned territory for municipal purposes" (GC Section 56742) to LAFCO for consideration. Section 56742 of the Government Code allows annexations of city-owned non-contiguous territory as follows:

(a) Notwithstanding Section 56741 (territory within the same county), upon approval of the commission a city may annex non-contiguous territory not exceeding 300 acres if the territory meets all of the following requirements:

  (1) It is located in the same county as this in which the city is situated.
  (2) It is owned by the City.
  (3) It is used for municipal purposes at the time commission proceedings are initiated.

(b) Territory which is used by a city for the reclamation, disposal, and storage of treated wastewater may be annexed to the city pursuant to this section without limitation as to the size of the territory.

(c) If territory is annexed pursuant to this section, the annexing city may not annex any territory not owned by the city, not used for municipal purposes, and not contiguous to the city, although the territory is contiguous to the territory annexed pursuant to this section.

As previously discussed under Section 1.0, INTRODUCTION, the City of Alturas intends to apply for funding through the State Water Resources Control Board (SWRCB) Clean Water State Revolving Fund (CWSRF) Program, partially funded by the U.S. Environmental Protection Agency (USEPA). Upon receipt of funding through the CWSRF Program, the City will initiate property procurement and pre-zoning activities as noted above. Once the City approves a pre-zoning ordinance for the subject parcel, a formal application to amend the City's SOI will be submitted to LAFCO for consideration and action.

2.5 Alternatives Considered

This section provides information on the alternatives that were considered during development of the *Final Wastewater Preliminary Engineering Report* (PER) (SHN, 2020) and is provided here to show the range of alternatives that were evaluated in development of the proposed project (refer to Appendix A). Three alternatives (including the proposed project) were considered in detail as part of the engineering analysis in the PER. Those alternatives included rehabilitation of the existing facility with continued discharge of treated effluent to the Pit River (Alternative 1), rehabilitation of the WWTP with land disposal of treated effluent (Alternative 2), the proposed project (Alternative 3). Detailed descriptions and engineering analysis of those alternatives are found in the PER. Alternatives 1 and 2 were not selected for further analysis because they 1) both had a higher net present worth than the proposed alternative, 2) Alternative 1 continued to discharge treated wastewater effluent to the Pit River, which is discouraged by the CVRWQCB, and 3) both alternatives had higher up front capital costs and long-term operational costs when compared to the proposed project.

Other alternatives evaluated in the PER, but not considered in detail included:

- Optimizing the current WWTP Operations;
- Interconnecting with other existing wastewater systems; and
- Developing centrally managed decentralized systems, such as cluster systems.

None of these alternatives were evaluated in the PER as they were not feasible due to excessive costs, dilapidated existing infrastructure that made optimizing the systems impossible, or the inability to connect to other wastewater systems due to the rural and lightly populated areas surrounding the City where no other sewer systems are located.

The PER noted that the No Action/No Project alternative was not evaluated; the No Action/Project alternative would essentially be status quo, where no improvements to the WWTP would be developed and the City would continue to discharge treated non-compliant effluent to the Pit River under an NPDES permit. Evaluation of this alternative was not considered practical, or necessary, as part of the PER as no-action would continue to place the City at jeopardy from future non-compliance violations which could lead to monetary penalties as well as continue to jeopardize the water quality of the Pit River.

References and Citations

Alturas (City of Alturas). 2014. *City of Alturas General Plan*. November 2014.

Alturas. 2019. *City Alturas Municipal Code*. August 2019.

DOF (California Department of Finance). 2020a*. Table E-1: City/County Population Estimates with Annual Percent Change*. May 2020.

DOF. 2020b. *Table E-5: City/County Population and Housing Estimates*. May 2020.

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SHN (SHN Consulting Engineers and Geologists, Inc.). 2020. *Final Wastewater Preliminary Engineering Report*. November 2020.

Section 3.0
Environmental Impacts & Mitigation Measures

This section provides an evaluation of the potential environmental impacts of the proposed Alturas Wastewater Treatment Plant Improvement Project located in unincorporated Modoc County, as well as the CEQA Mandatory Findings of Significance. A discussion of cumulative impacts is included at the end of this chapter. The issue areas evaluated in this Initial Study include:

- Aesthetics
- Agricultural 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 City in its environmental review process. This checklist has been updated with the revisions of the January 1, 2019 State CEQA Guidelines. 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 development will not have any measurable impact on the environment.

- **Less Than Significant Impact.** The development 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 development 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 development's physical or operational characteristics can reduce these impacts to levels that are less than significant.

- **Potentially Significant Impact.** The development 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 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.

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

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. The project study area is located in the eastern portion of central Modoc County, and extends from the City's existing wastewater treatment plant (WWTP), along County Road 54 to APN 022-130-042 (a distance of approximately 1.4 miles). The County has not designated specific scenic vistas in the immediate project area as a part of the Modoc County General Plan (Modoc, 1998).

California's Scenic Highway Program was created by the Legislature in 1963. Its purpose is to preserve and protect scenic highway corridors from changes that would diminish the aesthetic value of lands adjacent to highways. According to Caltrans' California Scenic Highway Program and the National Scenic Byways Program, the proposed project is not located near a highway which has been listed as a State or federal Scenic Highway or as an Eligible State Scenic Highway-Not Officially Designated (Caltrans, 2018; FHWA, 2018).

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 aesthetics impacts include the following:

- **California Building Code.** The California Building Code, Part 2 of Title 24 in the California Code of Regulations (CCR) includes standards for outdoor lighting that are intended to improve energy efficiency and reduce light pollution and glare by regulating light power and brightness, shielding, and sensor controls.

- **City of Alturas Zoning Ordinance Article 4.** The City's zoning ordinance Article 4 Section 28.44 provides lighting standards within the City. Exterior parking and building lighting are regulated to eliminate light spillover and glare for safety considerations. All new construction projects are required to submit a lighting plan detailing locations, size, height, and design of all outdoor lighting. Lighting is required to be shielded and directed downward and away from adjacent properties.

Impact Analysis

Degradation of the visual character of a site is usually addressed through a qualitative evaluation of the changes to the aesthetic characteristics of the existing environment and the proposed project-related modification that would alter the visual setting. In order to analyze the potential impacts of visual resources, as seen from potential public scenic views, and to document potential change in character or quality within the project area, the existing visual conditions as seen from County Road 54 has been evaluated.

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. The CEQA Checklist question, discussion, and environmental significance conclusions are provided below under each individual environmental parameter related to *Aesthetics*.

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

Discussion: As noted above, the County has not designated specific scenic vistas in the immediate project area as a part of the Modoc County General Plan and there is no designated State or federal scenic highways or scenic highway corridors in the vicinity of the proposed project. The proposed project consists of decommissioning the existing WWTP and moving treatment to a new offsite location where new aeration ponds would treat wastewater. Project features include the decommissioning of the existing WWTP and creating a new headworks, installation of a new influent pump station, construction of a new force main wastewater line within County Road 54, and construction of new aeration and evaporation and percolation ponds.

The proposed project would include construction along County Road 54 through rural and grazing lands and along County Road 54, from which long-distance views are available and construction activities may result in minor temporary disruptions to views. Viewers such as travelers to and from Canby and Alturas would notice alterations in scenic resources during construction activities. However, the pipeline would be installed below grade and within the roadway right-of-way through trenching and directional drilling. Construction effects along the pipeline route would be temporary, and all areas would be returned to pre-project conditions upon completion of construction. The localized and temporary disruption of long-distance views associated with construction activities would not be considered a substantial, adverse effect on long-distance views in the area.

The new headworks and pump station at the existing WWTP facility would have structure heights that would not exceed 15 feet above ground surface. To minimize visual impacts, the percolation and evaporation ponds would be constructed below grade with a 3:1 slope. The pipeline would be installed underground and no permanent effects to scenic resources would occur as a result of the project. The project would not introduce new structures that would be dissimilar to nor located adjacent to nearby receptors such that development at either end of the proposed project would preclude long-distance views. Due to these factors, the project would result in a less than significant impact and would not substantially have a substantial adverse effect on a scenic vista. No mitigation measures are required.

Mitigation Measures: No mitigation measures are required. Impacts would be less than significant.

Would the Project:	**Potentially Significant Impact**	**Potentially Significant Impact Unless 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

Discussion: All roadways in Modoc County are considered to be scenic according to the General Plan, however there are no officially designated scenic roadways, ridgeways, or vista points within the County (Modoc, 1988). This project would not impede any scenic vistas or disrupt any larger scenic views. No impacts would occur in this regard.

Mitigation Measures: No mitigation measures are required.

Would the Project:	Potentially Significant Impact	Potentially Significant Impact Unless Mitigation Incorporated	Less-Than-Significant Impact	No Impact
c) In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?			X	

Discussion: The project site is located within unincorporated Modoc County, southwest of the City of Alturas. Non-urbanized grazing areas are present within the project study area, including the pipeline route along County Road 54. According to the Modoc County General Plan, all county roads are considered to be scenic (Modoc, 1988). As discussed above, the project may temporarily degrade the existing visual character or quality of the site during construction. The pipeline would be installed within the roadway right-of-way and below grade adjacent to rural grazing lands. As a result, project construction may temporarily hinder views for travelers along County Road 54 during construction activities. However, upon completion of construction, all disturbed areas along the pipeline route would be returned to pre-project conditions. As a result, the pipeline component would not substantially degrade the existing visual character or quality of the area and would not be considered to conflict with zoning or other regulations related to the protection of views along county roads.

As noted above, proposed new structures at the exiting WWTP facility would be constructed adjacent to existing uses. New proposed facilities at APN 022-130-042 include percolation and evaporation ponds and the repurposing of an existing residential structure to support facility operations. To minimize visual impacts, the percolation and evaporation ponds would be constructed below grade with a 3:1 slope. As a result, the proposed project would not introduce new structures that would be dissimilar to nor located adjacent to nearby receptors such that development at either end of the proposed project would preclude long-distance views. The proposed project would not conflict with applicable zoning or regulations regarding scenic quality and would be subject to City review requirements. Therefore, impacts to the visual character of the surrounding area or impacts to public views are considered less than significant.

Mitigation Measures: No mitigation measures are required. Impacts would be less than significant.

Would the Project:	Potentially Significant Impact	Potentially Significant Impact Unless Mitigation Incorporated	Less-Than-Significant Impact	No Impact
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?			X	

Discussion: Light pollution occurs when nighttime views of the stars and sky are diminished by an over-abundance of light coming from the ground. Light pollution is a potential impact from the operation of any light source at night. Proper light shields, lighting design, and landscaping are commonly used to reduce light pollution generated from lighting by blocking the conveyance of light upwards.

The project would not include substantial additional sources of light or glare and would be subject to Article 4, Section 28.44, *Outdoor Lighting Standards*, of the City's zoning ordinance. The project would include partial decommissioning of existing WWTP facilities as well as the construction of percolation and evaporation ponds and associated force mains within an existing county-maintain road. The project would continue to provide localized lighting in and around the existing WWTP site after decommissioning for safety, but this would not create a significant new light source. Some new security lighting would be required at the new WWTP but similar to the existing WWTP facility, lighting would be angle down and towards the proposed facilities such that substantial spillover of artificial light or night lighting would not occur. Further, the proposed project would not introduce new windows or highly reflective materials or structures. Along the pipeline route, project components would be located below grade and would not result in additional lighting or glare along the entirety of the route. As a result, this impact would be less than significant.

Mitigation Measures: No mitigation measures are required. Impacts would be less than significant.

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*.

References and Citations

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National Wild and Scenic Rivers System. 2018. [Online]: https://www.rivers.gov/california.php. Accessed January 10, 2021.

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II. Agricultural Resources

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

Environmental Setting

The existing wastewater treatment plan (WWTP) site is primarily developed or intensively disturbed. Although some sagebrush scrub habitat is present in places. Disturbed ruderal habitats and some intact sagebrush scrub habitat are present in the road right-of-way along County Road 54. The disposal site (APN 022-130-042) consists of a large, previously leveled, and irrigated terrace near County Road 54, as well as rolling terrain with a very weedy, grazed, sagebrush scrub community (ENPLAN, 2020). 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. The classifications under the FMMP are as follows:

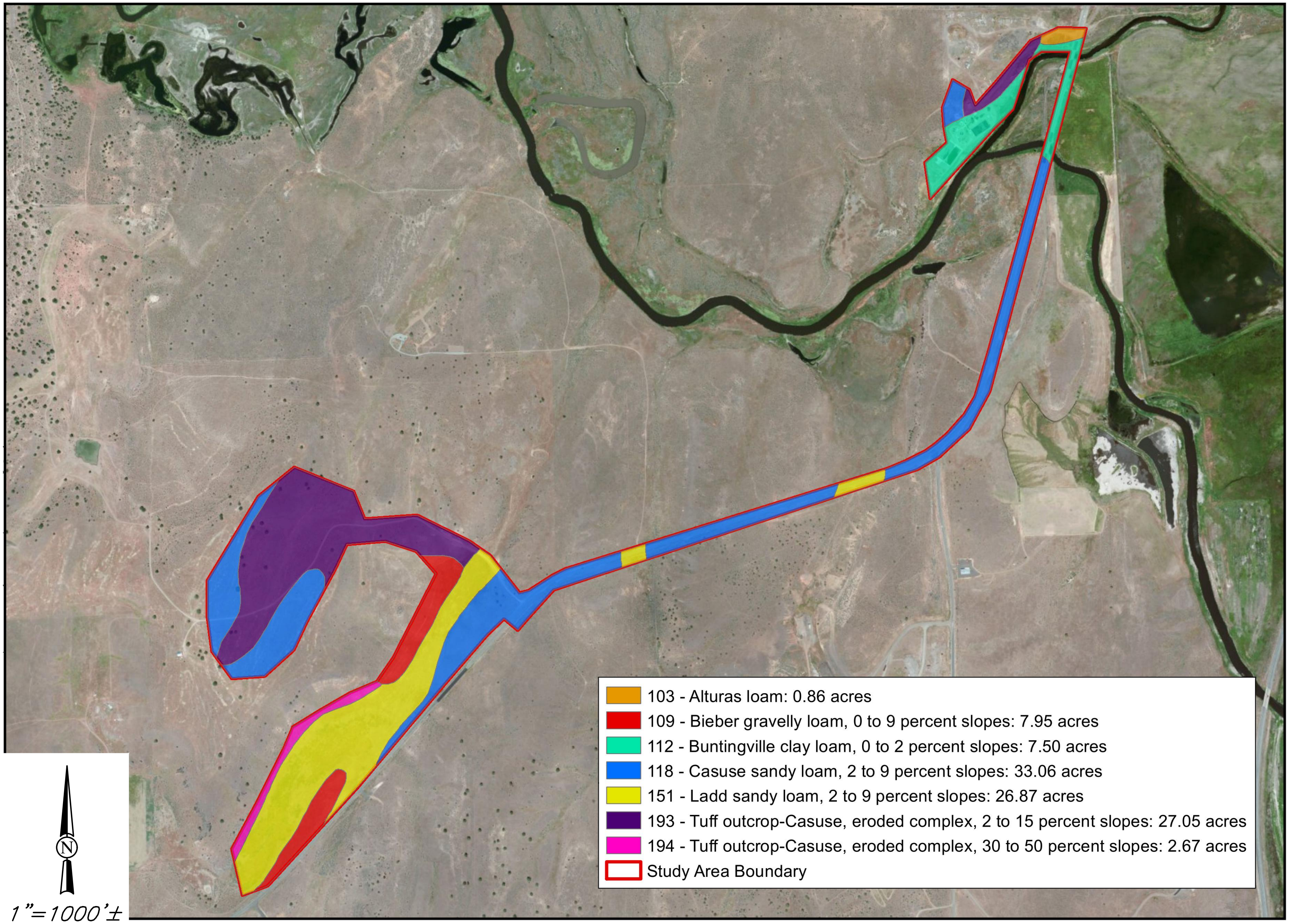
- *Prime Farmland*—land that has the best combination of features for the production of agricultural crops;
- *Farmland of Statewide Importance*—land other than Prime Farmland that has a good combination of physical and chemical features for the production of agricultural crops, but that has more limitations 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.

CEQA Section 21095 and CEQA Guidelines Appendix G, together, define Prime, Unique, and Farmland of Statewide Importance as "Important Farmland," whose conversion may be considered significant. According to the U.S. Department of Agriculture, Natural Resources Conservation Service (NRCS, 2020), seven soil units have been mapped within the project study area (refer to Table 3-1, SUMMARY OF ONSITE SOIL UNITS, and Figure 3-1, PROJECT AREA SOILS MAP). As noted in Table 3-1, the principal soil type in the project study area is the Ladd sandy loam, 2 to 9 percent slopes (map symbol 151). This soil located classification is present on an approximate 25-acre portion of the proposed wastewater disposal property (APN 022-130-042) and is considered "Prime Farmland if Irrigated." Portions of the existing WWTP facility is comprised of "Farmland of Statewide Importance" and "Prime" soils (Table 3-1). In addition, the DOC's Farmland Mapping and Monitoring Program for Modoc County identifies portions of the project study area as Farmland of Local Importance and Grazing Lands (DOC, 2018).

Table 3-1
SUMMARY OF ONSITE SOIL UNITS

Map Symbol	Soil Unit Name	Acreage Onsite	Farmland Classification
103	Alturas loam	0.86	Farmland of Statewide Importance
109	Bieber gravelly loam, 0 to 9 percent slopes	7.95	Not Prime Farmland
112	Buntingville clay loam, 0 to 2 percent slopes	7.50	Prime Farmland
118	Casuse sandy loam, 2 to 9 percent slopes	33.06	Not Prime Farmland
151	Ladd sandy loam, 2 to 9 percent slopes	26.87	Prime Farmland if Irrigated
193	Tuff outcrop-Casuse, eroded complex, 2 to 15 percent slopes	27.05	Not Prime Farmland
194	Tuff outcrop-Cause, eroded complex, 30 to 50 percent slopes	2.67	Not Prime Farmland

Source: NRCS, 2020.



Alturas WWTP Improvement Project		Project Area Soils Map
August 2021	Source: Enplan, October 2020	Figure 3-1

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. There are no parcels under active Williamson Act contact within the project vicinity.

Regulatory Setting

This section summarizes current federal, State, and local regulations relevant to the review of *Agricultural 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), 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. The FMMP was established by the California DOC, under the Division of Land Resource Protection. Important Farmland Maps are compiled by the FMMP pursuant to §65570 of the California Government Code. The FMMP is an informational service only and does not constitute state regulation of local land use decisions. Under the FMMP, "Important Farmland Categories" were established based on soils characteristics that have significant agricultural production values.

- **California Land Conservation Act.** The California Land Conservation Act of 1965, commonly referred to as the Williamson Act, is promulgated in California Government Code §51200-51297.4. The Williamson Act enables local governments to enter into 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.

- **Farmland Security Zone Contract.** The DOC passed the Farmland Security Zone legislation (Govt. Code §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)."*

Impact Analysis

In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment (LESA) Model (1997, as updated) prepared by the California DOC as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection (CAL FIRE) regarding the State's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board (CARB).

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. The CEQA Checklist question, discussion, and environmental significance conclusions are provided below under each individual environmental parameter related to *Agricultural Resources*.

Would the Project:	**Potentially Significant Impact**	**Potentially Significant Impact Unless 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

Discussion: As previously described in Section 2.0, PROJECT DESCRIPTION, the proposed project consists of decommissioning the City's existing WWTP and moving treatment to a new offsite location (APN 022-130-042). Project features include the decommissioning of the existing WWTP and creating a new headworks, installation of a new influent pump station, construction of a new force main wastewater line within County Road 54, and construction of new aeration and evaporation and percolation ponds.

APN 022-130-042 consists of approximately 270.4 acres of land currently used for livestock grazing, however approximately 70 acres will be converted for purpose of implementing the proposed project. Approximately 25 acres of APN 022-130-042 is comprised of the Ladd sandy loam soil classification and has been actively farmed (Figure 3-1). This area of the site is considered Prime Farmland as identified by the DOC's Important Farmland Series Mapping and Monitoring Program. To minimize impacts to Prime Farmland soils, the proposed project has been designed to utilize existing dirt access roads for onsite pipeline placement and disposal ponds have been sited to the north on non-prime farmland soils (refer to Figure 2-7, PROPOSED SITE PLAN).

The proposed project would also include pipeline construction through rural and grazing lands and along County Road 54. However, the pipeline would be installed below grade and within the existing roadway right-of-way through trenching and directional drilling. Construction effects along the pipeline route would be temporary, and all areas would be returned to pre-project conditions upon completion of construction. As a result, no impacts to prime, unique or farmlands of statewide importance would occur from pipeline construction.

Decommissioning also includes termination of raw wastewater flows to the existing facility. Decommissioning of portions of the existing facility consists of removal of all existing mechanical equipment (pumps, motors, screens, etc.); the existing structures will remain in-place; however, to facilitate wastewater transfer from this facility to the proposed new facility on APN 022-130-042, a new headwall structure and pump station will be constructed on an area previously by the existing WWTP. The remaining facility will be retained by the City for repurposing for other uses. The area of impact from decommissioning is anticipated to be approximately 0.5 acres, all of which has been previously disturbed by development and use of the existing WWTP. Although the existing WWTP facility is comprised of soils considered to be Prime and Farmland of Statewide Importance, these soils have been highly disturbed by the existing facility and decommissioning activities do not have the potential to convert prime soils to non-agricultural uses. No impact would occur in this regard.

Mitigation Measures: No mitigation measures are required.

Would the Project:	Potentially Significant Impact	Potentially Significant Impact Unless Mitigation Incorporated	Less-Than-Significant Impact	No Impact
b) Conflict with existing zoning for agricultural use, or a Williamson Act Contract?				X

Discussion: The proposed project site is not under a current Williamson Act contract. In addition, the proposed project site is not under a Farmland Security Zone contract or within an agricultural preserve. Therefore, project implementation would not result in conflicts with existing agricultural zoning. A no impact would occur in this regard.

Mitigation Measures: No mitigation measures are required.

Would the Project:	Potentially Significant Impact	Potentially Significant Impact Unless Mitigation Incorporated	Less-Than-Significant Impact	No Impact
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 PRC section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?				X

Discussion: The project site, including the pipeline alignment, is not zoned as either forest land or timberland. The project would not conflict with existing zoning for, or cause rezoning of, forest land, timberland, or timberland zoned Timberland Production. There would be no impact. No mitigation measures are required.

Mitigation Measures: No mitigation measures are required.

Would the Project:	Potentially Significant Impact	Potentially Significant Impact Unless Mitigation Incorporated	Less-Than-Significant Impact	No Impact
d) Result in the loss of forest land or conversion of forest land to non-forest use?				X

Discussion: The proposed project is not located within existing forest land. The project would not result in the loss of forest land or conversion of forest land to non-forest use, and there would be no impact. No mitigation measures are required.

Mitigation Measures: No mitigation measures are required.

Would the Project:	Potentially Significant Impact	Potentially Significant Impact Unless Mitigation Incorporated	Less-Than-Significant Impact	No Impact
e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland to non-agricultural use or conversion of forest land to non-forest use?				X

Discussion: Refer to impact discussion under Section II.a, above. In addition, the proposed project is not located within or within close proximity to existing forest land. The project would not result in the loss of forest land or conversion of forest land to non-forest use, and there would be no impact. No mitigation measures are required.

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 *Agricultural Resources*.

References and Citations

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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 U.S. Environmental Protection Agency (EPA), California Air Resources Board (CARB), and the Modoc County Air Pollution Control District (MCAPCD). Where quantification was required, emissions were modeled using the California Emissions Estimator Model (CalEEMod).

Environmental Setting

Modoc County and the City of Alturas are located in the Northeast Plateau Air Basin (NPAB). The NPAB is composed of Siskiyou, Modoc, and Lassen counties and has a climate that is distinct from the rest of California. The NPAB includes part of the Klamath Mountains to the west and the Cascade Range and Modoc Plateau, plus a portion of the Great Basin, along its eastern edge. The climate of NPAB has sharply defined seasons that follow a continental, rather than marine, pattern. Winters are cold and snowy, summers warm and dry (Carle, 2006).

The predominant wind pattern in the Alturas area is from the west from March to October and from the south from October to March (WRCC, 2002). The average wind speed in the Alturas area is 5.5 miles per hour (WRCC, 2006). The average maximum temperature in the Alturas area in July is 88.2°F and the average minimum temperature in January is 16.5°F (WRCC, 2016). The average annual rainfall in the Alturas area is approximately 12.3 inches with the majority falling between November and May. The project area receives no transported air pollution from major urban areas. The NPAB, including Modoc County, is listed as "attainment" or "unclassified" for all the federal and state ambient air quality standards (CARB, 2018-2019).

Sensitive receptors (e.g., 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, convalescent homes, and retirement homes. The project sites are located southwest of the City of Alturas amidst agricultural and grazing lands. The nearest known potential sensitive receptors to the proposed project sites (parcels 003-260-010 and 022-130-042) includes a residence approximately 0.3 miles northeast of the existing WWTP site (003-260-010) and a residence approximately 0.5 miles southwest of the new WWTP site (022-130-042).

Odors generally are regarded as a nuisance rather than a health hazard. However, manifestations of a person's reaction to foul odors can range from psychological (e.g., anger or anxiety) to physiological (e.g., circulatory, and respiratory effects, nausea, vomiting, or headache). The ability to detect odors varies considerably among the population and the odor interpretation is subjective. Some individuals have the ability to smell small quantities of specific substances. Others may not have the same sensitivity but may have sensitivities to odors of other substances. In addition, people may have different reactions to the same odor. An odor that is offensive to one person (e.g., from a fast-food restaurant) may be perfectly acceptable to another. Unfamiliar odors are detected more easily than familiar odors and are more likely to be offensive. Quality and intensity are two properties present in any odor. The quality of an odor indicates the nature of the smell experience. For instance, if a person describes an odor as flowery or sweet, then the person is describing the quality of the odor. Intensity refers to the strength of the odor. Odor intensity depends on the odorant concentration in the air. When an odorous sample is progressively diluted, the odorant concentration decreases. As this occurs, the intensity of the odor weakens and eventually becomes so low that detection or recognition of the odor is difficult. At some point during dilution, the concentration of the odorant reaches a detection threshold. An odorant concentration below the detection threshold means that the concentration in the air is not detectable by the average person (Siskiyou County, 2017). Odors currently present on a periodic basis in the project area are generated from the existing Alturas WWTP, nearby grazing operations, and County Road 54.

Regulatory Setting

This section summarizes the laws, ordinances, regulations, and standards that are applicable to the proposed project. The following is a description of federal, State, and local environmental laws and policies that are relevant to the CEQA review process for this project.

Criteria Air Pollutants

The Clean Air Act (CAA) requires the U.S. Environmental Protection Agency (USEPA) to set National Ambient Air Quality Standards (NAAQS) for six common air pollutants (also known as "criteria air pollutants") (USEPA, 2018). Concentrations of criteria air pollutants are used as indicators of ambient air quality conditions. The USEPA has established a maximum concentration (air quality standard) for each criteria air pollutant, above which adverse effects on human health may occur. When an area does not meet the air quality standard for one of the criteria air pollutants, it may be subject to the formal rule-making process, which designates it as nonattainment.

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

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

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

In 1959, California enacted legislation requiring the state Department of Public Health to establish air quality standards. California law continues to mandate California ambient air quality standards (CAAQS), which are often more stringent than the NAAQS (CARB, 2019). The California Air Resources Board (CARB) is responsible for setting standards and adopting regulations to achieve the maximum degree of emissions reduction possible from vehicular and other mobile sources at the state level, as well as for state implementation of the CAA.

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

A brief description of each criteria air pollutant (i.e., source types, health effects, and future trends) is provided below.

- **Ozone:** Ozone (O_3) is a photochemical oxidant - a substance whose oxygen combines chemically with another substance in the presence of sunlight. In the lower atmosphere, ozone is the primary component of smog. Ozone is not emitted directly into the air but is formed through complex chemical reactions between certain emissions, known as "precursor emissions," in the presence of sunlight. The precursor emissions for ozone are reactive organic gases (ROG) and nitrogen oxides (NO_X). ROGs are volatile organic compounds that are photochemically reactive. ROG emissions result primarily from incomplete combustion and the evaporation of chemical solvents and fuels. Common sources of ROG emissions include solvents, pesticides, the burning of fuels, and organic wastes. NO_X is a group of gaseous compounds of nitrogen and oxygen that result from the combustion of fuels. Common sources of NO_X emissions include emissions from burning of fuel in cars, trucks, buses, power plants, and off-road equipment (USEPA, 2018).

  Ozone located in the upper atmosphere (stratosphere) shields the earth from harmful ultraviolet radiation emitted by the sun. However, ozone located in the lower atmosphere (troposphere) is a major health and environmental concern. As described below, breathing ozone can trigger a variety of health problems, particularly for children, elderly, and people of all ages who have lung disease such as asthma. Ground level ozone can also have harmful effects on sensitive vegetation and ecosystems, including forests, parks, wildlife refuges, and wilderness areas. Ozone can especially cause damage during the growing season (USEPA, 2018).

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

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

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

  CO enters the bloodstream through the lungs by combining with hemoglobin, a component of red blood cells, which normally carries oxygen to the red blood cells. CO combines with hemoglobin much more readily than oxygen does, resulting in a drastic reduction in the amount of oxygen available to the cells. Adverse health effects associated with exposure to CO concentrations include symptoms such as dizziness, headaches, and fatigue. CO exposure is especially harmful to individuals who suffer from cardiovascular and respiratory diseases (USEPA, 2018).

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

- **Nitrogen Dioxide:** Nitrogen Dioxide (NO_2) is a brownish, highly reactive gas that is present in all urban environments. The major human-made sources of NO_2 are combustion devices, such as boilers, gas turbines, and reciprocating internal-combustion engines (mobile as well as stationary). Combustion devices emit primarily nitric oxide (NO), which reacts with oxygen in the atmosphere to form NO_2 (USEPA, 2018). The combined emissions of NO and NO_2 are referred to as NO_X, which is reported as equivalent NO_2. Since NO_2 is formed and depleted by reactions associated with photochemical smog (ozone), the NO_2 concentration in a particular geographical area may not be representative of the local NO_X emission sources.

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

- **Sulfur Dioxide:** Sulfur dioxide (SO_2) is produced by stationary sources like coal and oil combustion, steel mills, refineries, and pulp and paper mills. The major adverse health effects associated with SO_2 exposure relate to the upper respiratory tract. SO_2 is a respiratory irritant, with constriction of the bronchioles occurring with inhalation of SO_2 at 5 ppm or more. On contact with the moist mucous membranes, SO_2 produces sulfurous acid, which is a direct irritant. Concentration rather than duration of the exposure is the most important determinant of respiratory effects. Exposure to high SO_2 concentrations may result in edema of the lungs or glottis and respiratory paralysis (USEPA, 2018).

- **Particulate Matter:** Particulate matter (PM) is a mixture of solid particles and liquid droplets found in air. PM that is small enough to be inhaled has a diameter of 10 microns or less is referred to as PM_{10}. PM_{10} consists of particulate matter emitted directly into the air, such as fugitive dust, soot, and smoke from mobile and stationary sources, construction operations, fires, natural windblown dust, and can be formed in the atmosphere by condensation or transformation of SO_2 and ROG (USEPA, 2018). PM2.5 includes a subgroup of finer particles that have a diameter of 2.5 microns or less.

  Generally, adverse health effects associated with PM_{10} may result from both short-term and long-term exposure to elevated concentrations, and may include breathing and respiratory symptoms, aggravation of existing respiratory and cardiovascular diseases, alterations to the immune system, carcinogenesis, and premature death (USEPA, 2018). The adverse health effects associated with PM_{10} depend on the specific composition of the particulate matter. For example, health effects may be associated with adsorption of metals, polycyclic aromatic hydrocarbons, and other toxic substances onto fine particulate matter (referred to as the "piggybacking effect"), or with fine dust particles of silica or asbestos. $PM_{2.5}$ poses an increased health risk when compared to PM_{10} because the particles can deposit deep in the lungs and are more likely to contain substances that are particularly harmful to human health.

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

  Twenty years ago, mobile sources (e.g., motor vehicles using leaded fuel) were the main contributor to ambient lead concentrations in the air. In the early 1970s, the USEPA established national regulations to gradually reduce the lead content in gasoline. In 1975, unleaded gasoline was introduced for motor vehicles equipped with catalytic converters. USEPA banned the use of leaded gasoline in highway vehicles in December 1995 (USEPA, 2018).

  Due to USEPA's regulatory efforts to remove lead from gasoline, emissions of lead from the transportation sector declined by 95 percent between 1980 and 1999, and levels of lead in the air decreased by 94 percent between 1980 and 1999. Transportation sources, primarily airplanes, now contribute to only 13 percent of lead emissions. A recent National Health and Nutrition Examination Survey reported a 78 percent decrease in the levels of lead in people's blood between 1976 and 1991. This dramatic decline can be attributed to the move from leaded to unleaded gasoline (USEPA, 2018).

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

State Implementation Plan

Federal clean air laws require areas with unhealthy levels of ozone, inhalable particulate matter, carbon monoxide, nitrogen dioxide, and sulfur dioxide to develop plans, known as State Implementation Plans (SIPs). SIPs are comprehensive plans that describe how an area will attain national ambient air quality standards (NAAQS). The 1990 amendments to the federal Clean

Air Act set deadlines for attainment based on the severity of an area's air pollution problem. SIPs are not single documents. They are a compilation of new and previously submitted plans, programs (such as monitoring, modeling, permitting, etc.), district rules, state regulations and federal controls (CARB, 2021).

State law makes CARB the lead agency for all purposes related to the SIP. Many of California's SIPs rely on the same core set of control strategies, including emission standards for cars and heavy trucks, fuel regulations and limits on emissions from consumer products. Plans and corresponding documents developed by CARB for statewide efforts include the following (CARB, 2021):

- State Strategy (2018, 2016, 2012, 2011, 2007, 2003, 1994)
- Mobile Source Strategy (2020, 2016)
- Statewide SIP Emissions Inventories
- Infrastructure SIP
- Regional Haze
- California-Mexico Border Activities

Local air districts prepare SIP elements primarily focused on controlling emissions from stationary sources and submit them to CARB for review and approval. CARB forwards SIP revisions to the U.S. Environmental Protection Agency (U.S. EPA) for approval and publication in the Federal Register. The Code of Federal Regulations Title 40, Chapter I, Part 52, Subpart F, Section 52.220 lists all of the items which are included in the California SIP (CARB, 2021).

The project site is located in Modoc County and project activities are subject to the authority of the MCAPCD and the CARB. Modoc County is listed as "attainment" or "unclassified" for all the federal and state ambient air quality standards (AAQS) (CARB, 2018-2019). Due the excellent air quality in the MCAPCD, the District has not prepared any non-attainment air quality plans for the purpose of ensuring compliance with federal and State AAQS. The MCAPCD rules and regulations portion of the California SIP has been approved by the EPA and CARB. These regulations include, but are not limited to, permit requirements for stationary sources and prohibitions on activities with the potential to impact air quality.

Significance Thresholds

As noted above, the project is located in the NPAB and is within the MCAPCD. In determining whether a project has significant air quality impacts on the environment, CEQA practitioners typically apply the local air district's thresholds of significance to projects in the environmental review process. Modoc County is in attainment or unclassified for all criteria air pollutants and the MCAPCD has not adopted CEQA significance thresholds for project-level review.

However, for the purposes of assessing air quality impacts in CEQA documents, MCAPCD Rule 2.8e (Standards for Permits to Construct), which contains thresholds for operational emissions from new stationary sources, is commonly used as a significance threshold for project-level review. Although these stationary source emissions thresholds do not directly apply to land use and infrastructure projects, they provide a reference point for levels of emissions that would trigger MCAPCD requirements for best available control technology and/or mitigation off-sets. Per Rule 2.8e, criteria air pollutants from the operation of stationary sources are considered significant if they exceed the following thresholds (USEPA, 2017).

- 250 pounds per day for NO_X, reactive organic gases (ROG), PM_{10}, $PM_{2.5}$, SO_X
- 2,500 pounds per day for carbon monoxide (CO)

In using MCAPCD Rule 2.8e as a threshold in this document, the Lead Agency is exercising its discretion to formulate CEQA significance criteria based in part on the MCAPCD rules, as they reflect the best available expert judgment regarding what constitutes significant levels of air pollution within the NPAB and Modoc County.

Impact Analysis

The following includes an analysis of environmental parameters related to *Air 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.

According to the 2019 CEQA Checklist, a project may be deemed to have a potentially significant adverse impact on the environment if it would conflict with or obstruct implementation of the applicable air quality plan, 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, expose sensitive receptors to substantial pollutant concentrations, result in other emissions (such as those leading to odors), adversely affecting a substantial number of people.

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 CEQA Checklist question, discussion, and environmental significance conclusions are provided below under each individual environmental parameter related to *Air Quality*.

Would the Project:	**Potentially Significant Impact**	**Potentially Significant Impact Unless Mitigation Incorporated**	**Less-Than-Significant Impact**	**No Impact**
a) Conflict with or obstruct implementation of the applicable air quality plan?				X

Discussion: As noted in the Environmental Setting, the NPAB, including Modoc County, is listed as "attainment" or "unclassified" for all the federal and state ambient air quality standards (AAQS) (CARB, 2018-2019). Due to the excellent air quality in the MCAPCD, the District has not prepared any non-attainment air quality plans for the purpose of ensuring compliance with federal and State AAQS. As such, the proposed project would not conflict or obstruct implementation of an applicable air quality plan. Therefore, the proposed project would result in no impact on this resource category.

Mitigation Measures: No mitigation measures are required. No impact would result from the proposed project.

Would the Project:	**Potentially Significant Impact**	**Potentially Significant Impact Unless Mitigation Incorporated**	**Less-Than-Significant Impact**	**No Impact**
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	

Discussion: As noted above, the proposed project is located in Modoc County, which is within the NPAB. The NPAB, including Modoc County, is listed as "attainment" or "unclassified" for all the federal and state ambient air quality standards (CARB, 2018-2019). Therefore, the project region has excellent air quality, and it is not anticipated that the proposed project would result in significant emissions of criteria air pollutants that would alter the attainment status of the NPAB or Modoc County. However, for the purposes of this analysis, the construction and operational emissions from the proposed project are compared to the stationary source thresholds in MCAPCD Rule 2.8e to determine whether the project would result in a cumulatively considerable net increase of any criteria air pollutant (USEPA, 2017).

As with any new development project, the proposed project has the potential to generate pollutant concentrations during both construction activities and long-term operation. Both construction and operational emissions for the proposed project were estimated using the California Emissions Estimator Model (CalEEMod), which is a statewide land use emissions computer model designed to provide a uniform platform for government agencies to quantify potential criteria pollutant emissions associated with both construction and operation of a variety of land use projects (CAPCOA, 2017). The model applies inherent default values for various land uses, including trip generation rates based on the Institute of Transportation Engineers (ITE) Manual, vehicle mix, trip length, average speed, etc. However, where project-specific data is available, such data should be input into the model. Project-specific information input into the model was derived from project description at the beginning of this document, from the Preliminary Engineering Report (SHN, 2020), and from supplemental information provided by the project engineer related to the size of proposed structures and equipment, area of grading and site preparation, area of paving, equipment that will be used for construction, number of days for each construction activity, the quantity of demolition debris that will be exported, and information on the proposed standby generator.

The results of the proposed project's emissions estimations were compared to the MCAPCD thresholds of significance for stationary sources (Rules 2.8e) (USEPA, 2017). Tables 3-2 and 3-3 below show the MCAPCD Rule 2.8e thresholds compared to the proposed project's maximum daily construction and operational emissions (unmitigated).

Table 3-2
MAXIMUM DAILY CONSTRUCTION EMISSIONS (UNMITIGATED)

Criteria Pollutants	Emissions (pounds per day)					
	ROG	NOx	CO	SO_x	PM_{10}	$PM_{2.5}$
Maximum Daily Emissions	15.1	21.6	26.1	0.04	2.2	1.3
Significant Threshold	250	250	2,500	250	250	250
Exceeds Significance Threshold?	No	No	No	No	No	No

Source: USEPA, MCAPCD, CalEEMod Version 2016.3.2.

Table 3-3
MAXIMUM DAILY OPERATIONAL EMISSIONS (UNMITIGATED)

Criteria Pollutants	Emissions (pounds per day)					
	ROG	NOx	CO	SO_x	PM_{10}	$PM_{2.5}$
Maximum Daily Emissions	0.1	0.1	0.3	0.00	0.07	0.02
Significant Threshold	250	250	2,500	250	250	250
Exceeds Significance Threshold?	No	No	No	No	No	No

Source: USEPA, MCAPCD, CalEEMod Version 2016.3.2.

As indicated in Tables 3-2 and 3-3, the maximum daily construction and operational emissions from the proposed project would be well below the MCAPCD Rule 2.8e stationary source thresholds (USEPA, 2017). As such, the proposed project would not result in a cumulatively considerable increase of any criteria air pollutant. Therefore, the proposed project would result in a less than significant impact on this resource category.

Mitigation Measures: No mitigation measures are required. Impacts would be less than significant.

Would the Project:	**Potentially Significant Impact**	**Potentially Significant Impact Unless Mitigation Incorporated**	**Less-Than-Significant Impact**	**No Impact**
c) Expose sensitive receptors to substantial pollutant concentrations?		X		

Discussion: This discussion addresses whether construction and operation of the proposed project would expose sensitive receptors to substantial concentrations of criteria air pollutants or toxic air contaminants (TACs) including asbestos, diesel particulate matter (diesel PM) from construction equipment and vehicle traffic, and fugitive dust from construction activity.

High concentrations of criteria air pollutants and TACs can result in adverse health effects to humans. Some population groups are considered more sensitive to air pollution than others; in particular, children, elderly, and acutely ill and chronically ill persons, especially those with cardio-respiratory diseases, such as asthma and bronchitis. Sensitive land uses are facilities that generally house more sensitive people (e.g., schools, hospitals, nursing homes, residences, etc.). The area surrounding the proposed project sites (parcels 003-260-010 and 022-130-042) is sparsely populated with few sensitive land uses. The nearest known potential sensitive receptors to the proposed project sites includes a residence approximately 0.3 miles (1,580 feet) northeast of the existing WWTP site (003-260-010) and a residence approximately 0.5 miles (2,640 feet) southwest of the new WWTP site (022-130-042).

Construction Impacts

Criteria Air Pollutants. The construction activities proposed by the project would result in the emission of criteria air pollutants. As indicated in Table 3-2, the construction emissions from the Proposed Project are well below the MCAPCD stationary source thresholds. These thresholds were developed by the MCAPCD, and approved by the CARB and USEPA, to ensure that stationary sources would not contribute to an exceedance of federal and state ambient air quality standards in the region. As discussed in the Regulatory Setting, the USEPA has concluded that the current NAAQS protect the public health, including the at-risk populations, with an adequate margin of safety. Since the construction emissions from the proposed project would not exceed the MCAPCD thresholds, the project would not expose sensitive receptors to substantial concentrations of criteria air pollutants.

Asbestos. The U.S. Geological Survey (USGS, 2011) has published mapping identifying areas that are known to contain naturally occurring asbestos (NOA). The mapping indicates that there are no locations within Modoc County that are known to contain NOA. The project sites are located southwest of the City of Alturas and are not identified as being in close proximity to areas that contain NOA. Therefore, the project site does not contain NOA that could be released during construction activities such as site preparation, grading, and trenching.

Diesel PM. The use of diesel-powered equipment during construction activity would result in emissions of diesel PM, which is a known carcinogen. The majority of heavy diesel equipment used during construction activity would occur during grading of the project sites. Exhaust fumes from construction equipment will be isolated to areas immediately surrounding the sources and will dissipate rapidly. Concentrations of mobile source emissions of diesel PM are typically reduced by 60 percent at a distance of approximately 300 feet (Zhu et al., 2002) and 70 percent at a distance of approximately 500 feet (CARB, 2005). It is estimated that grading activity for the project would occur over an approximately 60-day period. Residents located within the vicinity of the project site would be exposed to construction contaminants only for the duration of construction activity. These brief exposure periods, and the distance to the nearest residences (1,580 to 2,640 feet), would substantially limit exposure to hazardous emissions.

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

Fugitive Dust. Fugitive dust has the potential to be generated during construction from activities including site preparation, grading, and trenching. Construction-related dust emissions typically vary from day to day, depending on the level and type of activity, silt content of construction site soil, and weather conditions. Fugitive dust generated from construction activity can result in nuisances and localized health impacts. Considering the type of project and the area that will require site preparation, grading, and trenching, there is a potential for the generation of significant quantities of fugitive dust. To reduce potential impacts from fugitive dust generation during construction activity, Mitigation Measure AQ-1 has been included for the project, which requires the implementation of dust control measures.

With the implementation of Mitigation Measure AQ-1, the limited duration of construction activities, and the distance of the project site from known sensitive receptors, the proposed project construction will not expose sensitive receptors to substantial concentrations of fugitive dust.

Operational Impacts

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

As indicated in Table 3-3, the operational emissions from the proposed project are well below the MCAPCD stationary source thresholds. These thresholds were developed by the MCAPCD, and approved by the CARB and USEPA, to ensure that stationary sources would not contribute to an exceedance of federal and state ambient air quality standards in the region. As discussed in the Regulatory Setting, the USEPA has concluded that the current NAAQS protect the public health, including the at-risk populations, with an adequate margin of safety. Since the operational emissions from the proposed project would not exceed the MCAPCD thresholds, operation of the proposed project would not expose sensitive receptors to substantial pollutant concentrations.

Based on the project location, design, and implementation of Mitigation Measure AQ-1, construction and operation of the proposed project would not expose sensitive receptors to substantial pollutant concentrations. Therefore, impacts from the proposed project would be less than significant with mitigation incorporated.

Mitigation Measures: The following mitigation measure has been developed to reduce potential *Air Quality* impacts to less than significant levels:

Mitigation Measure AQ-1. The following dust control measures shall be implemented during construction activities to minimize fugitive dust generation.

- All active construction areas (e.g., 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.
- Limit traffic speeds to 15 mph on unpaved access roads.
- Hydroseed or apply non-toxic soil stabilizers to inactive construction areas.
- Enclose, cover, water, or apply non-toxic soil binders to open materials stockpiles.
- 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.

Would the Project:	Potentially Significant Impact	Potentially Significant Impact Unless Mitigation Incorporated	Less-Than-Significant Impact	No Impact
d) Result in other emissions (such as those leading to odors or dust) affecting a substantial number of people?			X	

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

Operation of the Alturas WWTP is a type of land use that would generally be considered to result in odor impacts. The odors currently generated by the WWTP are part of the existing baseline condition. As discussed above, the project does not propose to increase the capacity of the WWTP and, therefore, does not have the potential to result in significant new sources of odors during operation. Additionally, the new WWTP site is farther away from sensitive receptors than the existing WWTP site (0.5 miles versus 0.3 miles). Therefore, operation of the proposed project would not result in odors that would adversely affect a substantial number of people.

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

Mitigation Measures: No mitigation measures are required. Impacts would be less than significant.

Findings

In the course of the above evaluation, impacts associated with *Air Quality* were found to be less than significant with implementation of mitigation.

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IV. Biological Resources

This section of the Initial Study describes the affected environment for biological resources and is based upon the *Aquatic Resource Delineation Report for Alturas Wastewater Treatment Plan Modoc County, California* (ENPLAN, 2020a) and the *Biological Study Report for the Alturas Wastewater Treatment Plant (WWTP) Improvement Project* (ENPLAN, 2020b). Technical documents are provided Appendix B, *Aquatic Resource Delineation Report*, and Appendix C, *Biological Study Report*, respectively. The assessments summarize the results of biological field surveys of the project area and describes the potential impacts on biological resources that would result from implementation of the proposed project. Additionally, this section provides mitigation measures that would reduce the impacts identified.

Environmental Setting

The existing wastewater treatment plant (WWTP) site is primarily developed or intensively disturbed. Although some sagebrush scrub habitat is present in places. The project study area is comprised of disturbed ruderal habitats with some intact sagebrush scrub habitat are present in the road right-of-way along County Road 54. The proposed treatment and disposal site (APN 022-130-042) consists of a large, previously leveled, and irrigated terrace near County Road 54, as well as rolling terrain with a very weedy, grazed, sagebrush scrub community (ENPLAN, 2020a). The project area is also located near the confluence of the North and South Forks of the Pit River. The current wastewater treatment facility is located less than 100 feet from the Pit River; the proposed sewer force main to the new treatment and disposal site would cross over both forks of the Pit River.

The United States Fish and Wildlife Service (USFWS) does not identify any designated critical habitats for federally listed species within the study area. Review of the California Natural Diversity Database (CNDDB) records showed that the proposed treatment disposal site is within a pronghorn antelope kidding ground and in or adjacent to a pronghorn migration corridor. Review of the National Wetlands Inventory (NWI) maps showed that the Pit River and two intermittent streams have been mapped in the study area.

Field review confirmed the presence of the North and South Forks of the Pit River within the proposed pipeline corridor in the County Road 54 right-of-way (with the two features totaling 0.293 acres). In addition, one ephemeral stream (0.004 acres), 12 wet meadows (totaling 0.333 acres) and two seasonal wetlands (totaling 0.039 acres) were observed alongside County Road 54 (ENPLAN, 2020a; 2020b). As further documented in the *Aquatic Resource Delineation Report*, no evidence of the two intermittent streams shown on the NWI maps was observed during the field review. Other communities observed during the field study consisted of urban/ruderal habitat, a big sagebrush community, and cropland. Each of the communities is fully described in Appendix C, *Biological Study Report*. Sensitive natural communities are limited to the streams and wetlands, as well as any portions of the big sagebrush community that support pronghorn migration and kidding grounds.

Wildlife species observed at the site included American bullfrogs, western pond turtles, western fence lizards, killdeer, western kingbirds, Canada geese, black-billed magpies, American crows, turkey vultures, woodrats, Belding's ground squirrels, Nuttall's cottontails, coyote, and mule deer. Numerous cliff swallows were observed near bridges over the North Fork Pit River and South Fork Pit Reiver in the study area. Sallow nests were observed adhered to the side of these bridges (ENPLAN, 2020b). Representative photos of the study area provided Appendix C, *Biological Study Report*). Other wildlife species are likely to inhabit the surrounding area and it is expected that there are many other bird, mammal, and amphibian species that might use the project site, if only transitionally.

Regulatory Setting

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

- **Wetlands and Waters.** The United States Army Corps of Engineers (USACE) has primary federal responsibility for administering regulations that concern waters of the U.S. (including wetlands). Section 404 of the Clean Water Act (CWA), regulates the discharge of dredged or fill material into waters of the U.S. The USACE requires that a permit be obtained prior to the placement of structures within, over, or under navigable waters and/or discharges dredged or fill material into waters below the ordinary high water mark (OHWM). The USACE has established a series of nationwide permits (NWP) that authorize certain activities in waters of the U.S. Under CWA Section 401, a project requiring a USACE Section 404 permit is also required to obtain a State Water Quality Certification (or waiver) to ensure that the project will not violate established State water quality standards. The RWQCB regulates waters of the State and has a policy of no-net-loss of wetlands. The Regional Water Quality Control Board (RWQCB) typically requires mitigation for all impacts to wetlands before it will issue a water quality certification.

- **Federal Endangered Species Act.** The U.S. Fish and Wildlife Service (USFWS) and the National Marine Fisheries Service (NMFS) implement the federal Endangered Species Act (FESA) of 1973. Under FESA, threatened and endangered species on the federal list and their habitats are protected from "take" unless a Section 10 Permit is granted to an individual or a Section 7 consultation and a Biological Opinion with incidental take provisions are rendered from the lead federal agency. Under FESA, habitat loss is considered to be an impact to the species. Under Section 7 of the FESA, all federal agencies (including the USFWS and NMFS) are required to ensure that any action they authorize, fund, or carry out will not likely jeopardize the continued existence of federally listed species or result in the destruction or adverse modification of critical habitat.

- **Federal Migratory Bird Treaty Act.** Most bird species, (especially those that are breeding, migrating, or of limited distribution) are protected under federal and/or State regulations. Under the Migratory Bird Treaty Act (MBTA) of 1918, migratory bird species, their nests, and their eggs are protected from injury or death, and any project-related disturbances during the nesting period.

- **Federal Magnuson-Stevens Fishery Conservation and Management Act.** The Magnuson-Stevens Fishery Conservation and Management Act, also known as the Sustainable Fisheries Act (Public Law 104-297), requires that all federal agencies consult with NMFS on projects authorized, funded, or undertaken by that agency that may adversely affect Essential Fish Habitat of commercially managed marine and anadromous fish species.

- **Federal Bald and Golden Eagle Protection Act.** This Act provides for the protection of the bald eagle and the golden eagle by prohibiting, except under certain specified conditions, the taking, possession, and commerce of such birds and their occupied and unoccupied nests.

- **California Fish and Game Code §1600-1616 (Streambed Alteration).** California Fish and Game Code §1600 *et seq.*, requires that a project proponent notify the California Department of Fish and Wildlife (CDFW) prior to any work that would divert or obstruct the natural flow of any river, stream, or lake; change the bed, channel, or bank of any river, stream, or lake; use material from any river, stream, or lake; and/or deposit or dispose of material into any river, stream, or lake. The project proponent and the CDFW must enter into a Streambed Alteration Agreement (SAA) prior to an action that would result in such an impact. 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 §3503 and 3503.5 (Nesting Bird Protections).** These sections of the Code provide regulatory protection to resident and migratory birds and all birds of prey within the State and make it unlawful to take, possess, or needlessly destroy the nest or eggs of any bird, except as otherwise provided by the Code.

- **California Endangered Species Act.** The California Endangered Species Act (CESA) prohibits the take of State-listed threatened and endangered species. Under CESA, state agencies are required to consult with the CDFW when preparing CEQA documents. The CDFW can authorize take if an incidental take permit is issued by the Secretary of the Interior in compliance with the FESA, or if the director of the CDFW issues a permit under §2080 in those cases where it is demonstrated that the impacts are minimized and mitigated.

- **California Native Plant Protection Act.** The California Native Plant Protection Act (NPPA) (California Fish and Game Code §1900 – 1913) includes measures to preserve, protect, and enhance rare and endangered native plants. The list of native plants afforded protection pursuant to the Native Plant Protection Act includes those listed as rare and endangered under the CESA. The NPPA states that no person will take, possess, sell, or import into the state, any rare or endangered native plant, except in compliance with provisions of the act.

- **City of Alturas General Plan.** The City's General Plan Conservation and Opens Space Element includes the following policies that apply to the proposed project:

  1. Support the efforts of responsible public agencies to protect and manage wildlife on public lands.
  2. Preserve and protect the valuable wildlife resources on private lands wherever practical and economically feasible.
  3. Include wildlife protection in the review and approval of any land development proposal.

- **Modoc County General Plan.** The County's General Plan Conservation and Opens Space Element includes the following policies that apply to the proposed project:

  1. Support the efforts of public land management agencies to protect wildlife habitat on public lands.
  2. Maintain countywide consistency in the types of fish and wildlife protection measures for mitigating adverse impacts on critical or sensitive wildlife habitats on a case-by-case basin. Similar consistency is desirable for protection measures for threatened or endangered species.
  3. Specific requirements to be considered for mitigating adverse impacts on critical or sensitive wildlife habitats, including habitat important to threatened or endangered species, shall be a case-by-case basis with adequate consideration given to the landowner.
  4. Protect officially listed rare and endangered plants in Modoc County which contribute to the natural diversity of plant life.

Impact Analysis

Records reviewed for this evaluation consisted of a California Natural Diversity Database (CNDDB) records for special-status plants, animals, and natural communities; California Native Plant Society (CNPS) Inventory of Rare and Endangered Plants; USFWS records for federally listed, proposed, and Candidate plant and animal species under jurisdiction of the USFWS; USFWS records for migratory birds of conservation concern; soils records maintained by the U.S. Department of Agriculture's Natural Resources Conservation Service (NRCS), and NWI maps. The NMFS does not maintain a species list for the project quadrangle; review of the NMFS Essential Fish Habitat (EFH) Mapper determined that the project site is not within a hydrologic unit designated as EFH for Chinook salmon. The CNDDB records search covered a five-mile radius around the project site. This entailed review of records for portions of the Alturas, Big Sage Reservoir, Dorris Reservoir, Mahogany Ridge, Rattlesnake Butte, and Surprise quadrangles.

Table 1 in Appendix C, *Biological Study Report*, includes all plant species reported from the queries, their preferred habitat, and if there is suitable habitat present within the study area for the species. Table 2 in Appendix C includes all animal species reported from the queries, their preferred habitat, and if there is suitable habitat present within the study area for the species. The potential for occurrence of those species included on the list were then evaluated based on the habitat requirements of each species relative to the conditions observed during the field surveys.

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. The CEQA Checklist question, discussion, and environmental significance conclusions are provided below under each individual environmental parameter related to *Biological Resources*.

Would the Project:	Potentially Significant Impact	Potentially Significant Impact Unless Mitigation Incorporated	Less-Than-Significant Impact	No Impact
a) Have a substantial 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		

Discussion: The following evaluation of potential impacts on special-status species is based on records searches and field studies is documented in the Biological Study Report prepared for the proposed project (ENPLAN, 2020b) (also refer to Appendix C, *Biological Study Report*). The study includes an assessment of the following:

- Natural Communities
- Special-Status Species
- Migratory Birds and Potential for Birds of Conservation Concern (October 2020)
- California Natural Diversity Database RareFind Query Summary (October 2020)
- California Native Plant Society (CNPS) Inventory of Rare and Endangered Plants Query Summary (October 2020)
- U.S. Fish and Wildlife Service List of Threatened and Endangered Species (October 2020)
- List of Vascular Plant Species Observed

To determine the presence or absence of special-status plant and animal species, a botanical and wildlife survey was conducted on May 20, July 13, and September 26, 2020. Some of the special-status species potentially occurring in the study area would not have been evident at the time the fieldwork was conducted. However, determination of their potential presence could readily be made based on observed habitat characteristics.

<u>Special-Status Plant Species</u>

Review of the USFWS species lists (refer to Appendix C, *Biological Study Report*) for the study area identified two federally listed plant species, Greene's tuctoria and slender Orcutt grass, as potentially being affected by the proposed project. The study area does not contain designated critical habitat for federally listed plant species.

A review of CNDDB records showed that two special-status plants, Macdougal's lomatium and Lilliput lupine, have been reported in or adjacent to the study area. In May 1994 over 100 individuals of Macdougal's lomatium were observed on both sides of a road (primarily on the north side) about 0.2 miles south of the confluence of the North and South Forks of the Pit River. The population was reported to occur on private lands and Modoc National Wildlife Refuge (MNWR) lands, on nearly barren volcanic gravels. Two occurrences of Lilliput lupine were reported in August 1993 and another in May 1994, on private lands on both sides of County Road 54 south of its intersection with Westside Road (County Road 60). The populations were in tall sagebrush habitat on gravelly volcanic hills and consisted of 10 plants, over 100 plants, and 10-20 plants. A fourth occurrence of less than 100 plants was mapped in August 1993, on private land south of County Road 54 near the proposed treatment/disposal site.

CNDDB records also show that the following 15 special-status plants have been reported within a five-mile radius of the project site: Boggs Lake hedge-hyssop, doublet, eel-grass pondweed, falcate saltbush, grass alisma, Great Basin downingia, Intermountain lupine, Janish's beardtongue, Liddon's sedge, Nuttall's ribbon-leaved pondweed, prostrate buckwheat, rayless mountain ragwort, Sheldon's sedge, water star-grass, and wheat sedge. The CNPS Inventory (Appendix C, *Biological Study Report,* Table 2) identifies two additional (non-status) plants within the Alturas quadrangle: Mexican mosquito fern and Modoc Plateau milk-vetch.

The potential for each special-status plant species to occur on the project site is evaluated in Appendix C, *Biological Study Report*, Table 3. As documented in Table 3, none of these or any other special-status plant species were observed during the botanical survey. The described habitat and location for Macdougal's lomatium appears to be primarily or entirely outside the County Road 54 right-of-way. Suitable intact habitat capable of supporting Lilliput lupine was observed in the County Road 54 right-of-way in the vicinity of the previous reports, but no individuals were present. Given lack of access rights, no attempt was made to survey suitable habitats outside the road right-of-way. With construction work in the County Road 54 corridor confined to the road right-of-way, no impacts on special-status plants are anticipated.

<u>Special-Status Wildlife Species</u>

Review of the USFWS species list for the study area (refer to Appendix C, *Biological Study Report*) identified the following federally listed animal species as potentially being affected by the proposed project: gray wolf, North American wolverine, and yellow-billed cuckoo. The USFWS species list does not identify designated critical habitat in the study area for any federally listed animal species.

Review of CNDDB records showed that two special-status animal species, gray wolf and Swainson's hawk, have been reported in the study area; gray wolf is broadly mapped to include the project site and Swainson's hawk is broadly mapped to include the current WWTP site. Thirteen special-status animals have been reported within a five-mile radius of the project site: American badger, bank swallow, golden eagle, greater sage-grouse, greater sandhill crane, hardhead, northern leopard frog, Oregon spotted frog, prairie falcon, tricolored blackbird, western pond turtle, and western whitetailed jackrabbit. One non-status animal species, the North American porcupine, has been mapped within the five-mile search radius.

The potential for each special-status animal species to occur on the project sites is evaluated in Table 3 of Appendix C, *Biological Study Report*. As documented in Table 3, western pond turtles and greater sandhill cranes were observed during the survey. Other special-status wildlife species that could potentially be present in the study area include Swainson's hawks and hardhead.

<u>*Hardhead*</u>. As previously mentioned above, the project area is located near the confluence of the North and South Forks of the Pit River. The current wastewater treatment facility is located less than 100 feet from the Pit River; the proposed sewer main to the new treatment/disposal site would cross over both forks of the Pit River. The UC Davis PISCES website shows that the extant range of the hardhead extends upstream to the confluence of the North and South Forks of the Pit River, and then has a several-mile gap. The County Road 54 bridge sites are excluded from the current range of the species, perhaps due to the silty substrate. Nonetheless, it is likely that hardhead move through the project area.

Hardhead would not be directly affected by the proposed project because no instream work is planned; instead, the sewer main would be attached to the two bridges over the Pit River. Nonetheless, project construction could potentially result in indirect impacts to hardhead and other aquatic species if sediments or other pollutants enter the river and degrade the water quality in the study area and/or downstream. However, with Best Management Practices (BMPs) for the control of erosion and sedimentation, there would be no significant indirect effects on hardhead.

In addition, the City is required to obtain coverage under the SWRCB's NPDES permit for *Discharges of Storm Water Runoff Associated with Construction Activity* (currently Order No. 2009-009-DWQ) by submitting a Notice of Intent to the SWRCB. The permitting process requires the development and implementation of an effective Stormwater Pollution Prevention Plan (SWPPP) that includes BMPs to control erosion and sedimentation and prevent damage to streams, watercourses, and aquatic habitat. BMPs may include, but are not limited to, limiting construction to the dry season; use of straw wattles, silt fences, and/or gravel berms to prevent sediment from discharging to the river; and revegetating temporarily disturbed sites upon completion of construction. Compliance with the SWPPP will ensure that Hardhead and other aquatic species are not indirectly adversely affected by project implementation. Further, it should be noted that the current wastewater facility discharges treated effluent into the Pit River. With the proposed treatment/disposal system, all effluent would be discharged to uplands. Because the proposed project would improve water quality in the Pit River, the project is expected to result in a long-term benefit to hardhead and other aquatic species.

<u>*Greater Sandhill Crane*</u>. During the survey greater sandhill cranes were identified by call; however, visual confirmation of the presence of greater sandhill cranes did not occur as their estimated distance was over a half-mile from the project site. The onsite wet meadows and riparian vegetation surrounding the Pit River do not provide suitable nesting habitat for sandhill cranes, due to their relatively small size and proximity to human activity. Therefore, greater sandhill cranes are not expected to be present, and the project would not adversely affect greater sandhill cranes.

<u>*Western Pond Turtle*</u>. Numerous western pond turtles were observed in the Pit River during the field survey. The pond turtles are also likely to use suitable upland habitats surrounding the river for nesting and overwintering. The study area includes suitable upland habitat for pond turtle nesting and overwintering near the current WWTP site; the remaining portions of the project site are unsuitable. Additionally, while the force main would cross the Pit River at two locations, all construction would occur within the road right-of-way in heavily modified, marginal habitat.

The current WWTP sits less than 100 feet from the Pit River and North Fork Pit River. Although a chain-link fence surrounds most of the current WWTP site, western pond turtles could potentially utilize habitat outside of the fenced area. Construction activities could potentially disturb western pond turtles or their nests/eggs if pond turtles move into the project site to nest or overwinter.

Direct construction impacts can be avoided/minimized by erecting temporary exclusionary fencing around the unfenced portion of the current WWTP site. Prior to the commencement of construction activities at the current WWTP site, a qualified biologist would then conduct a pre-construction survey, with any pond turtles encountered relocated to a safe location outside of the fencing. Additionally, if western pond turtles are encountered within the exclusionary fencing during project construction, the qualified biologist would be contacted and construction activities within 50 feet of the turtle would be halted until the turtle has left the area or is relocated by the qualified biologist.

Construction activities could result in indirect effects on western pond turtles if sediments or other pollutants enter the river and degrade pond turtle habitat in the study area and/or downstream. However, with BMPs for the control of erosion and sedimentation, there would be no significant indirect effects on the western pond turtle. Further, as discussed above with respect to hardhead, because wastewater would no longer be discharged into the Pit River, the project is expected to result in a long-term benefit to western pond turtles and other aquatic species due to improved water quality.

Gray Wolf. While CNDDB records indicate that gray wolves were observed in the study area, this observation dates back to 1911. Gray wolves were previously extirpated from California in the 1920s; the first modern sighting of gray wolves in California occurred in 2011 in Siskiyou County. Currently, the only known established wolf pack in California is in the Lassen/Plumas County area. Although gray wolves could potentially travel through the project area, given the extent of human activity, they would not den in the study area; no impacts to the gray wolf are expected.

Swainson's Hawk. In northeastern California, Swainson's hawks nest in riparian areas, oak savannahs, and juniper-sage flats. As the study area contains juniper-sage flats, suitable habitat for Swainson's hawks is present. According to CNDDB records, a pair of Swainson's hawks nested in a juniper just west of the confluence of the North and South Forks of the Pit River in 1972 and again in 1980. No nests or adults were observed in 1981 or 1982. The hawks are occasionally observed at the Modoc National Wildlife Refuge but have not been reported to nest there. Given the known presence of Swainson's hawks in the general area and the presence of potentially suitable nest trees, Swainson's hawks could potentially nest in the study area in future years. However, with the implementation of mitigations for nesting birds (see below), no significant effects to Swainson's hawk would occur.

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

Mitigation Measure BIO-1. Western pond turtles, a State Species of Special Concern, are present in the Pit River in and adjacent to the study area and may nest and/or overwinter in portions of the study area. Potential impacts to western pond turtles shall be avoided and/or minimized through implementation of the following measures:

- Exclusionary fencing shall be erected around the unfenced portions of the current WWTP site to prevent access to the site by nesting and overwintering pond turtles.
- Prior to commencement of construction activities at the current WWTP site, a qualified biologist shall conduct a pre-construction survey for western pond turtles and shall relocate any western pond turtles encountered to a safe location outside of the exclusionary fencing.
- If western pond turtles are encountered within the exclusionary fencing at any time during construction, construction personnel shall contact the qualified biologist and halt construction activities within 50 feet of the turtle until the turtle has left the area or is relocated by the qualified biologist.

Would the Project:	Potentially Significant Impact	Potentially Significant Impact Unless Mitigation Incorporated	Less-Than-Significant Impact	No Impact
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		

Discussion: As previously described above under *Environmental Setting*, the USFWS does not identify any designated critical habitats for federally listed species within the study area; however, CNDDB records show that the proposed treatment disposal site is within a pronghorn antelope kidding ground and in or adjacent to a pronghorn migration corridor.

The North and South Forks of the Pit River cross the proposed pipeline corridor at County Road 54 (with the two features totaling 0.293 acres). In addition, one ephemeral stream (±0.004 acres), 12 wet meadows (totaling 0.333 acres) and two seasonal wetlands (totaling 0.039 acres) were observed alongside County Road 54 (ENPLAN, 2020a; 2020b). Other communities observed during the field study consisted of urban/ruderal habitat, a big sagebrush community, and cropland. Each of the communities is fully described in Appendix C, *Biological Study Report*, and summarized below. Sensitive natural communities are limited to the streams and wetlands, as well as any portions of the big sagebrush community that support pronghorn migration and kidding grounds. Refer to Figures 3-2a, b, and c, WATERS OF THE U.S. AND/OR STATE.

Riverine. In the study area, the Pit River support various fish, waterfowl, and invertebrates, and provides suitable foraging and dispersal habitat for frogs, toads, turtles, and other species. Fish species expected to occur in this reach of the Pit River include hardhead, Sacramento sucker, Sacramento pikeminnow, Pit sculpin, speckled dace, and rainbow trout. Due to its limited flow duration, the ephemeral stream has negligible value for wildlife.

It is anticipated that the sewer force main would be attached to the two bridges over the Pit River reaches. Although no in-water work would occur, construction activities could result in indirect effects to the Pit River and downstream habitats if or other pollutants enter the onsite drainages and degrade habitat in the study area and/or downstream. However, with BMPs for the control of erosion and sedimentation, there would be no significant effect on the aquatic habitats.

As previously described in Section 2.0, *Project Description*, the existing City of Alturas WWTP currently discharges treated effluent to the Pit River. The proposed project entails discharge to new percolation and evaporation ponds in lieu of discharge to the Pit River. Under the City's existing NPDES permit, the WWTP is prohibited from contributing more than five percent (5%) of the in-stream flow in the Pit River. With regards to the relocation of the existing WWTP as proposed by this project, a technical memorandum was prepared to analyze the effect to Pit River flows as a result of removing the WWTP discharge (SHN, 2021). Refer to *Technical Memorandum - City of Alturas Wastewater Treatment Plant Hydrologic Analysis for Wastewater Discharge Reduction,* dated September 16, 2021 contained in Appendix A.

Data collected by the City of Alturas WWTP between January 2017 and June 2021 provides a daily record of dilution ratios (shown as a percentage of discharge to in-stream flow) (refer to Appendix A). The maximum percentage of in-stream flows represented by the WWTP discharge is 5% (1:20), and a mean value of 0.36% (1:277).

The Pit River experiences annual fluctuations in depth ranging between two feet and eight feet (data provided by USGS water monitoring station of the Pit River 11348500 near Canby, CA). According to the USGS water monitoring station, the average flow is 61 cubic feet per second (cfs). Figure 2 of the Technical Memorandum, illustrates that the Pit River has an average depth of 2.8 feet of which the discharged effluent contributes, on average, a depth of 0.12 inches. Analysis of the Pit River at its minimum depth of 2 feet shows that the release of treated water to the Pit River contributes minimally to the total flow.

The maximum allowable dilution ratio is 5% which means that the Pit River flow must be a minimum of 20 times the effluent flow. The measured dilution ratio approaches this value when the Pit River is experiencing its minimum flow rate. In this case, maximum discharge from the WWTP equates to a height of approximately 1.2 inches in contribution to the depth of the river.

Lastly, it should be noted that the measured dilution ratios between January 2017 – June 2021 infrequently exceed 2.6% (less than 10% of days measured during the 54-month time period). The dilution ratio only exceeds 2.6% when the Pit River experiences its lowest flows in the winter months.

Based on this data, the new proposed wastewater treatment process would result in an insignificant reduction in total flow in the Pit River. The flow reduction would only occur for a relatively short duration and biological systems have an inherent resiliency to handle changes in flow volumes. It should be noted that the reduction in flow volume can be considered to be offset, in part, by the improvement in water quality associated with the proposed project. Less than significant impacts are anticipated in this regard.

Wetlands. As further documented in the *Aquatic Resources Delineation Report* (Appendix B), wetlands in the study area consist of wet meadows and seasonal wetlands. Wet meadows generally have a dense cover of grasses and grass-like species and may be in areas with a high ground water table. Characteristic plant species in the onsite wet meadows include reed canary grass, salt grass, alkali ryegrass, Baltic rush, and smooth scouring rush. Seasonal wetlands are saturated or inundated during the winter wet season and dry during the dry season. They generally have a sparse to moderate cover of forb species and are subject to long-term surface ponding. The dominant plant species in the onsite seasonal wetlands is cognate popcorn flower.

The onsite wetlands are all adjacent to County Road 54, which reduces their overall wildlife value (e.g., birds are less likely to nest in the wet meadows, grazing mammals are less likely to forage in the wetlands, and carnivores are less likely to use the wetlands for hunting). Nonetheless, the wet meadows provide food and shelter for garter snakes, tree frogs, toads, voles, and other small animals, while the seasonal wetlands support aquatic macroinvertebrates, which serve as a food source for waterfowl and other species.

The USACE must authorize construction activities expected to affect wetland or riverine communities; thus, depending on final design a Section 404 Permit may be required from the USACE. Construction activities resulting in fill also require a Section 401 Water Quality Certification from the RWQCB. Potential impacts to jurisdictional waters would be reduced through compliance with the regulatory process (i.e., Section 404 Permit and 401 Certification). In addition, impacts to wetland or riverine communities would also be subject to CDFW permitting requirements. Standard conditions of the permits require that the pre-existing ground contours be restored following construction, appropriate erosion control measures be implemented, aquatic life movement not be substantially disrupted, floodplain management requirements be met, etc. With implementation of standard permit conditions (Mitigation Measure BIO-2), temporary impacts on the stream and wetland features would be less than significant.

Big Sagebrush. The big sagebrush scrub community is abundant in the study area and vicinity. It occurs around the periphery of the WWTP, outside the County Road 54 road prism, and, with the exception of the leveled lower terrace, throughout the planned treatment/disposal area. The onsite sagebrush community is generally characterized by relatively open stands of big sagebrush, scattered western junipers, and an open to dense herbaceous layer.

At the proposed treatment and disposal site, which has historically supported grazing, the shrub layer is very open, and the herbaceous layer is extremely weedy. Dominant herbaceous species include downy brome and red-stemmed filaree; other common weeds include Mediterranean sage, bull thistle, alyssum, tumble-mustard, and flixweed. In intact sagebrush scrub habitats along the road corridor, the understory includes many native species, including cushion pussytoes, cold-desert phlox, and panicled zigadene.

The big sagebrush community is not identified as a sensitive natural community by CDFW. Therefore, loss or disturbance of the habitat type is not generally considered a significant impact. Nonetheless, it should be noted that CDFW mapping shows the project site as being in a pronghorn kidding ground and adjacent to a pronghorn migration corridor. Richard Shinn, CDFW Wildlife Biologist – Modoc County, was contacted to determine if the proposed project would adversely affect these important habitat elements. He commented that he has not observed pronghorn in the project area (ENPLAN, 2020b). Further, the relatively small size of the project area and its proximity to the City of Alturas, coupled with the large home ranges maintained by pronghorn, would reduce any potential impact of the proposed project on pronghorn to less than significant (pers. comm. R. Shinn, CDFW). Therefore, the onsite big sagebrush community does not provide special wildlife values that would elevate it to a sensitive level.

Noxious Weeds. The introduction and spread of noxious weeds during construction activities has the potential to impact natural habitats. A noxious weed is a plant that has been defined as a pest by federal or state law. In California, the California Department of Food and Agriculture (CDFA) maintains a list of plants that are considered threats to the wellbeing of the state. Each noxious weed identified by the CDFA receives a rating that reflects the importance of the pest, the likelihood that eradication or control efforts would be successful, and the present distribution of the pest within the state. Below is a description of ratings categories that apply to the study area:

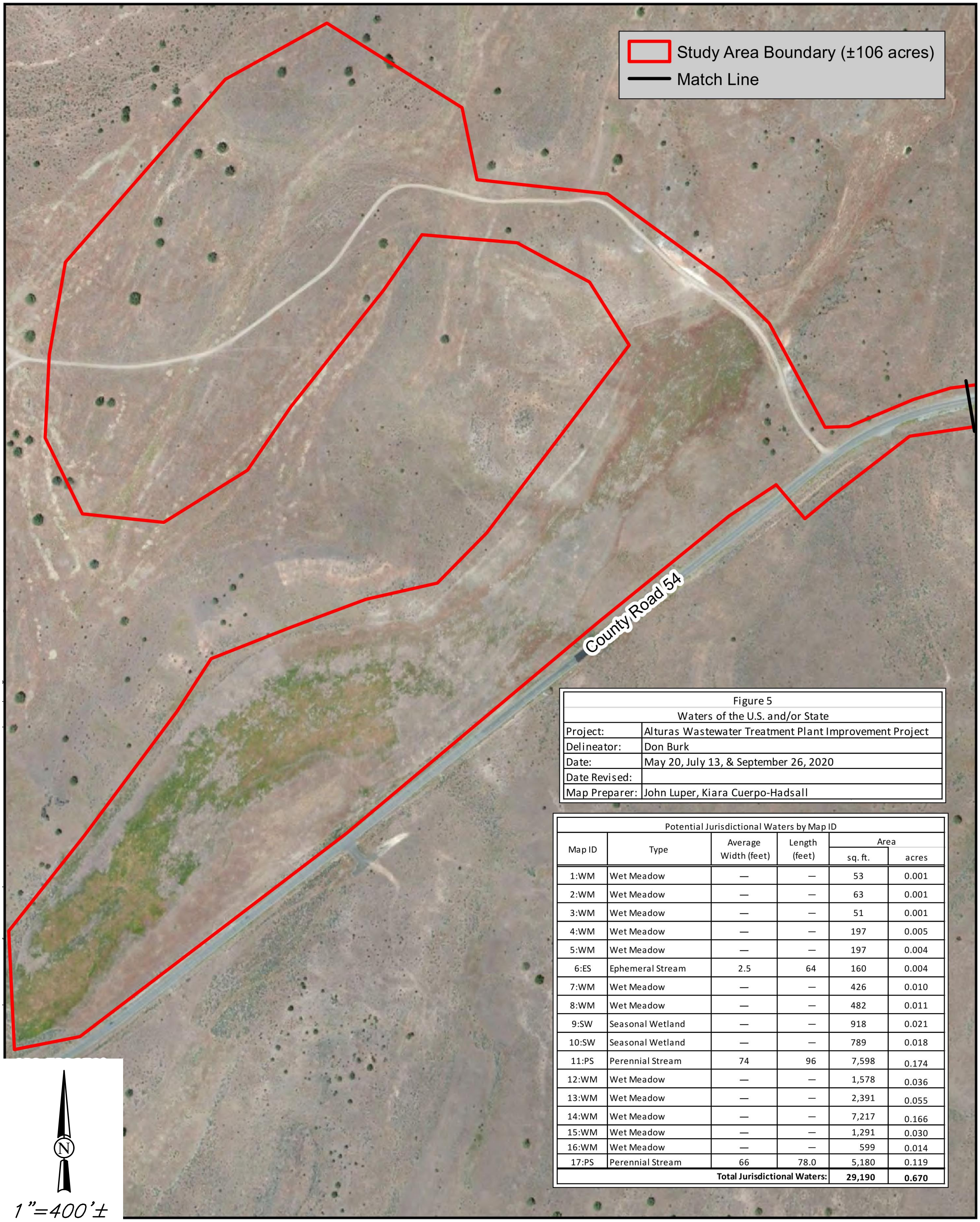

Figure 5	
Waters of the U.S. and/or State	
Project:	Alturas Wastewater Treatment Plant Improvement Project
Delineator:	Don Burk
Date:	May 20, July 13, & September 26, 2020
Date Revised:	
Map Preparer:	John Luper, Kiara Cuerpo-Hadsall

Potential Jurisdictional Waters by Map ID

Map ID	Type	Average Width (feet)	Length (feet)	Area	
				sq. ft.	acres
1:WM	Wet Meadow	—	—	53	0.001
2:WM	Wet Meadow	—	—	63	0.001
3:WM	Wet Meadow	—	—	51	0.001
4:WM	Wet Meadow	—	—	197	0.005
5:WM	Wet Meadow	—	—	197	0.004
6:ES	Ephemeral Stream	2.5	64	160	0.004
7:WM	Wet Meadow	—	—	426	0.010
8:WM	Wet Meadow	—	—	482	0.011
9:SW	Seasonal Wetland	—	—	918	0.021
10:SW	Seasonal Wetland	—	—	789	0.018
11:PS	Perennial Stream	74	96	7,598	0.174
12:WM	Wet Meadow	—	—	1,578	0.036
13:WM	Wet Meadow	—	—	2,391	0.055
14:WM	Wet Meadow	—	—	7,217	0.166
15:WM	Wet Meadow	—	—	1,291	0.030
16:WM	Wet Meadow	—	—	599	0.014
17:PS	Perennial Stream	66	78.0	5,180	0.119
			Total Jurisdictional Waters:	**29,190**	**0.670**

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Alturas WWTP Improvement Project		Waters of the U.S. and/or State
August 2021	Source: Enplan, October 2020	Figure 3-2a

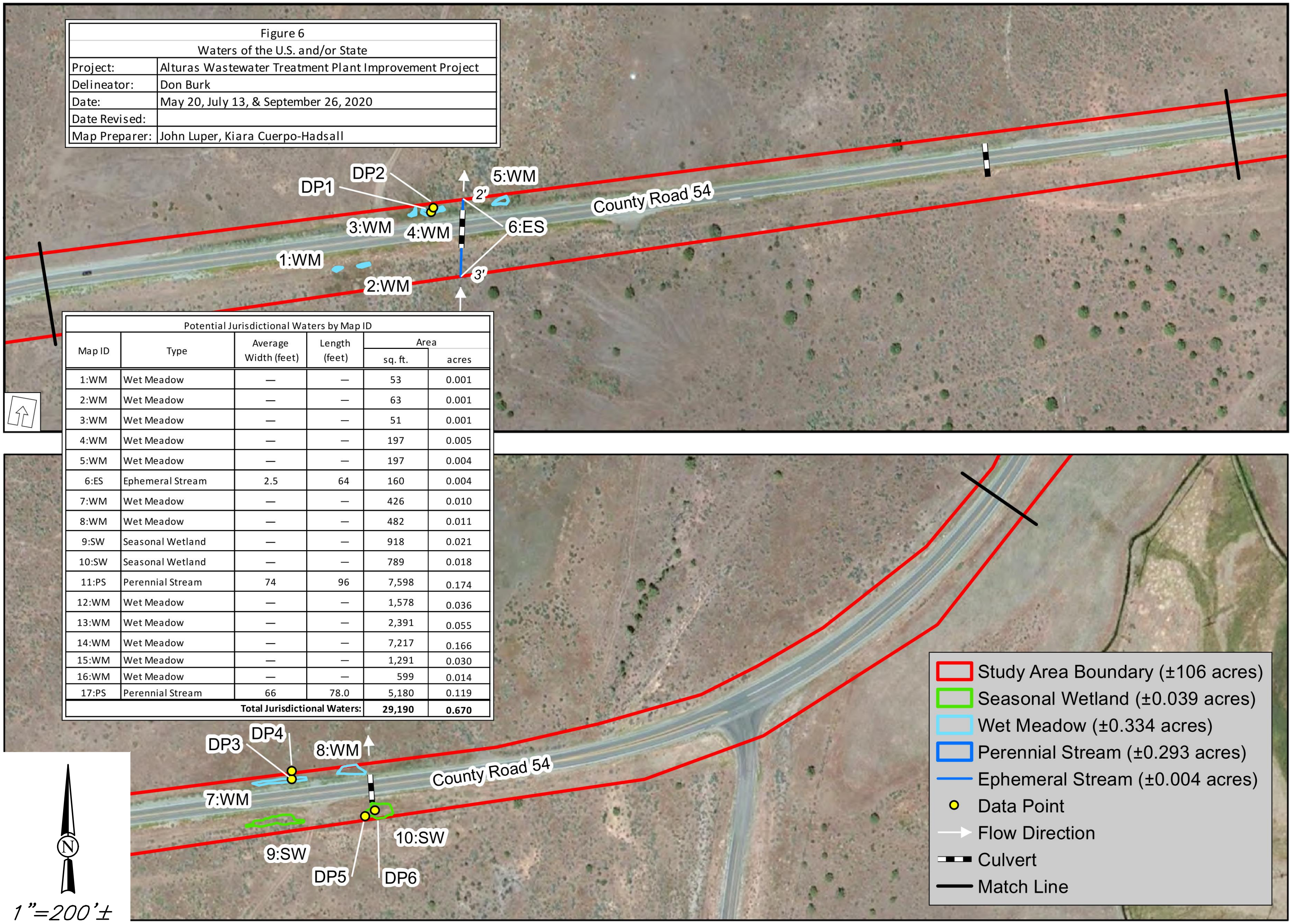

Figure 6	
Waters of the U.S. and/or State	
Project:	Alturas Wastewater Treatment Plant Improvement Project
Delineator:	Don Burk
Date:	May 20, July 13, & September 26, 2020
Date Revised:	
Map Preparer:	John Luper, Kiara Cuerpo-Hadsall

Potential Jurisdictional Waters by Map ID

Map ID	Type	Average Width (feet)	Length (feet)	Area	
				sq. ft.	acres
1:WM	Wet Meadow	—	—	53	0.001
2:WM	Wet Meadow	—	—	63	0.001
3:WM	Wet Meadow	—	—	51	0.001
4:WM	Wet Meadow	—	—	197	0.005
5:WM	Wet Meadow	—	—	197	0.004
6:ES	Ephemeral Stream	2.5	64	160	0.004
7:WM	Wet Meadow	—	—	426	0.010
8:WM	Wet Meadow	—	—	482	0.011
9:SW	Seasonal Wetland	—	—	918	0.021
10:SW	Seasonal Wetland	—	—	789	0.018
11:PS	Perennial Stream	74	96	7,598	0.174
12:WM	Wet Meadow	—	—	1,578	0.036
13:WM	Wet Meadow	—	—	2,391	0.055
14:WM	Wet Meadow	—	—	7,217	0.166
15:WM	Wet Meadow	—	—	1,291	0.030
16:WM	Wet Meadow	—	—	599	0.014
17:PS	Perennial Stream	66	78.0	5,180	0.119
			Total Jurisdictional Waters:	**29,190**	**0.670**

Alturas WWTP Improvement Project		Waters of the U.S. and/or State
August 2021	Source: Enplan, October 2020	Figure 3-2b

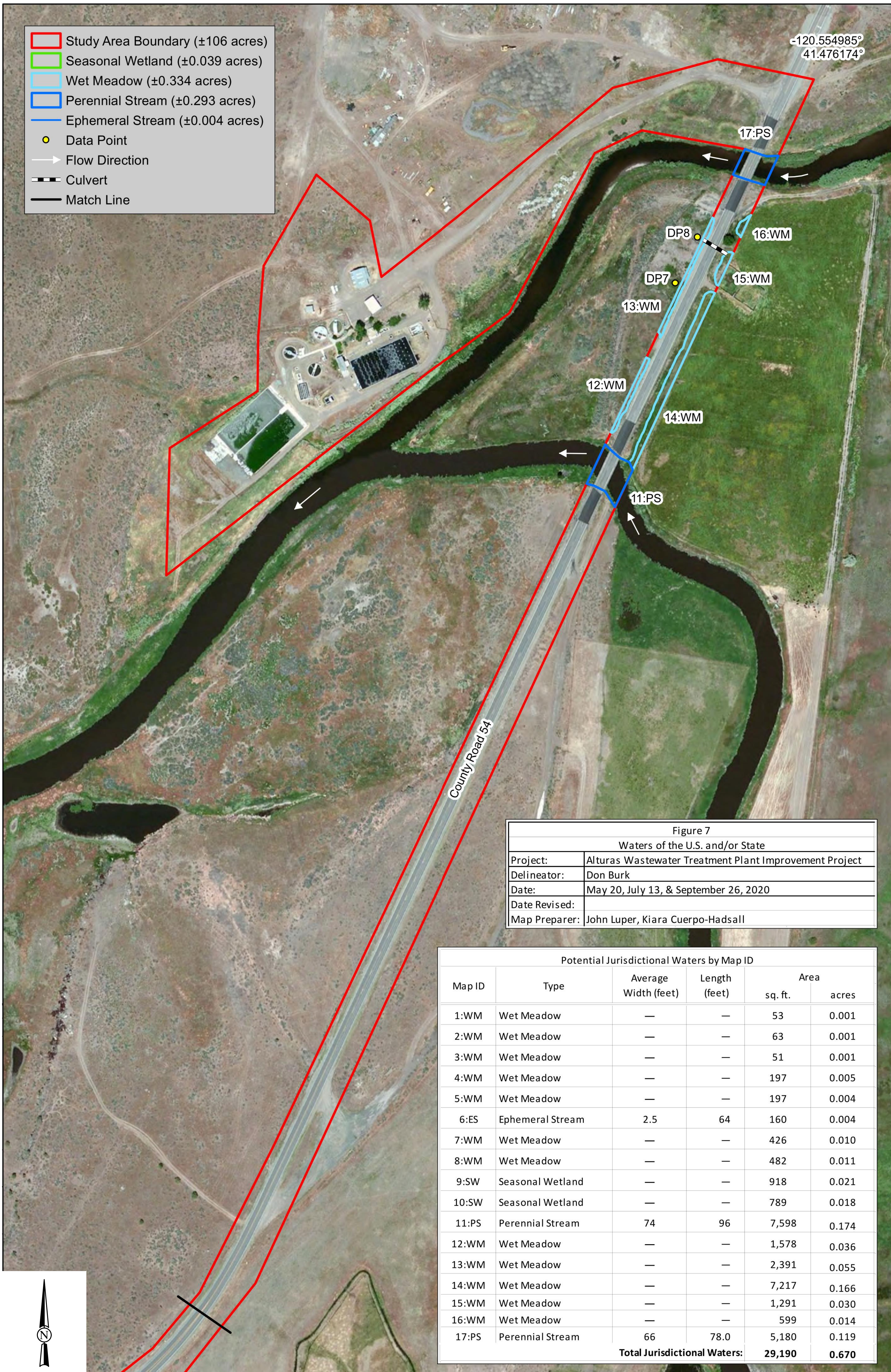

Figure 7	
Waters of the U.S. and/or State	
Project:	Alturas Wastewater Treatment Plant Improvement Project
Delineator:	Don Burk
Date:	May 20, July 13, & September 26, 2020
Date Revised:	
Map Preparer:	John Luper, Kiara Cuerpo-Hadsall

Potential Jurisdictional Waters by Map ID

Map ID	Type	Average Width (feet)	Length (feet)	Area sq. ft.	Area acres
1:WM	Wet Meadow	—	—	53	0.001
2:WM	Wet Meadow	—	—	63	0.001
3:WM	Wet Meadow	—	—	51	0.001
4:WM	Wet Meadow	—	—	197	0.005
5:WM	Wet Meadow	—	—	197	0.004
6:ES	Ephemeral Stream	2.5	64	160	0.004
7:WM	Wet Meadow	—	—	426	0.010
8:WM	Wet Meadow	—	—	482	0.011
9:SW	Seasonal Wetland	—	—	918	0.021
10:SW	Seasonal Wetland	—	—	789	0.018
11:PS	Perennial Stream	74	96	7,598	0.174
12:WM	Wet Meadow	—	—	1,578	0.036
13:WM	Wet Meadow	—	—	2,391	0.055
14:WM	Wet Meadow	—	—	7,217	0.166
15:WM	Wet Meadow	—	—	1,291	0.030
16:WM	Wet Meadow	—	—	599	0.014
17:PS	Perennial Stream	66	78.0	5,180	0.119
		Total Jurisdictional Waters:		**29,190**	**0.670**

Alturas WWTP Improvement Project	Waters of the U.S. and/or State
August 2021	Source: Enplan, October 2020

Figure 3-2c

- **Category A.** A pest of known economic or environmental detriment and is either not known to be established in California or it is present in a limited distribution that allows for the possibility of eradication or successful containment. A-rated pests are prohibited from entering the state because they have been determined to be detrimental to agriculture.

- **Category B.** A pest of known economic or environmental detriment and, if present in California, it is of limited distribution. B-rated pests are eligible to enter the state if the receiving county has agreed to accept them.

- **Category C.** A pest of known economic or environmental detriment and, if present in California, it is usually widespread. C-rated organisms are eligible to enter the state as long as the commodities with which they are associate conform to pest cleanliness standards when found in nursery stock shipments.

One Category A noxious weed (Scotch thistle), three Category B noxious weed (Mediterranean sage, heart-podded hoary cress, and lens-podded hoary cress) and four Category C noxious weeds (bull thistle, Russian-thistle, bindweed, and puncture vine) were observed in the study area during the botanical survey. A number of other weeds rated as invasive by the California Invasive Plant Council were also observed in the area, including herb sophia, summer-cypress, Canada thistle, downy brome, redstemmed filaree, Eurasian water-milfoil, Fuller's teasel, poison hemlock, and tansy.

Construction activities have a high potential to export weeds outside of the project area and/or to import additional weed species into the area. The potential for introduction and spread of noxious weeds can be avoided/minimized by using only certified weed-free erosion control materials, mulch, and seed; limiting any import or export of fill material to material that is known to be weed free; and requiring the construction contractor to thoroughly wash all equipment at a commercial wash facility prior to entering and upon leaving the work site. Implementation of Mitigation Measure BIO-3 would reduce impacts associated with the spread of noxious weeds during construction to less than significant levels.

Mitigation Measures: The following mitigation measure has been developed to reduce potential impacts related to *Biological Resources* to less than significant levels:

Mitigation Measure BIO-2. Prior to issuance of a grading permit affecting any jurisdictional waters, including wetlands, as identified in the *Aquatic Resources Delineation Report* (Appendix B), the City shall obtain the following resource agency permits from the USACE, CDFW, RWQCB, or any other applicable agency (i.e., USFWS) identified through the permitting process:

- Prior to any discharge of dredged or fill material into "waters of the U.S.", including wetlands, authorization under a Nationwide Permit or Individual Permit shall be obtained from the USACE. For any features determined to not be subject to the USACE jurisdiction during the verification process, authorization to discharge (or a waiver from regulation) shall be obtained from the RWQCB. For fill requiring a USACE permit, water quality certification shall be obtained from the RWQCB prior to discharge of dredged or fill material.
- Prior to any activities that would obstruct the flow of, or alter the bed, channel, or bank of any intermittent or ephemeral creeks, notification of streambed alteration shall be submitted to the CDFW; and, if required, a 1602 streambed alteration agreement shall be obtained by the City.
- The County shall achieve the mitigation for the permanent loss of streams, wetlands, and other waters through the purchase of mitigation credits at an agency-approved mitigation bank at a minimum 1:1 ratio, or through onsite/offsite habitat restoration at a minimum 3:1 ratio All measures contained in the permits or associated with any agency approvals shall be implemented to the satisfaction of the lead regulatory agency.

Mitigation Measure BIO-3. The potential for introduction and spread of noxious weeds shall be avoided/minimized by the following:

- Using only certified weed-free erosion control materials, mulch, and seed,
- Limiting any import or export of fill material to material that is known to be weed free, and
- Requiring the construction contractor to thoroughly wash all equipment at a commercial wash facility prior to entering and upon leaving the job site.

Would the Project:	**Potentially Significant Impact**	**Potentially Significant Impact Unless Mitigation Incorporated**	**Less-Than-Significant Impact**	**No Impact**
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		

Discussion: Refer to impact discussion under Section IV.b, above. Impacts would be less than significant with implementation of standard permit conditions from the USACE, CDFW, and RWQCB.

Mitigation Measures: Implement Mitigation Measure BIO-2.

Would the Project:	**Potentially Significant Impact**	**Potentially Significant Impact Unless Mitigation Incorporated**	**Less-Than-Significant Impact**	**No Impact**
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		

Discussion: Wildlife movement patterns can be disrupted by barriers (e.g., dams, reservoirs, highways, altered stream flows, urban development, habitat conversion, etc.) that impede the movement of migratory fish, birds, deer, and other wildlife species. In addition, during construction, increased human activity in the project area may impede the movement of wildlife.

Aquatic Species. As discussed under Section IV.a, above, BMPs for the control of erosion and sedimentation would be deployed in ensure no significant indirect effects on the western pond turtle or Hardhead would occur. Further, because wastewater would no longer be discharged into the Pit River, the project is expected to result in a long-term benefit to aquatic species due to improved water quality. No structures would be constructed that could permanently impeded the movement of any aquatic species.

Terrestrial Wildlife Species. Sagebrush communities provide habitat for a number of wildlife species including lagomorphs, squirrels, rats, mice, sage grouse, and various other birds. The sagebrush community in and adjacent to the study area may also support habitat for large game species such as pronghorn antelope and mule deer. Indirect impacts to wildlife species could occur if the project damaged or removed essential breeding and foraging habitat, or disrupted migration patterns. As previously discussed under Section IV.b, CDFW staff has stated that the onsite big sagebrush community does not provide special wildlife values that would elevate it to a sensitive level (ENPLAN, 2020b). Impacts are considered less than significant in this regard.

Migratory Birds. The USFWS identified the following migratory *Birds of Conservation Concern* as potentially affected by the proposed project: bald eagle, Brewer's sparrow, Clark's grebe, golden eagle, long-billed curlew, sage thrasher, tricolored blackbird, willet, and willow flycatcher. The sage thrasher, Brewer's sparrow, and longbilled curlew have some potential to nest on the project site (ENPLAN, 2020b).

Cliff swallow nests were observed in the study area, attached to two bridges where County Road 54 crosses the North Fork Pit River and South Fork Pit River. Cliff swallows are expected to use the bridges as nesting sites on an annual basis. Given the abundance of suitable nesting habitat elsewhere in the study area, it is likely that other birds also nest in the study area. Nesting birds could be directly or indirectly affected by construction activities.

Direct effects could include mortality resulting from construction equipment operating in an area containing an active nest with eggs or chicks. Indirect effects could include nest abandonment by adults in response to loud noise levels or human encroachment, or a reduction in the amount of food available to young birds due to changes in feeding behavior by adults.

In the local area, most birds nest between February 1 and August 31. As required by Mitigation Measure BIO-4, the potential for adversely affecting nesting birds can be greatly minimized by removing vegetation and conducting construction activities either before February 1 or after August 31. If construction occurs during the bird nesting season, a nesting survey would be conducted within one week prior to removal of vegetation and/or the start of construction.

If active nests are found in the project area, the City would consult with the CDFW and USFWS to determine what actions are required 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.

Therefore, because construction activities that may impede the movement of wildlife are a temporary impact that would cease at completion of the project, and Mitigation Measure BIO-4 would reduce the potential for adversely nesting birds, the proposed project would have a less than significant impact on the movement of any migratory fish or wildlife species and would not impact migratory wildlife corridors or impede the use of native wildlife nursery sites.

It should be noted that cliff swallows are very likely to return to the bridges and attempt to nest on the structures. While it is possible to cover the bridges with sheeting or other materials to discourage nesting, these methods are not entirely reliable. To ensure that nest construction is not completed, routine monitoring and removal of incipient nests would be necessary. Implementation of Mitigation Measure BIO-4 would result in less than significant impacts.

Mitigation Measures: Implementation of the following measures will avoid the potential for adverse effects to nesting Swainson's hawks, long-billed curlews, Brewer's sparrows, sage thrashers, and other birds:

Mitigation Measure BIO-4. In order to avoid impacts to nesting birds, including 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:

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

- If vegetation removal or 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 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 impacted the survey results (e.g., weather conditions, excess noise, the presence of predators, etc.). The results of the survey shall be submitted to the 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 preconstruction survey, the site shall be resurveyed.

  If active nests are found, the City shall contact the CDFW and the USFWS 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.

Would the Project:	Potentially Significant Impact	Potentially Significant Impact Unless Mitigation Incorporated	Less-Than-Significant Impact	No Impact
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?		X		

Discussion: As discussed under *Regulatory Setting* above, the City of Alturas and Modoc County General Plans address the need to preserve unique and important plant communities as well as aquatic, fish, and wildlife habitats, for their biological resource and ecological values, as well as for their direct and indirect benefits to citizens. Mitigation Measures BIO-1 through BIO-4 are included to ensure consistency with local policies and objectives; therefore, impacts are less than significant.

Mitigation Measures: Implement Mitigation Measure BIO-3.

Would the Project:	Potentially Significant Impact	Potentially Significant Impact Unless Mitigation Incorporated	Less-Than-Significant Impact	No Impact
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

Discussion: A Habitat Conservation Plan (HCP) is a federal planning document that is prepared pursuant to Section 10 of the 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. Therefore, there would be no impact.

Mitigation Measures: No mitigation measures are required.

Findings

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

References and Citations

Alturas. (City of Alturas). 2014. *City of Alturas General Plan*. November 2014.

ENPLAN. 2020a. *Aquatic Resource Delineation Report, Alturas Wastewater Treatment Plant, Modoc County, California*. October 2020.

ENPLAN. 2020b. *Biological Study Report, Alturas Wastewater Treatment Plant (WWTP) Improvement Project*. October 2020.

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SHN (SHN Consulting Engineers and Geologists, Inc.). 2020. *Final Wastewater Preliminary Engineering Report.* November 2020.

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V. Cultural Resources

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

Environmental Setting

The physical location with the potential for impact to archaeological resources is designated as the Area of Potential Impacts (API). The Environmental Study Limits (ESL) for the project area constitutes an additional 0.25-mile radius around the API (Figure 3-3, AREA OF POTENTIAL IMPACTS AND ENVIRONMENTAL STUDY LIMITS). For this project, all 106 acres of the project constitute the API. The API consists of the location of the existing WWTP, the proposed location of the new wastewater treatment facility, and the segment of County Road 54 connecting these sites.

In advance of conducting the field survey, background historical research for the API and vicinity were completed at the Northeast Information Center of the California Historic Resources Information System. The review indicated six previously recorded resources within the API (P-25-000562, P-25- 000563, P-25-002274, P-25-002281, P-25-003094, and P-25-003095) and four within the quarter-mile ESL. The records showed eight previous surveys completed within the ESL, four of which occurred partially within the present API. A Sacred Lands File Search request resulted in a statement of positive results from the Native American Heritage Commission, indicating the presence of a sacred resource within the API. Overall, the geo-archaeological research conducted for this survey indicated a moderate potential for buried prehistoric resources, a low potential for buried historic resources, and a high potential for prehistoric and historical resources to be found at the surface within the API.

Regulatory Setting

The purpose of the *Cultural Resource Inventory* (DZC, 2020) is to satisfy the requirements of the National Environmental Policy Act of 1969 (NEPA), Section 106 of the National Historic Preservation Act of 1966 (NHPA), and CEQA (all as amended). The City of Alturas is the CEQA Lead Agency providing regulatory oversight for the permitting process under the CEQA. The California State Water Resources Control Board is acting on behalf of the United States Environmental Protection Agency (EPA) providing regulatory oversight for the CEQA-Plus permitting process, subject to the National Environmental Policy Act (NEPA).

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 local 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]).

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.

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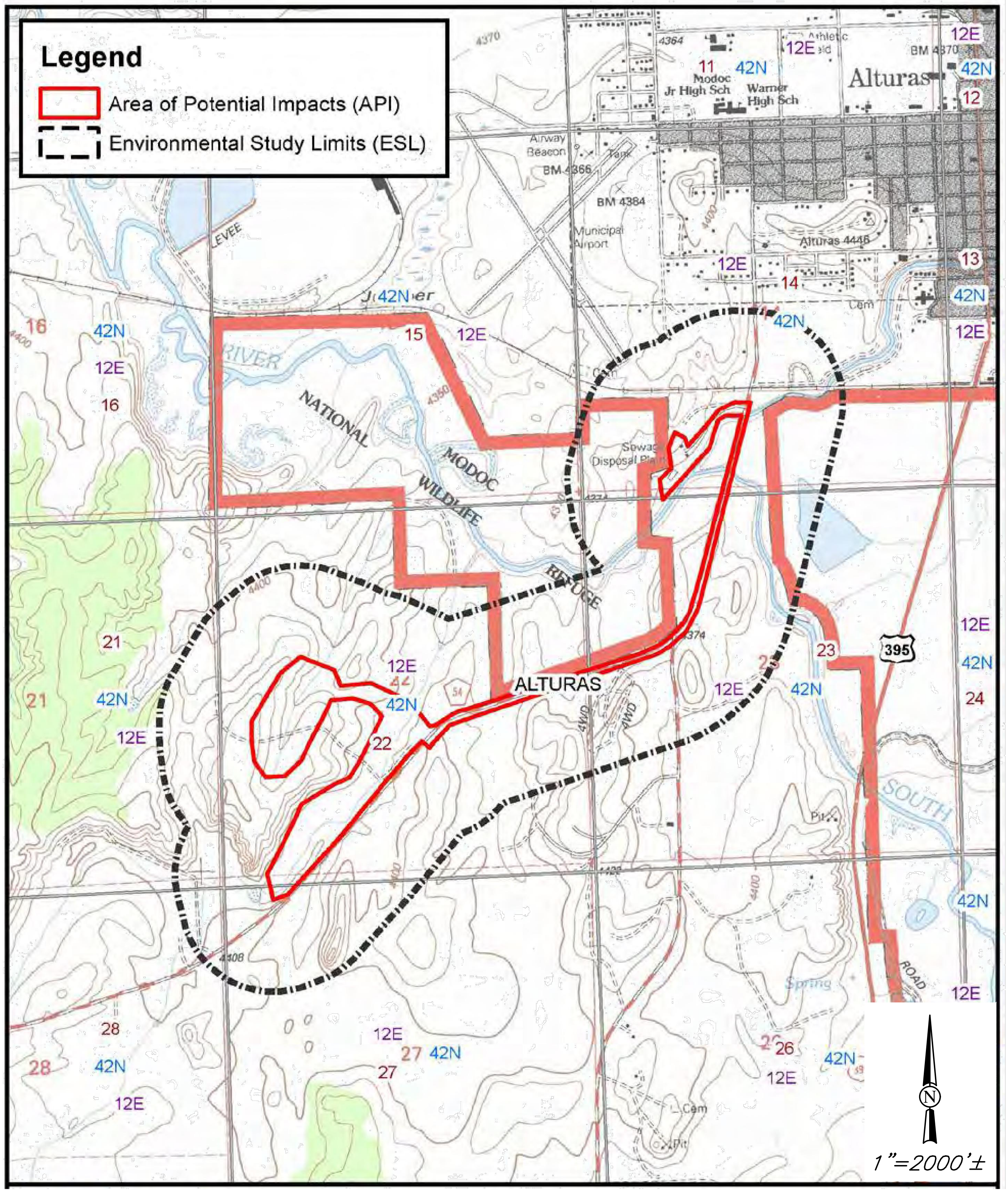

Alturas WWTP Improvement Project

Area of Potential Impacts and Environmental Study Limits

August 2021	Source: DZC, December 2020	Figure 3-3

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]).

DZC Archaeological and Cultural Resource Management (DZC) completed a cultural resource inventory report for the API in December 2020 (DZC, 2020). The cultural resources review was completed to satisfy the requirements of the. It was conducted at a level which also satisfies the requirements of the NEPA and Section 106 of the NHPA, as amended. As part of this evaluation an archival research, Sacred Lands Search, and a review of previous surveys adjacent to and within the study area were documented.

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. The CEQA Checklist question, discussion, and environmental significance conclusions are provided below under each individual environmental parameter related to *Cultural Resources*.

Would the Project:	Potentially Significant Impact	Potentially Significant Impact Unless 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

Discussion: The record and literature search results from the NEIC indicated five previously recorded cultural resource within the API and four within the ESL. The record and literature search revealed ten previous cultural resource studies having been conducted within the API or ESL. Based on the result of the *Cultural Resource Inventory Report* there are no NRHP, CRHR sites, California Historical Landmarks, California Points of Historical Interest, or historical bridge structures located within the API or ESL that would call for the retention of the historical structure or listing. Therefore, no impacts to historical resources would occur with implementation of the proposed project.

Mitigation Measures: No mitigation measures are required.

Would the Project:	Potentially Significant Impact	Potentially Significant Impact Unless Mitigation Incorporated	Less-Than-Significant Impact	No Impact
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?		X		

Discussion: A total of 106 acres of the API site was intensively surveyed in transects of 30 meters or less (DZC, 2020). Six previously recorded resources were re-visited and updated as a result of survey efforts. The following considerations are made concerning resources P-25-000562, P-25-000563, P-25-002274, P-25-002281, P-25-003094, and P-25-003095:

P-25-000562 (Ethnographic Village of Kosole'kta). Survey efforts of DZC confirmed that the 5% of this site within the project API is heavily disturbed. However, previous site records and research indicates that the larger portion of this site (95%) outside of the API is located within the boundaries of the Modoc National Wildlife Refuge (MNWR), in a significantly less disturbed location. Overall, 95% of this resource appears to retain integrity with regard to location, setting, materials, design, feeling, association, and workmanship. The remaining 5%, which rests within the boundary of the wastewater facility, appears to retain integrity only in regard to location. Although a formal evaluation of this resource was not conducted, a preponderance of the historical research has revealed this pre-contact-era resource is likely eligible for inclusion on the NRHP or the CRHR. As previously noted, this resource is partially located within the existing WWTP which is scheduled to have mechanical equipment disturbance while structures will remain. The Pit River Tribe of California has requested a Native American Monitor representing the Kosalektawi Band be present during all ground disturbing activities within the boundary of this resource. With implementation of Mitigation Measure CR-1 impacts would be less than significant.

P-25-000563. Initially plotted within the project API, the two grave markers associated with P-25-000563 were not re-identified despite intensive efforts during this survey. A commemorative stone monument and interpretive kiosk depicting the events of the Battle of the Infernal Caverns and acknowledging Lt. Madigan was placed by the Bureau of Land Management (BLM) approximately 150 feet west of County Road 54, also outside of the API.

Although the actual grave markers are mapped by the CHRIS system as within the API, several versions of locational data within the resource record indicates that it is not within the API and rests in the tuff outcrop just west of the API and outside of the wastewater facility boundary, which is outside the area proposed for mechanical disturbance. The monument is noting the grave markers located well off County Road 54, and outside of the API. Should the markers be found during project activities, inadvertent discovery protocols shall be implemented (refer to Mitigation Measure CR-2) Less than significant impacts are anticipated in this regard.

P-25-002274 (Precontact Lithic Concentration and Historic-Era Refuse). This recorded site exhibits a modest but varied array of lithic deposition including a variety tool types. Additionally, it is situated in close proximity to other substantial and extensive pre-contact era archaeological sites. As such, this resource appears indicative of long-term settlement and use patterns for the immediate region and therefore may contribute to broad patterns of pre-contact national or state history and cultural heritage; however, does not indicate this resource to be associated with figures of historical significance. Based on historical research and information contained in the site records, it is likely this resource will yield information important in prehistory or history.

Overall, this resource appears to retain integrity with regard to location, setting, materials, association, and workmanship. Conversely, it does not appear to retain integrity with regard to design or feeling. Although a formal evaluation is outside the scope of this project, a preponderance of the historical research has revealed this pre-contact-era resource is likely eligible for inclusion on the NRHP or the CRHR. The Pit River Tribe of California has requested a Native American Monitor representing the Kosalektawi Band be present during all ground disturbing activities within the boundary of this resource. With implementation of Mitigation Measure CR-1 impacts would be less than significant.

P-25-002281 (Precontact Lithic Concentration). Survey efforts by DZC on July 28, 2020, did not re-identify any portion of P-25-002281 within the project API. It is possible that the eastern terminus of this site has been impacted by the extension of the County Road 54 road prism which occurred between 1984 and 2020. The majority (98%) of this previously recorded resource is situated on the west side of County Road 54, across the MNWR fence and is untouched by road improvements. P-25-002281 exhibits a modest but varied array of lithic deposition including a variety tool types. Additionally, it is situated in close proximity to other substantial and extensive pre-contact era archaeological sites. As such, this resource appears indicative of long-term settlement and use patterns for the immediate region and therefore may contribute to broad patterns of pre-contact national or state history and cultural heritage. However, research does not indicate this resource to be associated with figures of historical significance. Based on historical research and information contained in the site records, it is likely this resource will yield information important in prehistory or history.

Although mapped within the API by the CHRIS, survey efforts did not observe the resource within the API. It is likely that the previously observed constituents were obscured by the expansion of the road prism. As it cannot be determined if the resource has been obliterated or covered by this action, there remains a possibility for the discovery of the resource during project activities. The Pit River Tribe of California has requested a Native American monitor representing the Kosalektawi Band be present during all ground disturbing activities within the boundary of this resource. In addition, should this resource be observed within the API during project activities, inadvertent discovery protocols shall be implemented. With implementation of Mitigation Measure CR-1 and Mitigation Measure CR-2 impacts would be less than significant.

P-25-003094. Loci A-D and Locus I have been formally evaluated for eligibility on the NRHP. Locus I is located within the project API. Research indicates that this resource is merely a minor transportation route connecting Alturas with public and private land. These lands have likely been used as grazing lands since the settling of Modoc County in the late 19th century and have not been important in the larger history of Modoc County or the state. In addition, this road was a "low frequency linear feature" in that its use was minor in the larger web of roads connecting other roads, communities, and the larger region (DZC, 2020). Therefore, it does not appear to contribute to broad patterns of pre-contact national or state history and cultural heritage. The resource records indicate that Locus I of P-25-003094 is not associated with figures of historical significance and is no more than a typical example of road construction and does not embody a particular method of construction, represent the work of an important creative individual, and does not initially appear to possess high artistic value. In addition, previous test excavations at Locus I revealed no evidence of important information potential that could yield information important in prehistory or history. Overall, this resource does not retain integrity with regard to location, setting, materials, workmanship, design, feeling, or association and based on this evidence has been determined ineligible for inclusion on the NRHP or the CRHR. Therefore, no mitigation measures are required.

P-25-003095. Initially recorded as a small lithic and historic debris scatter, survey efforts noted that three of the four constituents recorded in 1993 are no longer extant or have otherwise been obscured. Just one crumpled hole-in-top milk can was re-identified and based on this information this resource was determined to be an isolate (DZC, 2020). This isolated resource does not contain information which contributes to the broader patterns of national, state, or cultural heritage and research does not indicate this isolate to be associated with figures of historical significance. In addition, this isolate does not contain distinctive characteristics of a type, period, and region, nor does it embody a particular method of construction or represent the work of an important creative individual and does not initially appear to possess high artistic value. Based on historical research and information contained in the site records, it is unlikely that this resource will yield information important in prehistory or history.

Overall, this resource does not retain integrity with regard to location, setting, materials, workmanship, design, feeling, or association and based on this evidence has been determined ineligible for inclusion on the NRHP or the CRHR. Additionally, this isolated historic-era artifact is determined to be located well outside of the API. Therefore, related to P-25-003095 no mitigation measures are required.

Summary. As noted above under resource evaluations for P-25-000562 (Ethnographic Village of Kosole'kta), P-25-002274 (Precontact Lithic Concentration and Historic-Era Refuse), and P-25-002281 (Precontact Lithic Concentration) there is a possibility that cultural resources, including buried archaeological materials, could exist in the area and may be uncovered during construction. Therefore, if any resources are found during the construction of the proposed project, they will be mitigated through implementation of Mitigation Measure CR-1 and Mitigation Measure CR-2. Adherence to protocols established by both Mitigation Measure CR-1 and Mitigation Measure CR-2 would serve to avoid impacts that would result in a substantial adverse change in the significance of an archaeological resource as defined in CEQA Guidelines Section 15064.5. Impacts would be less than significant with mitigation incorporated.

Mitigation Measures: The following mitigation measure has been developed to reduce potential impacts related to *Cultural Resources* to less than significant levels:

Mitigation Measure CR-1. A Native American Monitor shall be present during ground disturbing activities within the boundaries of know precontact sites within the API. This measure is applicable to the following resources:

- P-25-000562 (Ethnographic Village of Kosole'kta);
- P-25-002274 (Precontact Lithic Concentration and Historic-Era Refuse), and
- P-25-002281 (Precontact Lithic Concentration).

Mitigation Measure CR-2. 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.

Would the Project:	Potentially Significant Impact	Potentially Significant Impact Unless Mitigation Incorporated	Less-Than-Significant Impact	No Impact
c) Disturb any human remains, including those interred outside of formal cemeteries?		X		

Discussion: 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 County Coroner has made the necessary findings as to origin and disposition, pursuant to California Public Resources Code Section 5097.98 and Mitigation Measure CR-3. Impacts are considered less than significant with mitigation incorporated.

Mitigation Measures: The following mitigation measure has been developed to reduce potential impacts related to unknown human burials to less than significant levels:

> Mitigation Measure CR-3. 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 Modoc 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

In the course of the above evaluation, impacts associated with *Cultural Resources* were found to be less than significant with the implementation of the mitigation measures.

References and Citations

DZC (DZC Archaeological and Cultural Resource Management). 2020. *Cultural Resource Inventory Report for the City of Alturas Wastewater Facilities Improvement Project, Modoc County, California.* December 2020.

SHN (SHN Consulting Engineers and Geologists, Inc.). 2020. *Final Wastewater Preliminary Engineering Report.* November 2020.

VI. Energy

The purpose of the 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 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

In Modoc County, energy is used as a transportation fuel and as electrical and heat energy in homes, businesses, industries, and agriculture. Electric service in Modoc County is provided by Surprise Valley Electrification Corporation (SVEC) and Pacific Power. SVEC serves 7,650 square miles covering Summer Lake, Oregon, south to Ravendale, California, west to Day, California, and east to Vya, Nevada. SVEC does not serve the downtown areas of Alturas, Lakeview, Cedarville, and New Pine Creek, as these areas are served by Pacific Power (SVEC, 2021). According to the 2019 Power Content Label for SVEC, their power mix consisted of approximately 85 percent large hydroelectric, 11 percent nuclear, and 4 percent unspecified sources of power. According to the 2019 Power Content Label for Pacific Power, the power mix consisted of approximately 55.1 percent coal, 17.9 percent natural gas, 11.8 percent unspecified sources of power, 11.7 percent eligible renewables, and 3.4 percent large hydroelectric (Pacific Power, 2019).

Modoc County contains several geothermal energy resource areas. The geothermal energy potential of Modoc County has been known since the earliest days of its settlement. Hot springs, warm wells, and the volcanic geology of the County provide clear evidence of the heat energy lying beneath the earth's surface. A number of small-scale, isolated direct heating applications have been undertaken in the County over the last 50 years (Modoc, 1988).

Regulatory Setting

This section summarizes current federal, State, and local regulations relevant to the review of *Energy* 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's Energy Efficiency Standards for Residential and Nonresidential Buildings (Title 24).** The California Code of Regulations Title 24, California's energy efficiency standards for residential and non-residential buildings, was established by the CEC in 1978 in response to a legislative mandate to create uniform building codes to reduce California's energy consumption and provide energy efficiency standards for residential and non-residential buildings. The 2019 Building Energy Efficiency Standards were adopted on May 9, 2018 and took effect on January 1, 2020. Under the 2019 standards, homes will use about 53 percent less energy and nonresidential buildings will use about 30 percent less energy than buildings under the 2016 Title 24 standards.

- **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 2019 and went into effect January 1, 2020.

- **2008 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 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 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 SVEC and Pacific Power 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 (CPUC, 2018).

Impact Analysis

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. The CEQA Checklist question, discussion, and environmental significance conclusions are provided below under each individual environmental parameter related to *Energy*.

Would the Project:	Potentially Significant Impact	Potentially Significant Impact Unless 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	

Discussion: The following provides an analysis of short-term construction and long-term operational impacts related to the proposed project.

<u>Construction Impacts</u>

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

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

Operational Impacts

Energy use during long-term operation of the new Alturas WWTP will relate primarily to the operation of new or upgraded equipment and buildings. The energy currently used by the existing WWTP is part of the existing baseline condition. The project does not propose to increase the capacity of the WWTP and, therefore, does not have the potential to result in significant additional energy use beyond the existing baseline condition. Furthermore, the power mix that will be supplied to the new WWTP must comply with the California RPS, which requires retail sellers of electricity to provide a power mix that includes 60 percent renewable sources by 2030.

The structures proposed by the project at the new WWTP site would be required to comply with Title 24 Building Energy Efficiency Standards for Residential and Nonresidential Buildings (Title 24, Part 6, of the California Code of Regulations), which provide minimum efficiency standards related to various building features, including appliances, water and space heating and cooling equipment, building insulation and roofing, and lighting. Implementation of the Title 24 standards significantly reduces energy usage. It has generally been the presumption throughout the State of California that compliance with Title 24 (as well as compliance with the federal and state regulations) ensures that projects will not result in the inefficient, wasteful, and unnecessary consumption of energy. In compliance with current regulatory requirements, the buildings that would be developed at the new WWTP site have the potential to use less energy than occurs under the existing baseline condition.

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

For the reasons noted above, the proposed project would result in a less than significant impact on this resource category during construction and operation.

Mitigation Measures: No mitigation measures are required. Impacts would be less than significant.

Would the Project:	**Potentially Significant Impact**	**Potentially Significant Impact Unless Mitigation Incorporated**	**Less-Than-Significant Impact**	**No Impact**
b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?			**X**	

Discussion: As described above, the proposed project would not increase the capacity of the WWTP and would, therefore, not result in significant additional energy use beyond the existing baseline condition. In addition, the proposed buildings would be constructed in compliance with Title 24 Building Energy Efficiency Standards and the new WWTP site would be served with an energy mix that complies with the California RPS. For the reasons noted above, the proposed project would not conflict with or obstruct a state or local plan for renewable energy or energy efficiency. Therefore, the proposed project would result in a less than significant impact on this resource category.

Mitigation Measures: No mitigation measures are required. Impacts would be less than significant.

Findings

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

References and Citations

CBSC (California Building Standards Commission). 2019.*California Green Building Standards Code*. January 1, 2020.

CPUC (California Public Utilities Commission). 2018. California Renewable Portfolio Standard – Annual Report. November. https://www.cpuc.ca.gov/uploadedFiles/CPUC_Public_Website/Content/Utilities_and_Industries/Energy_-_Electricity_and_Natural_Gas/Renewables%20Portfolio%20Standard%20Annual%20Report%202018.pdf.

Modoc (Modoc County). 1988. *Modoc County General Plan Goals, Policies, and Action Program.* September 1988.

Pacific Power. 2019. *California Power Content Label*. https://www.pacificpower.net/content/dam/pcorp/documents/en/pacificpower/rates-regulation/california/PP_CA_Power_Content_Label_JAN_21.pdf.

SHN (SHN Consulting Engineers and Geologists, Inc.). 2020. *Final Wastewater Preliminary Engineering Report.* November 2020.

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SVEC. 2021. *Website – Welcome to Surprise Valley Electric Corp. & About Touchstone Energy Cooperatives*. http://www.surprisevalleyelectric.org/ and http://www.surprisevalleyelectric.org/content/about-touchstone-energy-cooperatives.

VII. Geology and Soils

The purpose of this section 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

Published geologic mapping and reports in the immediate vicinity of the proposed project indicates that underlying basement bedrock consists of tertiary volcanic pyroclastic rocks of the Cenozoic era (DOC, 2010b). The Preliminary Geologic Map of the Alturas 30' x 60' quadrangle indicates the Alturas Formation (Ta) and Pyroclastic flow of the Alturas Basin (Tabpf) underly the project area. The Alturas Formation is described as white, light gray, tan; fine to coarse grained with minor pumice lapilli, thin to thick bedded. Increasing lake clays and fluvial volcanic sandstones in upper part (Collins, 1999).

Active faults are defined as faults that have had surface displacement in the Holocene epoch (in the past 11,000 years) based on 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.

Based on the most recent available data, no active or potentially active faults are reported to be present within the boundaries of the project site. In addition, the site is not located within an A-P Earthquake Fault Hazard Zone. Regional active faults within about 20 miles of the proposed project include the Likely fault zone, the Fitzhugh Creek fault zone, the Davis Creek fault zone, the Surprise Valley fault, as well as several unnamed Quaternary faults. There has been one disaster declaration in the County for the 1993 Klamath earthquake. There was minimal damage in the County. Areas with greatest impacts were the Tule Lake and Newell area. These areas saw ground shaking with damage to grain silos and other miscellaneous structures (Modoc, 2016). However, earthquakes in the area have been rare, and no deaths or significant structural damage have occurred as a result of an earthquake.

According to the U.S. Department of Agriculture, Natural Resources Conservation Service (NRCS, 2020), seven soil units have been mapped within the project study area (refer to Table 3-4, SOIL TYPES AND CHARACTERISTICS, and Figure 3-1).

Table 3-4
SOIL TYPES AND CHARACTERISTICS

Soil Name	Landform and Parent Material	Erosion Potential	Drainage	Surface Runoff	Permeability	Shrink-Swell Potential
Alturas loam	Terraces; alluvium derived from basic igneous rocks	Moderate	Moderately well-drained	High	Moderately low to moderately high	Moderate
Bieber gravelly loam, 0 to 9 percent slopes	Terraces; alluvium derived from basic igneous rocks	Moderate	Well-drained	Very High	Very low	Moderate
Buntingville clay loam, 0 to 2 percent slopes	Fan remnants and terraces; tuffs, andesite, basalt, and tuff breccias	Moderate	Moderately well-drained	High	Moderately low	Moderate
Casuse sandy loam, 2 to 9 percent slopes	Terraces, escarpments; weakly cemented residuum weathered from tuff	Moderate	Well-drained	Very High	Very low	Moderate
Ladd sandy loam, 2 to 9 percent slopes	Alluvial fans; alluvium derived from basic igneous rock	Moderate	Well-drained	High	Moderately high	Moderate
Tuff outcrop-Casuse, eroded complex, 2 to 15 percent slopes	Terraces; residuum weathered from tuff	Low	Well-drained	Medium	Very low	Moderate
Tuff outcrop-Cause, eroded complex, 30 to 50 percent slopes	Escarpments; Residuum weathered from tuff	Low	Well-drained	High	Very low	Moderate

Source: United States Department of Agriculture, Natural Resources Conservation Service. 2020.

The project site ranges in elevation between 4,360 and 4,490 feet above mean sea level (msl). The General Plan Safety Element noted that there is a direct relation between the degree of slope and associated land slide hazards. As slope increases, so does the potential for conditions hazardous to human life and structures situated in the area. Land having an average slope of 30 percent or greater is generally considered less suitable for intensive development because it is difficult and more costly to develop (Modoc, 2016). According to the Department of Conservations Fire Perimeters and Deep Landslide Susceptibility mapping, most of the project study area is considered to be at low risk for landslides (DOC, 2021). However, portions within APN 022-130-042 that generally follows the Tuff outcrop-Casuse, eroded complex, 30-50 percent slope soil classification has been identified as being susceptible to landslide risk (DOC, 2021).

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.

- **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.

- **2019 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.

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. The CEQA Checklist question, discussion, and environmental significance conclusions are provided below under each individual environmental parameter related to *Geology and Soils*.

Would the Project:	**Potentially Significant Impact**	**Potentially Significant Impact Unless 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. ii) Strong seismic ground shaking? iii) Seismic-related ground failure, including liquefaction? iv) Landslides?			X	

Discussion: The project may potentially expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:

i. Rupture of a known earthquake fault:

According to the California Geological Survey (CGS), there are no Alquist-Priolo Study Zones in the study area. The closest Special Study Zone is the Surprise Valley Fault Zone, approximately 19 miles east of the study area. Based on the distance of the study area to the Surprise Valley Fault zone, impacts are considered to be less than significant.

ii. Strong seismic ground shaking:

The entire northern California region is subject to the potential for moderate to strong seismic shaking due to distant seismic sources. Seismic shaking can be generated on faults many miles from the project vicinity. An earthquake is caused by a sudden slip on a fault. Stresses in the earth's outer layer push the sides of the fault together. Stress builds up, and the rocks slip suddenly, releasing energy in waves that travel through the earth's crust and cause the shaking that is felt during an earthquake (Modoc, 2016).

Maps indicating the maximum expectable intensity of groundshaking for the County are available through several sources. Figure 4-24 in the Modoc County *Local Hazard Mitigation Plan* (2016) depicts the expected relative intensity of ground shaking and damage in California from anticipated future earthquakes. The shaking potential is calculated as the level of ground motion that has a 2% chance of being exceeded in 50 years, which is the same as the level of ground-shaking with about a 2,500 year average repeat time. According to the map, Modoc County is located in an area of low to moderate earthquake shaking. It should be noted however that no region is immune from potential earthquake damage. Seismic shaking potential is considered minimal, and the hazard is not higher or lower at the project site than throughout the region (Modoc, 2016).

Before final design and the commencement of construction, a design-level geotechnical investigation with recommendations will be prepared. Necessary recommendations will present geotechnical engineering conclusions and specific recommendations for site preparation, foundation design, site drainage, addressing expansive soils, and pavement design to achieve compliance with the California Building Code, which would reduce risk associated with expansive soils. Impacts would be less than significant in this regard.

iii. Seismic-related ground failure, including liquefaction:

Liquefaction results from an applied stress on the soil, such as earthquake shaking or other sudden change in stress condition, and is primarily associated with saturated, cohesionless soil layers located close to the ground surface. During liquefaction, soils lose strength and ground failure may occur. This is most likely to occur in alluvial (geologically recent, unconsolidated sediments) and stream channel deposits, especially when the groundwater table is high. As shown in Table 3-4, above, soils in the project area include alluvium or weathered tuff deposits, and the potential for liquefaction exists;

however, the site-specific geotechnical study will include recommendations for engineering design and construction methods to ensure impacts related to liquefaction are less than significant.

iv. Landslides:

According to the Department of Conservations Fire Perimeters and Deep Landslide Susceptibility mapping, most of the project study area is considered to be at low risk for landslides (DOC, 2021). Portions within APN 022-130-042 that are generally comprised of the Tuff outcrop-Casuse, eroded complex, 30-50 percent slope soil classification has been identified as being very high landslide susceptibility risk. The proposed evaporation and percolation ponds have been sited outside of this area. In addition, the project does not propose any new habitable structures at the site that might be subject to landslide issues. Impacts are considered less than significant in this regard.

Mitigation Measures: No mitigation measures are required. Impacts would be less than significant.

Would the Project:	Potentially Significant Impact	Potentially Significant Impact Unless Mitigation Incorporated	Less-Than-Significant Impact	No Impact
b) Result in substantial soil erosion or the loss of topsoil?			X	

Discussion: Earthwork, grading, and soil stockpiling activities associated with construction will be conducted in accordance with the conditions of a grading permit issued by the City of Alturas Planning and Zoning Department and a Construction Stormwater Pollution Prevention Plan (SWPPP) and Notice of Intent (NOI) administered by the Central Valley Regional Water Quality Control Board (CVRWQCB). The Construction SWPPP will specify Best Management Practices (BMPs) for erosion and sediment control measures. Therefore, the potential for substantial soil erosion and loss of topsoil is considered to be less than significant.

Mitigation Measures: No mitigation measures are required. Impacts would be less than significant.

Would the Project:	Potentially Significant Impact	Potentially Significant Impact Unless Mitigation Incorporated	Less-Than-Significant Impact	No Impact
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 offsite landslide, lateral spreading, subsidence, liquefaction, or collapse?			X	

Discussion: Refer to impact discussion under Section VII.a, above.

Mitigation Measures: No mitigation measures are required. Impacts would be less than significant.

Would the Project:	Potentially Significant Impact	Potentially Significant Impact Unless Mitigation Incorporated	Less-Than-Significant Impact	No Impact
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	

Discussion: Expansive soils have high shrink-swell potential that expand when wet and shrink when dry. This can result in damage to foundations and structures. Soils at the project site present consist of sandy and clay loams that present a moderate potential for expansion. Before final design and the commencement of construction, a design-level geotechnical investigation with recommendations will be prepared. Necessary recommendations will present geotechnical engineering conclusions and specific recommendations for site preparation, foundation design, site drainage, addressing expansive soils, and pavement design to achieve compliance with the California Building Code, which would reduce risk associated with expansive soils. Impacts would be less than significant in this regard.

Mitigation Measures: No mitigation measures are required. Impacts are less than significant.

Would the Project:	Potentially Significant Impact	Potentially Significant Impact Unless Mitigation Incorporated	Less-Than-Significant Impact	No Impact
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

Discussion: The proposed project does not propose installation or operation of a new septic systems or other onsite wastewater system. The proposed project has an existing onsite septic system that disposes of domestic wastewater. This system would continue to be utilized for the permanent workers at the site and is not proposed to be expanded to accommodate other future onsite uses. Should the facility need to expand the system, they would be required to follow standard County procedures for septic system development as provided for by the Modoc County Department of Environmental Health. Therefore, there is no potential for septic tank wastewater to adversely affect the project site.

Mitigation Measures: No mitigation measures are required.

Would the Project:	Potentially Significant Impact	Potentially Significant Impact Unless Mitigation Incorporated	Less-Than-Significant Impact	No Impact
f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?				X

Discussion: No paleontological resources or unique geologic features have been identified on the proposed project site, and the potential for their occurrence is considered minimal. No impacts are anticipated 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*.

References and Citations

CBSC (California Building Standards Commission). 2019.*California Building Standards Code*. January 1, 2020.

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VIII. Greenhouse Gas Emissions

This section 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

Greenhouse gases are gases in the atmosphere that absorb and emit radiation. The greenhouse effect traps heat in the troposphere through a three-fold process, summarized as follows: short wave radiation emitted by the sun is absorbed by the earth; the earth emits a portion of this energy in the form of long wave radiation; and GHGs in the upper atmosphere absorb this long wave radiation and emit this long wave radiation into space and toward the Earth. This "trapping" of the long wave (thermal) radiation emitted back toward the Earth is the underlying process of the greenhouse effect. The main GHGs in the Earth's atmosphere are water vapor, carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), O_3, hydrofluorocarbons (HCFs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF_6).

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

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:

- **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 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 Surprise Valley Electric Corporation and Pacific Power 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 (CPUC, 2018).

- **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.

- **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.

- **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.

- **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.

- **CARB Climate Change Scoping Plan.** Pursuant to AB 32, the CARB adopted a Climate Change Scoping Plan in December 2008 outlining measures to meet the 2020 GHG reduction goals. The Scoping Plan functions as a roadmap to achieve GHG reductions in California required by AB 32 through subsequently enacted regulations. CARB's Scoping Plan contains the main strategies California will implement to reduce CO_2e emissions by 174 million metric tons (MMT), or approximately 30 percent, from the State's projected 2020 emissions level of 596 MMT CO_2e under a business as usual (BAU) scenario. This is a reduction of 42 MMT CO_2e, or almost ten percent, from 2002 to 2004 average emissions, but requires the reductions in the face of population and economic growth through 2020.

  The 2017 Scoping Plan identifies progress made to meet the near-term (2020) objectives of AB 32 and defines California's climate change priorities and activities for the next several years (CARB, 2017). The 2017 Scoping Plan identifies the 2020 emissions limit as 431 MMT CO_2e and the 2020 business-as-usual forecast as 509 MMT CO_2e. The 2017 Climate Change Scoping Plan provides strategies for meeting the mid-term 2030 greenhouse gas reduction target set by Senate Bill (SB) 32. The plan also identifies how the State can substantially advance toward the 2050 greenhouse gas reduction target of Executive Order S-3-05, which consists of reducing greenhouse gas emissions to 80 percent below 1990 levels. The recommendations cover the key sectors, including energy and industry; transportation; natural and working lands; waste management; and water. The recommended measures in the 2017 Scoping Plan are broad policy and regulatory initiatives that will be implemented at the State level and do not relate to the construction and operation of individual projects. The initial Scoping Plan recommended that local governments achieve a 15-percent reduction below 2005 levels by 2020, which aligns with the State's goal of not exceeding 1990 emissions levels by 2020. However, the 2017 Scoping Plan does not contain a recommended reduction level or percent for local government's municipal operations.

- **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 2019 Title 24 standards became effective January 1, 2020. buildings constructed under the 2019 Title 24 standards are estimated to use about 30 percent less energy than those constructed under the 2016 Title 24 standards.

Significance Thresholds

The project site is located in the Northeast Plateau Air Basin (NPAB) and is under the jurisdiction of the Modoc County Air Pollution Control District (MCAPCD). Modoc County, the MCAPCD, and the City of Alturas have not adopted quantitative thresholds for determining the significance of greenhouse gas emissions. In addition, Modoc County and the City of Alturas do not have adopted Climate Action Plans. In the absence of quantitative thresholds or a Climate Action Plan, environmental practitioners often use thresholds and guidance provided by other air districts in the State.

One of the most commonly used thresholds in the State to analyze the impacts of construction and operational GHG emissions, is 1,100 metric tons of CO_2e per year ($MTCO_2e/yr$). This threshold has been adopted by multiple air districts in northern California including the Bay Area Air Quality Management District (BAAQMD, 2017), Mendocino Air Quality Management District (MCAQMD, 2010), and Sacramento Metropolitan Air Quality Management District (SMAQMD, 2020).

This threshold was developed to ensure at least 90 percent of new GHG emissions would be reviewed and assessed for mitigation, thereby contributing to GHG emissions reduction goals of AB 32, SB 32, the Scoping Plan, and Executive Orders (SMAQMD, 2018). For the reasons noted above, the threshold of 1,100 $MTCO_2e$/yr is used to evaluate the proposed project's GHG emissions. If the threshold is exceeded, then the project would have a cumulatively considerable contribution to a significant cumulative environmental impact and would conflict with an applicable plan, policy, or regulation adopted for the purposes of reducing GHG emissions.

Impact Analysis

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. The CEQA Checklist question, discussion, and environmental significance conclusions are provided below under each individual environmental parameter related to *Greenhouse Gas Emissions*.

Would the Project:	**Potentially Significant Impact**	**Potentially Significant Impact Unless 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	

Discussion: As discussed in the project description at the beginning of this document, the project proposes to decommission the existing Alturas WWTP and develop a new WWTP on parcel 022-130-042. The existing WWTP generates GHG emissions, which is part of the existing baseline condition. The new WWTP would have the same capacity as the existing WWTP and, therefore, would not result in a significant increase in GHG emissions.

Both construction and operational GHG emissions for the proposed project were estimated using the California Emissions Estimator Model (CalEEMod), which is a statewide land use emissions computer model designed to provide a uniform platform for government agencies to quantify potential criteria air pollutants and GHG emissions associated with both construction and operation of a variety of land use projects (CAPCOA, 2017).

As discussed in the *Regulatory Setting*, Modoc County, the MCAPCD, and City of Alturas have not adopted thresholds to analyze project-level impacts from GHG emissions. Therefore, the threshold of 1,100 $MTCO_2e$/yr is used to evaluate the proposed project's construction and operational GHG emissions. This threshold is one of the most used thresholds in the State for analyzing the potential impacts of construction and operational GHG emissions. Table 3-5 presents the estimates of unmitigated GHG emissions from the proposed project and compares project-related GHG emissions to the 1,100 $MTCO_2e$/yr threshold of significance. If the threshold is exceeded for either construction or operation of the proposed project, then the project would have a cumulatively considerable contribution to a significant cumulative environmental impact.

Table 3-5
UNMITIGATED GHG EMISSIONS (ANNUAL METRIC TONS PER YEAR)

Phase	GHG Emissions ($MTCO_2e$/yr)	Threshold of Significance ($MTCO_2e$/yr)	Significant Impact?
Construction	149.8	1,100	No
Operation	45.7	1,100	No

Source: SMAQMD, MCAQMD, BAAQMD, CalEEMod Version 2016.3.2.

As shown in Table 3-5, the construction and operational GHG emissions from the proposed project are well below the threshold of significance. Therefore, the proposed project would not generate GHG emissions, either directly or indirectly, that would have a significant impact on the environment. Therefore, the proposed project would result in a less than significant on this resource category.

Mitigation Measures: No mitigation measures are required. Impacts would be less than significant.

Would the Project:	Potentially Significant Impact	Potentially Significant Impact Unless Mitigation Incorporated	Less-Than-Significant Impact	No Impact
b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?			X	

Discussion: A GHG impact would be significant if GHG emissions from the proposed project would conflict with an applicable plan, policy, or regulation for the purpose of reducing GHG emissions. As noted in the *Regulatory Setting*, Modoc County and the City of Alturas do not have an adopted CAP. For the proposed project, it is analyzed whether the emissions obstruct compliance with the GHG emission reduction goals in Assembly Bill (AB 32), Senate Bill 32 (SB 32), and Executive Order S-3-05 (EO S-3-05). As stated in the Regulatory Setting, to the extent that the proposed project does not exceed the threshold of significance of 1,100 $MTCO_2e$/yr, it would not result in a conflict with GHG reduction plans.

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

As discussed in the project description at the beginning of this document, the project proposes to decommission the existing Alturas WWTP and develop a new WWTP on parcel 022-130-042. The existing WWTP generates GHG emissions, which is part of the existing baseline condition. The new WWTP would have the same capacity as the existing WWTP and, therefore, would not result in a significant increase in GHG emissions. Furthermore, the power mix that will be supplied to the project sites must comply with the California RPS, which requires retail sellers of electricity to provide a power mix that includes 60 percent renewable sources by 2030. Therefore, the GHG emissions generated by the electricity supplied to the new WWTP will continue to decrease over time as the power mix transitions to a greater percentage of renewable sources.

As discussed above, GHG emissions from the proposed project's construction and operational activity are below the threshold of significance of 1,100 $MTCO_2e$/yr. As discussed in the Regulatory Setting, this threshold is one of the most used thresholds in the State for analyzing the potential impacts of construction and operational GHG emissions. Therefore, construction and operational emissions from the proposed project would be less than significant.

As proposed and in compliance with existing regulatory requirements, the proposed project would not generate GHG emissions that would conflict with an applicable plan, policy, or regulation for the purpose of reducing GHG emissions. Therefore, the proposed project would result in a less than significant impact on this resource category.

Mitigation Measures: No mitigation measures are required. Impacts would be less than significant.

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*.

References and Citations

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MCAQMD (Mendocino County Air Quality Management District). 2010. *Adopted Air Quality CEQA Thresholds of Significance*.

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SMAQMD. 2020. *SMAQMD Thresholds of Significance Table*. http://www.airquality.org/LandUseTransportation/Documents/CH2ThresholdsTable4-2020.pdf.

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IX. Hazards and Hazardous Materials

The purpose of this section 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 proposed project site and to identify potential risks to human health, including uses of the proposed project site, workers, and construction workers. Information in this section focuses on the potential for the proposed project to create a significant hazard to the public or the environment through the use, transport, disposal, or accidental release of hazardous materials. This section also addresses hazards associated with wildfires.

Environmental Setting

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 are also those listed as hazardous pursuant to Government Code Section 65962.5.

The Modoc County Environmental Health Department is the administering agency and the Certified Unified Program Agency (CUPA) for Modoc 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 Modoc 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 Central Valley Regional Water Quality Control Board (RWQCB) and the California Department of Toxic Substances Control (DTSC).

Under Government Code Section 65962.5, both the 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 within one-mile of the project site.

The 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 is not listed as having a hazardous materials violation.

The California Department of Forestry and Fire Protection (CAL FIRE) Fire and Resource Assessment Program (FRAP) designates lands in three general classifications, “Moderate”, “High” and “Very High” Fire Hazard Severity Zones. The 2007 FRAP (updated May 2008) delineates the project site and surrounding vicinity as a part of a designated “Moderate Fire Hazard Severity Zone” (MFHSZ) (CAL FIRE, 2008). Since the site also falls within a State Responsibility Area (SRA) fire suppression for the project site and surrounding area is provided by a combination of first responders such as CAL FIRE with additional firefighting support from the nearby Alturas Fire Department main station located approximately 2 miles from the site (CAL FIRE, 2021).

The Alturas Municipal Airport is just north of the existing Alturas wastewater treatment plant and approximately one mile northeast of the proposed treatment and disposal property. In general, bird strikes by airplanes is a common occurrence and most often happens when the aircraft is less than 500 feet off the ground during take-off and landing. Based on the location of the proposed pond(s) in the proximity of the Modoc National Wildlife Refuge (MNWR) and the waterfowl that breed, overwinter, or migrate through the area, the primary concern for bird strikes may be waterfowl and other larger water birds such as Canada Goose (*Branta canadensis*), although the Alturas Public Works director has reported that, to his knowledge, there has never been a bird strike by an aircraft at the Alturas Municipal Airport in the past ten years or so (SHN, 2018).

The Federal Aviation Administration (FAA) wildlife hazard mitigation regulations discourages the creation of new water bodies within 5,000 feet of an airport, specifically 5,000 feet from the edge of runways. The water bodies act as bird attractants and, therefore, could increase hazardous bird strikes with aircraft. As illustrated on Figure 2-7, PROPOSED SITE PLAN, in Section 2.0, PROJECT DESCRIPTION, the proposed treatment and disposal facilities are sited greater than 5,000 feet from the closest existing runway.

Regulatory Setting

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

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. Hazardous materials are used in products (household cleaners, industrial solvents, paint, pesticides, etc.) and in the manufacturing of products (electronics, newspapers, plastic products, etc.). Hazardous materials can include petroleum, natural gas, synthetic gas, acutely toxic chemicals, and other toxic chemicals that are used in agriculture, commercial, and industrial uses; businesses; hospitals; and households. Accidental releases of hazardous materials have a variety of causes, including highway incidents, warehouse fires, train derailments, shipping accidents, and industrial incidents.

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 term includes chemicals regulated by the United States Department of Transportation (USDOT), the United States Environmental Protection Agency (EPA), the California Department of Toxic Substances Control (DTSC), the California Governor’s Office of Emergency Services (OES), and other agencies as hazardous materials, wastes, or substances. “Hazardous waste” is any hazardous material that has been discarded, except materials specifically excluded by regulation. Hazardous materials that have been intentionally disposed of or inadvertently released fall within the definition of “discarded” materials and can result in the creation of hazardous waste. Hazardous wastes are broadly characterized by their ignitability, toxicity, corrosivity, reactivity, radioactivity, or bioactivity. Federal and State hazardous waste definitions are similar, but distinct enough that the federal Resource Conservation and Recovery Act (RCRA) hazardous wastes and State non-RCRA hazardous wastes have separate classifications. Hazardous wastes require special handling and disposal because of their potential to impact public health and the environment. Some materials are designated “acutely” or “extremely” hazardous under relevant statutes and regulations.

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.

Potential hazards and the use and transportation of hazardous substances are regulated by an overlapping set of adopted city, county, State, and federal plans, policies, and regulations. In general, federal and State legislation empowers regulation by local agencies; however, both State and federal agencies such as the FAA and RWQCBs retain a substantial direct regulatory role.

- **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 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 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 City 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 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, who 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.

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. The CEQA Checklist question, discussion, and environmental significance conclusions are provided below under each individual environmental parameter related to *Hazards and Hazardous Materials*.

Would the Project:	Potentially Significant Impact	Potentially Significant Impact Unless 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	

Discussion: The proposed project includes the use of regulated materials (such as petroleum hydrocarbons, fuels, and lubricants) for the use of mechanized equipment during construction. 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.

Businesses that store hazardous materials are subject to the County's HMBP program, which is regulated by the Modoc County Environmental Health Division 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.

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.

Mitigation Measures: No mitigation measures are required. Impacts would be less than significant.

Would the Project:	Potentially Significant Impact	Potentially Significant Impact Unless Mitigation Incorporated	Less-Than-Significant Impact	No Impact
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?			X	

Discussion: Potential construction-related hazards could be created during the course of construction given that construction activities involve the use of heavy equipment, which uses small and incidental amounts of oils and fuels and other potentially flammable substances. The level of risk associated with the accidental release of hazardous substances is not considered significant due to the small volume and low concentration of hazardous materials used during construction. The construction contractor would be required to use standard construction controls and safety procedures that would avoid and minimize the potential for accidental release of such substances into the environment. Standard construction practices would be observed such that any materials released are appropriately contained and remediated as required by local, State, and federal law. All hazardous materials used for operations would be appropriate stored onsite and handled in accordance with County, State, and federal regulations. Because any hazardous materials used for operations would be in small quantities, long-term impacts associated with handling, storing, and disposing of hazardous materials from project operation would be less than significant.

Mitigation Measures: No mitigation measures are required. Impacts would be less than significant.

Would the Project:	Potentially Significant Impact	Potentially Significant Impact Unless Mitigation Incorporated	Less-Than-Significant Impact	No Impact
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

Discussion: 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 impacts would occur in this regard.

Mitigation Measures: No mitigation measures are required.

Would the Project:	Potentially Significant Impact	Potentially Significant Impact Unless Mitigation Incorporated	Less-Than-Significant Impact	No Impact
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

Discussion: Under Government Code Section 65962.5, both the DTSC and the 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 on the project site. Therefore, the project site is not on a parcel included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 (DTSC, 2021; SWRCB, 2021). As a result, this would not create a significant hazard to the public or to the environment and would have no impact.

Mitigation Measures: No mitigation measures are required.

Would the Project:	Potentially Significant Impact	Potentially Significant Impact Unless 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	

Discussion: The Alturas Municipal Airport is located approximately one-mile northeast of the proposed project. The proposed facilities are sited greater than 5,000 feet from the closest existing runway. In addition, the project is not located within the Alturas Municipal Airport Land Use Plan or within two miles of a private airstrip. Therefore, the project would not expose people residing or working in the project area to safety hazards or excessive noise levels.

As previously described above under *Environmental Setting*, the FAA wildlife hazard mitigation regulations discourages the creation of new water bodies within 5,000 feet of an airport, specifically 5,000 feet from the edge of runways. The water bodies act as bird attractants and, therefore, could increase hazardous bird strikes with aircraft. Based on the location of the proposed treatment and disposal ponds in the proximity of the MNWR and the waterfowl that breed, overwinter, or migrate through the area, the primary concern for bird strikes may be waterfowl and other larger water birds such as Canada Goose (*Branta canadensis*). According to the Alturas Public Works director there has not been any recorded bird strikes by an aircraft at the Alturas Municipal Airport in the past ten years (SHN, 2018). As illustrated on Figure 2-7, PROPOSED SITE PLAN, in Section 2.0, PROJECT DESCRIPTION, the proposed treatment and disposal facilities are sited greater than 5,000 feet from the closest existing runway. Impacts are considered less than significant in this regard.

Mitigation Measures:

Would the Project:	Potentially Significant Impact	Potentially Significant Impact Unless Mitigation Incorporated	Less-Than-Significant Impact	No Impact
f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?		X		

Discussion: The proposed project does not involve a use or activity that could interfere with long-term emergency response or emergency evacuation plans for the area. Although a temporary increase in traffic could occur during construction and could interfere with emergency response times, construction-related traffic would be minor due to the overall scale of the construction activities. Further, construction-related traffic would be spread over the duration of the construction schedule and would be minimal on a daily basis. This impact is considered less than significant with implementation of the traffic control plan as required by Mitigation Measure TRF-1 (refer to section XVII, TRANSPORTATION, below).

Mitigation Measures: Implement Mitigation Measure TRF-1.

Would the Project:	Potentially Significant Impact	Potentially Significant Impact Unless Mitigation Incorporated	Less-Than-Significant Impact	No Impact
g) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?			X	

Discussion: The proposed project is located just south of the City of Alturas and is largely surrounded by grazing and open space lands. The project is located within an SRA and is identified as a "moderate fire hazard severity zone" (CAL FIRE 2008; 2021). The HMBP, prepared for the project, would include an emergency response plan and employee training. As such, the project would not expose people or structures to a significant risk of loss, injury, or death involving wildland fires. Less than significant impacts would occur in this regard. For additional information and analysis related to wildland fire hazards, refer to Section XX, WILDFIRE.

Mitigation Measures: No mitigation measures are required. Impacts would be less than significant.

Findings

In the course of the above evaluation impacts associated with *Hazards and Hazardous Materials* were found to be less than significant with implementation of mitigation.

References and Citations

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X. Hydrology and Water Quality

The purpose of this section is to describe the hydrologic and water quality setting of the proposed project site and surrounding area. This section also evaluates potential long-term and short-term water quality impacts associated with construction and long-term operation of the proposed project.

Environmental Setting

The project site and surrounding area is located within the Sacramento River hydrologic region of northern California within the Alturas Ground Water Basin, South Fork Pit River Subbasin (DWR, 2021a). The basin is comprised of 114,000 acres or 178 square miles. The South Fork Pit River enters the basin near the community of Likely and flows north through the South Fork Pit River Valley to its confluence with the North Fork Pit River at the City of Alturas (DWR, 2003).

Treated effluent at the City's existing wastewater treatment plant (WWTP) is currently discharged to the Pit River under Waste Discharge Requirement (WDR) Order R5-2014-0033 and National Pollutant Discharge Elimination System (NPDES) Permit No. CA0078921, issued by the Central Valley Regional Water Quality Control Board (CVRWQCB). The NPDES Permit incorporates the Basin Plan that designates beneficial uses, establishes water quality objectives, and contains implementation programs and policies to achieve those objectives for all waters addressed through the Basin Plan. The Permit includes receiving water limitations based on the Basin Plan to protect water quality in the Sacramento River.

The City has had difficulty meeting permitted effluent limits for various constituents, including zinc, copper, aluminum, biological oxygen demand (BOD), total suspended solids (TSS), total coliform, and toxicity. A Time Schedule Order (TSO) R5-2014-0034-01 (as amended by Order No. R5-2015-0111) was issued specifying interim limits for zinc, copper, and total coliform. A corresponding Cease and Desist Order (CDO) was also proposed that includes interim effluent limits for copper, zinc, total coliform, and aluminum. These new limits have been issued recently under Order R5-2020-0004. The CVRWQCB has indicated that the Pit River is a sensitive water body and would prefer to see the City use land disposal for the effluent and eliminate the permitted discharge to the river. Due to the frequency of the City's effluent exceeding regulatory levels, the CVRWQCB is concerned with the City's ability to meet the current and future effluent limits if they continue to discharge to the Pit River.

On September 16, 2014, Governor Jerry Brown signed into law a three-bill legislative package, composed of Assembly Bill (AB) 1739 (Dickinson), SB 1168 (Pavley), and SB 1319 (Pavley), collectively known as the Sustainable Groundwater Management Act (SGMA). SGMA requires governments and water agencies of high and medium priority basins to halt overdraft and bring groundwater basins into balanced levels of pumping and recharge. Under SGMA, these basins should reach sustainability within 20 years of implementing their sustainability plans. For critically over drafted basins, that will be 2040. For the remaining high and medium priority basins, 2042 is the deadline. The Alturas Ground Water Basin, South Fork Pit River Subbasin is considered a low priority groundwater basin and therefore not subject to the requirement of development and implementing a Sustainable Groundwater Plan (SGP) (DWR, 2021).

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 is part of the CWA (Section 303(d)) and is designed to protect water quality and water resources. The policy directs states to adopt a statewide policy that includes the following primary provisions: (1) existing instream uses and water quality necessary to protect those uses shall be maintained and protected; (2) where existing water quality is better than necessary to support fishing and swimming conditions, that quality shall be maintained and protected unless the state finds that allowing lower water quality is necessary for important local economic or social development; and (3) where high-quality waters constitute an outstanding national resource, such as waters of national and state parks, wildlife refuges, and waters of exceptional recreational or ecological significance, that water quality shall be maintained and protected.

- **Safe Drinking Water Act.** Under the 1974 Safe Drinking Water Act (Public Law 93-523), most recently amended in 1996, USEPA regulates contaminants of concern to domestic water supply, which are those that pose a public health threat or that alter the aesthetic acceptability of the water. These types of contaminants are classified as either primary or secondary Maximum Contaminant Levels (MCLs). MCLs and the process for setting these standards are reviewed triennially.

- **National Pollutant Discharge Elimination System.** The NPDES program is administered by the U.S. 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.

- **State Water Resources Control Board Waste Discharge Requirements.** Waste discharges that can be exempted from the California Code of Regulations (CCR) requirements are issued waste discharge requirements (WDRs) and are regulated by the WDR Program. Typical discharge types include domestic or municipal wastewater, food processing related wastewater, and industrial wastewater.

- **Statewide General Construction Permit.** Construction projects of 1 acre or more are regulated under the Construction General Permit, Order No. 2012-0006-DWQ, issued by the SWRCB. Under the terms of the permit, applicants must file permit registration documents with the SWRCB prior to the start of construction, including a Notice of Intent, risk assessment, site map, SWPPP, annual fee, and signed certification statement.

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

- **Porter-Cologne Water Quality Control Act.** The Porter-Cologne Water Quality Control Act acts in cooperation with the CWA to establish the SWRCB. The SWRCB is divided into nine regions, each overseen by a 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.

- **Water Quality Control Plan, Fifth Edition, for the Sacramento and San Joaquin River Basins (Basin Plan).** The CVRWQCB adopted a Water Quality Control Plan, Fifth Edition (revised May 2018), for the Sacramento and San Joaquin River Basins (Basin Plan) that designates beneficial uses, establishes water quality objectives, and contains implementation programs and policies to achieve those objectives for all waters addressed through the plan. Waste discharge requirements (WDRs) were adopted in order to attain the beneficial uses listed for the Basin Plan area. Water quality objectives are established for numerous constituents, including bacteria; chemical constituents such as trace elements, mercury, and methylmercury; pH; dissolved oxygen; pesticides; and salinity.

- **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 *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. The CEQA Checklist question, discussion, and environmental significance conclusions are provided below under each individual environmental parameter related to *Hydrology and Water Quality*.

Would the Project:	**Potentially Significant Impact**	**Potentially Significant Impact Unless 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	

Discussion: The proposed project has the potential to temporarily degrade water quality due to increased erosion during Project construction; however, as previously discussed under impact Section VII.b, BMPs would be implemented to control erosion and sedimentation and prevent damage to streams, watercourses, and aquatic habitat.

As discussed in Section 2.0, PROJECT DESCRIPTION, the proposed project consists of decommissioning the existing WWTP and moving treatment to a new offsite location where new aeration ponds would treat wastewater and the effluent would be disposed of in new evaporation and percolation ponds. As a result, treated effluent discharge to the Pit River would cease, thereby eliminating existing effects to water quality aquatic species, and environmentally sensitive habitats. This is considered a long-term environmental benefit. In addition, treated wastewater is routinely monitored in accordance with the WWTP NPDES Permit to ensure that acceptable thresholds for water quality are not exceeded. Three groundwater monitoring wells will be provided onsite to monitor groundwater quality and verify that the percolated effluent does not degrade groundwater.

Therefore, because the proposed WWTP improvements would have a beneficial impact by reducing the potential to adversely affect the beneficial uses of the Sacramento River Basin, additional groundwater monitoring wells would ensure compliance with the WWTP NPDES permit, and BMPs would be implemented throughout construction, impacts would be less than significant.

Mitigation Measures: No mitigation measures are required. Impacts would be less than significant.

Would the Project:	Potentially Significant Impact	Potentially Significant Impact Unless Mitigation Incorporated	Less-Than-Significant Impact	No Impact
b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such the project may impede sustainable groundwater management of the basin?				X

Discussion: The proposed project would not require new groundwater supplies for construction or operation and would not increase the amount of impervious surfaces in a manner that would prevent the infiltration of water into the soil. Within Section 28, Township 42 North, Range 12 East of the U.S Geological Survey's Alturas, 7.5-minue quadrangle there are 10 domestic water wells ranging between 200 feet and 440 feet below ground surface (DWR, 2021b). None of the proposed improvements would impact any of these existing wells. Therefore, there would be no impact on groundwater supplies and recharge.

Mitigation Measures: No mitigation measures are required. Impacts would be less than significant.

Would the Project:	Potentially Significant Impact	Potentially Significant Impact Unless Mitigation Incorporated	Less-Than-Significant Impact	No Impact
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; ii. Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite; 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; or iv. Impede or redirect flood flows?			X	

Discussion: The proposed project would not 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 previously discussed above, earthwork, grading, and soil stockpiling activities associated with new cell construction will be conducted in accordance with the conditions of a Construction SWPPP and NOI administered by the CVRWQCB. The Construction SWPPP will specify BMPs for erosion and sediment control measures. Therefore, the potential for substantial soil erosion and loss of topsoil associated with the proposed project is considered to 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:*

The new WWTP facility will be constructed to conform to existing drainage patterns. The increase in impervious surfaces would be minimal, would occur outside of flood hazard zones, and would not result in a substantial increase in the rate or amount of surface runoff. The wastewater force main would be constructed underground and would not alter existing drainage patterns or increase impervious surfaces. In addition, the project will not alter the course of or require any in-water work within the North Fork Pit River or South Fork Pit River. As a result, the proposed project does not have the potential to result in significant flooding on- or offsite. Less than significant impacts would occur in this regard.

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 impact discussion under Sections X.a, X.c.i and X.c.ii, above. Impacts would be less than significant.

iv. *Impede or redirect flood flows.*

The Federal Emergency Management Agency (FEMA) has mapped the 100-year and 500-year floodplains along the Pit River (refer to Figure 2-3, FEMA FLOODPLAIN) (SHN, 2020). All proposed facilities, including evaporation and percolation ponds are located outside of the mapped 100-year floodplain. In addition, the proposed pipeline would be constructed underground within the existing County Road 54 right-of-way and would not affect flooding. No impacts would occur in this regard.

Mitigation Measures: No mitigation measures are required. Impacts would be less than significant.

Would the Project:	Potentially Significant Impact	Potentially Significant Impact Unless Mitigation Incorporated	Less-Than-Significant Impact	No Impact
d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?				X

Discussion: The location of the project site is in an area where inundation from dam failures would not occur. In addition, there are no levees near the proposed project. The threat of a tsunami wave is not applicable to inland areas; there is no potential for the generation of a seiche. No impact has been identified.

Mitigation Measures: No mitigation measures are required.

Would the Project:	Potentially Significant Impact	Potentially Significant Impact Unless Mitigation Incorporated	Less-Than-Significant Impact	No Impact
e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?			X	

Discussion: The proposed project is located within the Sacramento River Basin. The *Water Quality Control Plan (Basin Plan) for the California Regional Water Quality Control Board (CVRWQCB) Central Valley Region (Fifth Edition)* was prepared for the Sacramento River Basin and the San Joaquin River Basin. The Basin Plan includes water quality objectives for the San Joaquin River. Implementation of the plan is conducted through the NPDES permits and waste discharge requirements for pollution (CVRWQCB, 2018).

The project would only require temporary water supplies for dust control during construction and would not require water supplies during operation. The project would comply with the NPDES general construction permit and would prepare a SWPPP and comply with BMPs to prevent degradation of water quality. The project would not conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan. This impact would be less than significant. No mitigation measures are required.

As previously described above under *Environmental Setting*, the project site and surrounding area is located within the Alturas Groundwater Basin, South Fork Pit River Subbasin (DWR, 2021a). The basin is comprised of 114,000 acres or 178 square miles. The Alturas Ground Water Basin, South Fork Pit River Subbasin is considered a low priority groundwater basin and therefore not subject to the requirement of development and implementing a Sustainable Groundwater Plan (SGP) (DWR, 2021). Given the relatively minor expansion proposed by the project, the potential for interference with groundwater recharge that would impact the Alturas Groundwater Basin is considered to be less than significant.

Mitigation Measures: No mitigation measures are required. Impacts would be less than significant.

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*.

References and Citations

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XI. Land Use and Planning

This section 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 proposed project is located in unincorporated Modoc County, southeast of the City of Alturas. Existing land uses within the area are comprised of grazing land and open space lands that are characterized by rolling terrain with weedy, grazed, sagebrush scrub communities. No existing residents or other sensitive land uses are located adjacent to or within the immediate project vicinity. County Road 54 (Centerville Road) provides the principal means of vehicular travel in the project area. This general east-west two-lane improved roadway begins at State Route 299 (SR-299) in the unincorporated community of Canby and provides west bound access to the proposed project area, including the City's existing wastewater treatment plant (WWTP) facility.

The project study area which includes the existing WWTP, proposed pipeline and new offsite aerations ponds and land application are consists of approximately 106 acres situated in Sections 14, 22, 23, and 27, Township 42 North, Range 12 East, of the U.S. Geological Survey's Alturas, CA, 7.5-minute quadrangle. The study area consists of a portion of the developed WWTP parcel, approximately 1.4 miles of road right-of-way along County Road 54, and approximately 70 undeveloped acres at the proposed new treatment and disposal site. The facility location includes one single parcel, Assessor's Parcel Number (APN) 022-130-042 designated as Rural Residential (RR) in the Modoc County General Plan and is zoned Unclassified (U).

Existing land uses within a one-mile radius of the proposed project consist of undeveloped grazing lands and rolling open space lands with weedy, grazed, sagebrush scrub communities. No existing residents or other sensitive land uses are located immediately adjacent to or within the immediate project vicinity.

Regulatory Setting

This section summarizes current State and 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:

- **City of Alturas General Plan.** The City of Alturas General Plan is the long-range planning guide for growth and development for the City of Alturas helps to ensure that day-to-day decisions conform to the long-range program designed to protect and further the public interest as related to the City's growth and development. The General Plan also serves as a guide the private sector of the economy in relating its development initiatives to the public plans, objectives, and policies of the City.

- **City of Alturas Municipal Code – Chapter 28, Zoning.** Chapter 28, Zoning, of the City of Alturas Municipal Code offers a precise land-use plan for the City to promote orderly growth and to protect the public health, safety, peace, comfort, and general welfare. Specifically, the zoning code regulates, restricts, and segregates the use of land in an effort to regulate the density of population. Additionally, development standards are established for zoning district to ensure that activities can be reasonably accommodated in a manner that is compatible with adjacent land uses.

- **Modoc County General Plan.** The Modoc County General Plan is a policy document designed to give long-range guidance for decision-making affecting the future character of the County. It represents the official statement of the community's physical development as well as its economic, social, and environmental goals. The Modoc County General Plan provides cohesive land use planning for the unincorporated portions of Modoc County and long-range planning guidance, excluding the City of Alturas.

- **Modoc County Municipal Code – Title 18, Zoning.** The Modoc County Municipal Code provides the regulations that must be followed by every project within the County's jurisdictional area. Title 18 was adopted to promote and protect the public health, safety, and welfare through the orderly regulation of land uses throughout the unincorporated area of Modoc County.

- **Modoc County Local Agency Formation Commission.** The Modoc County Local Area Formation Commission (LAFCO) is an independent agency responsible for the implementation of the Cortese-Knox-Hertzberg Local Government Reorganization Act of 2000. The Act, Government Code §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.

  LAFCOs are responsible for coordinating logical and timely changes in local governmental boundaries, conducting special studies that review ways to reorganize, simplify, and streamline governmental structure, preparing a review of services called a MSR, and preparing a SOI thereby determining the future "probable" boundary for each city and special district within each county.

  The Commission's efforts are directed toward seeing that services are provided efficiently and economically while agricultural and open-space lands are protected. Often citizens are confused as to what LAFCO's role is. LAFCOs do not have enforcement authority, nor do they have the authority to initiate a city or district annexation or detachment proceeding. LAFCOs may initiate consolidation or dissolution proceedings; however, these proceedings are subject to the voter approval or denial.

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. The CEQA Checklist question, discussion, and environmental significance conclusions are provided below under each individual environmental parameter related to *Land Use and Planning*.

Would the Project:	Potentially Significant Impact	Potentially Significant Impact Unless Mitigation Incorporated	Less-Than-Significant Impact	No Impact
a) Physically divide an established community?				X

Discussion: The proposed project site is located approximately 1.4 miles outside of the City's Sphere of Influence (SOI), within unincorporated Modoc County. Implementation of the proposed project would require an approved SOI amendment in addition to a general plan amendment from Rural Residential (RR) (Modoc County) to Public Facilities (City of Alturas) and a concurrent pre-zone of the entire property from Unclassified (U) to Agriculture (AG). Once the City purchased and approves a pre-zoning ordinance for the subject parcel, a formal application to amend the City's SOI pursuant to Government Code Section 56742 (non-contiguous City-owned territory for municipal purposes) will be submitted to LAFCO for consideration and action.

There is no established community at the project site; the area is rural agricultural and public use lands. Relocation of the City's WWTP facility would occur on one single parcel, Assessor's Parcel Number (APN) 022-130-042. Implementation of the proposed project would not divide any community or prevent any future community from being established in the area. No impact would occur in this regard.

Mitigation Measures: No mitigation measures are required.

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

Discussion: As discussed in each resource section of this Initial Study, the proposed project is consistent with applicable policies and objectives of the Alturas General Plan and Modoc County General Plan and regulations of the regulatory agencies identified in Environmental Checklist Form of this Initial Study. Where necessary, mitigation measures are included to reduce impacts to less than significant levels. Therefore, the proposed project would not conflict with any plans, policies, or regulations adopted for the purpose of avoiding or mitigating an environmental effect.

Mitigation Measures: No mitigation measures are required.

Findings

In the course of the above evaluation, impacts associated with *Land Use and Planning* 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.

References and Citations

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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

The project site is located within unincorporated Modoc County, immediately southwest of the City of Alturas. The study area consists of a portion of the City's existing developed wastewater treatment plan (WWTP) parcel, approximately 1.4 miles of road right-of-way along County Road 54, and approximately 70 undeveloped acres at the proposed new treatment and disposal site. Non-urbanized grazing areas are present within the project study area, including the pipeline route along the existing County Road 54 right-of-way.

The California Department of Conservation's (DOC) Division of Mine Reclamation (DMR) compiles data on the current 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. According to the CGS Information Warehouse, areas significant mineral resources or areas of locally important minerals have not been identified by the DOC for Modoc County (DOC, 2021).

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:

- **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.

- **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.

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. The CEQA Checklist question, discussion, and environmental significance conclusions are provided below under each individual environmental parameter related to *Mineral Resources*.

Would the Project:	Potentially Significant Impact	Potentially Significant Impact Unless 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

Discussion: A mineral resource is land on which known deposits of commercially viable mineral or aggregate deposits exist. The designation is applied to sites determined by the CGS 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 proposed project would not result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the State and would not result in the loss of availability of a locally-important mineral resource recovery site. The site has not been designated as an important mineral resource recovery site by a local general plan, specific plan, or other land use plan or by the State. 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 *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.

References and Citations

DOC (California Department of Conservation). 2013. *Publications of the SMARA Mineral Land Classification Project Dealing with Mineral Resources in California*. [Online]: https://www.conservation.ca.gov/cgs/minerals/mineral-land-classification-smara. Accessed: January 10, 2021.

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Modoc (Modoc County). 1988. *Modoc County General Plan Goals, Policies, and Action Program.* September 1988.

SHN (SHN Consulting Engineers and Geologists, Inc.). 2020. *Final Wastewater Preliminary Engineering Report.* November 2020.

XIII. Noise

The purpose of this section is to evaluate noise source impacts to onsite and surrounding land uses as a result of project implementation.

Environmental Setting

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. In the vicinity of the project, noise generation sources include traffic along County Road 54, as well as seasonal agricultural operations (haying, grading, etc.). These types of equipment can produce noise levels in the 60-100 dBA range. With the exception of the Alturas Rifle and Pistol Club located approximately 0.25 miles west of the site along County Road 54, there are no other noise sources of significance in the area. The exiting wastewater treatment plant (WWTP) does not produce noise other than occasional noise from equipment during maintenance operations, completed during the day.

Residential developments, schools and hospitals 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). The nearest residence is approximately 0.5 miles southwest of the project site.

Based on findings in the Modoc County General Plan Noise Element (Modoc, 1988), existing and future exterior noise levels should not exceed 60 dB L_{dn}. Since the project site is outside of the City of Alturas, the County standards will be used for a basis of comparison.

The Alturas Municipal Airport is a public-use airport located approximately one-mile northeast of the proposed project. The project is not located within the Alturas Municipal Airport Land Use Plan or within two miles of a private airport or airstrip.

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.

- **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. The CEQA Checklist question, discussion, and environmental significance conclusions are provided below under each individual environmental parameter related to *Noise*.

Would the Project:	**Potentially Significant Impact**	**Potentially Significant Impact Unless 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	

Discussion: The project is located southwest of the City of Alturas amidst agricultural and grazing lands. Access is provided via an unpaved ranch road from County Road 54. The nearest known potential sensitive receptors to the proposed project sites (parcels 003-260-010 and 022-130-042) includes a residence approximately 0.3 miles northeast of the existing WWTP site (003-260-010) and a residence approximately 0.5 miles southwest of the new WWTP site (022-130-042). Vehicle noise from County Road 54 is the most significant noise in the area on a daily basis. Seasonally, agricultural equipment, such as tractors, mowers, and other ranch equipment contribute to seasonal noise emissions, both during daytime and nighttime operation periods.

Once developed, the project will generate noise from the use of pumps that will circulate air to sub-surface aeration equipment in the first two ponds. Pumps and motors will be housed inside the new equipment building, shielding much of the noise. Aeration operations, while typically quiet, can generate noise from the compressor. The US EPA and Federal Highways Administration (FHWA) have developed a list of typical construction and stationary equipment and their related noise generation levels (FHWA, 2017). For this project, it is anticipated that a standard stationary air compressor will be placed inside the new concrete block headworks building and will supply compressed air to the sub-surface aeration ports in the ponds. The compressor is expected to produce noise between 70-80 dBA. Shielding of the noise from the building is expected to result in exterior noise levels of the compressor to be approximately 40 dBA. Noise at the nearest residence from the compressor operation is expected to blend into the background noise levels (vehicle road noise, agricultural equipment) and be unnoticed. Using the County's compliance standards of 60 dBA at residences, the project will have no impact on ambient noise levels as the external noise levels anticipated from operations will already be below the County standards.

Mitigation Measures: No mitigation measures are required. Impacts would be less than significant.

Would the Project:	**Potentially Significant Impact**	**Potentially Significant Impact Unless Mitigation Incorporated**	**Less-Than-Significant Impact**	**No Impact**
b) Generation of excessive ground borne vibration or ground borne noise levels			X	

Discussion: Excessive vibration during construction occurs only when high vibration equipment (i.e., compactors, large dozers, or pile drivers) are operated. The proposed project may require limited use of equipment with high vibration levels during construction. Use of this equipment, however, would be infrequent and cease at completion of the improvements. As previously discussed above, no sensitive receptors or buildings are within the vicinity of the proposed project. Long-term operation of the proposed project would not create ground borne vibration. Therefore, impacts would be less than significant.

Mitigation Measures: No mitigation measures are required. Impacts would be less than significant.

Would the Project:	Potentially Significant Impact	Potentially Significant Impact Unless Mitigation Incorporated	Less-Than-Significant Impact	No Impact
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

Discussion: The Alturas Municipal Airport is located approximately one-mile northeast of the proposed project. The project is not located within the Alturas Municipal Airport Land Use Plan or within two miles of a private airport or airstrip. Therefore, the project would not expose people residing or working in the project area to excessive noise levels.

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 *Noise*.

References and Citations

FHWA (Federal Highways Administration). 2017. *Construction Noise Handbook*. [Online]: https://www.fhwa.dot.gov/environment/noise/construction_noise/handbook/. Accessed January 16, 2021.

Modoc (Modoc County). 1988. *Modoc County General Plan Goals, Policies, and Action Program.* September 1988.

SHN (SHN Consulting Engineers and Geologists, Inc.). 2020. *Final Wastewater Preliminary Engineering Report.* November 2020.

XIV. Population and Housing

This section addresses potential impacts of the project on population, housing, and employment at the project site and provides an overview of current population estimates and projected population growth.

Environmental Setting

Modoc County has an existing population of approximately 9,570 persons based on the January 1, 2020 population estimates provided by the California Department of Finance (DOF). Between 2010 and 2020, population has been in decline (Modoc, 2020). This reflects a decrease of approximately 67 persons or 1% since 2010 based on the 2010 population and housing estimates reported by the DOF (DOF, 2020a). Modoc County maintains approximately 5,279 existing housing units and 2.42 persons per household (DOF, 2020b). Of these, approximately 1,405 housing units are within the City of Alturas (DOF, 2020b).

The City of Altura's 2020 population is 2,826 people and has remained static since 2010 (2,827 people). Between January 2019 and January 2020, the City's population declined from 2,849 to 2,826 (DOF, 2020a). This reflects a declined by about 0.7% compared to about 1% for all of Modoc County. Alturas's population consists of approximately 29% of the County's population (DOF, 2020a). Compared to other areas, the City of Alturas is experiencing a decline in population slightly slower than the majority of the county. In the 3-year period between 2018-2020, the City declined by 18 residents, which resulted in a less than 1% in population (DOF, 2020b). The City currently 2.39 persons per household (DOF, 2020b). Median household income for the City in 2019 was $37,917 (US Census, 2019a), compared to $45, 507 for Modoc County (US Census, 2019b).

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:

- **State of California Housing Element Law.** State law requires each city and county to adopt a general plan for future growth. This plan must include a housing element that identifies housing needs for all economic segments and provides opportunities for housing development to meet that need. At the State level, the California Department of Housing and Community Development (HCD) estimates the relative shares of California's projected population growth that could occur in each county in the State based on Department of Finance (DOF) population projections and economic projections.

- **City of Alturas Cycle 6 Housing Element.** The City's 2019-2024 Housing Element includes policies and programs to address the City's housing needs through 2024, and provides a comprehensive analysis of Alturas's demographic, economic, and housing characteristics as required by State law. The Element also contain an evaluation of the City's progress in implementing its last Housing Element. Based on the City's housing needs, available resources, constraints and opportunities for housing production and preservation, and its past performance, the current Housing Element establishes a strategy of goals, measurable objectives, and related policies and programs to address present and future housing needs of the City.

- **Modoc County 2019-2024 Housing Element.** The County's 2019-2024 Housing Element details a 5-year schedule of actions the community is undertaking or plans to undertake to achieve its housing goals and objectives, based upon the community's Regional Housing Needs Allocation Plan (RHNAP). To comply with state law in addressing the jurisdiction's RHNPP, the updated Housing Element must identify adequate sites and program actions to accommodate the total RHNPP for each of four income categories: very low-, low-, moderate- and above moderate.

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. The CEQA Checklist question, discussion, and environmental significance conclusions are provided below under each individual environmental parameter related to *Population and Housing*.

Would the Project:	Potentially Significant Impact	Potentially Significant Impact Unless 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

Discussion: The current population of the City's wastewater service area is approximately 2,600. The City's population has slightly fluctuated; however, between 2020 and 2020, the overall population has remained static; although the number of total households have decreased from 2,814 in 2010 to 2,793 in 2020 (DOF, 2020b). Currently, the population appears relatively stable and is not expected to grow significantly within the planning horizon of this study, which is the next 20 years (SHN, 2020). The project has been sized to accommodate the City's existing service area. Therefore, implementation of the proposed project is considered to accommodate planned growth in the City of Alturas and would not serve substantial unplanned population growth. No impacts are anticipated in this regard.

Mitigation Measures: No mitigation measures are required.

Would the Project:	Potentially Significant Impact	Potentially Significant Impact Unless Mitigation Incorporated	Less-Than-Significant Impact	No Impact
b) Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?				X

Discussion: The proposed project would not displace a substantial number of people or existing housing necessitating the construction of replacement housing elsewhere. Once acquired by the City, the existing onsite residence would be repurposed to support onsite operations of the facility. Suitable housing is available within the County. No impact has been identified 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.

References and Citations

Alturas (City of Alturas). 2020. *City of Alturas Cycle 6 Housing Element.* March 10, 2020.

DOF (California Department of Finance). 2020a. *Table E-1: City/County Population Estimates with Annual Percent Change*. May 2020.

DOF. 2020b. *Table E-5: City/County Population and Housing Estimates*. May 2020.

DOF. 2010. *Table E-5: City/County Population and Housing Estimates*. April 1, 2010.

Modoc. (Modoc County). 2020. *2019-2024 Housing Element Update*. December 16, 2020.

Modoc. 1988. *Modoc County General Plan Goals, Policies, and Action Program.* September 1988.

SHN (SHN Consulting Engineers and Geologists, Inc.). 2020. *Final Wastewater Preliminary Engineering Report.* November 2020.

US Census (United States Census Bureau). 2019a. American *Community Survey 5-Year Estimates. Retrieved from Census Reporter Profile Page for Alturas, CA*. [Online]: https://censusreporter.org/profiles/16000US601444-alturas-ca/. Accessed January 14, 2021.

US Census. 2019b. *Quick Facts, Modoc County, California*. [Online]: https://census.gov/quickfacts/modoccountycalifornia. Accessed January 14, 2021.

XV. Public Services

This section 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

Law enforcement to the area is provided by the Modoc County Sheriff's Department, and the California Highway Patrol (CHP). The County Sheriff's Office dispatches from the County jail in Alturas, approximately 2 miles from the project site.

The City of Alturas Fire Department is comprised on one full-time Fire Marshal and approximately 40 volunteers. Without these volunteers the City could not operate a fire department. The Fire Department as an Insurance Services Office (ISO) rating of 3, which serves to keep city resident's home-owners insurance rates down. The Fire Department responds to all fire and medical calls in the City (Alturas, 2021).

Modoc Medical Center is the nearest hospital facility located approximately 2 miles northeast in the in the City of Alturas. Public education services including elementary, middle, and high school are all offered in Alturas, approximately 2 miles from the project site. The nearest developed park in the vicinity of the proposed project is located in Alturas about 1.5 miles distant.

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. The CEQA Checklist question, discussion, and environmental significance conclusions are provided below under each individual environmental parameter related to *Public Services*.

Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:	**Potentially Significant Impact**	**Potentially Significant Impact Unless Mitigation Incorporated**	**Less-Than-Significant Impact**	**No Impact**
Fire Protection?				X
Police Protection?				X

Discussion: Fire and police protection services to the proposed project are currently provided by County, and State agencies and private emergency responders. The fire and police protection that is currently afforded to the existing wastewater treatment plant (WWTP) facility would not be provided to the new facility located approximately 1.4 miles west along County Road 54. Construction of the proposed WWTP is not expected to significantly increase response times to the site or result in an increase in the demand for these protection services or require any additional fire or law enforcement facilities. As a result, there would be no adverse physical impacts associated with the provision of new or physically altered police or fire facilities. No impact would occur in this regard.

Mitigation Measures: No mitigation measures are required.

Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:	**Potentially Significant Impact**	**Potentially Significant Impact Unless Mitigation Incorporated**	**Less-Than-Significant Impact**	**No Impact**
Schools?				X

Discussion: The purpose of the proposed project to replace the City's outdated WWTP facility and provide environmentally sound wastewater disposal to City residents and businesses. Implementation of the proposed project will not result in an increase of student populations in the City or other areas in unincorporated Modoc County. The proposed project does not result in an increase in employees beyond that currently serving the existing WWTP facility. No new housing or population in the City or County would be required as a result of the proposed project which would require additional educational facilities. Therefore, the proposed project would have no impact in this area.

Mitigation Measures: No mitigation measures are required.

Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:	**Potentially Significant Impact**	**Potentially Significant Impact Unless Mitigation Incorporated**	**Less-Than-Significant Impact**	**No Impact**
Parks?				X

Discussion: As stated previously, the need for additional parkland is primarily based on an increase in population to an area. Given that the proposed project would not increase the population of the City or County, the project would not burden any parks in the surrounding area beyond capacity by generating additional recreational users. Therefore, the proposed project would not require the construction or expansion of park and recreational facilities and would also not result in an increase in demand for parks and recreation facilities in the surrounding area. There would be no impact to parks from implementation of the proposed project.

Mitigation Measures: No mitigation measures are required.

Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:	**Potentially Significant Impact**	**Potentially Significant Impact Unless Mitigation Incorporated**	**Less-Than-Significant Impact**	**No Impact**
Other public facilities?				X

Discussion: The proposed project does not involve a substantial change in the land use, does not substantially increase the numbers of people employed in the region, and does not create or require new housing or related facilities, an increased demand on public facilities is unlikely to occur. No impacts would occur in this regard.

Mitigation Measures: No mitigation measures are required. Impacts would be less than significant.

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.

References and Citations

Alturas (City of Alturas). 2021. [Online]: https://www.cityofalturas/departments/fire/index.php. Accessed January 12, 2021.

Alturas. 2014. *City of Alturas General Plan*. November 2014.

Modoc (Modoc County). 2016. *Local Hazard Mitigation Plan*. April 2016.

Modoc. 1988. *Modoc County General Plan Goals, Policies, and Action Program.* September 1988.

SHN (SHN Consulting Engineers and Geologists, Inc.). 2020. *Final Wastewater Preliminary Engineering Report.* November 2020.

XVI. Recreation

The recreation analysis is intended to determine the extent to which a project contributes to the physical deterioration of publicly provided recreation facilities. This section 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

Modoc County's natural resources, including scenic wildland areas, wildlife, forests, lakes, streams, and reservoirs offer a wide range of recreation opportunities such as fishing, hunting, bird, and wildlife viewing, hiking, picnicking, bicycling, camping, backpacking, and skiing. The Modoc Natural Forest, the federal and State game refuges, and the nearby Lava beds National Monument makes the County an outstanding area for outdoor recreation (Modoc, 1988). The County maintains twelve parks and recreation areas. There are also a limited number of private facilities and services in the county offering recreational opportunities to visitors and residents (Modoc, 1988). Within the vicinity of the project site, the Pit River, Modoc National Wildlife Refuge, and Alturas Park important recreational resources for the Alturas area, important for their habitat, aesthetic, and economic values.

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:

- **City of Alturas General Plan.** To ensure the provision of adequate sites for parks and recreational opportunities to serve both City residents and visitors, the City's General Plan outlines the following policies related to recreational resources:

    1. The City shall at a minimum maintain the current inventory of parks and recreational opportunities.
    2. The City shall recognize the importance of providing parks and recreational opportunities not only for residents, but also for visitors.
    3. The City shall emphasize the joint use of school facilities as an important source of park and recreational facilities.
    4. The City shall pursue State funding to the extent that it is available to augment City funds for park improvement and development.

- **Modoc County General Plan Open Space and Conservation 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 and Conservation Element of the Modoc County General Plan. The County's General Plan includes the following policies related parks and recreation:

    1. Support enhancement of existing park and recreation resources for both tourist and resident use.
    2. Encourage the development of private recreation facilities.

- **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. The CEQA Checklist question, discussion, and environmental significance conclusions are provided below under each individual environmental parameter related to *Recreation*.

Would the Project:	Potentially Significant Impact	Potentially Significant Impact Unless Mitigation Incorporated	Less-Than-Significant Impact	No Impact
a) Would the project 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

Discussion: The proposed project does not propose to add significant new numbers of people that would require housing and ancillary recreation facilities, therefore the proposed project would not increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated. No impact would occur in this regard.

Mitigation Measures: No mitigation measures are required.

Would the Project:	Potentially Significant Impact	Potentially Significant Impact Unless Mitigation Incorporated	Less-Than-Significant Impact	No Impact
b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?				X

Discussion: The proposed project would not include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment. 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.

References and Citations

Alturas (City of Alturas). 2014. *City of Alturas General Plan*. November 2014.

Modoc (Modoc County). 1988. *Modoc County General Plan Goals, Policies, and Action Program.* September 1988.

XVII. Transportation

The purpose of the evaluation is to address traffic and transportation impacts of the proposed project on surrounding streets and intersections.

Environmental Setting

County Road 54 (Centerville Road) provides the principal means of vehicular travel in the project area. This general east-west two-lane improved roadway begins at State Route 299 (SR-299) in the unincorporated community of Canby and provides west bound access to the proposed project area, including the City's existing wastewater treatment plant (WWTP) facility. County Road 54's name changes to West Street just prior to entering the City of Alturas. Access to the proposed project site is provided from County Road 54 via an existing unpaved ranch road.

Regulatory Setting

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

- **City of Alturas General Plan.** The City's General Plan Circulation Element includes the following relevant policies related to the proposed project:

    1. All roads should be constructed and improved to minimum City design standards.
    2. All roads constructed must meet minimum fire and other emergency standards, including construction, maintenance programs, street signs, and turn around space.
    3. Major public transportation system improvements undertaken should be consistent with the Modoc County Transportation Plan.

- **Modoc County General Plan Circulation Element.** The Modoc County General Plan Circulation Element provides the necessary framework to guide the growth and development of the County's transportation-related infrastructure. The County's General Plan includes the following policies that apply to the proposed project:

    5. All roads should be constructed and improved to minimum County design standards.
    6. Private roads not constructed to minimum County standards will not be accepted for dedication.
    7. All roads constructed must meet minimum fire and other emergency standards, including construction, maintenance program, street signs, and turn around space.

Impact Analysis

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. The CEQA Checklist question, discussion, and environmental significance conclusions are provided below under each individual environmental parameter related to *Transportation*.

Would the Project:	Potentially Significant Impact	Potentially Significant Impact Unless 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		

Discussion: Project construction may require temporary lane closures along County Road 54 for installation of the wastewater force main. There are no adjacent sidewalks, bike lanes, or transit stops along County Road 54 where the pipeline installation will occur; however, bicycles do use the roadway.

Traffic impacts during construction are temporary in nature and will cease upon completion of construction activities. A traffic control plan will be developed prior to the initiation of any construction activities to minimize disruption to existing traffic flow conditions along County Road 54. The traffic control plan addresses details regarding road closures, provisions to maintain access to any adjacent properties, prior notices, adequate sign-posting, detours (including for bicyclists), and permitted hours of construction activity as determined appropriate by the City and County. Adequate local and emergency access to adjacent uses is required to be provided at all times. The traffic control plan shall also be reviewed and approved by the emergency service providers so that construction does not create any hazards or interfere with any emergency response or evacuation plans. With implementation of Mitigation Measure TRF-1, impacts would be less than significant.

Mitigation Measures: The following mitigation measure has been developed to reduce potential impacts related to *Transportation* to less than significant levels:

> Mitigation Measure TRF-1. Prior to project construction within or adjacent to public roadways, the construction contractor shall develop a traffic control plan for the project and submit the plan to the appropriate jurisdiction (City of Alturas, Modoc County), potentially as part of each agency's respective encroachment permit application. The plan shall identify temporary lane, sidewalk, and transit stop closures and provide information regarding how access and connectivity will be during construction activities. The plan shall include details regarding traffic controls that would be employed, including construction signage, detours, and flaggers. The traffic control plan shall be implemented by the contractor during to allow for the safe passage of vehicles, pedestrians, and cyclists along the pipeline route.

Would the Project:	**Potentially Significant Impact**	**Potentially Significant Impact Unless Mitigation Incorporated**	**Less-Than-Significant Impact**	**No Impact**
b) Would the project conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)?			X	

Discussion: State CEQA Guidelines Section 15064.3, Subdivision (b) states that for land use projects, transportation impacts are to be measured by evaluating the project's vehicle miles traveled (VMT), as outlined in the following: *"Vehicle miles traveled exceeding an applicable threshold of significance may indicate a significant impact. Generally, projects within one-half mile of either an existing major transit stop or a stop along an existing high quality transit corridor should be presumed to cause a less than significant transportation impact. Projects that decrease vehicle miles traveled in the project area compared to existing conditions should be presumed to have a less than significant transportation impact."*

Temporary construction activities would result in slight increases in vehicle trips associated with worker commute and materials delivery. However, these additional trips would only occur during the approximate 11-month construction period. During operation, one full-time employee would be onsite to regularly inspect and monitor the proposed facilities; however, this would not result in additional vehicle roundtrips over those occurring at the existing WWTP, as the existing operations manager would simply be relocated to the new facility. Because the project would not change the amount of development projected for the City of Alturas or Modoc County, would be consistent with the population growth and would not result in an increase in VMT, this impact would be less than significant.

Mitigation Measures: No mitigation measures are required. Impacts would be less than significant.

Would the Project:	Potentially Significant Impact	Potentially Significant Impact Unless Mitigation Incorporated	Less-Than-Significant Impact	No 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)?		X		

Discussion: Project operation would not result in any changes in road geometry or new uses. As discussed above, project construction would require temporary closure of lanes as well as sidewalks, bike lanes, or transit stops. This impact is considered potentially significant; however, implementation of Mitigation Measure TRF-1 would reduce impacts to less than significant levels.

Mitigation Measures: Implement Mitigation Measure TRF-1.

Would the Project:	Potentially Significant Impact	Potentially Significant Impact Unless Mitigation Incorporated	Less-Than-Significant Impact	No Impact
d) Result in inadequate emergency access?		X		

Discussion: The proposed project does not involve a use or activity that could interfere with long-term emergency response or emergency evacuation plans for the area. As discussed under Section XVII.c above, project operation would not change any existing roads, including areas provided for emergency access. Project construction would involve temporary lane closures, which has the potential to impact access for emergency vehicles. This impact is considered potentially significant; however, implementation of Mitigation Measure TRF-1 would reduce impacts to less than significant levels.

Mitigation Measures: Implement Mitigation Measure TRF-1.

Findings

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

References and Citations

Alturas (City of Alturas). 2014. *City of Alturas General Plan*. November 2014.

Modoc (Modoc County). 1988. *Modoc County General Plan Goals, Policies, and Action Program.* September 1988.

SHN (SHN Consulting Engineers and Geologists, Inc.). 2020. *Final Wastewater Preliminary Engineering Report.* November 2020.

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 Ajumawi, the larger cultural group identified for the project location, as well as more specific information recognizing the Kosealekte Band of the Ajumawi as the inhabitants of the Traditional Cultural Area known as Alturas, California.

Environmental Setting

The Ajumawi resided in and around the area encompassing the mountain course of the Pit River. According to Kroeber they were a stream people whose traditional cultural area reached from the northern Sacramento Valley to the arid grasslands above Alturas but ranged as far west as Shastan territory and north-east to Goose Lake, where they intersected with Modoc and Paiute bands. Olmstead and Stewart (1978; 225) define the Ajumawi territory as: *"In the west Mount Shasta, 14,162 feet, and Lassen Peak, 10,466 feet, served as the northwest and southwest corners of (Achomawi) Indian territory. The eastern boundary separating the Achomawi from the Northern Paiute was marked by the Warner Range with a half-dozen peaks ranging from 7,843 to 9,934 feet above sea level. Twenty peaks over 6,000 feet elevation were scattered over the area, breaking it into many distinct valley and stream systems. From the high of over 14,000 feet, Achomawi territory descended to sections of Pit River canyon below 2,000 feet elevation."*

The Atsugewi also occupied a portion of the Pit River, specifically along Hat Creek, and are related to the Ajumawi in both culture and language. Ajumawi and Atsugewi are Shastan dialects, and together they constitute the Palaihnihan branch of the Hokan language family. Unified by language and geography, both groups were bound to the south by the Yana, Wintun, and Okwanuchu. Although they have many words in common (Merriam 1926), intermarried, and were often bilingual, there are deep differences between the languages and dialects within this language family (Olmstead 1954). Baumhoff and Olmstead (1963, 1964) estimate the language split between Ajumawi and Atsugewi to have occurred sometime after 1500 B.C.

Because of the diversified landscape, cultural distinctions between Ajumawi bands evolved, including locational designations (downriver/western and upriver/eastern) and, most notably, dialectical differences between bands (Golla 2011). The downriver dialectical groups include Madesi (Big Bend people), Itsatawi (Goose Valley People), Ilmawi (people of the Village of Ilma), Aporige (Dixie Valley people), and the Ajumawi (river people). Upper river dialect groups include Atwamsini (valley people/valley dwellers), Astariwi (hot springs people), Kosealekte (juniper-liking people), Hammawi (south fork of Pit River people), and Hewisedawi (ones who live high up).

The downriver groups tended to form small autonomous tribelets. Their subsistence patterns tended chiefs and followed resource strategies employed by the cultures of the Plateau and Basin. Subsistence economies for both included vegetal resources including nuts (buckeye, sugar pine), seeds, roots, tubers, wild onions, parsley, and berries. Game was hunted including deer, elk, squirrels, and rabbit along with ducks and geese. Both groups lived along streams bearing bass, trout, and other fish, which were taken with both nets and woven traps (Olmsted and Stewart 1978). Kroeber (1925:308) estimates a total population figure for both the Ajumawi and the Atsugewi of about 3,000 Northwest and the Great Basin cultures, the Ajumawi exhibited clothing, armor, weaponry (projectile points, single-backed bow) exchange systems (dentalium and clamshell beads), food processing methods (mortar/hopper/pestle, mano-metate), and dwellings that incorporated elements common to regional lifeways.

Ajumawi hold religious beliefs incorporating dualities and contrasting creators, natural sprits (both good and evil), and the use of shaman to heal and to remove "pains", both spiritual and physical. The revitalization cult known as the Ghost Dance was also embraced by the Ajumawi. Sacred geographic locations across Ajumawi territory include Mt. Shasta, Medicine Lake, Black Fox Mountain, Little Black Fox Mountain, Grizzly Mountain, Devil Slide, Bunch Grass Mountain, Burney Peak, Thousand Lakes on Crater Peak, Rising River Spring, Soldier Mountain, and Lassen Peak.

The Kosealekte's territory lay to the east of the Astariwawi, with their major settlement centered on the Alturas plain at the fork of North and South Forks of the Pit River (Merriam 1926: Map; Merriam and Talbot 1974:6; Kniffen 1928:306). Merriam's boundary description is the most complete for Kosealekte: *"Their northern boundary extends easterly from Big Sage Reservoir to Cedar Mountain... the southern boundary is a straight line from Warren Peak to Signal Butte on South Fork*

Pit River (4 miles north of the mouth of Fitzhugh Creek) and continues westerly for 10 or 12 miles; the western boundary, apparently, is a north-south line from Big Sage Reservoir southward, passing a little west of Essex Hot Spring and continuing to intersect the latitude of Signal Butte. [Merriam and Talbot 1974:6] The crest of the Warner Mountains marked the eastern extent of their lands (Merriam 1926; Merriam and Talbot 1974:4)."

Kniffen further specifies that the Kosealekte held the North Fork of the Pit as far as Bob's Creek (Kniffen 1928:306). Like their neighbors, as different resources became available throughout the year, the Kosealekte broke into small family bands and traveled to various locations within their territory to fish, hunt, and gather edible and medicinal plants. These seasonal rounds took them to outlying areas where they established seasonal base camps and a series of radiating temporary camps and task-related activity stations.

The Kosealekte today are members of the Pit River Tribe which comprises the Eleven Autonomous Bands of the Pit River Indians. Tribal members still use this area, continue to harvest plant resources (e.g., epos and other tubers and roots), and maintain certain areas for traditional cultural uses.

Regulatory Setting

This section summarizes current State and local regulations relevant to the review of *Tribal Cultural Resources* for this project. Ordinances, regulations, or standards 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

On May 1, 2020, the City initiated environmental review under CEQA for the proposed Alturas Wastewater Treatment Plant Improvement project. Although there are no tribes that have notified the City for inclusion on the City's Assembly Bill (AB) 52 notification list, the City sent a project notification letter to the Pit River Tribe, a California Native American Tribe that is traditionally and culturally affiliated with the geographic area of the proposed project, on May 4, pursuant to Public Resources Code 21080.3.1 (AB 52). No responses were received requesting initiation of consultation under the provisions of AB 52.

On September 21, 2020, as part of their research efforts in preparing the Cultural Resources Inventory Report, DZC Archaeology and Cultural Resource Management (DZC) circulated project notifications to the following individuals listed by the NAHC for the project area. (1) Vi Riley, Cultural Resources Coordinator, Alturas Rancheria of Pit River Indians (2) Alturas Rancheria, Tribal Administrator/Environmental Coord. Alturas Rancheria of Pit River Indians, (3) Richard Lash, Chairperson, Cedarville Rancheria of Northern Paiute Indians, (4) Bernold Pollard, Chairperson, Ford Bidwell Indian Community of Paiute, (5) Agnes Gonzales, Chairperson, Pit River Tribe of California, (6) Charles White, Tribal Administrator, Pit River Tribe of California, and Natalie Forrest-Perez, Tribal Historic Preservation Officer (THPO), Pit River Tribe of California. The Request for Comment provided each individual listed with a project description, location map, a request to respond to respond to the City within 30 days, should the tribe wish to engage in formal government-to government Consultation.

Between July 22 and July 29, 2020, email correspondence between Dimitra Zalarvis-Chase and Natalie Forrest-Perez consisted of scheduling of the Cultural Resource Survey, a site visit with a Native American monitor representing the Pit River Tribe of California during the survey, and a meeting to discuss results of the cultural resource survey. On September 4, 2020, an internet Zoom meeting took place between Dimitra Zalarvis-Chase and Natalie Forest-Perez. Together, both parties consulted project location and site record maps, survey results, and project descriptions and plans. Natalie Forest-Perez concurred with DZCs findings regarding the nature and location of resources and requested the presence of a Native American monitor representing the Kosalektawi Band during all ground disturbing activities occurring within the boundaries of any resources that intersect the Area of Potential Impacts (API).

As of December 1, 2020, no response was received from (1) Vi Riley, Cultural Resources Coordinator, Alturas Rancheria of Pit River Indians (2) Alturas Rancheria, Tribal Administrator/Environmental Coord. Alturas Rancheria of Pit River Indians, (3) Richard Lash, Chairperson, Cedarville Rancheria of Northern Paiute Indians, (4) Bernold Pollard, Chairperson, Ford Bidwell Indian Community of Paiute, (5) Agnes Gonzales, Chairperson, Pit River Tribe of California, (6) Charles White, Tribal Administrator, Pit River Tribe of California.

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. The CEQA Checklist question, discussion, and environmental significance conclusions are provided below under each individual environmental parameter related to *Tribal Cultural Resources*.

Would the Project:	Potentially Significant Impact	Potentially Significant Impact Unless 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		

Would the Project:	Potentially Significant Impact	Potentially Significant Impact Unless Mitigation Incorporated	Less-Than-Significant Impact	No Impact
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 Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.		X		

Discussion: Section V, CULTURAL RESOUCES, impact discussion V.a, the project area is considered to have a moderate potential for buried prehistoric resources, a low potential for buried historic resources, and a high potential for prehistoric and historical resources to be found on the surface.

Although no California Native American tribe submitted a written request to the County for formal consultation pursuant to PRC Section 21080.3.1, DZC contacted the NAHC and several Native American representatives and organizations and requested information related to cultural resources that could be impacted by the proposed project. Consultation with the NAHC and local Native American community revealed that resources exist in the project area that could potentially be significant to a California Native American tribe. As discussed above under *Tribal Consultation*, the City consulted with the THPO with the Pit River Tribe of California on September 4, 2020 to site record maps, survey results, and project descriptions and plans. The THPO concurred with the findings of the *Cultural Resources Inventory Report* (DZC, 2020) regarding the nature and location of resources and requested the presence of a Native American monitor representing the Kosalektawi Band during all ground disturbing activities occurring within the boundaries of any resources that intersect the Area of Potential Impacts (API). Mitigation Measures CR-1, CR-2, and CR-3 address the inadvertent discovery of cultural resources and human remains during construction. Impacts are considered less than significant in this regard.

Mitigation Measures: Implement Mitigation Measures CR-1, CR-2, and CR-3.

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 discovered resources are also provided for in Section IV, CULTURAL RESOURCES.

References and Citations

DZC (DZC Archaeology & Cultural Resource Management). 2020. *Cultural Resource Inventory Report for the City of Alturas Wastewater Facilities Improvement Project, Modoc County, California*. December 2020.

Modoc (Modoc County). 1988. *Modoc County General Plan Goals, Policies, and Action Program.* September 1988.

XIX. Utilities and Service Systems

This section addresses the proposed project's potential impacts on certain utilities and services: electric, water, wastewater, stormwater, and solid waste.

Environmental Setting

Pacific Gas & Electric (PG&E) currently provides power and natural gas to the City's existing wastewater treatment plant (WWTP). PG&E also supplies the existing residence on APN 022-130-042 with electric service, however, propane is utilized for heating. Potable water to this residence is provided by an onsite domestic water well and has an existing onsite septic system that disposes of domestic wastewater.

The project site and surrounding area is located within the Sacramento River hydrologic region of northern California within the Alturas Ground Water Basin, South Fork Pit River Subbasin (DWR, 2021). The basin is comprised of 114,000 acres or 178 square miles. The South Fork Pit River enters the basin near the community of Likely and flows north through the South Fork Pit River Valley to its confluence with the North Fork Pit River at the City of Alturas (DWR, 2003).

Water levels generally declined up to 10 feet in the northern part of the basin during the period from the early 1980's through the early 1990's and have recovered to former levels through 1999. The groundwater storage capacity to a depth of 800 feet is estimated to be approximately 7,500,000 acre-feet for the entire Alturas Groundwater Basin (including the South Fork Pit River Subbasin and the Warm Springs Valley Subbasin) (DWR, 2003). The Alturas Ground Water Basin, South Fork Pit River Subbasin is considered a low priority groundwater basin and therefore not subject to the requirement of development and implementing a Sustainable Groundwater Plan (SGP) (DWR, 2021).

Modoc County operates the Alturas Class III Municipal Solid Waste Landfill located immediately southeast of the proposed project along County Road 54. The facility is located on a 162-acre property at the intersection of North West Street and Westside Road. The existing landfill occupies approximately 28 acres with waste placed in six unlined waste management units (RWQCB, 2018).

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:

- **Sustainable Groundwater Management Act of 2014.** In 2014, California enacted the Sustainable Groundwater Management Act (SGMA; Water Code Section 10720 et seq.). SGMA, and related amendments to California law, require that all groundwater basins designated as high or medium priority in the California Department of Water Resources (DWR) California Statewide Groundwater Elevation Monitoring (CASGEM) Program, and that are subject to critical overdraft conditions, must be managed under a new GSP or a coordinated set of GSPs, by January 31, 2020. High or medium priority basins that are not subject to a critical overdraft must be regulated under one or more GSPs by 2022.

- **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.

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. The CEQA Checklist question, discussion, and environmental significance conclusions are provided below under each individual environmental parameter related to *Utilities and Service Systems*.

Would the Project:	**Potentially Significant Impact**	**Potentially Significant Impact Unless Mitigation Incorporated**	**Less-Than-Significant Impact**	**No Impact**
a) Require or result in the relocation or construction of new or expanded water, 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	

Discussion: As previously described in Section 2.0, *Project Description*, the existing City of Alturas WWTP currently discharges treated effluent to the Pit River. The proposed project entails discharge to new percolation and evaporation ponds in lieu of discharge to the Pit River. Under the City's existing NPDES permit, the WWTP is prohibited from contributing more than five percent (5%) of the in-stream flow in the Pit River. With regards to the relocation of the existing WWTP as proposed by this project, a technical memorandum was prepared to analyze the effect to Pit River flows as a result of removing the WWTP discharge (SHN, 2021).

The maximum allowable dilution ratio is 5% which means that the Pit River flow must be a minimum of 20 times the effluent flow. The measured dilution ratio approaches this value when the Pit River is experiencing its minimum flow rate. In this case, maximum discharge from the WWTP equates to a height of approximately 1.2 inches in contribution to the depth of the river (SHN, 2021). Based on this data, the new proposed wastewater treatment process would result in an insignificant reduction in total flow in the Pit River.

A project may require new or expanded storm water drainage facilities if it increases the amount of impervious surface on the project site and results in increased surface runoff. Proposed improvements that would increase the amount of impervious surface on the WWTP site include an approximate 100 square-foot blower/generator building. This relatively small area does not represent a significant increase in impervious surface and would not result in the need for new or expanded storm drain or detention systems. Improvement plans for the proposed project would be prepared by a licensed engineer to ensure compliance with adopted standards to ensure that impacts on existing storm water drainage facilities are less than significant. Areas disturbed during installation of pipeline improvements would be restored to pre-construction conditions; therefore, completion of the pipeline improvements would have no impact on existing drainage patterns. As a result, the proposed project would not result in a significant increase in impervious surfaces that would require the construction or expansion of stormwater drainage facilities.

The existing residence on APN 022-130-042 has an existing onsite septic system that disposes of domestic wastewater. This system would continue to be utilized for one permanent worker at the site (Chief Operator) and is not proposed to be expanded to accommodate other future onsite uses. Should the facility need to expand the system, they would be required to follow standard County procedures for septic system development as provided for by the Modoc County Department of

Environmental Health. There is also sufficient power provided to the site for the proposed project, although emergency backup stationary generators would be provided in the event power to the facility is disrupted.

The proposed project is currently served by an existing groundwater well that serves the existing onsite residence. This structure will be upgraded for onsite facility operations, however, the amount of potable water needs would be similar to the existing WWTP facility and there would be no impact on other water systems or water resources. Therefore, the proposed project would not require or result in the construction of new or expanded water, wastewater treatment or stormwater drainage, natural gas, or telecommunication facilities, the construction or relocation of which could cause significant environmental effects. Less than significant impacts are anticipated in this regard.

Mitigation Measures: No mitigation measures are required. Impacts would be less than significant.

Would the Project:	Potentially Significant Impact	Potentially Significant Impact Unless Mitigation Incorporated	Less-Than-Significant Impact	No Impact
b) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry, and multiple dry years?			X	

Discussion: The proposed project may require minimal water supplies for dust control during construction. Once construction activities are complete the project would not require any water supplies. Existing water supplies would be sufficient as water needs for the project would be minimal and temporary. As mentioned above under Section XIX.a, the proposed project would be served by an existing groundwater well that serves the existing onsite residence. This structure will be upgraded for onsite facility operations, however, the amount of potable water needs would be similar to the existing WWTP facility and there would be no impact on other water systems or water resources. Impacts are considered less than significant in this regard.

Mitigation Measures: No mitigation measures are required. Impacts would be less than significant.

Would the Project:	Potentially Significant Impact	Potentially Significant Impact Unless Mitigation Incorporated	Less-Than-Significant Impact	No Impact
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

Discussion: The proposed project is served by an onsite septic system; there are no impacts to community wastewater systems, as there are none in the immediate area. No impacts would occur in this regard.

Mitigation Measures: No mitigation measures are required.

Would the Project:	Potentially Significant Impact	Potentially Significant Impact Unless Mitigation Incorporated	Less-Than-Significant Impact	No Impact
d) Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?				X

Discussion: The proposed project would generate only a minimal amount of waste from construction-related activities. Construction contractors would be required to comply with federal, State, and local statutes and regulations relating to the disposal of solid waste. There would be no increase in solid waste generation above existing levels in the long-term. In addition, the proposed WWTP would not result in an increase in the amount of wastewater treated that could result in an increased demand for disposal of collected screenings, residual sludge, biosolids, and other solids removed from liquid wastes. Therefore, because the City will ensure through contractual obligations that the contractor complies with applicable federal, State, and local regulation pertaining to solid waste, there would be no impact.

Mitigation Measures: No mitigation measures are required.

Would the Project:	Potentially Significant Impact	Potentially Significant Impact Unless Mitigation Incorporated	Less-Than-Significant Impact	No Impact
e) Comply with federal, State, and local management and reduction statutes and regulations related to solid waste?			X	

Discussion: The 1989 California Integrated Waste Management Act (AB 939) requires the City to attain specific waste diversion goals. In addition, the California Solid Waste Reuse and Recycling Access Act of 1991, as amended, requires expanded or new development projects to incorporate storage areas for recycling bins into the proposed project design. Reuse and recycling of construction debris would reduce operating expenses and save valuable landfill space.

Project implementation would generate solid waste during construction and operation. Common construction waste may include metals, masonry, plastic pipe, rocks, dirt, cardboard, or green waste related to land development. AB 939, SB 1016, AB 341, and AB 1826 require the City and County to meet specific waste diversion goals. The amount of solid waste generated from operations of the proposed project would remain similar in quantity as the existing WWTP facility. Less than significant impacts would occur in this regard.

Mitigation Measures: No mitigation measures are required. Impacts would be less than significant.

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*.

References and Citations

Alturas (City of Alturas). 2019. *Sanitary Sewer Management Plan*. Revised June 2019.

DWR (California Department of Water Resources). 2021. *Sustainable Groundwater Management Act (SGMA) Data Viewer*. [Online]: https://sgma.water.ca.gove/webgis/?appid=SGMADataViewer#boundaries. Accessed January 12, 2021.

DWR. 2003. *Sacramento River Hydrologic Region, Alturas Groundwater Basin, South for Pit River Subbasin Groundwater Bulletin 118*. Updated February 27, 2004.

Modoc (Modoc County). 1988. *Modoc County General Plan Goals, Policies, and Action Program.* September 1988.

CVRWQCB (Central Valley Regional Water Quality Control Board). 2018. *Waste Discharge Requirements Order R5-2018-0025 for County of Modoc Alturas Class III Municipal Solid Waste Landfill Operation*. April 6, 2018.

SHN (SHN Consulting Engineers and Geologists, Inc.). 2020. *Final Wastewater Preliminary Engineering Report.* November 2020.

SHN. 2021. *Technical Memorandum - City of Alturas Wastewater Treatment Plant Hydrologic Analysis for Wastewater Discharge Reduction.* September 16, 2021.

XX. Wildfire

This section 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 each in throughout the State. According to the Modoc County *Local Hazard Mitigation Plan*, wildland fire is an ongoing concern for County. Generally, the fire season extends from early spring through late fall of each year during the hotter, dryer months. Drought may extend the fire season in Modoc County. Fire conditions arise from a combination of high temperatures, low moisture content in the air and fuel, accumulation of vegetation, and high winds (Modoc, 2016).

The California Department of Forestry and Fire Protection (CAL FIRE) Fire and Resource Assessment Program (FRAP) designates lands in three general classifications, "Moderate", "High" and "Very High" Fire Hazard Severity Zones. The 2007 FRAP (updated May 2008) delineates the project site and surrounding vicinity as a part of a designated "Moderate Fire Hazard Severity Zone" (MFHSZ) (CAL FIRE, 2008). Since the site also falls within a State Responsibility Area (SRA) fire suppression for the project site and surrounding area is provided by a combination of first responders such as CAL FIRE with additional firefighting support from the nearby Alturas Fire Department main station located approximately 2 miles from the site (CAL FIRE, 2021).

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 is 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.

- **Fire Hazard Severity Zoning.** CAL FIRE mapped Fire Hazard Severity Zones (FHSZ) in Modoc County based on fuel loading, slope, fire weather, and other relevant factors as directed by California Public Resources Code Sections 4201–4204 and Government Code Sections 51175–51189. FHSZs are ranked from moderate to very high and are categorized for fire protection within a Federal Responsibility Area (FRA), SRA, or Local Responsibility Area (LRA) under the jurisdiction of a federal agency, CAL FIRE, or local agency, respectively.

- **City of Alturas General Plan Safety Element.** The Safety Element of the City of Alturas General Plan addresses four categories of hazards: geologic hazards, seismic hazards, flood hazards, and fire hazards. The Safety Element contains the following policies related to fire hazards:

  1. The City will not permit new development on land which has been identified as environmentally unsound to support such development.
  2. New development must demonstrate the availability of adequate fire protection and suppression facilities.

- **Modoc County General Plan Safety Element.** The Safety Element of the Modoc County General Plan contains policies regarding fire protection. The County's General Plan includes the following policies that apply to the proposed project:

  3. New development should demonstrate the availability of adequate fire protection and suppression facilities.
  4. Recommendations within the Fire Safe Code should be implemented wherever practical in Modoc County.

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. The CEQA Checklist question, discussion, and environmental significance conclusions are provided below under each individual environmental parameter related to *Wildfire*.

Would the Project:	**Potentially Significant Impact**	**Potentially Significant Impact Unless Mitigation Incorporated**	**Less-Than-Significant Impact**	**No Impact**
a) Substantially impair an adopted emergency response plan or emergency evacuation plan?			X	

Discussion: As previously described in Section 2.0, PROJECT DESCRIPTION, new 8-inch diameter force main would run from the pump station along the existing wastewater treatment plant (WWTP) access road to County Road 54, where it would run along the road shoulder for approximately 1.4 miles to the entrance of the disposal property (refer to Figure 2-7, PROPOSED SITE PLAN). The pipeline would be installed below grade and within the roadway right-of-way through trenching and directional drilling.

No roadway closures are anticipated during construction. However, if temporary closures would be required, emergency access would be maintained at all times. Construction effects along the pipeline route would be temporary, and all areas would be returned to pre-project conditions upon completion of construction. Once operational, the project would not conflict with emergency response or evacuation plans. Therefore, the proposed project would not substantially impair an adopted emergency response plan or emergency evacuation plan. Impacts are considered to be less than significant in this regard.

Mitigation Measures: Impacts would be less than significant. No mitigation measures are required.

Would the Project:	Potentially Significant Impact	Potentially Significant Impact Unless Mitigation Incorporated	Less-Than-Significant Impact	No Impact
b) Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?			X	

Discussion: The proposed project would not result in any alterations to slope, wind, or other factors that could potentially exacerbate wildfire risks onsite or within the project vicinity. The project would include the installation of a force main for wastewater delivery to the disposal ponds. The pipeline would be constructed underground, and all surfaces would be returned to pre-project conditions upon completion of construction activities.

The onsite operations office and all ancillary structures would be upgraded and maintain appropriate fire suppression based on the California Building Code and City requirements. Compliance with applicable regulations and regular inspection of project facilities would reduce wildfire risks and the exposure to pollutant concentrations or uncontrolled spread of wildfire. Impacts are considered to be less than significant in this regard.

Mitigation Measures: No mitigation measures are required. Impacts would be less than significant.

Would the Project:	Potentially Significant Impact	Potentially Significant Impact Unless Mitigation Incorporated	Less-Than-Significant Impact	No Impact
c) Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?			X	

Discussion: As described above, under Section XX.b, project facilities would be constructed, designed, inspected, and maintained in accordance with applicable regulation to reduce fire risk. No new utilities will be extended to the project site, although the project will require to connect to existing onsite power sources. Implementation of the proposed project would not require the installation of any other infrastructure or utilities that may exacerbate fire risk. Impacts are considered to be less than significant in this regard.

Mitigation Measures: No mitigation measures are required. Impacts would be less than significant.

Would the Project:	Potentially Significant Impact	Potentially Significant Impact Unless Mitigation Incorporated	Less-Than-Significant Impact	No Impact
d) Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?			X	

Discussion: The proposed project would not result in an increase in population, nor would the project include the construction of residential or commercial structures. Onsite where facilities are proposed consists of rolling terrain and is not at risk for landslides. The Federal Emergency Management Agency (FEMA) has mapped the 100-year and 500-year floodplains along the Pit River (refer to Figure 2-3, FEMA FLOODPLAIN, in Section 2.0, PROJECT DESCRIPTION) (SHN, 2020). All proposed facilities, including evaporation and percolation ponds are located outside of the mapped 100-year floodplain. In addition, the proposed pipeline would be constructed underground within the existing County Road 54 right-of-way and would not affect flooding. As a result, there is no reason to believe that the project area would be exposed to significant risks from flooding or landslides as a result of post fire runoff. Impacts are considered to be less than significant in this regard.

Mitigation Measures: No mitigation measures are required. Impacts would be less than significant.

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*.

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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**	**Potentially Significant Impact Unless Mitigation Incorporated**	**Less-Than-Significant Impact**	**No Impact**
a) Does the project have the potential to 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, 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		

Discussion: Evaluation of the proposed project in this document (Section IV, BIOLOGICAL RESOURCES) has shown that the activities of the proposed project do not have the potential to degrade the quality of the environment and will not substantially reduce the habitat or cause wildlife populations to drop below self-sustaining levels. Mitigation measures for biological resources have been developed to reduce potential impacts on sensitive habitats and species to less than significant levels. Refer to Mitigation Measures BIO-1, BIO-2, BIO-3, and BIO-4 in Section IV, BIOLOGICAL RESOURCES.

Also, based on the discussion and findings in Section V, CULTURAL RESOURCES, there is evidence to support a finding that the proposed project is not eligible for listing in the NRHP or CRHR under any significance criteria. Considering the history of extensive agricultural disturbance within the project area and all its previous uses, including over 100 years of documented and related activities, the potential for discovery of intact archaeological deposits or features by implementation of this project is considered moderate to high. Although no archaeological deposits or features were found during the *Cultural Resources Inventory Report* (DZC, 2020), implementation of mitigation measures will ensure that any additional archaeological deposits or features may be discovered are fully protected during implementation of the project. Refer to Mitigation Measures CR-1, CR-2, and CR-3 in Section V, CULTURAL RESOURCES.

Would the Project:	**Potentially Significant Impact**	**Potentially Significant Impact Unless Mitigation Incorporated**	**Less-Than-Significant Impact**	**No Impact**
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 the effects of past projects, the effects of other current projects, and the effects of probable future projects)?		X		

Discussion: As discussed throughout this document, implementation of the proposed project has the potential to result in impacts to the environment that are individually limited, but are not cumulatively considerable, including impacts to biological and cultural resources.

In all instances where the project has the potential to contribute to cumulatively considerable impacts to the environment (including the resources listed above) mitigation measures have been imposed to reduce the potential effects to less than significant levels. As such, with incorporation of the mitigation measures imposed throughout this document, the proposed project would not contribute to environmental effects that are individually limited, but cumulatively considerable, and impacts would be less than significant.

Would the Project:	Potentially Significant Impact	Potentially Significant Impact Unless Mitigation Incorporated	Less-Than-Significant Impact	No Impact
c) Does the project have potential environmental effects which may cause substantial adverse effects on human beings, either directly or indirectly?			X	

Discussion: Based on the discussion and findings in all Sections above, there is no evidence to support a finding that the proposed project has potential environmental effects which may cause substantial adverse effects on human beings, either directly or indirectly.

Findings

Based upon the review of the information above, implementation of the proposed project is not anticipated to have a substantial adverse effect on the environment. Therefore, there is no significant impact.

Section 4.0
CEQA Determination

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 City of Alturas Planning and Zoning Division at 200 W. North Street, Alturas, CA 96101. Contact: Joe Picotte, Direct of Public Works; (530) 233-2377; jpicotte@cityofalturas.us.

Joe Picotte
Director of Public Works

10-26-2021
Date

Section 5.0
References and Citations

The following technical studies, reference documents, and data sources were utilized as primary references in developing the Alturas Wastewater Treatment Plant Improvement Project Initial Study:

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Technical Appendices

Appendix A
Final Wastewater Preliminary Engineering Report

Appendix B
Aquatic Resource Delineation Report

Appendix C
Biological Study Report

Appendix D
Cultural Resource Inventory Report

Appendix E
Air Quality Data

Appendix A

Final Wastewater Preliminary Engineering Report

Final Wastewater Preliminary Engineering Report

City of Alturas
200 W. North Street
Alturas, California

Prepared for:

City of Alturas

Engineers & Geologists

November 2020

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SHN CONSULTING ENGINEERS & GEOLOGISTS, INC.
803 Main Street, Ste.401 • Klamath Falls, OR 07601 • 541-827-7855 • shninfo@shn-engr.com

Reference: 518004.200

November 12, 2020

Jason Diven, Director of Public Works
City of Alturas
200 W. North Street
Alturas, CA 96101

Subject: **Final Wastewater Preliminary Engineering Report**
Proposition 1 Wastewater Planning Grant

Dear Mr. Diven:

We are pleased to submit to you the enclosed copy of the Final Wastewater Preliminary Engineering Report (PER). prepared under your Proposition 1 Wastewater Planning Grant. We have incorporated responses to comments from the City, CVRWQCB, and SWRCB-DFA. Please review and let us know if you have any further comments. Please submit to SWRCB-DFA via your FAAST account at your convenience.

If you have any questions, please feel free to contact me at 541-827-7855 or arasmussen@shn-engr.com.

Respectfully submitted,

SHN Engineers & Geologists

Anders Rasmussen

Anders H. Rasmussen, PE
Regional Principal/Senior Civil Engineer

AHR:ahr

Enclosures: Final PER

c. w/Encl.: Lawrence Sanchez, SWRCB-DFA
Mike Nilsen, CVRWQCB
Jeremy Pagan, CVWRCB

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Reference: 518004.200

Final Wastewater Preliminary Engineering Report

Prepared for:
City of Alturas

Funding for this project has been provided by the California State Water Resources Board under a Proposition 1 Small Community Wastewater Planning Grant, Agreement No. D17-04002.

Prepared by:

SHN
Engineers & Geologists
803 Main Street, Suite 401
Klamath Falls, OR 97601
541-827-7855

November 2020

QA/QC: AHR

REGISTERED PROFESSIONAL ENGINEER
ANDERS H. RASMUSSEN
No. 58184
CIVIL
STATE OF CALIFORNIA

Anders H. Rasmussen

Signed
11/12/2020

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Abbreviations and Acronyms

BOD	Biochemical Oxygen Demand
CDO	Cease and Desist Order
CVRWQCB	Central Valley Regional Water Quality Control Board
DFA	Division of Financial Assistance
FAA	Federal Aviation Administration
FEMA	Federal Emergency Management Agency
I/I	Infiltration and Inflow
MG	Million Gallons
MGD	Million Gallons per Day
NPDES	National Pollution Discharge Elimination System
OMB	Office of Management of Budget
PER	Preliminary Engineering Report
PVC	Polyvinyl Chloride
SCADA	Supervisory Control and Data Acquisition
SHN	SHN Engineers & Geologists
SRF	State Revolving Fund
SSES	Sanitary Sewer Evaluation Study
SWRCB	State Water Resources Control Board
TSO	Time Schedule Order
TSS	Total Suspended Solids
USDA-RD	United States Department of Agriculture Rural Development
USEPA	United States Environmental Protection Agency
UV	Ultraviolet
VFD	Variable Frequency Drive
WDR	Waste Discharge Requirements
WWTP	Wastewater Treatment Plant
WWTF	Wastewater Treatment Facility

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Executive Summary

The City of Alturas' Wastewater Treatment Plant (WWTP) currently discharging to the Pit River has had difficulty meeting permitted effluent limits for various constituents, including zinc, copper, aluminum, biological oxygen demand (BOD), total suspended solids (TSS), total coliform, toxicity, and total suspended solids (TSS). The Central Valley Regional Water Quality Control Board has noted that land discharge is the more feasible long-term solution to remain in compliance with future discharge regulations. The WWTP, which having some upgrades in 2006, has components that are well beyond their useful life and need to be replaced.

Several options were evaluated in this Preliminary Engineering Report (PER). Three alternatives were investigated in detail:

- Alternative 1: Rehabilitate the existing WWTP and continue to discharge to the Pit River;
- Alternative 2: Rehabilitate the existing WWTP and use land discharge with infiltration/evaporation ponds offsite; and
- Alternative 3: Decommission the existing WWTP, pump the raw wastewater to an offsite new WWTP utilizing aeration ponds, and use land discharge with infiltration/evaporation ponds at the offsite location.

A planning level alternatives analysis was conducted, with estimated project costs as follows:

- Alternative 1: $12.9 million
- Alternative 2: $11.7 million
- Alternative 3: $5.8 million

Alternative 3 was found to be the most cost-effective solution, both in terms of capital cost and long-term operational costs, through the Net Present Value analysis. Alternative 3 is the recommended alternative.

1.0 Introduction

1.1 Background

The City of Alturas ("City") owns and operates a wastewater utility which consists of a collection system and wastewater treatment plant. The system serves the City's population of approximately 2,600. The wastewater treatment plant (WWTP) is located along the north bank of the North Fork Pit River at the confluence with the South Fork Pit River. The WWTP provides primary and secondary treatment and had a major upgrade in 2006. Treated effluent is currently discharged to the Pit River under Waste Discharge Requirement (WDR) Order R5-2014-0033 and National Pollutant Discharge Elimination System (NPDES) Permit No. CA0078921, issued by the Central Valley Regional Water Quality Control Board (CVRWQCB).

The City has had difficulty meeting permitted effluent limits for various constituents, including zinc, copper, aluminum, biological oxygen demand (BOD), total suspended solids (TSS), total coliform, and toxicity. A Time Schedule Order (TSO) R5-2014-0034-01 (as amended by Order No. R5-2015-0111) was issued specifying interim limits for zinc, copper, and total coliform. At the time of the draft Preliminary Engineering Report (PER), renewed WDRs were proposed that include new and recalculated effluent limits. A corresponding Cease and Desist Order (CDO) was also proposed that includes interim effluent limits for copper, zinc, total coliform, and aluminum. These new limits have been issued recently under Order R5-2020-0004.

The City obtained a Proposition 1 Wastewater Planning Grant (Agreement No. D17-04002) from the State Water Resources Control Board (SWRCB) Division of Financial Assistance (DFA) to assist the City to develop a recommended path forward to achieve regulatory compliance.

1.2 Purpose

The purpose of this Preliminary Engineering Report (PER) is to evaluate alternatives and provide a recommended alternative to allow the City to obtain funding for final design and construction and achieve consistent regulatory compliance.

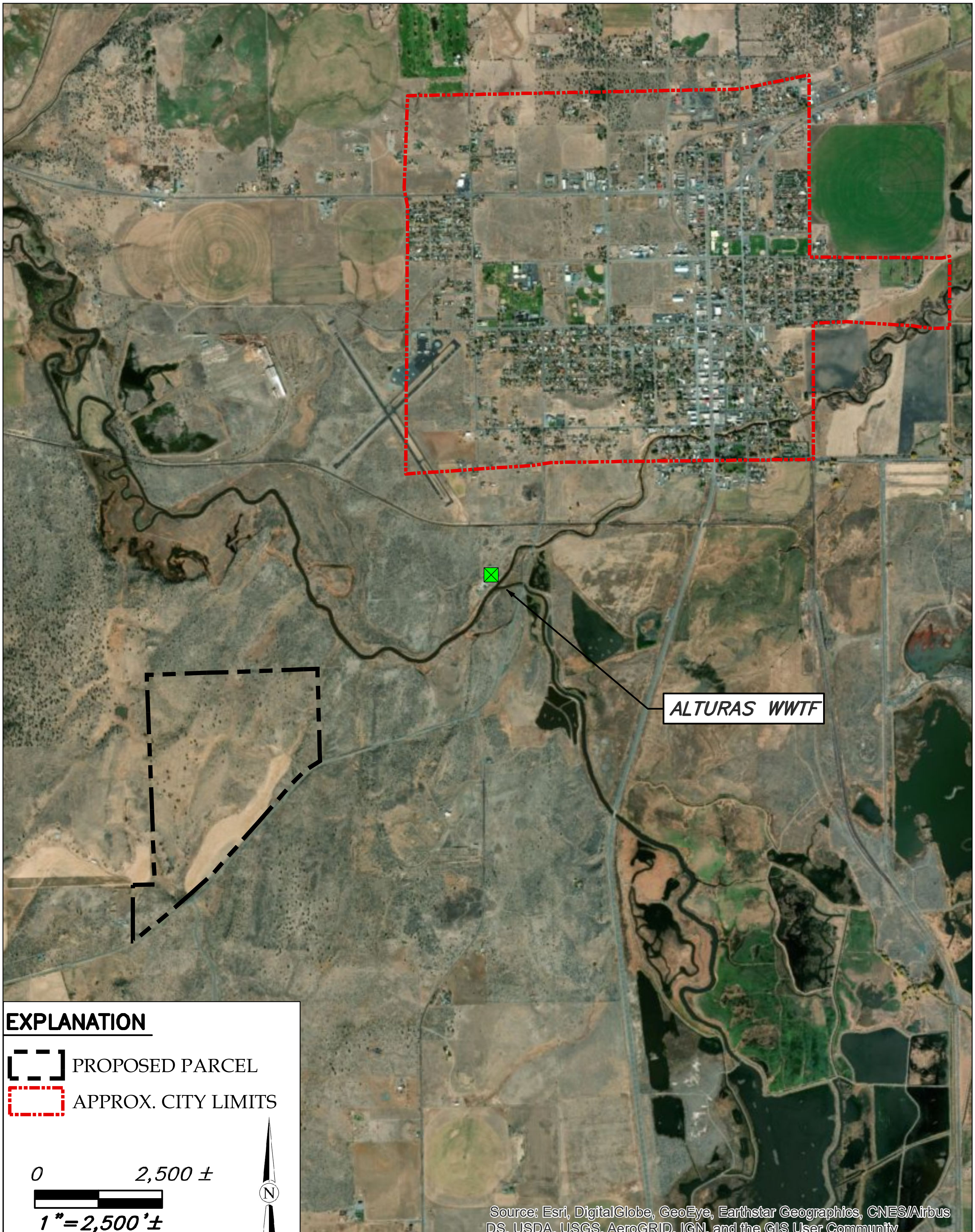
1.3 Format

The SWRCB does not require a specific format for wastewater treatment facility planning documents. The format of this PER generally follows the format guidelines provided by the United States Department of Agriculture Rural Development (USDA-RD), which will allow the City the flexibility to pursue USDA-RD funding in addition to SWRCB SRF funding.

2.0 Project Planning

2.1 Location

The City's existing WWTP is located just south of the City limits along the north bank of the North Fork Pit River (Figure 1). The WWTP is located on a portion of a property owned by the City, as shown in Figure 2. This property is also used for the City's dog pound and for storage of excess City equipment. Figure 1 also shows the location of the property where facilities are proposed under the recommended alternative as described later in this PER. The wastewater system service area is described in Section 3.



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SHN	City of Alturas Preliminary Engineering Report Alturas, CA	Project Location SHN 518004
	December 2019	Figure_1
		Figure 1

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City of Alturas
Wastewater Planning Study
Alturas, California

Wastewater Treatment Plant Boundaries
Plan View
SHN 518004

November 2020	518004-ALTURAS-WW	Figure 2

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2.2 Environmental Resources Present

Environmental resources present in the planning area are described in the associated CEQA documents, which are being developed concurrently to this PER. Portions of the WWTP site are within the 100-year floodplain as defined by the Federal Emergency Management Agency (FEMA). The 100-year floodplain is shown on Figure 3. No significant changes to existing conditions are anticipated within the defined floodplain and, therefore, no significant downstream impacts are anticipated.

2.3 Population Trends

The current population of the City's wastewater service area is approximately 2,600. The City's population has been in decline at an average rate of 1.15% since the 2010 census, when the population was 2,833. Currently, the population appears relatively stable and is not expected to grow significantly within the planning horizon of this study, which is the next 20 years.

2.4 Community Engagement

The Public Works Department, through its Director, communicates with and provides updates to the City Council, which meets monthly. Meeting minutes are available at City Hall and online at the City's website for residents to view. If special announcements or communication is needed, the City can include written announcements with sewer and water bills, which are sent out monthly. The City also puts announcements on its website.

3.0 Existing Facilities

3.1 General

The City's WWTP is a Class II trickling filter facility with the following major components:

- Headworks, including grit removal
- Grinder
- Influent Pump Station
- Primary Clarifier
- Trickling Filter
- Secondary Clarifiers
- Digester
- Sludge Drying Beds
- Disinfection
- Outfall, including high water pump station

A site plan of the current WWTP is presented in Figure 4. The process flow diagram showing the existing treatment process is shown in Figure 5.

The wastewater collection system is not part of this study, but has been described and evaluated in a separate Sanitary Sewer Evaluation Survey (SSES), which was recently completed by SHN as part of the Proposition 1 Wastewater Planning Grant associated with this PER.

3.2 History

The exact year when the original WWTP was constructed is not known. Improvements were constructed in 1965, 1974, and 2006. Table 1 provides a list of the WWTP system components, when constructed (if known), when renovated, and some brief comments. Detailed discussion of the current status of each major component is found in Section 3.3.

**Table 1. Wastewater Treatment Plant System Components
Wastewater Preliminary Engineering Report
Alturas, California**

System Component	Year Constructed	Years Renovated	Description of Renovation/Comments[1]
Grit Chamber	1978	-	
Grinder	1965	2006	Originally a comminutor; replaced with grinder in 2006
Influent Pump Station	1965	-	Replaced old pump station, which is now the recirculation pumps for the trickling filter
Primary Clarifier	Before 1965	1965, 2006	Only minor renovations in 2006
Trickling Filter	Before 1965	1965, 2006	Switched from gravel to plastic media
TF Recirculation Pumps	1978?	2006	
Secondary Clarifiers	1978 (#1) 2006 (#2)	-	Clarifier #1 is currently used for sludge storage
Sludge Pump Station	Before 1965	-	
Digester	Before 1965	1965	
Chlorine Contact Chamber	1978	2006	Additional parallel contact chamber
Sludge Drying Beds	1978	2006	Concrete basin with drain lines
Effluent Pump Station	1978	-	Used only when Pit River is high

1. See text for additional description and comments

3.3 Condition of Existing Facilities

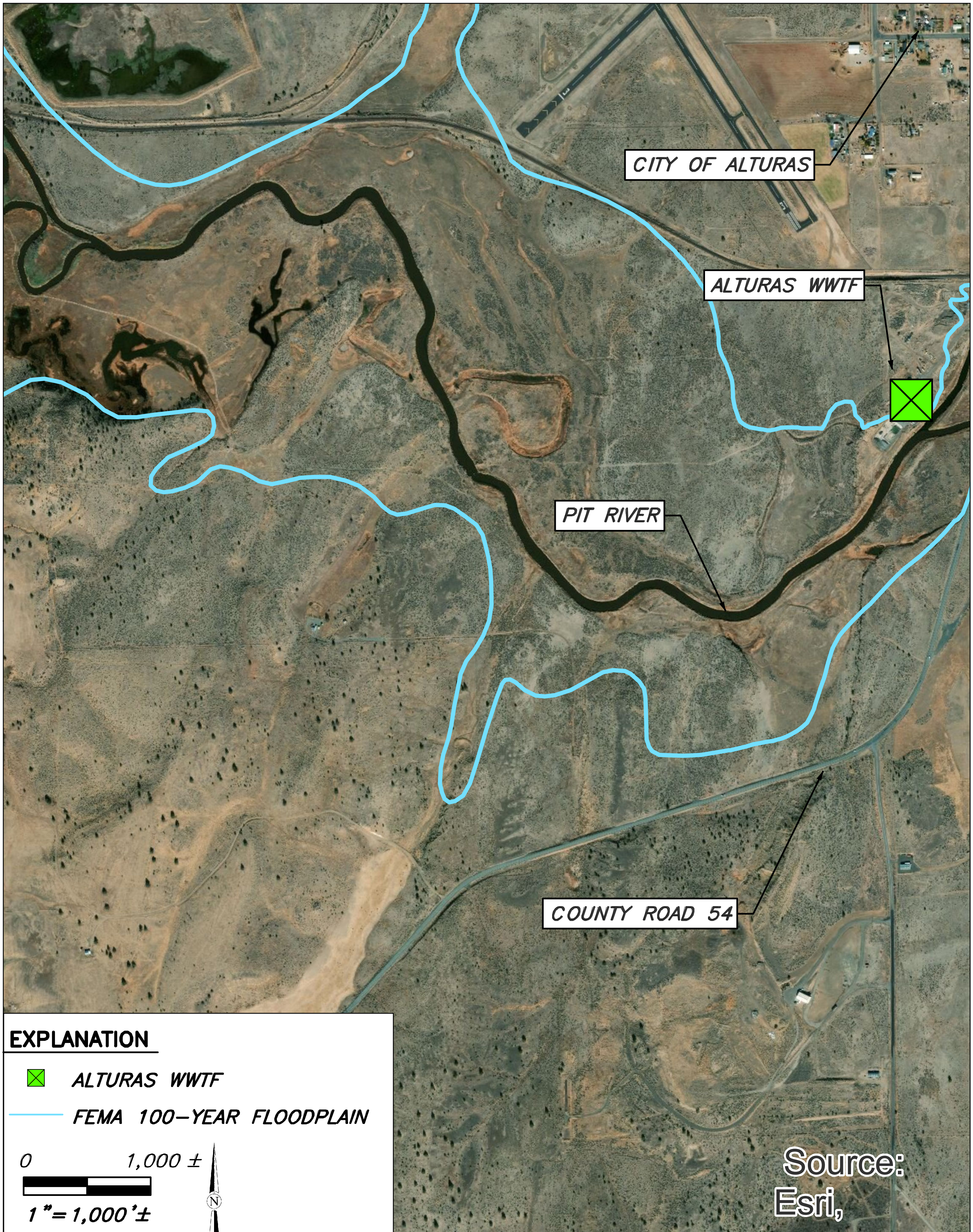
3.3.1 General

This section discusses the condition of the existing facilities, first with respect to regulatory compliance, then by individual major treatment component. Year of construction and renovation for each system component was provided in Table 1.

The existing WWTP was originally designed for an average dry weather flow (ADWF) of 0.5 million gallons per day (MGD), with a peak day flow of 1.0 MGD. Current ADWF is approximately 0.33 MGD, and peak daily flows have been as high as 1.2 MGD. Additional discussion about design flows can be found in Section 5.2.

3.3.2 Regulatory Compliance

The City's WWTP has been regulated by the Central Valley Regional Water Quality Control Board (CVRWQCB) under Waste Discharge Requirements (WDR) Order No. R5-2014-0033 (NPDES No. CA0078921). At the time the WDRs were issued, it was recognized that the City was not able to comply immediately with the effluent requirements for copper, zinc, and total coliform. The City has had compliance schedules to meet effluent limits for copper and zinc since 2006 in the permit or Time Schedule Orders (TSO). Therefore,



City of Alturas Preliminary Engineering Report Alturas, California	Alturas WWTF with FEMA 100-year Floodplain SHN 518004	
February 2020	FIGURE_3	Figure 3

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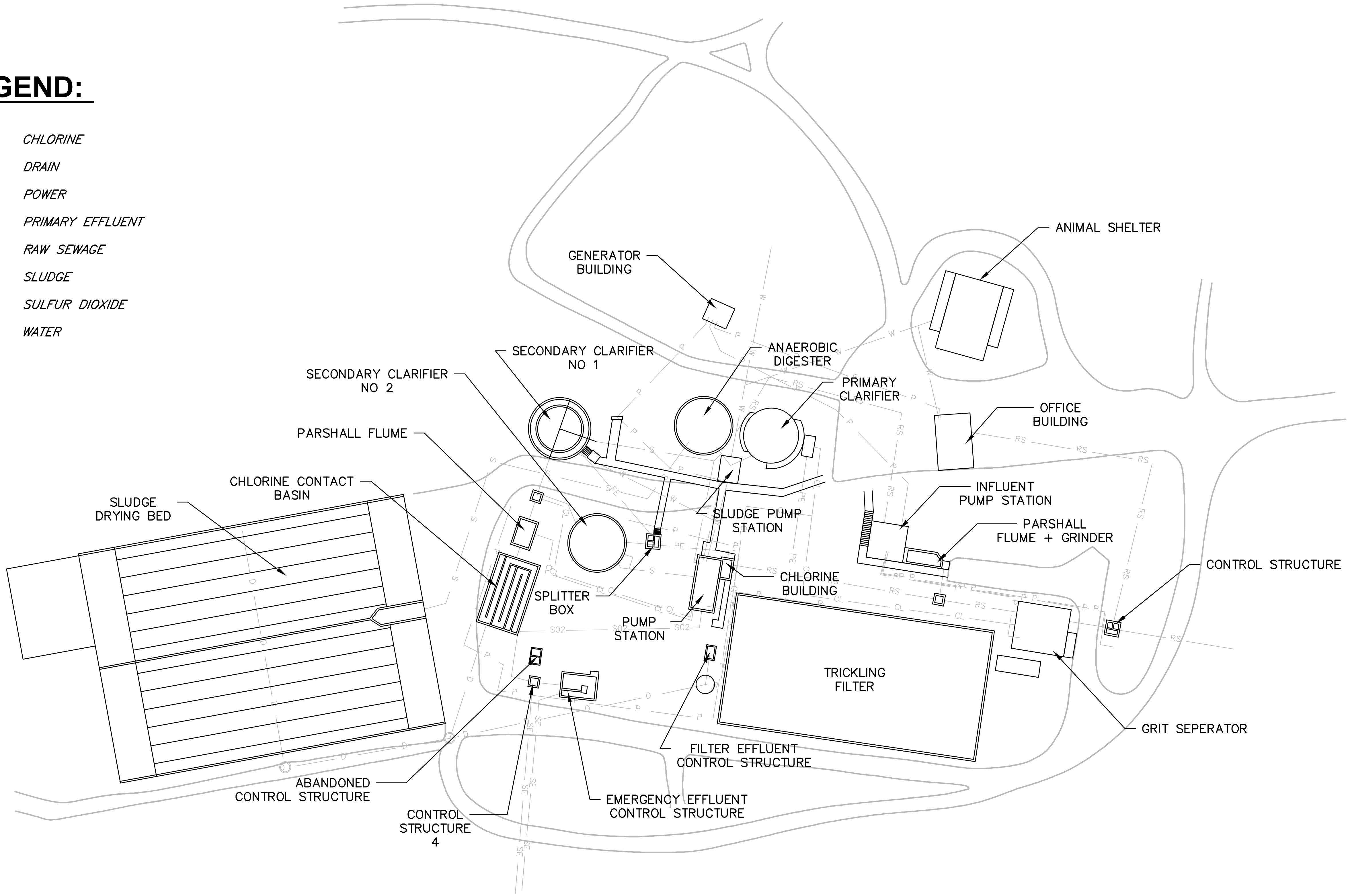
LEGEND:

—— CL ——	*CHLORINE*
—— D ——	*DRAIN*
—— P ——	*POWER*
—— PE ——	*PRIMARY EFFLUENT*
—— RS ——	*RAW SEWAGE*
—— S ——	*SLUDGE*
—— S02 ——	*SULFUR DIOXIDE*
—— W ——	*WATER*



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	City of Alturas Wastewater Planning Study Alturas, California	Existing Conditions Plan View SHN 518004
December 2019	518004-ALTURAS-WW	Figure 4

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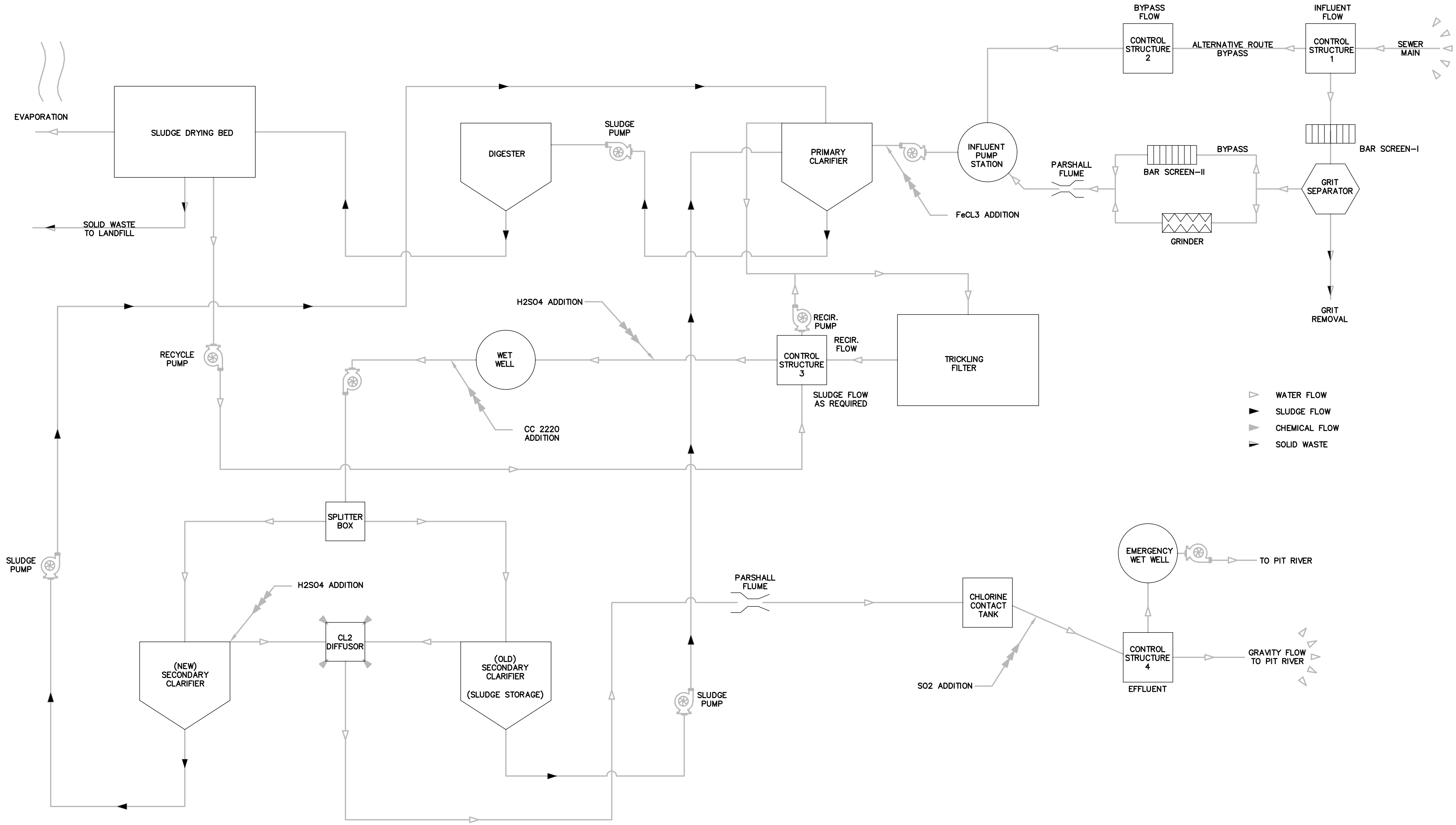

SHN	City of Alturas Wastewater Planning Study Alturas, California	Existing Flow Diagram - SHN 518004
	December 2019 / 518004-ALTURAS-WW	Figure 5

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Time Schedule Order (TSO) R5-2014-0034-01 (as amended by Order No. R5-2015-0111) was issued by the CVRWQCB. This TSO gave interim compliance limits for copper, zinc, and total coliform. The final compliance date for copper and zinc was May 18,2020.

A review of effluent water quality data for 2015-2018 revealed that effluent water quality often did not meet the regulatory limits stipulated in the WDR and TSO for the following constituents: Aluminum, copper, zinc, BOD, TSS, and toxicity. The City was assessed $15,000 in civil liability for effluent limitation violations of copper and zinc in 2015. The $15,000 was treated as a permanently suspended administrative civil liability since the City completed a compliance project designed to correct the violations.

After the Draft PER was released and before this Final PER was completed, the CVRWQCB issued on April 1, 2020 a new permit under WDR Order No. R5-2020-0004, which provides interim limits through March 31, 2030 for the following constituents: Chronic Whole Effluent Toxicity, BOD, TSS, and ammonia.

The City has had historical challenges meeting the chronic toxicity with nine out of 36 toxicity tests since 2014 having failed. The newly issued permit has the following compliance schedule for chronic toxicity:

- Until March 31, 2030, chronic whole effluent toxicity shall not exceed 16 toxicity units and a percent effect of 25% at 6.25% effluent, any endpoint as the median of up to three consecutive chronic toxicity tests within a six-week period.
- After March 31, 2030, chronic whole effluent toxicity shall not exceed 1 toxicity units and a percent effect of 25% at 100% effluent for any endpoint as the median of up to three consecutive chronic toxicity tests within a six-week period.

Suspected reasons for the toxicity violations have included ammonia and, most recently, surfactants. Other potential causes include chlorine, metals, non-polar organics, other treatment chemicals, and total dissolved solids. The most recent Toxicity Identification Evaluation by Pacific EcoRisk dated August 2019 from samples collected July 8 and 10, 2019 concluded the following:

> *"Toxicity was persistent with a 54.4% reduction in growth relative to the laboratory control…By weight of evidence, the combined visual observation of foam during air sparging and the overall improvements in cell growth from all treatments suggest that surface-active compounds (i.e., surfactants) may be causing or contributing to toxicity. Further analysis of all treatments for anionic and nonionic surfactants is recommended."*

The CVRWQCB has indicated that if the City continues to discharge to the Pit River, future permits will include effluent limits for previously nonregulated constituents which include arsenic, Bis (2-ethylhexyl) phthalate, ammonia, and nitrate+nitrite. As discussed later in this PER, significant upgrades to the WWTP would be required to address these new effluent limits.

3.3.3 Headworks

The headworks consists of a manual bar screen, a grit removal chamber, and a grinder. The manual bar screen is located in the inflow channel to the grit chamber and is in good condition. The bar screen is cleaned manually daily as needed.

The grit removal chamber is a detritus tank, which is constant-level, short detention settling tank. Grit is removed from the bottom by a rotating rake arm that sweeps the grit to a collection sump where the grit is pumped to grade level into a wheelbarrow. The existing flow vanes, piping, grit pump, and rake are old and beyond their useful life. Much of the exposed metal shows significant signs of rust. While there is a bypass around the grit chamber, the grit chamber has never been taken offline for cleaning according to City staff.

The grinder grinds solids into smaller pieces that can be removed in the primary clarifier. This was originally a comminutor installed in 1965 but was replaced with a grinder in 2006 and appears to be in good condition. A bypass channel adjacent to the comminutor has a manual bar screen and allows for the grinder to be taken offline or for use as a high flow bypass if needed.

In general, the in-ground concrete structures housing the grit chamber and grinder are in good condition. This includes handrails and safety railing.

Figure 6 shows the bar screen and grit chamber. Figure 7 shows the grinder.

Figure 6. Existing bar screen and grit chamber

Figure 7. Grinder and bar screen bypass.

3.3.4 Influent Pump Station

The influent pump station consists of a concrete wet well and adjacent dry well. In the dry well are three centrifugal pumps with draw horizontally out of the wet well. One pump is rated at 350 gallons per minute (gpm) and is used for low flows. The other two pumps are rated at 750 gpm and are used for high flows and for redundancy. The drywell pumps and piping are shown in Figure 8.

It is not known whether the pumps have been replaced since original installation in 1965. The pumps appear to be past their useful life. In the last couple of years, the pumps have been frequently offline and in need of repair. The City is currently in the process of replacing all three pumps for proper redundancy. The pumps currently do not have variable frequency drives (VFD). When the pumps turn, the full flow occurs which leads to short circuiting in the primary clarifier as discussed in the following section.

The original piping from the pumps to the primary clarifier has been replaced with a new alignment due to a leak in the original piping. The old pipe was removed from the influent pump station and the pipe capped. The new piping consists of 12-inch-diameter polyvinyl chloride (PVC) much of which runs along the wall as shown in Figure 9. The interior PVC piping, which is restrained with chains and runs vertically from the dry well to grade level, was intended to be temporary but has been in place since 2006. In December 2006, the pipe failed and flooded the dry well. A shut-off float has been installed in the pump station to turn off the pumps if the pipe breaks inside the building. Failure of the pipe could allow raw wastewater to spill inside the lab and electrical rooms, which are located at the ground floor. Between the influent pump station and the primary clarifier, the PVC pipe was laid at a shallow depth (16-20 inches), and a boulder barrier has been placed to keep vehicular traffic from driving over the pipe alignment.

Figure 8. Influent pump station.

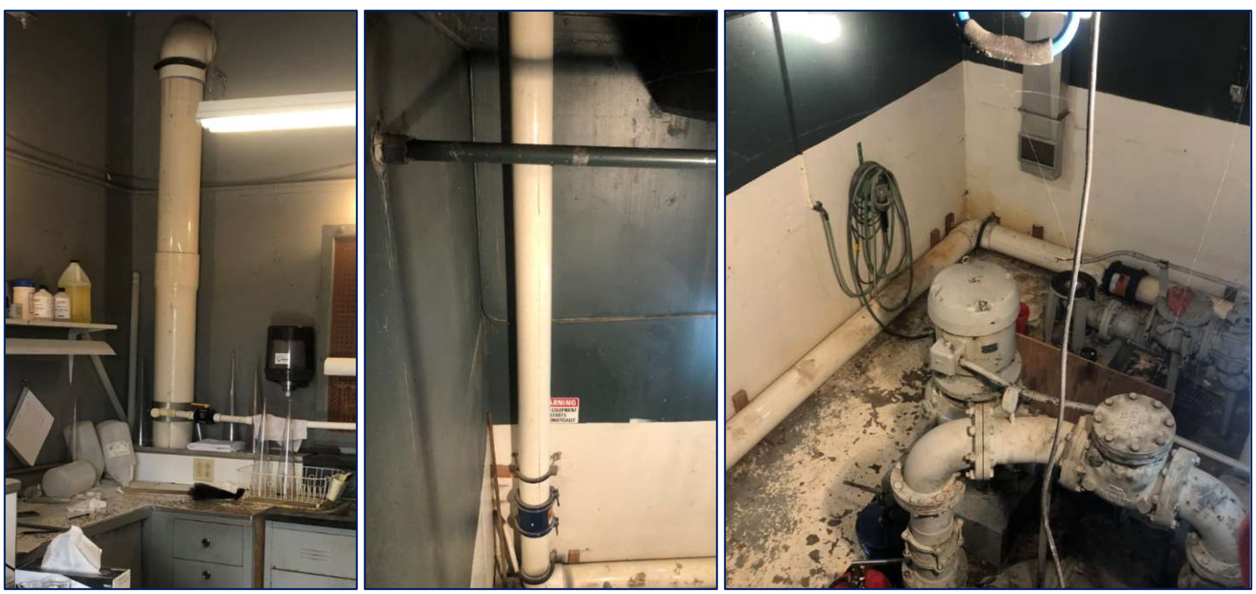


Figure 9. “Temporary” PVC force main from influent pump station.

Modifications to the influent pump station were needed to allow for installation of the new discharge piping. This retrofit has eliminated the ability of the operator to use a crane to remove pumps for servicing. Currently, the operator has to pull the pump and carry it up a narrow staircase with a ninety degree turn in it.

3.3.5 Primary Clarifier

The 30-ft-diameter primary clarifier has been in place since before the major WWTP upgrade in 1965, at which time it received significant upgrades, including a new skimming mechanism, new weir baffles, new scum box, and new drive housing. Minor upgrades were done in 2006. The internal raking and skimming mechanisms, while generally performing adequately, are well beyond their expected life, and many of the parts are difficult to find. The walkway associated with the drive housing is constructed of wood, which is currently in poor condition. Photos of the primary clarifier are shown in Figure 10.

Figure 10. Primary clarifier.

With only one primary clarifier, there is no redundancy. Currently, the clarifier experiences short circuiting which leads to inadequate solids removal. These solids end up in the trickling filter. The solids removal process utilizing a grinder and primary clarifier leads to significant amounts of plastics in the primary sludge. According to operations staff, the high amounts of plastics and other non-organic material creates problems in the poorly functioning anaerobic digester (described further in a later section).

3.3.6 Trickling Filter

The City's WWTP has utilized a trickling filter (TF) for biological treatment since before 1965. The existing trickling filter is rectangular in shape and uses fixed emitters separated into two zone. From at least 1965 to 2006, the trickling filter media consisted of gravel. In 2006, the gravel was replaced with random dump plastic honeycomb-shaped media (Bio-Pac SF#30), new underdrains were installed, and sidewalls were rehabilitated. The existing filter has a footprint of approximately 10,400 square feet and has a media depth of six feet. Figure 11 shows the photos of the trickling filter.

Effluent from the trickling filter is pumped either back to the TF for recirculation or to the secondary clarifier. Photos of the pump station are shown in Figure 12. In 2006, the pumps were upgraded with new motors and VFDs. While the pump station is old and may not meet current code requirements, it appears to be working adequately.

Figure 11. Trickling Filter (top) showing media (bottom left) and exterior wall where cracking has occurred in the CMU block wall (bottom right).

The issues with the trickling filter are as follows:

- Flow is not well distributed over the existing media.
- Wind affects the spray from the emitters, and the operator has created windrows to block wind.
- Freezing conditions can occur on the top of the media during winter, leading to reduced treatment efficiency.
- Operator access to sprayers is unsafe, since the operator must walk on the plastic media.
- Chemical addition is needed for pH adjustment.
- There is inadequate recirculation during wet weather months, leading to reduced treatment efficiency.
- The west wall of the trickling filter appears to have tilted, with cracking showing at the northwest and southwest corners.
- While the trickling filter has two zones and, therefore, technically has redundancy, there is no interior wall separating the two zones.
- The second zone does not have windrows in the media so it more susceptible to wind effects than the first (western) zone.
- There is inadequate nitrification occurring in the trickling filter.

Figure 12. Recirculation flow control structure (left) and pump station to secondary clarifier (right).

3.3.7 Secondary Clarifiers

Secondary Clarifier #1 was constructed in 1978. In 2006, a redundant new secondary clarifier (#2) was constructed. Since that time, clarifier #1 has generally been offline and used as sludge storage, which has removed the redundancy that was originally intended. Figure 13 shows clarifier #1, and Figure 14 shows clarifier #2.

Issues with clarifier #1 are as follows:

- The internal structure, including weirs, rake arms, and skimmer arms are showing significant signs of rust due to lack of use.
- Concrete surface of the clarifier structure is showing signs of pitting.
- The scum pipe valve is difficult to open and close.
- The skimming arm and scum baffle have been removed.

Clarifier #2 appears to be in good working order.


Figure 13. Secondary Clarifier #1 (currently offline).


Figure 14. Secondary Clarifier #2.

3.3.8 Sludge Pump Station

The sludge pump station has been in service since before the 1965 upgrade. Sludge from the trickling filter and secondary clarifiers is pumped from each respective unit through the sludge pump station to the primary clarifier. Sludge from the primary clarifier is pumped through this station to the digester. Sludge from the digester is then pumped to the sludge drying beds.

There is only one pump in the sludge pump station which does all the pumping in the various directions described above. The operation is manual and requires valves to be opened/closed to allow for the sludge to be moved in the proper direction. The piping is old, and the pump, while operational, appears to be well beyond its useful life. See photos in Figure 15.

Figure 15. Sludge pump station and piping gallery.

3.3.9 Digester

The anaerobic digester is in a significant state of disrepair and is not functioning as originally designed. It predates the 1965 upgrade, but upgrades performed in 1965 include a new sludge mixer and redwood roof. Figure 16 shows the current conditions of the digester.

Figure 16. Digester.

The digester is no longer functioning in an anaerobic state due to significant openings from missing plywood panels on the upper sides and roof. The shaft and blade of the mixer have broken away and fallen onto the digester floor. The supports for the mixer have failed, causing the mixer motor to drop a few inches. Operations staff has installed 4-inch by 4-inch wood boards to provide support to the mixer motor to ensure it does not fall into the digester. Operator access to the roof is dangerous due to the missing or loose plywood panels.

3.3.10 Sludge Drying Beds

The sludge drying beds were constructed in 2006, replacing ones that were constructed in 1978. There are two separate beds located adjacent to each other. Each bed is concrete lined with a sloped bottom. Four-inch-wide slot drains run longitudinally to allow water to drain from the sludge. The slot drains contain a three-inch-diameter perforated pipe covered by 3/8-inch pea gravel to prevent solids from draining. Figure 17 shows the existing sludge drying beds.

The sludge drying beds appear to be prone to plugging in the slot drain gravel, causing slow drainage. At times, this has required storing sludge in secondary clarifier #1 due to lack of capacity. The gravel in the slot drains was recently replaced in at least one of the beds and has improved the drainage ability. The design of the slot drain appears to cause frequent plugging requiring more frequent gravel replacement.

The drain water pump station dates from 2006 and appears to be functioning properly. This pump station pumps drain water from the drying beds to the primary clarifier.

Figure 17. Sludge drying beds.

3.3.11 Disinfection

Since the effluent is currently discharged to the Pit River, the disinfection process includes chlorination and dechlorination. Chlorination is performed using chlorine gas, and dechlorination is performed using sulfur dioxide gas. In 2006, the chlorine contact chamber was expanded to include a second flow path for effluent which provides more capacity during wet weather flows and helps maintain proper contact time. The system is functioning properly. However, the cost to obtain gaseous chlorine and sulfur dioxide has increased significantly in recent years due to changes in the supplier and the hazardous nature of both transporting and storing the gas. Figure 18 shows the chlorination building. Figure 19 shows the chlorine contact chamber.


Figure 18. Disinfection building

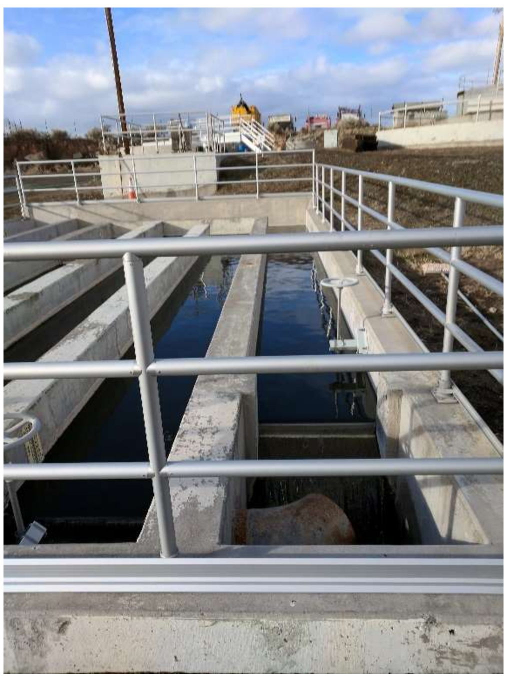


Figure 19. Chlorine contact chamber. Chlorine injection occurs in the upper structure in the background and dechlorination (sulfur dioxide injection) occurs at the chamber outfall in the foreground.

3.3.12 Outfall

The outfall consists of two pipes that discharge to the Pit River. Under most flow conditions in the Pit River, the WWTP effluent is discharged by gravity directly to the Pit River. When water levels in the Pit River are very high, the effluent is directed to a pump station is pumped to a higher elevation discharge pipe. The effluent pump station is used very infrequently.

3.3.13 Backup Power System

A diesel generator installed in 1978 provide backup power to the WWTP in the event of a power outage. Operations staff has indicated that it is old and not currently tested and is, therefore, not reliable. The structure housing the generator appears to be in good condition.

3.3.14 SCADA System

The WWTP currently operates manually with no Supervisory Control and Data Acquisition (SCADA) system. There are alarms which alert the operator by phone in case of pump failures.

3.3.15 Plant Classification

The Alturas WWTP is currently classified as a Class II facility, requiring a Grade II operator. As discussed later in this report, the difficulty of finding licensed wastewater treatment operators with Grade III or higher factors significantly into the treatment methods being investigated.

3.4 Financial Status of Existing Facilities

The 2006 WWTP upgrade, which included the trickling filter and secondary clarifier, was funded through a loan from the Clean Water State Revolving Loan Fund (SRF). The current principal balance is approximately $800,000, and annual payments are $95,844. The SRF loan requires that the funded components be operated and maintained for 20 years. Under the current repayment schedule, the loan will be paid off in 2029.

3.5 Water/Energy/Waste Audits

No energy or waste audits have been performed at the WWTP. A Sanitary Sewer Evaluation Study (SSES) was recently performed as part of the grant funding for this PER. The results of the SSES showed that there is significant infiltration and inflow (I/I) into the system due to high groundwater and age of infrastructure. However, it was determined that it would be more cost effective to address the I/I flows at the WWTP rather than construct I/I reduction projects in the collection system. The SSES results along with an augmented analysis are summarized in Appendix 1.

4.0 Need for Project

4.1 Health, Sanitation, and Security

The main need for the project is to eliminate the effluent water quality violations that the City has experienced over the last several years. The CVRWQCB has indicated that the Pit River is a sensitive water and would prefer to see the City use land disposal for the effluent. Due to the frequency of violations of the current effluent limits, the CVRWQCB is concerned with the City's ability to meet the current and future effluent limits if they continue to discharge to the Pit River. Future regulated constituents include arsenic, Bis (2-ethylhexyl) phthalate, and ammonia.

4.2 Aging Infrastructure

The secondary need for this project is due to aging infrastructure at the WWTP. As described in Section 3, a number of the unit processes are very old and not functioning properly. There is a need to rehabilitate or replace many of the processes. Operator safety issues are also of concern as discussed on Section 3.

4.3 Reasonable Growth

The City of Alturas has had a relatively stable population that has been slowly declining over the last couple of decades. Since there is not significant change in population expected within the planning horizon of this report, growth is not a factor.

5.0 Alternatives Considered

5.1 Initial Alternatives Development

The overall approach was to develop up to three main alternatives that meet the goals stated in Section 4. The main alternatives considered centered around continuing to discharge to the Pit River or utilize land disposal through a combination of evaporation, percolation, and irrigation for the treated effluent. Initially, the preferred direction by the City was to maintain the WWTP and its current secondary level of treatment for all alternatives; however, the WWTP could not be upgraded above its current classification in order to keep the same operator grade level. Later in the process, with staff changes at the City, an additional alternative of decommissioning the existing WWTP and building a simplified WWTP offsite was also suggested. A do nothing alternative was not considered because such alternative would not bring the City into compliance with the current WDR/NPDES permit.

Other alternatives that are typically reviewed include the following:

- Optimize current WWTP operations
  - This was not pursued since some of the treatment process units, e.g. the digester, are in such poor condition that only operational changes would not be sufficient.
- Interconnect with other existing systems
  - There are no other nearby systems.
- Build new centralized facilities for regional/joint management
  - There are no other nearby systems.
- Develop centrally managed decentralized systems, including small cluster or individual systems.
  - Since Alturas is a small community, a decentralized system was not considered given that the topography and infrastructure layout lend itself well to a single WWTP location and there is no advantage to a decentralized system.

After much discussion and research, three main alternatives were developed for further analysis:

- Alternative 1: Upgrade WWTP with Pit River discharge
- Alternative 2: Upgrade WWTP with land discharge
- Alternative 3: New WWTP with land discharge

The specific details of each alternative, along with analysis of subalternatives, are described in the following sections. The next section discusses the general design criteria which apply to all the alternatives and provided a specific framework for cost basis.

5.2 General Design Criteria and Constraints

Various design criteria are applicable to multiple or all alternatives and are discussed in this section. Design criteria that are specific to individual alternatives are discussed in the respective sections.

The existing WWTP is designed for an average dry weather flow of 0.5 million gallons per day (MGD) and a peak flow of 0.8 MGD. Based on influent flow data from 2008-2017, current average dry weather flow is approximately 0.33 MGD, and recent daily peak flows have been as high as 0.91 MGD. Instantaneous peaks have been up to 1.2 MGD. For this study, the alternatives were designed around 0.5 MGD for design dry weather flow and 1.0 MGD for peak day flow.
Based on the current permit and discussions with CVRWQCB regulators regarding likely future regulations under each alternative, the following treatment levels for BOD and TSS were used as a basis for design:

- BOD: 10 milligrams per liter (mg/L) for Alternative 1, 30 mg/L for Alternatives 2 and 3.
    - Under the current permit, BOD of 30 mg/L is allowed when the dilution ratio in the Pit River is greater than 20:1.
- TSS: 10 mg/L for Alternative 1, 30 mg/L for Alternatives 2 and 3.
    - Under the current permit, TSS of 30 mg/L is allowed when the dilution ratio in the Pit River is greater than 20:1.

Nitrogen, in any form, was not regulated in the 2014 permit. The recently issued permit includes effluent limits for ammonia and nitrite+nitrate but are not included in the interim limits. However, these nitrogen limits have been taken into consideration in the direct discharge scenario (Alternative 1). It is assumed that nitrogen species will not be included in WDRs for land disposal (Alternative 2 and 3) but will be monitored through groundwater monitoring, which could lead to future nitrogen limits if elevated levels are found in the groundwater monitoring wells.

For Alternative 1, limits on zinc, copper, aluminum, and toxicity must be considered. Effluent limits for arsenic and bis (2-ethylhexyl) phthalate are included in the recently issued permit but are not included in the interim limits.

Redundancy and emergency bypass ability are generally required under USEPA guidelines for WWTPs. As such, redundant units and/or bypass piping/channels are incorporated in the design.

One of the key constraints affecting the design is that the existing WWTP must remain in operation at all times during construction of the new facilities. Another major constraint is the proximity of the WWTP to the Alturas airport. Current FAA regulations (AC 150/5200-33A) generally prohibit open water bodies within a 5,000-foot radius from the nearest operation area (that is, edge of runway) for an airport serving piston-powered aircraft due to concerns with bird strikes. Open water attracts various bird species, and the presence of these birds can increase collisions between aircraft and birds. The 5,000-foot buffer is shown on the figures for Alternatives 2 and 3 with respect to proposed pond locations.

5.3 Sub-Alternatives Analysis

5.3.1 General

Analysis of various options within each alternative was needed in order to provide definition to each alternative. For example, "upgrade WWTP sludge digestion" is inadequate, for there is more than one option for doing so. The following sections discuss the evaluation that was done for each of the major process items. Some of the options are applicable to one, two, or all three of the major alternatives as discussed in each section.

Many of the various components of the existing WWTP are well beyond their useful life. While some of them could be rehabilitated with minor costs, it is our opinion that this simply delays needed upgrades. Therefore, the approach was to recommend full replacement when it would be in the best long-term interests of the City for the respective alternatives.

5.3.2 Headworks and Primary Treatment

5.3.2.1 Alternatives 1 and 2

The existing headworks and primary treatment consist of bar screen, grit chamber, grinder, and primary clarification. The following options were considered:

- Upgrade or replace the various unit processes as needed (grit chamber, primary clarifier); and
- Replace grit chamber and primary clarification with screening.

Upgrade of the grit removal would entail either replacing the internal mechanisms or replacing the entire unit with a new package grit removal system. The primary clarifier currently has no redundancy, so a replacement would entail construction of two new clarifiers. Another option is to construct a new primary clarifier and rehabilitate the existing one. Rehabilitation of the existing primary clarifier would consist of replacement of the internal mechanism.

Replacing the grit chamber and primary clarification with a single screening unit process could be done either by (1) installing the screening unit within the existing grit chamber along the influent channel downstream of the bar screen, or (2) installing a new unit on the existing bypass line located along the south side of the grit chamber. There are several types of screening mechanisms on the market. After some research and discussion with vendors, a screw screening unit, such as the Parkson Helisieve (www.parkson.com) or the Franklin Miller Spiralift (www.franklinmiller.com), was determined to be the most appropriate type of screen (see Figure 20 for a typical screw screen). Only coarse (6 mm, or ¼ inch) screening would be needed for effective grit and solids removal based on the downstream process of trickling filtration. The existing grinder would be decommissioned.

Figure 20. Typical helical screw screen.

The main advantage of replacing the grit and primary clarifier with a screw screen would be to reduce the inorganic solids loading (namely from plastics) to the digester and the sludge drying beds. According to operations staff, the presence of significant levels of plastics in the digester has caused upsets in the process. This process will increase the solids generation and handling needs at the front end of the WWTP.

After review of the options with respect to preliminary costs, constructability issues, and future operations and maintenance (O&M) costs, it was determined that replacing the existing headworks and primary treatment with a single screw screen with 6 mm opening size with a capacity of up to 1.0 MGD would be the best overall solution. For this study, it was assumed that the new screen would be placed on the bypass line in a new concrete chamber. The influent channel would have an emergency bypass. The screw screen includes an integral dewatering system conveys the dewatered solids to a hopper, which could be a dumpster.

5.3.2.2 Alternative 3

Under Alternative 3, the existing WWTP is decommissioned and all wastewater is conveyed to a new aeration pond treatment facility offsite. This will require a pump station located at the WWTP along the existing entrance road. Two options were considered: (1) Provide coarse screening to remove grit and solids prior to pumping or (2) pump all raw influent sewage to the new WWTP.

The first option, providing coarse screening prior to pumping, was determined to be the best option. Removal of grit and solids prior to pumping will reduce solids buildup in the forcemain and in the aeration ponds. The coarse screen system would be the same as for Alternatives 1 and 2 but placed in a different location as described under the Alternative 3 description.

5.3.3 Influent Pump Station

As discussed in Section 3, the current influent pump station (IPS) is generally in good shape other than the pumps and the forcemain to the primary clarifier. The needed upgrades include replacing all three pumps and the forcemain, redirecting the pumped flow to the new trickling filters. The pumps would have the same as the current flows, i.e. one pump at 350 gpm and two pumps at 750 gpm. All three pumps would include VFDs. This option is applicable only to Alternatives 1 and 2. Alternative 3 would require a package influent pump station as described later.

5.3.4 Trickling Filter

The main considerations with the existing trickling filter are twofold: (1) the media does not appear to provide the level of treatment originally anticipated and (2) due to the configuration with the bubbler sprayers, the surface area of the filter is not fully utilized. Further, one of the side walls is not in good condition and needs to be repaired.

Several options were evaluated, including the following:

- Replace the media with gravel as used previously;
- Replace the media with another engineered plastic media;
- Replace the emitters with a spray system that provides better flow distribution over the media;
- Repair the existing outer wall that is leaning slightly;
- Replace the existing trickling filter with new, more traditionally round shaped units;
- Replace the trickling filter with another treatment process, such as aerated ponds, activated sludge or membrane bioreactors.

Various factors were applied during evaluation of these alternatives, including operational issues, winter weather effects, redundancy, future regulations, and treatment efficiency. While rehabilitating the existing trickling filter is feasible, it was not favored based on the history of the existing unit and industry norms. Replacing the trickling filter with new round units is preferable because the round units will have the following advantages:

- No need for operator access to repair fixed emitters.
- Improved treatment efficiency from more efficient flow distribution.
- Improved nitrification.
- Improved redundancy.

Replacing the trickling filter with aeration ponds, which does not require a change in operator grade level, became Alternative 3. The aeration ponds needed to be moved offsite due to the proximity to the Alturas airport. Upgrading the trickling filter with another process such as activated sludge or membrane bioreactors would change the classification of the WWTP to a Class III Facility, thereby requiring a Grade III operator. This was not a preferred option for the City, since finding a Grade III operator is very uncertain as discussed earlier.

For Alternatives 1 and 2, we are recommending two parallel trickling filter treatment trains, each with two trickling filters. Each has a capacity of 0.5 MGD. Each filter is 30 feet in diameter and looks similar to what is shown in Figure 21. The media would be cross flow rigid media that can support a worker. The first filter of each train is for BOD removal, and the second is for nitrification. The new trickling filters would be placed just northwest of the existing digester (see Alternative 1) in order to allow the existing trickling filter to remain in operation during construction.

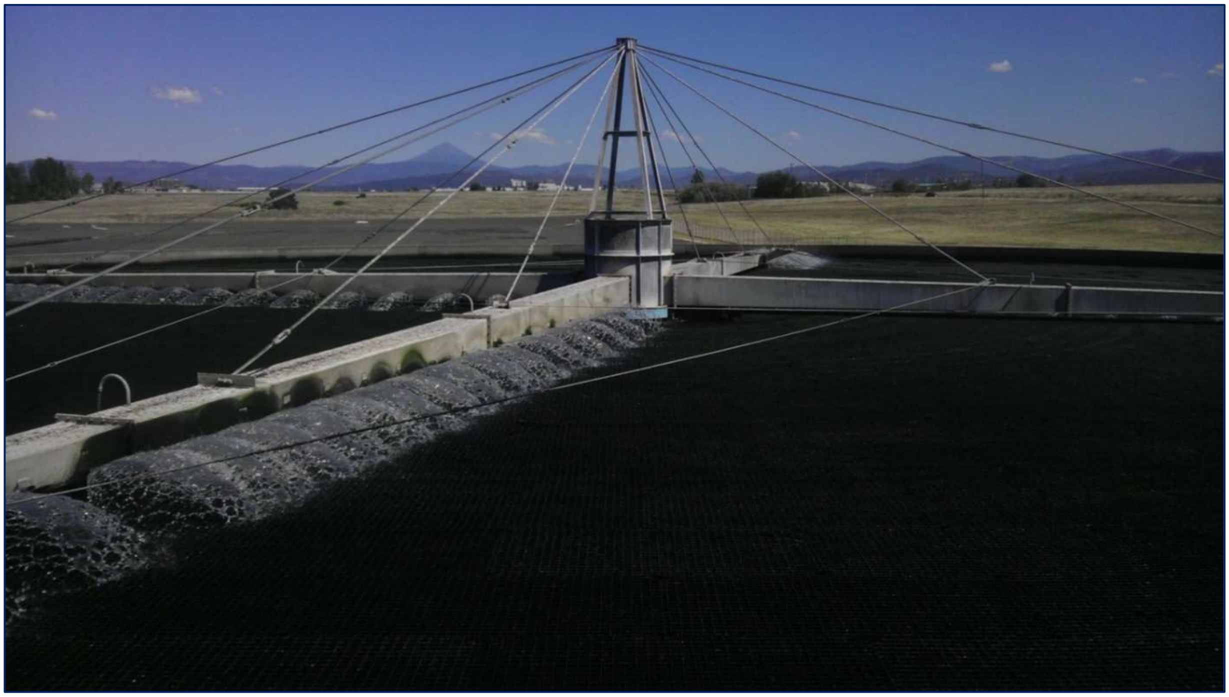


Figure 21. Typical trickling filter showing media as is recommended for Alturas.

5.3.5 Secondary Clarifier

Since clarifier #1 is not currently being used for clarification but for sludge storage, there is no redundancy. Two options were considered: (1) rehabilitate the clarifier #1 and (2) construct a new redundant clarifier. With the existing concrete tank and associated piping being in good condition, it was determined that replacement of the internal clarifier mechanisms was preferred. The internal mechanisms include the overflow weirs, rake arm, skimming arm, catwalk, motor and drives. The sludge pump is also assumed to require replacement. This is applicable to Alternatives 1 and 2.

5.3.6 Digester

Three options were considered for sludge digestion:

- Rehabilitate the existing anaerobic digester;
- Replace the digester with new anaerobic digesters;
- Replace the digester with new aerobic digesters.

Rehabilitation of the existing digester would include replacing the cover and upper side walls, replacing the mixer, and installing a gas flare. Anaerobic digestion produces methane gas, which must either be flared off or otherwise contained. On method of methane use at WWTPs is to burn it as a fuel source for power generation. However, the quantities produced at the Alturas WWTP are too low to make beneficial use economical. Therefore, a gas flare with an associated air quality permit is needed. Rehabilitating the existing digester does not add redundancy without adding a second unit. Based on a cursory review of potential costs, it was determined that full replacement was a preferred option.

Sludge digestion can be performed either aerobically or anaerobically. There are advantages and disadvantages from an operational perspective for each method. The key deciding factor is that anaerobic digestion produces methane gas that must be flared off, requiring an air quality permit. It was therefore determined that replacement with two new aerobic digesters (for redundancy) was the selected option to use for Alternatives 1 and 2.

5.3.7 Disinfection

Alternative 1 is the only alternative where effluent disinfection is needed. The CVRWQCB confirmed that disinfection is not required for land disposal that utilizes evaporation and percolation as the effluent disposal method. Current and future permit requirements (for direct discharge to the Pit River) would include a limit on total residual chlorine, which necessitates dechlorination if chlorine is used as the disinfectant.

Currently, the City uses gaseous chlorine and sulfur dioxide for disinfection and dechlorination, respectively. As discussed in Section 3, cost and availability for remote deliveries of small quantities has become an issue. Other disinfection alternatives that were evaluated include the following:

- Liquid sodium hypochlorite (disinfection) and sodium bisulfite (dechlorination)
- Ultraviolet disinfection
- Onsite generation
- Ozone generation

Liquid sodium hypochlorite is commonly used as a disinfectant in order to avoid the regulatory safety requirements around chlorine gas. Sodium hypochlorite comes in a 12.5% solution, which does degrade with time, thus requiring deliveries at least quarterly. Sodium bisulfite for dechlorination also comes in a liquid solution.

Ultraviolet (UV) disinfection is also a popular disinfection method. It does require a fair amount of electrical energy, but no dechlorination is needed since UV does not introduce chlorine, which is harmful to aquatic life. UV units have historically been prone to fouling, requiring a fair amount of maintenance. One company, Enaqua, has introduced a non-contact UV unit, which reduces maintenance costs (www.enaqua.grundfos.com).

Onsite generation is a method of applying electricity to a solution of salt and water to produce sodium hypochlorite. This is one of the safest disinfection methods, as inert salt is stored on site. However, dechorination is still required, which would entail using liquid sodium bisulfite.

Ozone is a powerful disinfectant, more powerful than chlorine, but is not a stable substance. This requires onsite generation of ozone, which is an energy intensive operation. No dechlorination is needed for this method.

After a cursory review of these methods, it is recommended that the disinfection system be changed to use liquid sodium hypochlorite and sodium bisulfite for Alternative 1. This is based on ease of operation, safety concerns, and cost. Conversion would entail replacing the chlorine and sodium hydroxide cylinders with liquid sodium hypochlorite and sodium bisulfite in the existing chlorination/dechlorination room and installing new chemical feed pumps. It is assumed the existing feed lines are in good condition. Frost protection of the lines near the injection points must be considered during final design.

It should be noted that for Alternatives 2 and 3, if disinfection were required in the future, the process could easily be added to the proposed configurations. Further, dechlorination is not needed if chlorination is used since the effluent is not being discharged to a water body.

5.3.8 Sludge Drying Beds

Operator feedback on the condition of the sludge drying beds has been mixed. The City has recently replaced the media located in the slot drains in half of the beds, and this improved the ability of the beds to drain more consistently. Replacement of the drying beds with a revised design to improve leachate drainage was considered but ultimate dismissed due to the recent media replacement. While not a superior design, the existing beds appear to be functioning well when properly operated.

5.3.9 Land Discharge

For Alternatives 2 and 3, land discharge of treated effluent is proposed. Land discharge can be in a variety of forms, including evaporation, percolation, irrigation, or a combination of these. Often, winter storage is needed, especially when irrigation is used, since irrigation is not needed during the winter months. A significant amount of land is needed for land discharge. The amount needed depends on various factors including wastewater flow (dry weather and wet weather), climate conditions (precipitation and evaporation), soil conditions (percolation), and crops (if irrigating). In most cases, the public must be prevented from having access to the disposal sites due to public health concerns. Groundwater quality must not be impacted, which typically restricts nitrogen levels. Compliance with this would be done through required groundwater quality monitoring. Also, no overflow from storage ponds or runoff from irrigated areas is allowed, as this would be considered a direct discharge to a water body which is a violation of land discharge permit.

Various factors were considered when evaluating each property. These factors included the following:

- Federal Aviation Administration (FAA) wildlife hazard mitigation regulations;
- Mapped floodplain;
- Proximity to the Pit River
- Depth to groundwater
- Soils
- Irrigation operations

The FAA discourages the creation of new water bodies within 5,000 feet of an airport, specifically 5,000 feet from the edge of runways. The water bodies act as bird attractants and, therefore, could increase hazardous bird strikes with aircraft. However, there are methods that are used to deter birds from coming to the water bodies and that are currently used at other pond locations near airports. These techniques include wires strung across the ponds, visual deterrents, audio deterrents, covers, and floating balls. A discussion of various techniques (except floating balls) is provided in Appendix 2. Wires strung across ponds would require periodic, though infrequent, removal to provide maintenance access to the ponds. The floating balls are plastic balls partially filled with water and are used frequently to provide cover on ponds and open tanks to deter birds. The balls also reduce evaporation by approximately 90%. Mechanical evaporators are another solution that increases evaporation but also has a side benefit of deterring birds due to its noise when operating.

The Federal Emergency Management Agency (FEMA) has mapped the 100-year and 500-year floodplains along the Pit River (see Figure 3). All of the proposed parcels for land discharge are outside, or mostly outside, of the mapped floodplain. No pond structures would be proposed within the 100-year floodplain.

The CVRWQCB expressed concern based on recent litigation that if percolation ponds are placed too close to the Pit River then the risk of hydraulic connectivity with the river increases. Such hydraulic connectivity is difficult to ascertain without groundwater tracer studies. As such, it was determined on a qualitative basis to place any percolation areas as far away as possible from the Pit River.

Depth to groundwater is an important factor when especially percolation is used for disposal. No degradation of the groundwater quality is allowed. The greater the depth to groundwater, the better, since soils can provide additional treatment while water percolates through the soil matrix.

Soils, especially their permeability and infiltration capacities, are important factors in locating percolation and irrigation areas. The greater the infiltration ability of the soil, the smaller the infiltration area and pond volumes are required. Initial review of soils was conducted using the online web soil survey from the National Resources Conservation Service (NRCS), which provide maps of soil types and soil characteristics. Additional in field infiltration tests were performed at the preferred locations (discussed below), which provided data for preliminary sizing of percolation areas.

Irrigation is commonly used as an effluent disposal method. However, this can only be done during the growing season, which requires winter storage, with the exception of a forested irrigation, which is done in some locations year-round. Typically, irrigation is used for a fodder crop, such as grass or alfalfa hay. In general, wastewater utilities that utilize irrigation own the land where irrigation and winter storage take place, but it is possible to have long-term agreements with third parties to take the effluent for irrigation use. An irrigation disposal system often adds operational costs for the management and/or operation of the irrigation system by utility staff. Irrigation is used when recycled water has significant value and when more passive methods, such as evaporation and percolation, are not as feasible.

With these considerations in mind, several parcels were identified as potential land discharge locations. These are shown on Figure 22 and include the following:

- Adjacent Modoc Refuge property
- Mill Site (Duck Ponds)
- Irrigation Field along Highway 299
- Modoc County Landfill
- Manteca property along County Road 54

The Modoc National Wildlife Refuge property located immediately west of the City's WWTP site was initially the preferred alternative for land discharge. Percolation tests were conducted, and it was determined that the site soils have decent permeability, indicating that approximately three to six acres of ponds would be needed to provide the area required for percolation and evaporation. Mechanical evaporators were also considered to increase evaporation.

The depth to groundwater at the Refuge property, especially during the winter months was not known. The distance from the proposed pond locations and the Pit River is under 1,000 ft. Without further studies, including installing monitoring wells and performing groundwater tracer studies, this location left an uncertain potential risk, as indicated by CVRWQCB staff, for hydraulic connectivity with the Pit River.

The Refuge property is within a 5,000-foot radius of the Alturas airport, which is within the FAA wildlife hazard mitigation zone. After informal discussion with the FAA by City staff, it was determined that getting FAA approval for siting the ponds would be very difficult. Modoc Refuge staff indicated that the Federal government, which owns the property, could not sell the land outright but could swap with equivalent land. The City does not own land that would likely be considered equivalent on a monetary basis to this property. A significant portion of this property is located within the 100-year mapped floodplain. For these reasons, it was concluded that pursuing this option was not favorable.

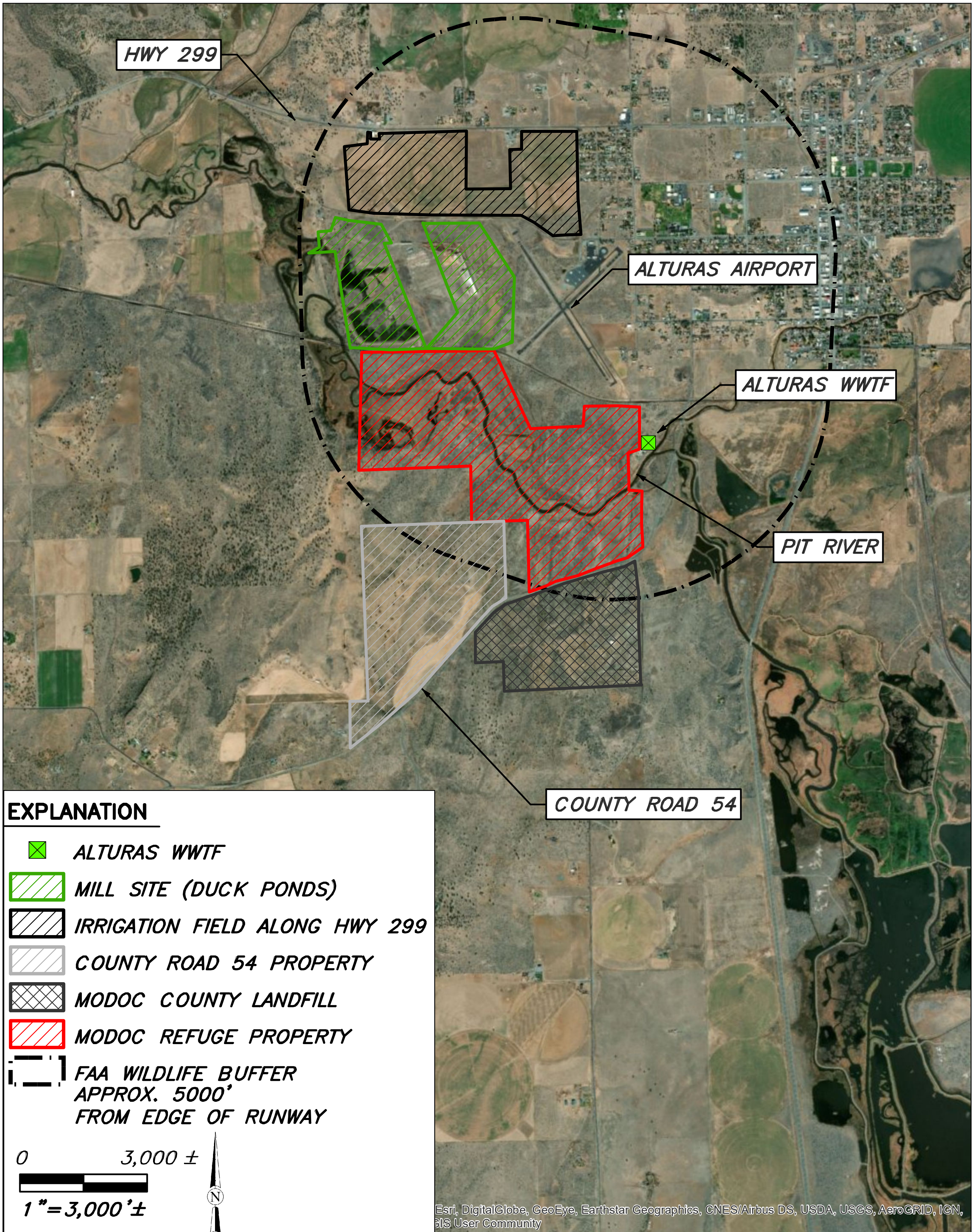
The Mill Site consists of a former mill site where portions of the parcel have been used to create duck hunting ponds which are currently filled with potable groundwater. After review of the site, this was not considered a feasible alternative because of the potential of public contact with the treated effluent would require higher levels of treatment and because the hunting club was not willing to take the effluent without compensation.

The irrigation field along Highway 299 was considered for irrigation disposal. However, winter effluent storage would still be needed, and additional land would be needed since this parcel does not have sufficient area for storage ponds. These ponds would need to be placed close by, which would be within the 5,000-foot wildlife mitigation zone around the airport. Therefore, this parcel was eliminated from further consideration.

According to the NRCS soil survey, well draining soils are found in large areas south of the Pit River along County Road 54. One site, owned by Modoc County, is where the County Landfill is located. Portions of the property are conducive to having percolation ponds, but are in too close proximity to the landfill, which would likely not be acceptable to the CVRWQCB. This site was therefore eliminated from further consideration.

A 278-acre parcel along County Road 54 (Manteca Property, see Figure 22) with well-draining soils was identified. This property is located within two miles of the WWTP. Based on a preliminary review of pumping costs, it was determined that pumping to a land disposal site within five miles of the WWTP was acceptable. Percolation tests were performed (see Appendix 3) which confirmed the ability of this site to provide good percolation opportunity, with a calculated minimum required infiltration area of approximately three acres, with two two-acre ponds being recommended.

The Manteca property is hilly with nestled shallow gulches which are conducive to siting percolation ponds and aeration treatment ponds. The depth to groundwater varies based on the overlying topography, which varies by more than 60 feet between the upper elevations to the lower elevations. At the lower elevations



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City of Alturas Perliminary Engineering Report Alturas, California		Proposed Disposal Sites with FAA Perimeter SHN 518004
February 2020	FIGURE_22	Figure 22

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along County Road 54, groundwater was encountered at a depth of 9.5 feet in Exploratory Pit (1), while no groundwater was encountered up to 11 feet in Exploratory Pit (2). The ground elevation where the percolation ponds would be located is approximately 60 feet higher than the ground elevation around Exploratory Pit (1). The straight distance to the Pit River is approximately 2,300 feet. Based on the results of these initial investigations, the Manteca property was considered to be the most suitable location for effluent disposal and was therefore considered for Alternatives 2 and 3. The City has contacted the owner and an agreement for an option to purchase is currently being negotiated. Monitoring wells, which would be installed during final design in the vicinity of the percolation ponds, would be used to determine depths to groundwater at the location of the percolation ponds.

For Alternatives 2 and 3, two evaporation/percolation ponds will be constructed for disposal of the treated effluent, each designed to infiltration at least 0.5 MGD. Each pond will have a bottom area of two acres with a depth of six feet. Embankment side slopes will be 3H:1V on the inside and 2H:1V on the outside. It is anticipated that soils will be suitable and a balanced cut and fill construction will be feasible to minimize construction costs. Preliminary sizing calculations with respect to infiltration are presented in Appendix 3.

5.3.10 Other options evaluated

Other options that were considered but dismissed as either infeasible, too complicated, or too uncertain include the following:

- Polishing treatment surface wetland;
- Polishing treatment subsurface wetland;
- Equalization ponds
- Effluent disposal into geothermal reinjection wells.

Polishing treatment wetlands, both surface and subsurface, were considered for Alternative 1. They were determined not to be needed for Alternatives 2 and 3, since land discharge has fewer effluent limitations than river discharge. These wetlands provide additional treatment to remove BOD, TSS, metals, and nitrogen. The wetlands are not the ultimate disposal locations, as the effluent pass through them and must be sent to a discharge location at the downstream end. For Alternative 1, the discharge would be to the Pit River, and for Alternatives 2 and 3, the discharge would be percolation basins. It was determined that polishing wetlands would not be needed for Alternatives 2 or 3, since the proposed process would provide sufficient treatment and since land discharge has fewer regulatory requirements than a river discharge.

A surface wetland would have open water, which attracts birds. Since the surface wetland would need to be located near the WWTP, it would be within the FAA wildlife hazard mitigation zone, and would, therefore, be difficult to permit. Research into subsurface wetlands found that, while these can be effective for treatment, available removal data were difficult to find. Without performing pilot tests, which were not part of this study, it would be difficult to predict the specific treatment efficiency with certainty. Further, the ability of subsurface wetlands to treat constituents that are likely to be regulated in the future was unknown due to lack of data. Subsurface wetlands are also prone to plugging, which increases maintenance costs. Thus, treatment wetlands were not pursued further.

Equalization ponds were considered as an option to reduce flow spikes in the treatment train during high winter flows after a significant storm or snowmelt event. When flows are equalized, a relatively constant treatment flow can be maintained which can reduce the size of various unit processes. Based on flow data from 2017, which has exceptionally high wet weather flows during the first half of the year, it was determined that equalization volumes of approximately 500,000 gallons would be needed. This would require large tanks or ponds, which would be a new open water source within the FAA wildlife mitigation zone. It was, therefore, determined that equalization ponds were not an economical option for peak flow reduction.

Another option considered was the disposal of treated effluent into an unused geothermal well. This has been used effectively in other locations. After discussion with City staff, it was determined that no geothermal wells for this use were available, as there are very few geothermal wells in Alturas and the surrounding area.

5.4 Alternative 1: Rehabilitate WWTP with River Discharge

5.4.1 Description

Alternative 1 consists of improvements to the existing WWTP and continued discharge to the Pit River. Based on an evaluation of the existing treatment processes (see Section 3) and the sub-alternative analyses discussed in Section 5.3, the improvements consist of the items listed in Table 2. A plan view showing the configuration of the upgraded facility is shown in Figure 23. A process flow diagram is shown in Figure 24.

In general, decommissioning of the unit processes is assumed to consist of removing internal moving mechanisms but keeping the existing concrete structures in place. The only exceptions are the trickling filter, which needs to be removed to make room for the new digesters, and the existing digester, which has a failing superstructure that needs to be removed and no exterior railing to prevent someone from falling into the below grade structure.

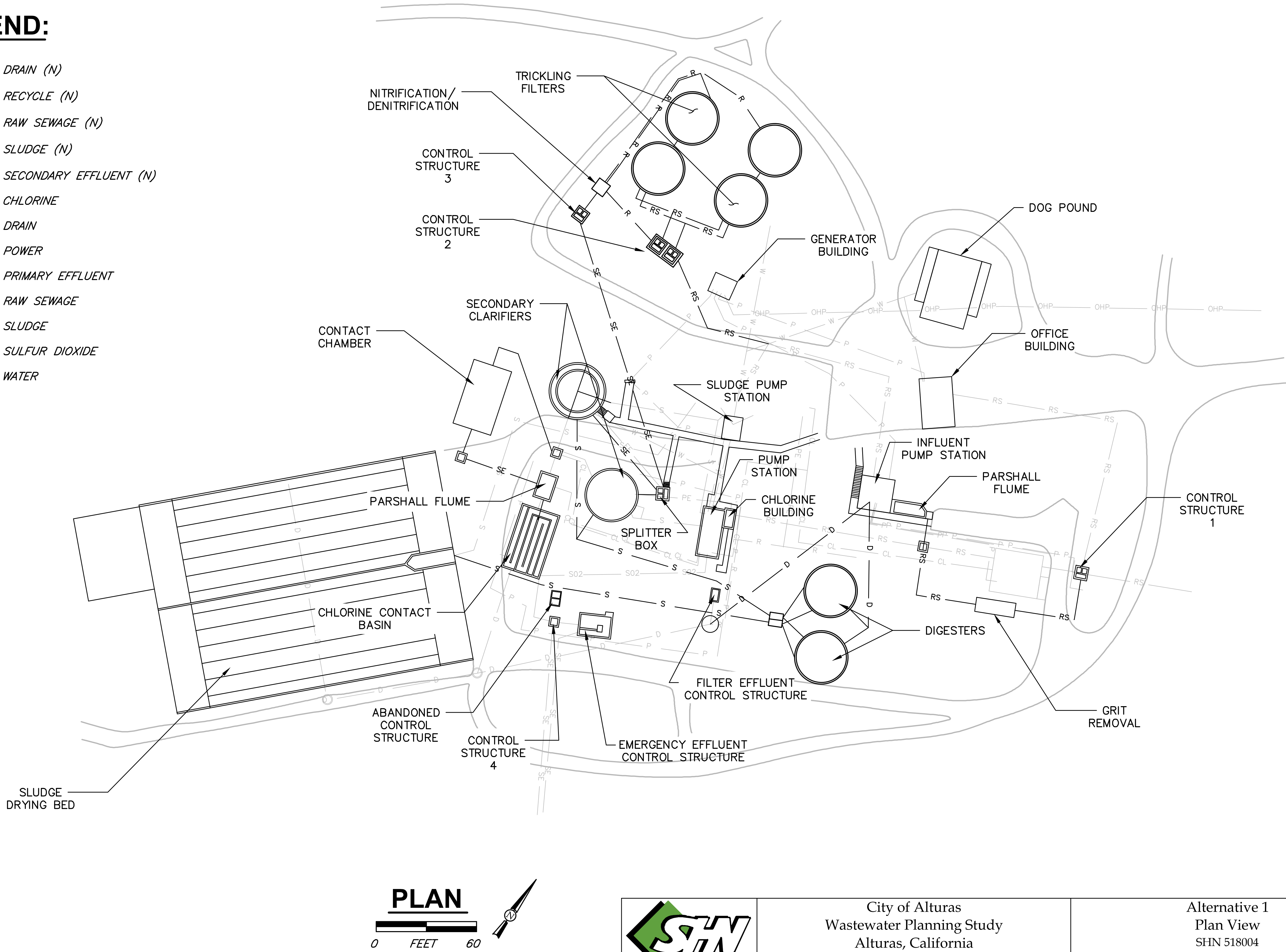
The new screw press screen, as discussed earlier, will consist of a screening unit such as the Franklin Miller Spiralift with integrated weather protection (-40 degrees Fahrenheit), integral screen washing, and dewatering unit. A below grade concrete structure will be constructed over the existing bypass line with an open concrete channel in which the screen is placed. The washed screenings will be conveyed to grade level where they will be dewatered and placed in a dumpster, which will be emptied on a weekly basis. A bypass channel will be incorporated to allow for the screen to be taken offline if needed.

The new trickling filters will be round concrete structures partly below grade using structured sheet, plastic crossflow media (by e.g. Brentwood). As discussed earlier, the trickling filters will consist of two parallel treatment trains of two units each, for a total of four 30-foot-diameter trickling filters.

Secondary Clarifier #1 will get new internal parts including rake arms, skimmers, weir plates, and motor due to the deterioration that has occurred from lack of use. The new weir plates would be of fiberglass material, rather than steel, to prevent future rusting.

LEGEND:

D	DRAIN (N)
R	RECYCLE (N)
RS	RAW SEWAGE (N)
S	SLUDGE (N)
SE	SECONDARY EFFLUENT (N)
CL	CHLORINE
D	DRAIN
P	POWER
PE	PRIMARY EFFLUENT
RS	RAW SEWAGE
S	SLUDGE
S02	SULFUR DIOXIDE
W	WATER



City of Alturas Wastewater Planning Study Alturas, California	Alternative 1 Plan View SHN 518004	
December 2019	518004-ALTURAS-WW	Figure 23

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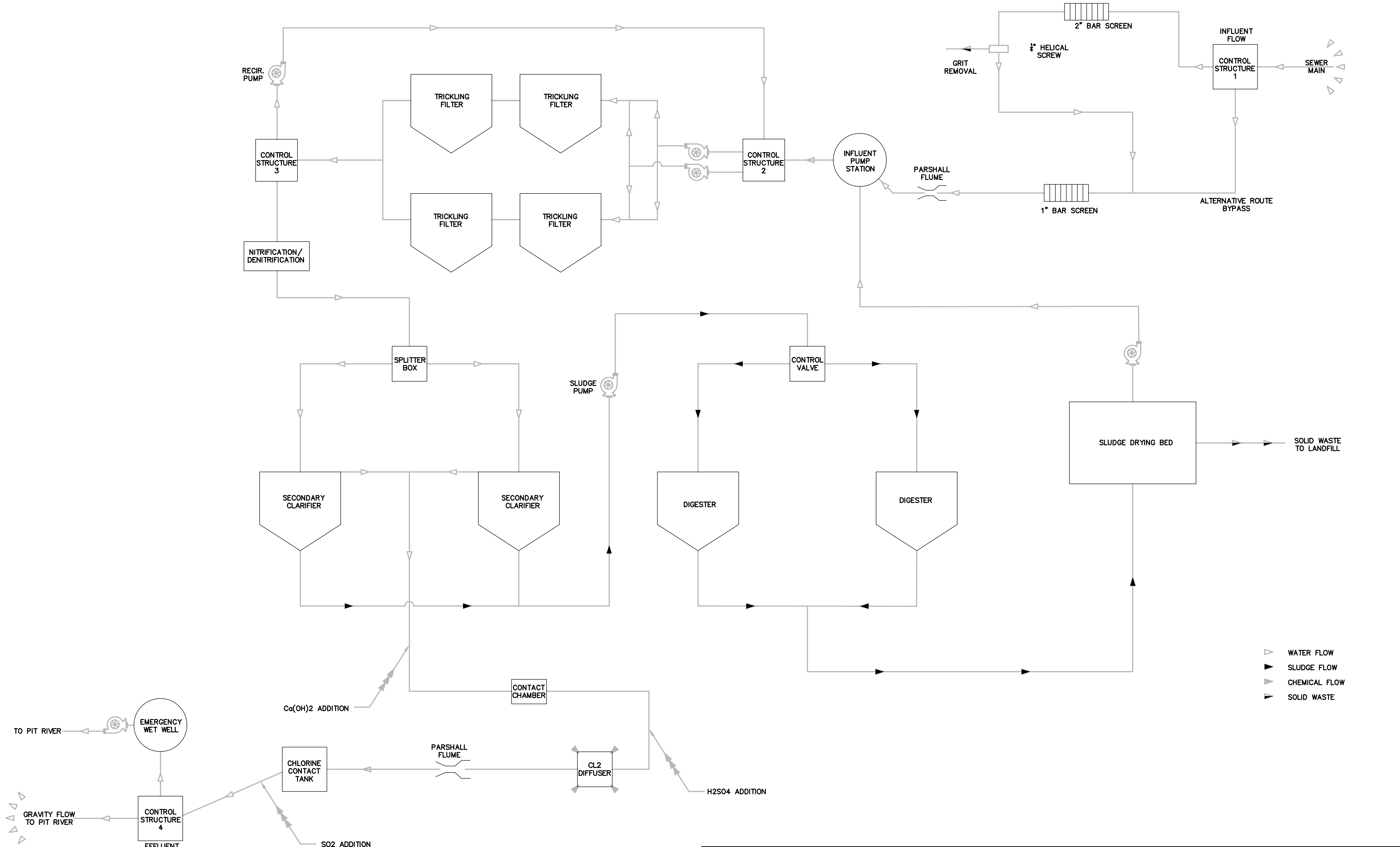

City of Alturas Wastewater Planning Study Alturas, California		Proposed Flow Diagram Alternative 1 SHN 518004
December 2019	518004-ALTURAS-WW	Figure 24

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Table 2. Alternative 1 Component Description
City of Alturas Wastewater Planning Study

Item	Additional Description
Decommission the grit chamber, grinder, and primary clarifier; replace with new screw press screening	The existing structures will remain while all mechanical equipment is removed. The new screen will be placed on the existing bypass line.
Improve influent pump station	Replace existing pumps with new pumps with VFDs[1]; replace PVC[2] force main piping and redirect to the new trickling filter location; and install new crane hoist for pump removal.
Decommission existing trickling filter and replace with new round trickling filters	New filters to be located in different location to allow the existing filter to remain in service. New filters will be 30-foot diameter round units, two parallel treatment trains for redundancy and high flows, each train with two filters in series. Includes flow control box and recirculating pumps.
Install new nitrification/denitrification process	Assume packaged engineered unit process.
Rehabilitate Secondary Clarifier #1	Replace all internal moving mechanisms and weir plate.
Install new metals removal process	Use chemical precipitation process with pH adjustment.
Replace disinfection system	Switch from gaseous to liquid chlorination and dechlorination
Replace anaerobic digester with aerobic digester	Two units for redundancy are recommended. Placed at the location of the former trickling filters.
Replace associated yard piping and site electrical as needed to connect the relocated treatment processes	

1. VFD: Variable Frequency Drive
2. PVC: Polyvinyl Chloride

A new nitrification/denitrification process would be added to remove nitrogen to meet proposed ammonia and nitrite+nitrate limits. Ammonia conversion to nitrate will take place partly in the trickling filter process, with the remainder as well as the denitrification process will take place in a separate engineered nitrification/denitrification process such as the NitrOx+D process by Triplepoint Environmental.

For Alternative 1, limits on zinc, copper, aluminum, and toxicity must be considered. The following paragraphs describe the specific approaches to each of these.

Zinc and copper removal can be accomplished in a number of ways, including chemical precipitation or ion exchange. For this alternative, a chemical precipitation process is assumed since it is commonly used in industrial wastewater processes. Hydrated lime will be added to the secondary effluent coming from the secondary clarifier in order to bring the pH up to above 10.3. Zinc and copper will precipitate out as the effluent flows through a contact clarifier. The pH will be lowered using sulfuric acid prior to disinfection. Sludge will be sent to the sludge drying beds.

Aluminum, which is found in the polymer currently used to assist the existing trickling filter process, is assumed to be removed from the wastewater since the improved trickling filters will not require the coagulant.

Toxicity is not a particular constituent but can result from a number of causes, including chlorine, ammonia, non-polar organics, metals, other treatment chemical additives, surfactants, and total dissolved solids. It is anticipated that many of these potential causes will be reduced or eliminated as a result of the improved treatment process. If toxicity is persistent, additional study would be required.
The disinfection system would consist of two chemical feed pumps, one for chlorination and one for dechlorination. Full redundancy is not needed, since extra chemical feed pumps can be kept on hand for replacement in the event of a pump failure.

The new aerobic digesters will consist of two units for redundancy and will be located where the trickling filter is currently. A unit such as manufactured by WesTech is recommended.

The CVRWQCB has indicated that future effluent limits for arsenic, bis (2-ethylhexyl) phthalate would be included in future NPDES permits, which are included in the 2020 permit to start in 2030. The CVRWQCB and SWRCB-DFA requested that general approaches to addressing these limits be discussed as part of the PER.

Removal of bis (2-ethylhexyl) phthalate in municipal wastewaters has been researched recently, and studies have indicated that this phthalate can be removed by sorption to primary and secondary sludges. Additional removal may occur during the denitrification process. It would be anticipated that the recommended unit processes would provide sufficient treatment for this phthalate.

5.4.2 Design Criteria

General design criteria were described in Section 5.2. Specific design criteria for individual components are discussed below.

The pumps for the influent pump station will match the existing, i.e. one at 350 gpm and two at 750 gpm. The head requirements will be determined during final design since the pumped flow would be directed to the new trickling filters.

5.4.3 Environmental Impacts

This alternative would disturb previously disturbed areas within and around the footprint of the existing WWTP.. Additional discussion of environmental impacts are discussed in the CEQA documentation.

5.4.4 Land Requirements

No new land is required for Alternative 1.

5.4.5 Potential Construction Problems

Potential construction problems include rock excavation for buried yard piping and site electrical and construction sequencing that does not allow for continued use of the existing WWTP during construction.

5.4.6 Sustainability Considerations

This section discusses any design consideration with respect to water conservation, water reuse, energy efficient design, operational simplicity, appropriate technology, and other considerations.

Since this alternative is an upgrade of the existing system with continued discharge to the river, there were no significant sustainability considerations that affected the design, other than the recommendation that variable frequency drives be added to the influent pump station pumps. Solar panels could be installed in the future on unused portions of this property to offset electrical costs.

5.4.7 Costs

Capital costs for Alternative 1 are shown in Table 3. Anticipated operational costs are presented in Table 4. Additional detail is provided in Appendix 4. It should be noted that the operational costs listed below exclude the current SRF Loan repayment of $95,844 annually through 2028 since this cost is the same for all alternatives.

Table 3. Alternative 1 Opinion of Probable Project Costs[1,2,3]
City of Alturas Wastewater Planning Study

Item	Description	Item Cost
1	Decommission/Demolition	$25,000
2	Demolish existing trickling filter	$41,000
3	Helical Screw Screen	$309,000
4	Trickling Filters (4)	$1,744,000
5	Nitrification/Denitrification	$900,000
6	Aerobic Digesters (2)	$772,000
7	Metals Removal	$1,500,000
8	Influent Pump Station Improvements (pumps, VFD, force main)	$200,000
9	Convert disinfection system	$50,000
10	Refurbish Secondary Clarifier #1	$300,000
11	Replace Generator	$57,000
	Mobilization (12%)	$708,000
	Subtotal:	$6,606,000
	Contingency (30%)	$1,982,000
	Subtotal Construction:	**$8,588,000**
	Engineering/Construction Management (18%)	$1,546,000
	Environmental/Permitting (5%)	$430,000
	Administration/Legal (4%)	$344,000
	Total Project:	**$12,890,000**

1. See Appendix 4 for additional detail
2. Costs do not include upgrades to meet proposed effluent limits as described in the text.
3. Items not explicitly listed are incorporated with the listed items.

Table 4. Alternative 1 Opinion of Annual Operational Costs[1,2]
City of Alturas Wastewater Planning Study

Description	Item Cost
Labor	$85,000
Chemicals	$95,000
Testing/Reporting	$35,000
Sludge/solids Hauling	$2,000
Electrical Costs	$28,500
Permitting	$5,000
Annual O&M	**$250,500**

1. See Appendix 4 for additional detail
2. Some minor operational costs have not been included because they are assumed to be relatively equal for all alternatives. Detailed operational costs will be shown in a Rate Study being performed as part of this study.

5.5 Alternative 2: Rehabilitate WWTP with Land Discharge

5.5.1 Description

Alternative 2 consists of improvements to the existing WWTP (same as Alternative 1) but with land discharge. Based on an evaluation of the existing treatment processes (see Section 3) and the sub-alternative analyses discussed in Section 5.3, the improvements consist of the items listed in Table 5. A plan view showing the configuration of the upgraded facility is shown in Figure 25. Figure 26 shows the effluent force main alignment and disposal pond locations. A process flow diagram is shown in Figure 27.

The discussion under Alternative 1 provides additional detail regarding the new unit processes common between both Alternatives 1 and 2.

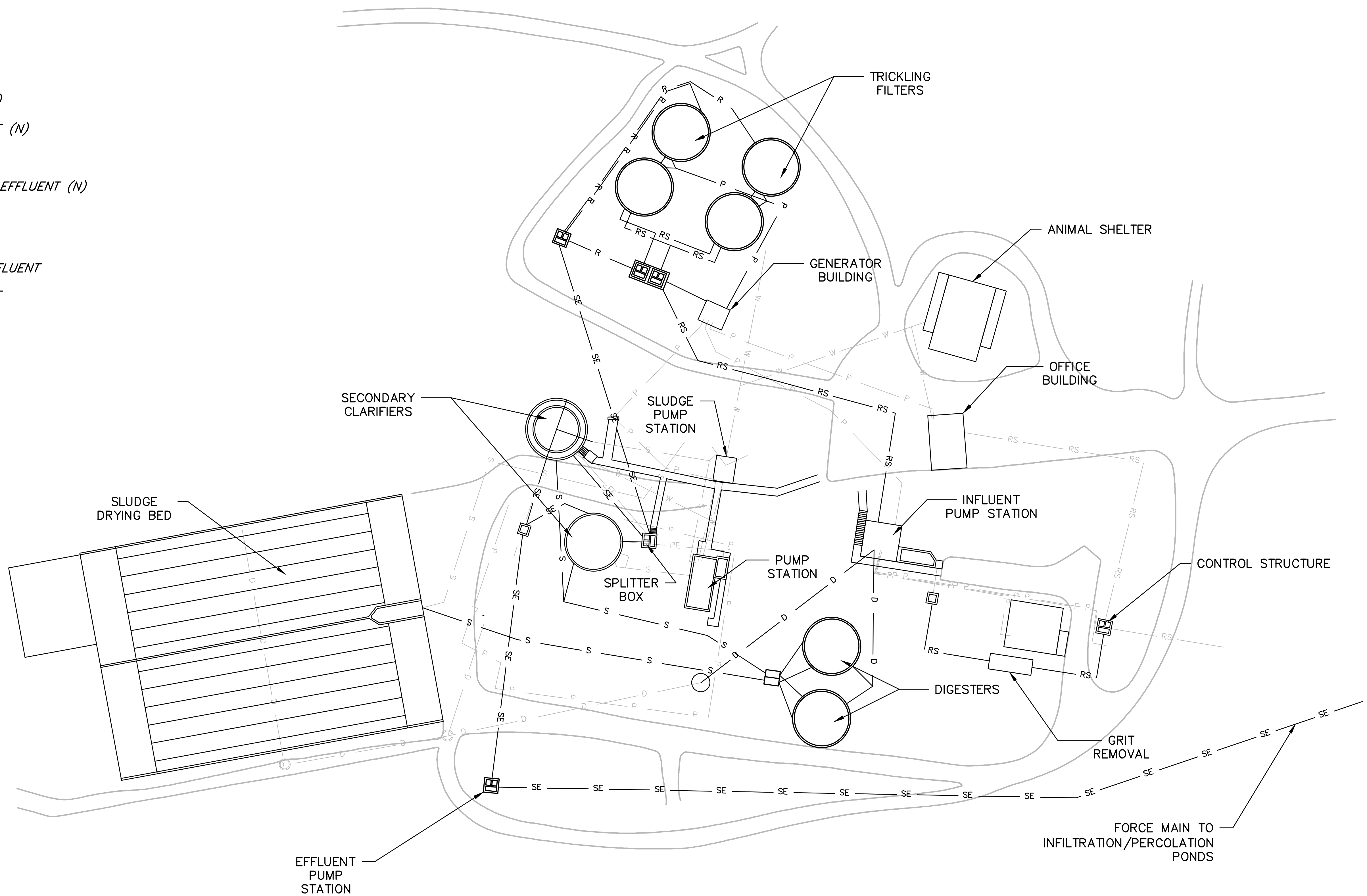
The new effluent pump station would be a package lift station located between the existing chlorine contact chamber and the Pit River outfall. A force main would run from the pump station along the WWTP access road to County Road 54, where it would run along the road shoulder, crossing the Pit River on the road bridge, to the entrance of the Manteca property. The force main would continue along the internal access road to the location of the evaporation/percolation ponds.

Effluent disposal at the site is recommended to be via infiltration/evaporation ponds. Average annual precipitation in the area is 13 inches, and average annual pan evaporation is 51 inches. This indicates that there is a net loss to evaporation from the surface. As discussed in the next section, percolation ability is significant and is estimated, based on field tests, to be in excess of 400 feet per year. The ponds will be located in a small, perched gulch near the upper elevations of the property where well-draining soils were encountered.

Two evaporation/percolation ponds will be constructed for disposal of the treated effluent, each designed to infiltration at least 0.5 MGD. Each pond will have a bottom area of two acres with a depth of six feet.

LEGEND:

D	*DRAIN (N)*
R	*RECYCLE (N)*
RS	*RAW SEWAGE (N)*
S	*SLUDGE (N)*
SE	*SECONDARY EFFLUENT (N)*
D	*DRAIN*
P	*POWER*
PE	*PRIMARY EFFLUENT*
RS	*RAW SEWAGE*
S	*SLUDGE*
W	*WATER*



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SHN	City of Alturas Wastewater Planning Study Alturas, California	Alternative 2 Plan View SHN 518004
	December 2019 · 518004-ALTURAS-WW2	Figure 25

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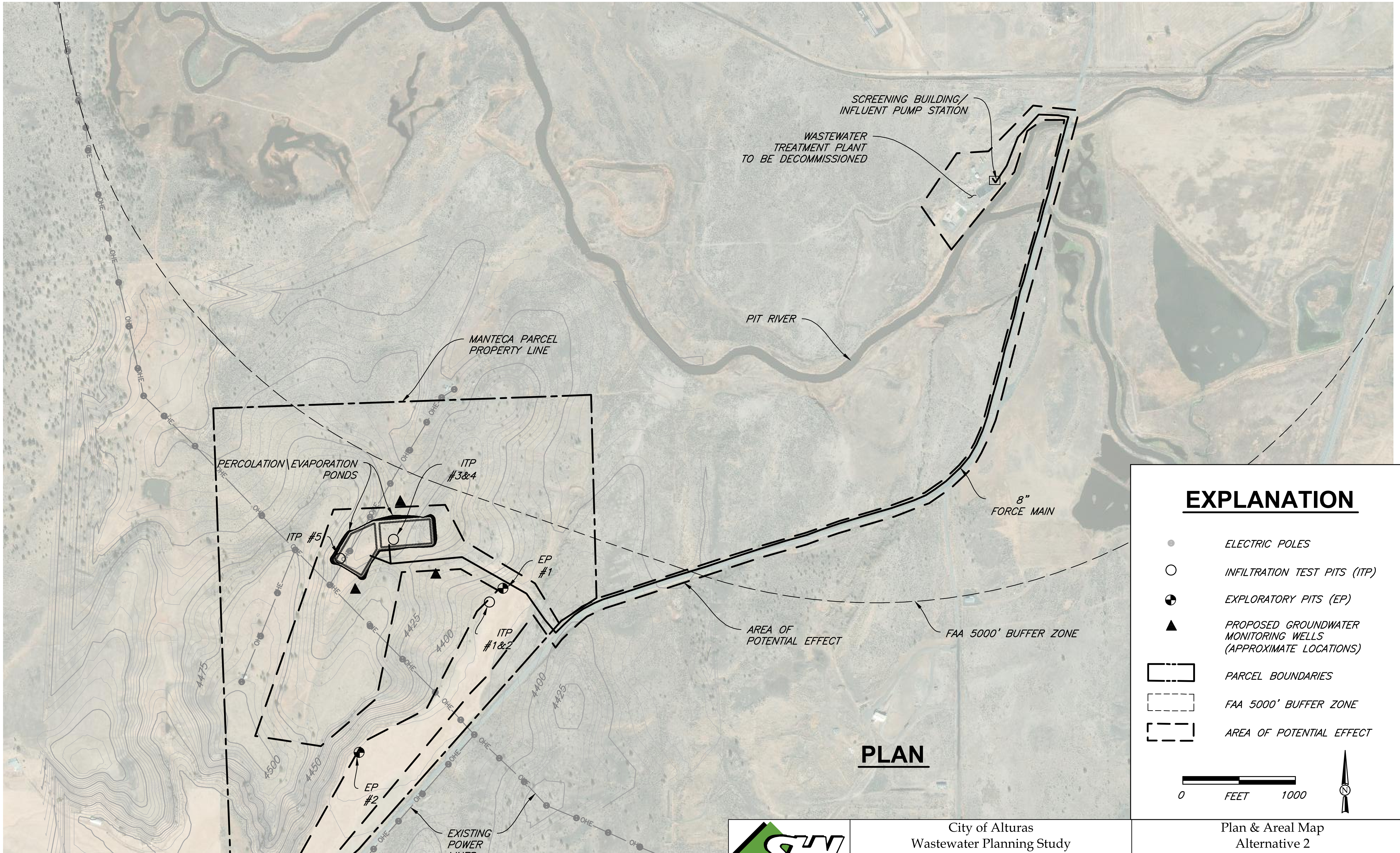

SHN	City of Alturas Wastewater Planning Study Alturas, California	Plan & Areal Map Alternative 2 SHN 518004
	November 2020 / 518004-ALTURAS-WW2	Figure 26

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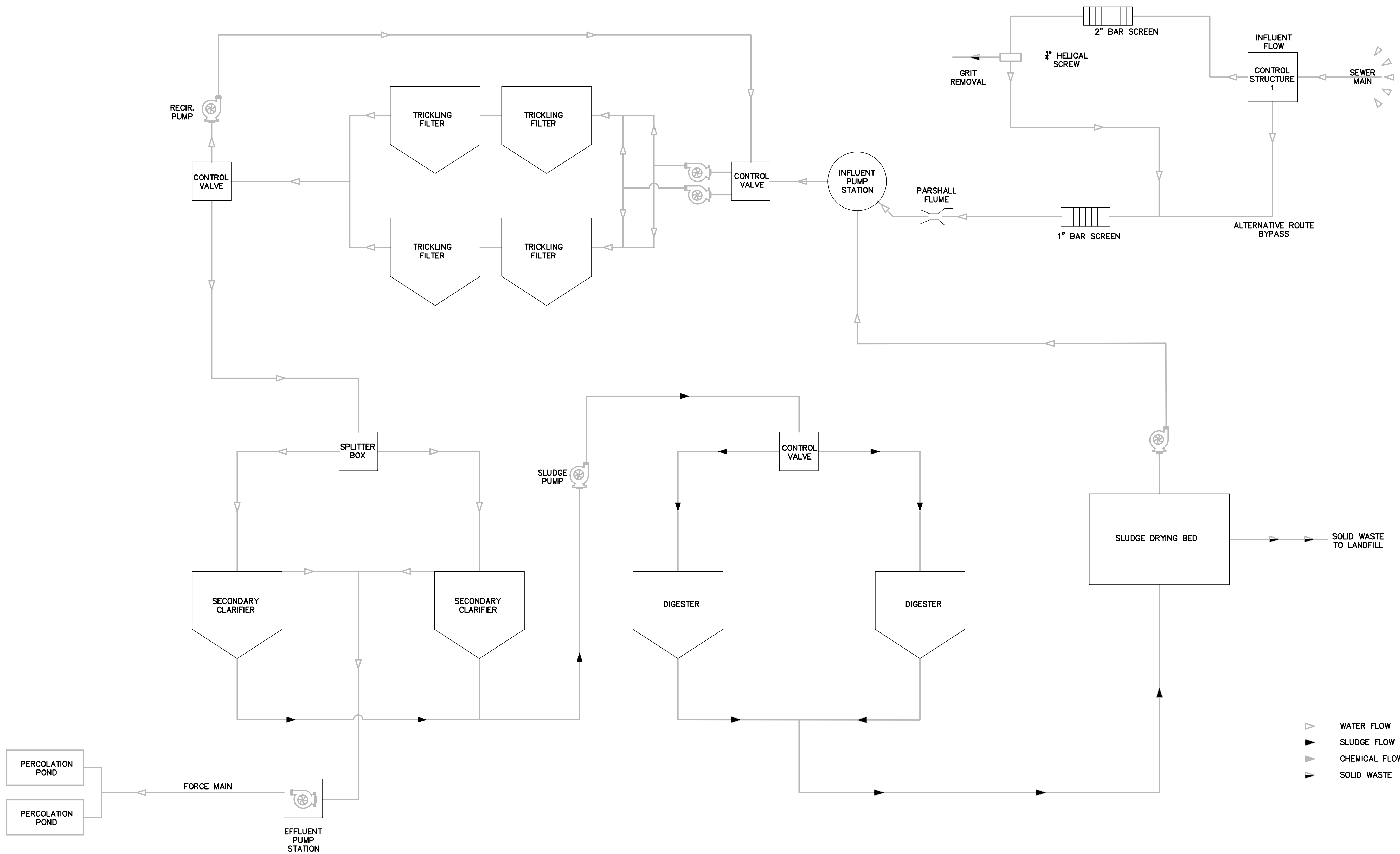

SHN	City of Alturas Wastewater Planning Study Alturas, California	Proposed Flow Diagram Alternative 2 SHN 518004
	December 2019 518004-ALTURAS-WW2	Figure 27

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Embankment side slopes will be 3H:1V on the inside and 2H:1V on the outside. It is anticipated that soils will be suitable and a balanced cut and fill construction will be feasible to minimize construction costs.

Table 5. Alternative 2 Component Description
City of Alturas Wastewater Planning Study

Item	Additional Description
Decommission the grit chamber, grinder, and primary clarifier; replace with new screw press screening	The existing structures will remain while all mechanical equipment is removed. The new screen will be placed on the existing bypass line.
Improve influent pump station	Replace existing pumps with new pumps with VFDs[1]; replace PVC[2] force main piping and redirect to the new trickling filter location; and install new crane hoist for pump removal.
Decommission existing trickling filter and replace with new round trickling filters	New filters to be located in different location to allow the existing filter to remain in service. New filters will be 30-foot diameter round units, two parallel treatment trains for redundancy and high flows, each train with two filters in series. Includes flow control box and recirculating pumps.
Rehabilitate Secondary Clarifier #1	Replace all internal moving mechanisms and weir plate.
Decommission disinfection system	No disinfection will be required for this alternative.
Replace anaerobic digester with aerobic digester	Two units for redundancy are recommended. Placed at the location of the former trickling filters.
Replace associated yard piping and site electrical as needed to connect the relocated treatment processes	
New Effluent Pump Station	To be located at the current location of the effluent pipe.
New Force main	Eight-inch diameter pipe to the effluent disposal site
New Evaporation/Percolation Ponds	Two ponds able to infiltrate 0.5 MGD, approximately 2-acre bottom area for each pond.

1. VFD: Variable Frequency Drive
2. PVC: Polyvinyl Chloride

Monitoring wells will be required to monitor groundwater quality and verify that the percolated effluent does not degrade groundwater quality. Existing groundwater quality will affect design criteria for final design. Typically, three monitoring wells are placed around the infiltration areas that will provide adequate coverage since exact groundwater flow direction is not known. Three wells would be placed around the pond locations. The depths of the monitoring wells would extend to the highest groundwater level in order to be able to take groundwater samples. Until further investigation is performed, groundwater depth is not known in this specific location where the wells will be located.

No electricity is needed at the infiltration/evaporation pond site. Therefore, no new electrical service is anticipated or included in the cost estimate. If site lighting were desired, Surprise Valley Electric has indicated that they would provide a service drop at no up-front cost.

5.5.2 Design Criteria

General design criteria were described in Section 5.2. Specific design criteria for individual components were discussed previously (those common with Alternative 1) or are discussed below.

The package effluent pump station would have three pumps, one at 350 gpm and two at 750 gpm, which matches the pump capacity configuration of the existing influent pump station. Total design head is estimated at approximately 200 ft. It is expected that the pump station will be a wetwell and drywell configuration using centrifugal pumps, but an option to use submersible pumps is left up to final design.

The force main would be eight inches in diameter to minimize headlosses and travel time and consist of high-density polyethylene (HDPE), except for the two Pit River crossings locations, where it will be ductile iron pipe. The trench for the force main will be approximately 18 inches wide and five feet deep.

The disposal ponds are based on a percolation value of one foot per day, which was estimated from field testing and applying a factor of safety of four. Additional discussion of the percolation test results is provided in Appendix 3. Groundwater monitoring wells would be required around the percolation ponds and installed prior to construction. This will help determine baseline groundwater quality, which would refine the design criteria for the percolation ponds.

5.5.3 Environmental Impacts

Ground disturbing activities for this alternative are twofold: (1) Within the existing WWTP property, which has previously been disturbed, and (2) along County Road 54 and at the effluent disposal property. Additional discussion of environmental impacts are discussed in the CEQA documentation.

5.5.4 Land Requirements

A new parcel of land, located outside the Alturas city limits, will be required to site the disposal ponds. A parcel has been identified (County Road 54 property) as discussed earlier. Also, a utility easement or similar permission will be needed from Modoc County to place the force main along County Road 54.

5.5.5 Potential Construction Problems

As with Alternative 1, potential construction problems include rock excavation for buried yard piping and site electrical and construction sequencing that does not allow for continued use of the existing WWTP during construction.

Additional potential construction problems could be conflicts with other utilities along County Road 54.

5.5.6 Sustainability Considerations

This section discusses any design consideration with respect to water conservation, water reuse, energy efficient design, operational simplicity, appropriate technology, and other considerations.

Since this alternative is an upgrade of the existing system, there were no significant sustainability considerations that affected the design, other than the recommendation that variable frequency drives be added to the influent pump station pumps. Solar panels could be installed in the future on unused portions of this property and the property where the disposal ponds are located to offset electrical costs.

The effluent disposal ponds are simple in design and operation and therefore provides operational simplicity through the use of an appropriate disposal technology.

5.5.7 Costs

Capital costs for Alternative 2 are shown in Table 6. Anticipated operational costs are presented in Table 7. Additional detail is provided in Appendix 4. It should be noted that the operational costs listed below exclude the current SRF Loan repayment of $95,844 annually through 2028 since this cost is the same for all alternatives.

Table 6. Alternative 2 Opinion of Probable Project Costs[1,2]
City of Alturas Wastewater Planning Study

Item	Description	Item Cost
1	Decommission/Demolition	$25,000
2	Demolish existing trickling filter	$41,000
3	Helical Screw Screen	$309,000
4	Trickling Filters (4)	$1,744,000
5	Aerobic Digesters	$772,000
6	Effluent Pump Station	$900,000
7	Effluent Force Main	$582,000
8	Infiltration Ponds	$157,000
9	Replace Generator	$56,000
10	Influent Pump Station Improvements (pumps, VFD, force main)	$200,000
11	Rehabilitate Secondary Clarifier #1	$300,000
12	Effluent Flow Meter	$15,000
13	Groundwater Monitoring Wells	$60,000
	Mobilization (12%)	$620,000
	Subtotal:	$5,781,000
	Contingency (30%)	$1,735,000
	Subtotal Construction:	**$7,516,000**
	Land Acquisition[3]	$361,000
	Engineering/Construction Management (18%)	$1,353,000
	Environmental/Permitting (5%)	$376,000
	Administration/Legal (4%)	$301,000
	Total Project:	**$11,642,000**

1. See Appendix 4 for additional detail
2. Items not explicitly listed are incorporated with the listed items.
3. Land costs include basic sale at $1,000/acre plus $300/acres for closing costs, legal fees, survey, etc.

Table 7. Alternative 2 Opinion of Annual Operational Costs[1,2]
City of Alturas Wastewater Planning Study

Description	Item Cost
Labor	$85,000
Chemicals	$39,500
Testing/Reporting	$24,500
Sludge/solids Hauling	$2,000
Electrical Costs	$30,900
Permitting	$5,000
Annual O&M	**$186,900**

1. See Appendix 4 for additional detail
2. Some minor operational costs have not been included because they are assumed to be relatively equal for all alternatives. Detailed operational costs will be shown in a Rate Study being performed as part of this study.

5.6 Alternative 3: Convert to Aeration Ponds with Land Discharge

5.6.1 Description

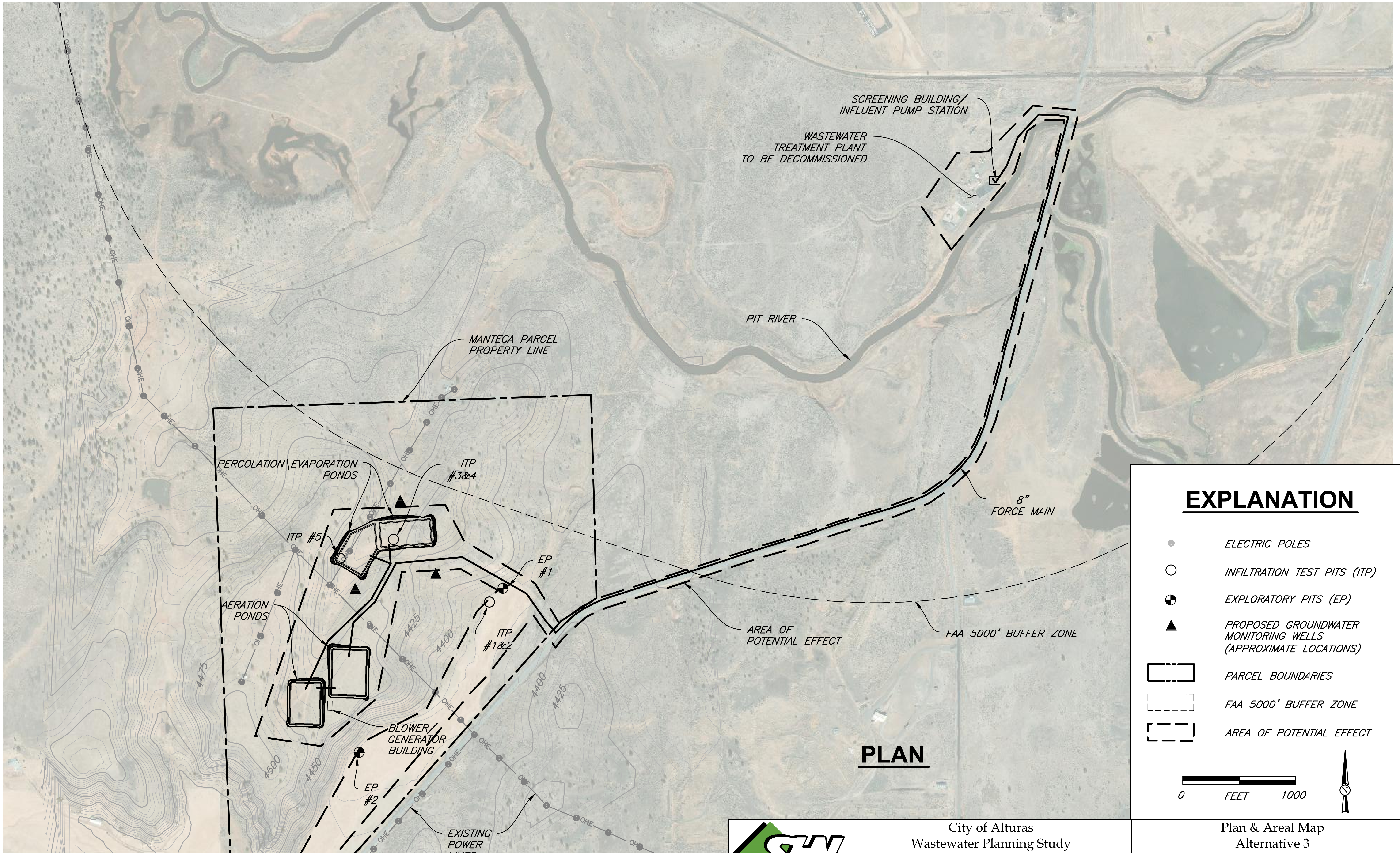
Alternative 3 consists of decommissioning the existing WWTP and moving treatment to a new offsite location using aeration ponds with land discharge. The improvements consist of the items listed in Table 8. A plan view showing the configuration of the alternative is shown in Figure 28. A schematic layout of the new headworks and pump station is shown in Figure 29. A process flow diagram is shown in Figure 30.

Table 8. Alternative 3 Component Description
City of Alturas Wastewater Planning Study

Item	Additional Description
Decommission the existing WWTP[1]	The existing structures will remain while all mechanical equipment is removed.
New Headworks with new screw press screening	The new headworks will be the same as Alternatives 1 and 2.
New Influent Pump Station	To be located adjacent to the new headworks.
New Force main	Eight-inch diameter pipe to the treatment pond site
New Aeration Ponds	Two ponds with coarse and fine bubble aeration
New Evaporation/Percolation Ponds	Two ponds able to infiltrate 0.5 MGD, approximately 2-acre bottom area for each pond.

1. WWTP: Wastewater Treatment Plant

Raw wastewater would be diverted from near the entrance to the existing WWTP and pumped to the new treatment ponds located approximately two miles away. Two options for this process were evaluated: (1) Pump raw unscreened wastewater to the treatment ponds and (2) Remove solids prior to pumping to the treatment ponds. In either case, solids should be removed prior to the aeration ponds to prevent solids buildup in the ponds. Removing solids prior to pumping would reduce the potential for solids buildup in the force main. For this reason, a headworks prior to the influent pump station is recommended.



City of Alturas
Wastewater Planning Study
Alturas, California

Plan & Areal Map
Alternative 3
SHN 518004

December 2019 | 518004-ALTURAS-WW2 | Figure 28

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City of Alturas Wastewater Treatment Facility Project Alturas, California	New Headworks & Pump Station Alternative 3 SHN 518004
December 2019 518004-ALTURAS-WW2	Figure 29

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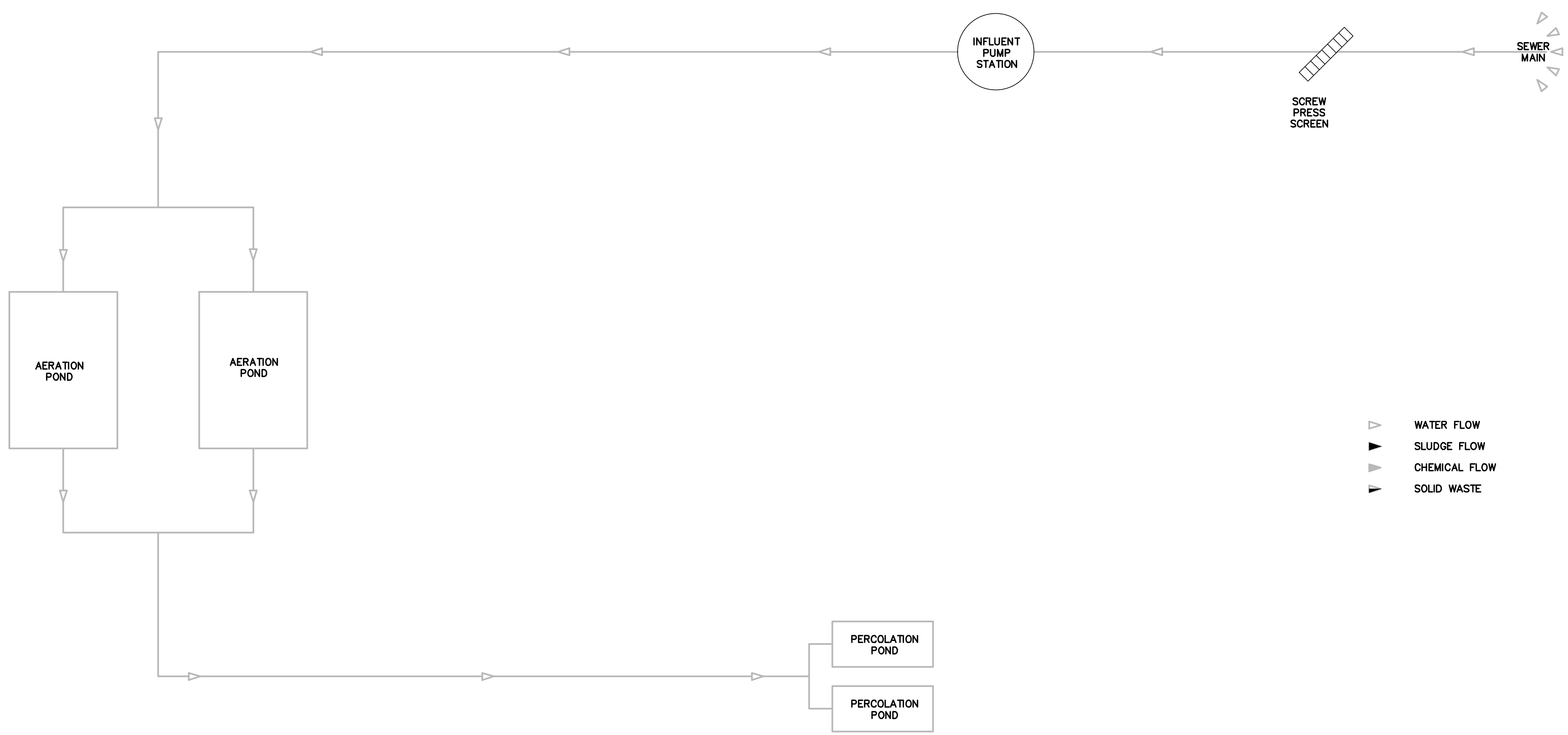

SHN	City of Alturas Wastewater Planning Study Alturas, California	Proposed Flow Diagram Alternative 3 SHN 518004
	December 2019 / 518004-ALTURAS-WW2	Figure 30

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The new headworks and pump station would be located near the existing control structure and utilize the existing bypass line (see Figure 29). Another location has potential but is not preferred. This other location is along the access road to the WWTP and next to an existing manhole, where a diversion could be constructed. The final location can be determined during final design. A new standby generator would be required for the new pump station.

The influent pump station would have the same design criteria as the effluent pump station for Alternative 2 but located as described in the previous paragraph.

A force main would run from the pump station along the WWTP access road to County Road 54, where it would run along the road shoulder, crossing the Pit River on the road bridge, to the entrance of the Manteca property. The force main would continue along the internal access road to the location of the aeration ponds.

The aeration ponds will be lined ponds with coarse and fine bubble aerators. The preliminary design has been made around the MARS lagoon aerator manufactured by Triplepoint Water Technologies (www.triplepointwater.com). There would be a two-cell pond system. Both ponds measure 400 ft by 240 ft at the surface with 3:1 side slopes and a 12-ft water depth. Three blowers (two duty and one standby) at 30 horsepower (hp) each would be housed in a 20-ft by 20-ft blower building and would provide air to the aerators. Additional design data from this manufacturer is provided in Appendix 5.

As in Alternative 2, two evaporation/percolation ponds will be constructed for disposal of the treated effluent, each designed to infiltration at least 0.5 MGD. Each pond will have a bottom area of two acres with a depth of six feet. Embankment side slopes will be 3H:1V on the inside and 2H:1V on the outside. It is anticipated that soils will be suitable and a balanced cut and fill construction will be feasible to minimize construction costs.

The existing office and lab will remain at the current location and will be used for staff. No office facilities will be constructed at the new WWTP location. However, a small storage building will be included to store tools and spare equipment.

Monitoring wells will be required to monitor groundwater quality and verify that the percolated effluent does not degrade groundwater quality. Existing groundwater quality will affect design criteria for final design. Typically, three monitoring wells are placed around the infiltration areas that will provide adequate coverage since exact groundwater flow direction is not known. Three wells would be placed around the pond locations. The depths of the monitoring wells would extend to the highest groundwater level in order to be able to take groundwater samples. Until further investigation is performed, groundwater depth is not known in this specific location where the wells will be located.

New 480-volt, three phase, electrical service at the aeration ponds will be required. Based on estimate electrical usage, the WWTP would require less than 200 amps. A standby generator will be required and will be located adjacent to the blower building.

The existing WWTP will be decommissioned. However, doing so will require approval from the State since there is an outstanding loan through 2028 on the most recent upgrades to the WWTP. Once approval is obtained from the State, the City will still be required to pay the outstanding balance of the previous loan in accordance with the loan covenants.

5.6.2 Design Criteria

General design criteria were described in Section 5.2. This section provides additional design criteria specific to this alternative.

The package influent pump station would have three pumps, one at 350 gpm and two at 750 gpm, which matches the pump capacity configuration of the existing influent pump station. Total design head is estimated at approximately 200 ft. It is expected that the pump station will be a wetwell and drywell configuration using centrifugal pumps, but an option to use submersible pumps is left up to final design.

The force main would be eight inches in diameter to minimize headlosses and travel time and consist of high-density polyethylene (HDPE), except for the two Pit River crossings locations, where it will be ductile iron pipe. The trench for the force main will be approximately 18 inches wide and five feet deep.

As mentioned previously, the aeration system and associated ponds were designed around a particular manufacturer (Triplepoint Water Technologies). Slight modifications would be expected if the specific aeration units are different.

The disposal ponds are based on a percolation value of one foot per day, which was estimated from field testing and applying a factor of safety of four. Additional discussion of the percolation test results is provided in Appendix 3. Groundwater monitoring wells would be required around the percolation ponds and installed prior to construction. This will help determine baseline groundwater quality, which would the design criteria for the percolation ponds.

5.6.3 Environmental Impacts

Ground disturbing activities for this alternative are twofold: (1) Within the existing WWTP property, which has previously been disturbed, and (2) along County Road 54 and at the effluent disposal property. Estimated extents of these disturbances (area and depth) are provided in Table 8a. Additional detail of environmental impacts for this alternative are discussed in the CEQA documentation.

5.6.4 Land Requirements

A new parcel of land, located outside the Alturas city limits, will be required to site the disposal ponds. A parcel has been identified (County Road 54 property) as discussed earlier. Also, a utility easement or similar permission will be needed from Modoc County to place the force main along County Road 54.

5.6.5 Potential Construction Problems

Potential construction problems could be conflicts with other utilities along County Road 54.

5.6.6 Sustainability Considerations

This section discusses any design consideration with respect to water conservation, water reuse, energy efficient design, operational simplicity, appropriate technology, and other considerations.

The aeration ponds and effluent disposal ponds are simple in design and operation and therefore provides operational simplicity through the use of an appropriate disposal technology. The aeration component would require a new service connection/backup power component for the site and is energy intensive,the

City could install solar panels in the future on unused portions of the current WWTP property and where the new WWTP and disposal ponds are located to offset electrical costs.

From a plant classification standpoint, based on current State guidelines, this alternative does not require any change in current plant classification (Class II) or operator grade level (Grade II) which provides significant sustainability benefits in operations since higher-grade operators are difficult to hire in remote WWTPs.

5.6.7 Costs

Capital costs for Alternative 3 are shown in Table 9. Anticipated operational costs are presented in Table 10. Additional detail is provided in Appendix 4. It should be noted that the operational costs listed below exclude the current SRF Loan repayment of $95,844 annually through 2028 since this cost is the same for all alternatives. As stated previously, the 2006 SRF loan must be repaid regardless of whether the funded facilities are still in use or have been decommissioned.

Table 9. Alternative 3 Opinion of Probable Project Costs[1,2]
City of Alturas Wastewater Planning Study

Item	Description	Item Cost
1	Decommission/Demolition	$25,000
2	Generators	$124,000
3	Flow meter	$15,000
4	Helical Screw Screen	$309,000
5	Influent Pump Station	$900,000
6	Influent Force Main	$582,000
7	Aeration Basins	$1,037,000
8	Infiltration Ponds	$156,000
9	Groundwater Monitoring Wells	$60,000
10	Blower Building	$80,000
	Mobilization (12%)	$395,000
	Subtotal:	$3,263,000
	Contingency (30%)	$979,000
	Subtotal Construction:	**$4,242,000**
	Land Acquisition[3]	$361,000
	Engineering/Construction Management (18%)	$764,000
	Environmental/Permitting (5%)	$213,000
	Administration/Legal (4%)	$170,000
	Total Project:	**$5,750,000**

1. See Appendix 4 for additional detail
2. Items not explicitly listed are incorporated with the listed items.
3. Land costs include basic sale at $1,000/acre plus $300/acres for closing costs, legal fees, survey, etc.

Table 10. Alternative 3 Opinion of Annual Operational Costs[1,2]
City of Alturas Wastewater Planning Study

Description	Item Cost
Labor	$85,000
Chemicals	$0
Testing/Reporting	$24,500
Sludge/solids Hauling	$1,000
Electrical Costs	$48,800
Permitting	$5,000
Annual O&M	**$164,300**

1. See Appendix 4 for additional detail
2. Some minor operational costs have not been included because they are assumed to be relatively equal for all alternatives. Detailed operational costs will be shown in a Rate Study being performed as part of this study.

6.0 Selection of an Alternative

6.1 Life Cycle Cost Analysis

A life cycle net present value cost analysis was used to compare the alternatives. The present value cost analysis is a basic evaluation of alternative costs utilizing the present value factors. The interest rate used is the real 20-year Federal discount rate from Appendix C of the Office of Management and Budget (OMB) Circular A-94. The most recent publication of Circular A-94 Appendix C is from November 2019, and the real discount rate is 0.3%. Table 11 shows the present value analysis results.

Salvage values can be difficult to determine, as various portions of each alternative have different useful lives. For this analysis, the average useful life for each alternative was assumed to be 30 years, which means that after 20 years, the salvage value is 33% using a straight-line depreciation.

Table 11. Present Value Analysis[1]
City of Alturas Wastewater Planning Study

Item	Alternative 1	Alternative 2	Alternative 3
Capital Cost[2]	$12,890,000	$11,642,000	$5,750,000
Annual O&M[3]	$250,500	$186,900	$164,300
Present Value O&M	$4,855,598	$3,622,799	$3,184,729
Salvage Value[4]	$4,253,7006	$3,841,860	$1,897,500
Present Value Salvage	$4,006,344	$3,618,452	$1,787,159
Net Present Value[5]	**$13,739,254**	**$11,646,347**	**$7,147,571**

1. For 20-year period
2. Total project costs from tables in Section 5 in 2019 dollars.
3. O&M: Operations and Maintenance
4. Assumes straight line depreciation, 30-year life
5. Net Present Value = Capital Cost + Present Value O&M – Present Value Salvage.

The analysis reveals that Alternative 3 has the lowest net present value.

6.2 Non-Monetary Factors

The CVRWQCB has expressed preference for the City to use land discharge rather than continue to discharge to the Pit River. This favors Alternatives 2 and 3 significantly over Alternative 1.

7.0 Proposed Project

7.1 Description

The proposed project is Alternative 3 as described earlier, which includes the following key features:

- Decommissioning of the existing WWTP;
- New offsite aerated pond treatment system;
- Land discharge of treated effluent utilizing infiltration and evaporation; and
- No change in operator grade level over current WWTP.

7.2 Project Schedule

The project schedule is dependent on acquiring funding for final design and construction. The current Proposition 1 wastewater planning study will be completed by late 2020 with the CEQA documentation and construction funding application being the final tasks of the study to be completed.

Funding for final design and construction will likely not be available until the latter half of 2021. Once notice to proceed is issued in late 2021, the schedule shown in Table 12 would be anticipated.

Table 12. Anticipated Project Schedule (Recommended Alternative)
City of Alturas Wastewater Planning Study

Activity	Estimated Start Date	Estimated Finish Date
Complete Proposition 1 Wastewater Planning Study, including funding application	N/A	January 31, 2021
SRWCB[1] Funding Application Review	February 2021	August 2021
Monitoring Well Installation[2]	March 2021	June 2021
Funding Awarded and Notice to Proceed	September 2021	September 2021
Preliminary investigations: Survey and Geotechnical	October 2021	December 2021
Final Design	October 2021	March 2022
Bidding[3]	April 2022	May 2022
Construction	July 2022	June 2023

1. SWRCB: State Water Resources Control Board
2. It is anticipated that the City will self-fund the installation of the monitoring wells.
3. The City has expressed interest in issuing multiple bid packages to allow local contractors to bid; this may affect the construction schedule.

7.3 Permit Requirements

Environmental clearances through the CEQA process is being completed under the current Proposition 1 Planning Grant. A Report of Waste Discharge will also be completed under the current grant. Other anticipated permit requirements to be obtained later include the following:

- Utility Easements from Modoc County for the force main along County Road 54;
- CVRWQCB Construction Stormwater permit;
- Building permits from Modoc County;
- SWRCB Division of Water Rights Change Permit; and
- RWQCB Groundwater Permit.

7.4 Sustainability Considerations

Sustainability considerations were discussed in Section 5.

7.5 Project Cost Estimate

The project cost estimate for the recommended alternative was presented in Table 9.

7.6 Annual Operating Budget

A separate Rate Study is being prepared as part of the Proposition 1 Wastewater Planning Grant. The Rate Study will include detailed information about operating budgets, proposed rate structure, income, and debt payments.

8.0 Conclusions and Recommendations

It is recommended that the City pursue Alternative 3 by securing the property and obtaining final design and construction funding.

Sanitary Sewer Evaluation Study Summary

1

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Phone: (541) 827-7855 Email: info@shn-engr.com Web: shn-engr.com
803 Main Street, Suite 401, Klamath Falls, OR 97601

Technical Memorandum

Reference:	518004.200
Date:	November 4, 2020
To:	Jason Diven, City of Alturas
From:	Phil McGovern, Anders Rasmussen
Subject:	SSES Report & I/I Analysis Summary

Purpose

This document provides supplemental information for the Preliminary Engineering Report (PER) and augments the 2020 Final Sanitary Sewer Evaluation Survey (SSES) prepared by SHN. The purpose of this document is to provide a comparison of infiltration and inflow (I/I) reduction cost compared to addressing I/I flows at the wastewater treatment plant (WWTP).

SSES Summary

The 2020 Sanitary Sewer Evaluation Survey for the City of Alturas examined ten years (2007-2017) of influent flow data at the WWTP and determined that a significant amount of I/I is occurring in the collection system due in large part to high seasonal groundwater in various portions of the service area. The age and condition of the existing system is also a contributing factor to infiltration.

I/I is a common problem and cannot be completely avoided. Mitigation measures include I/I reduction within the collection system, or addressing increased flows at the WWTP, or a combination of both based on costs. The four alternatives for I/I reduction presented in the SSES are summarized in Table 1. The reader is referred to the full SSES report for additional information.

Phone: (541) 827-7855 Email: info@shn-engr.com Web: shn-engr.com
803 Main Street, Suite 401, Klamath Falls, OR 97601

Table 1. I/I Reduction Alternatives and Total Project Cost Estimates
SSES Summary
Alturas, CA

Alternative	Description	I/I[1] Reduction Rate[2]		Estimated Costs
		Low	High	Project Total[3]
1	Address smoke test findings	5%	10%	Minimal
2	Address smoke test findings, plus mainline rehabilitation/replacement, including manhole rehabilitation/replacement in seasonally high groundwater areas only.	20%	40%	$ 22,943,640
3	Address smoke test findings, plus mainline and manhole rehabilitation/replacement, plus service lateral rehabilitation/replacement from main to structure in seasonally high groundwater areas only.	60%	80%	$ 24,511,280
4	Do Nothing	0%	0%	Additional costs at WWTP –see discussion

1. I/I: Infiltration and Inflow
2. I/I reduction rates based on industry typical values and SHN experience but can vary based on specific system conditions and rehabilitation and/or construction methods.
3. Estimated Cost breakdown can be found in the original SSES document.

Analysis

Flow data at the WWTP for the years 2008-2017 show that annual average flow through the WWTP is 125.77 million gallons (MG). For this period of record, the average annual Base Sanitary Flow (BSF) is estimated as 104.17 MG and average annual I/I volume is estimated as 21.60 MG.

Percentage reductions shown in Table 1 were applied to the estimated average I/I volume to determine the volume of I/I reduced by each alternative. The estimated cost for each alternative was then divided by the volume of I/I reduction to determine a capital cost per unit volume to be used as a comparison with addressing the additional flow at the WWTP. As a conservative measure, the average percentage reduction of the listed range was used for this calculation. Only Alternatives 2 and 3 are analyzed here, since there is no capital cost for Alternative 1.

Implementation of Alternative 2 is anticipated to reduce I/I volumes by 30%, that is, by approximately 6.48 MG. At an estimated cost of $22.9 million, this is a capital cost of $3.53 per gallon removed. Implementation of Alternative 3 is anticipated to reduce I/I volumes by 70%, that is, by approximately

15.12 MG. At an estimated cost of $24.5 million, this is a capital cost of $1.62 per gallon removed.

The design average dry weather flow (ADWF) for the WWTP is 0.5 million gallons per day (MGD) with a design peak flow of 1.0 MGD. Additional discussion related to this can be found in the PER. The current flows at the WWTP, including current I/I flows, are generally within those design limits. Therefore, no additional treatment or effluent storage capital costs are anticipated as a result of not reducing I/I flows. It should be noted that the SSES presented that additional effluent storage costs would be the only capital costs for I/I management at the WWTP; however, after additional review during the PER preparation, this additional cost does not appear to be needed given the design flows described above. This means that there is no additional capital cost at the WWTP for the additional I/I flow.

Additional operating costs at the WWTP to address I/I flows would generally only result from additional pumping from the influent pump station to the new WWTP under the preferred alternative. Annual pumping costs for the I/I volume reduced under Alternative 3, which is 15.12 MG, would be approximately $1,500 per year based on a power cost of $0.16 per kilowatt-hour (kWh) and energy consumption of 600 kWh per MG.

Conclusions

From a capital cost perspective, no more than Alternative 1 for I/I reduction is recommended. From an operational cost perspective, the additional pumping expense is minor and does not warrant the large capital cost of significant I/I reduction.

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Bird Mitigation Strategies 2

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1062 G St., Suite I, Arcata, CA 95521-5800 707-822-5785
Civil Engineering, Environmental Services, Geosciences, Planning & Permitting, Surveying

Technical Memorandum

Reference: 518004.500
Date: November 12, 2018
To: Anders Rasmussen
From: Gretchen O'Brien
Subject: Alturas Wastewater Pond - Bird Deterrent Methods Research

Background

Bird strikes by airplanes is a common occurrence and most often happens when the aircraft is less than 500 feet off the ground during take-off and landing (DeVault et al., 2017). The Alturas Municipal Airport is just north of the Alturas wastewater treatment plant. Creating a treated wastewater retention pond with in such close proximity to the airport will require wildlife management mitigation measures to reduce the chance of bird strikes by aircraft. An internet research effort was conducted to create recommendations for implementing wildlife deterrents from the proposed pond(s).

Specific measures to deter birds from the proposed pond(s) near the Alturas Municipal Airport should take into consideration the types of species that occur in the region, the juxtaposition of other habitat, existing wildlife management techniques being utilized at the Alturas Municipal Airport, and necessary design features of the pond(s) to achieve project goals. Based on the location of the proposed pond(s) in the proximity of the Modoc National Wildlife Refuge and the waterfowl that breed, overwinter, or migrate through the area, the primary concern for bird strikes may be waterfowl and other larger water birds such as Canada Goose (*Branta canadensis*), although the Alturas Public Works director has reported that, to his knowledge, there has never been a bird strike by an aircraft at the Alturas Municipal Airport in the past ten years or so (Pers. Comm., Picotte, 2018).

Research Results Summary

Several studies have been conducted to test the efficacy of bird deterrents from airports, water sources, and agricultural crops. The common conclusions among the research papers investigated were that an integrative approach to bird deterrent methods, in combination with pond design and management, is the most effective.

Pond Design

Pond design recommendations include linear or circular shapes to minimize the perimeter and geographic isolation from other water sources (Blackwell et al., 2008). Geographic isolation of created ponds, away from other water sources, may decrease the probability of use by waterfowl (Blackwell et al., 2008). Bottom-lined ponds help to reduce vegetation growth which can provide a food source for waterfowl (National Academy of Sciences, 2011). Keeping the pond surface free of floating vegetation and the pond edges free of vegetative cover and woody debris can reduce the attractiveness to birds (Blackwell et al., 2008).

Exclusion Methods
Covering and dewatering ponds are considered the most effective bird deterrent from open water ponds, although this is not an option for the Alturas wastewater retention pond(s). Exclusion methods may need to be incorporated into the pond design. Overhead wires are the most researched and effective method of bird exclusion (National Academy of Sciences, 2011). Gridwire™ and Stealthnet™ products at BirdBarrier.com may be useful for waterfowl exclusion from ponds, installed in a grid pattern directly over the surface of the water. This will discourage birds from landing on the water while allowing for evaporation.

Deterrents
The National Academy of Sciences conducted a literature review to evaluate the relative effectiveness of bird repellent techniques. The research results determined that human effigies, or models, that moved frequently and were dressed in bright colors were the most effective as bird deterrents. This conclusion was also made by a study that specifically tested scarecrows and predator models for scaring birds away (Marsh et al., 1992). Studies also show that lifelike human effigies in combination with broadcasting a waterfowl distress call periodically was effective in deterring birds from a specific area (National Academy of Sciences, 2011; Marsh et al., 1992; DeVault et al., 2017). Birds often habituate to visual and auditory deterrents unless they are moved frequently, and by changing the look of an effigy (e.g. different clothing) and the distress call emitted, can also increase the effectiveness of the deterrents (DeVault et al., 2017, Marsh et al., 1992).

Conclusion
The combination of pond design, pond placement, and an integrative suite of avian deterrent methods will be the best approach to preventing the attraction of birds to a wastewater retention pond at the Alturas wastewater treatment plant. The following recommendations summarize a suggested plan for bird deterrents to help prevent bird strikes at the Alturas Municipal Airport.

Recommendations
- Design pond(s) in a circular or linear shape to reduce perimeter.
- Place pond(s) isolated, as far away as possible from other water sources.
- Manage vegetation and woody debris in and around the pond to reduce food and cover resources for birds.
- Use a combination of bird deterrent methods:
    - Exclusion: Grid wires placed over the surface of the pond(s), may also need anti-perch spikes on the wires to deter smaller birds from using the wires.
    - Visual deterrent: Lifelike human effigy dressed in brightly colored, loose-fitting clothing (to blow in the wind) placed on a floating island just big enough for the effigy (disallow space for birds to land). Most effective if the effigy moves and clothing changed periodically.
    - Audio deterrent: Broadcast a recording of various waterfowl distress calls, either periodically or motion detected. Most effective if the type of calls and location change periodically. According to the USDA, birds react most to sounds from 1 to 3 kHz.
    - Place all deterrents concurrently with pond creation before birds begin to investigate the resource.
- Coordinate with the Alturas Municipal Airport managers regarding wildlife management methods and monitoring bird strikes.

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Infiltration Testing 3

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SHN CONSULTING ENGINEERS & GEOLOGISTS, INC.
803 Main Street, Suite 401
Klamath Falls, OR 97601
Tel. 541/827-7855

JOB	518004		
SHEET NO.	1	OF	1
CALC'ED BY	AHR	DATE	11/2/2020
CHECKED BY		DATE	

Determine infiltration pond area required on Manteca (Hunter) property.

Approach for simplified calculation

1. Set pond area based on being able to infiltrate design flows.
   Area = daily flow / infiltration rate
2. Neglect precipitation and evaporation, which are small in comparison to infiltration.
3. This location has a net annual evaporation, so these calculations are conservative.
4. Infiltration rates from field testing results, adjusting for a factor of safety.
5. Assume infiltration occurs only on bottom of pond and not along embankments.

Data:	ADWF =	0.5	MGD	See PER for discussion on design flow
	PWWF =	1	MGD	See PER for discussion on design flow
	Infiltration rate =	30		minutes/inch, based on field data from test pits 3, 4, and 5
	Factor of safety =	4		
	Design Infiltration Rate =	120		minutes/inch (field infiltration * factor of safety)
	=	12		inches/day
	Required Area for ADWF =	1.53		acres; this is pond bottom area.

Set one cell at 1.53 acres to handle the design flow with a second cell of equal size to handle peak wet weather flows. Add third pond for redundancy. Or have two ponds @ 2 acres each.
Since little storage is needed, set depth of pond at 6 ft.

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803 Main Street Suite 401, Klamath Falls, OR 97601 541-827-7855
Civil Engineering, Environmental Services, Geosciences, Planning & Permitting, Surveying

Memorandum

Reference: 518004.200

Date: December 11, 2019

To: Anders Rasmussen

From: Phil McGovern

Subject: Infiltration Testing

Introduction:

Infiltration is the permeation of a liquid into something by filtration; in this case we are attempting to ascertain an empirical rate at which water infiltrates a soil matrix. Several tests can be performed to determine this empirical value; an Open Pit Falling Head Test was used on the Hunter Current SCP Manteca (HCSPCM) Parcel on November 8, 2019.

Prior to the field tests, SHN obtained a copy of the National Resource Conservation Service (NRCS) web soil survey report for the HCSCPM parcel (See Attached). The test pits according to the NRCS report are located in two different soil matrices, with two different referenced hydrologic soil types (See Figure 1). Site 1 was identified as a Ladd Sandy Loam, with a hydrologic soil classification of C. Site 1 is location is approximately 400 feet from County Road 54. Site 2 was identified as a Tuff Outcrop-Cause eroded Complex, with a hydrologic soil classification of D. Site 2 is significantly further from the public and is currently the preferred location for effluent disposal because it is further away from the public, limiting public's view and possible interaction with the effluent disposal site.

Scope:

The scope of our field investigation was to determine percolation rate for the preliminary sizing of the proposed subsurface Rapid Infiltration Basins (RIB) located on the HCSPCM parcel. Secondly, SHN staff wanted to visit the parcel to determine if it is a feasible location for effluent disposal. Site 1 is where test pits one and two were dug and Site 2 was where test pits three (3), four (4), and five (5) where excavated (See Figure 1).

Groundwater:

Two exploratory pits were dug around the proposed locations; one exploratory pit was dug south of Site 1 & 2, and the other pit was dug to the northeast of the two Sites (See Figure 1). The exploratory pits were dug to a depth of depth of 10 ft. Groundwater infiltrated into the pit at an approximate depth of 9.5 ft.

Procedure:

The five test pits were dug with a backhoe loader; the pits were dug approximately 2' x 4'and a depth of approximately either two feet or four feet. The pits were filled with water prior to testing by the City of Alturas Staff. According to the testing procedure, the pits need to be soaked overnight prior to the test being performed in clay-based soils. For sandy soils if the water percolates through the soil matrix in less than 10 minutes (preformed 2 times), you are free to begin testing. This was the case for pits one (1) and two (2). Pits three (3), four (4), and five (5) were soaked overnight.

The holes were refilled on the day of the test. The pits were filled with at least 12 inches of clean water, and the depth of the water in the pit was recorded at the beginning of the test. The height of the water was then recorded in 20 minute intervals. The test was performed for a total of two hours or until the pit was empty.

Results:

The estimated rate of percolation for the test pit/ RIB sites are as follows;

SITE 1

Pit one (1) percolation rate was recorded to be 80 minutes/inch. This value may be misrepresenting the true percolation rate for this location. It was determined that Pit one (1) needed to have a certain amount of water depth to drive the water into the soil matrix. Once the water height reached about 5 inches from the bottom of the pit, the water infiltration rate diminished significantly. This pit was refilled after an hour and the infiltration rate significantly increased, but followed the same trend and diminished once a depth of five inches of water was again reached.

Pit two (2) final percolation rate was determined to be 42 minutes/inch. This test pit was dug to 2 ft in depth and filled with 1 ft of water.

The final percolation rate for Site 1 was determined to be 42 minutes/inch or 34.3 in/day.

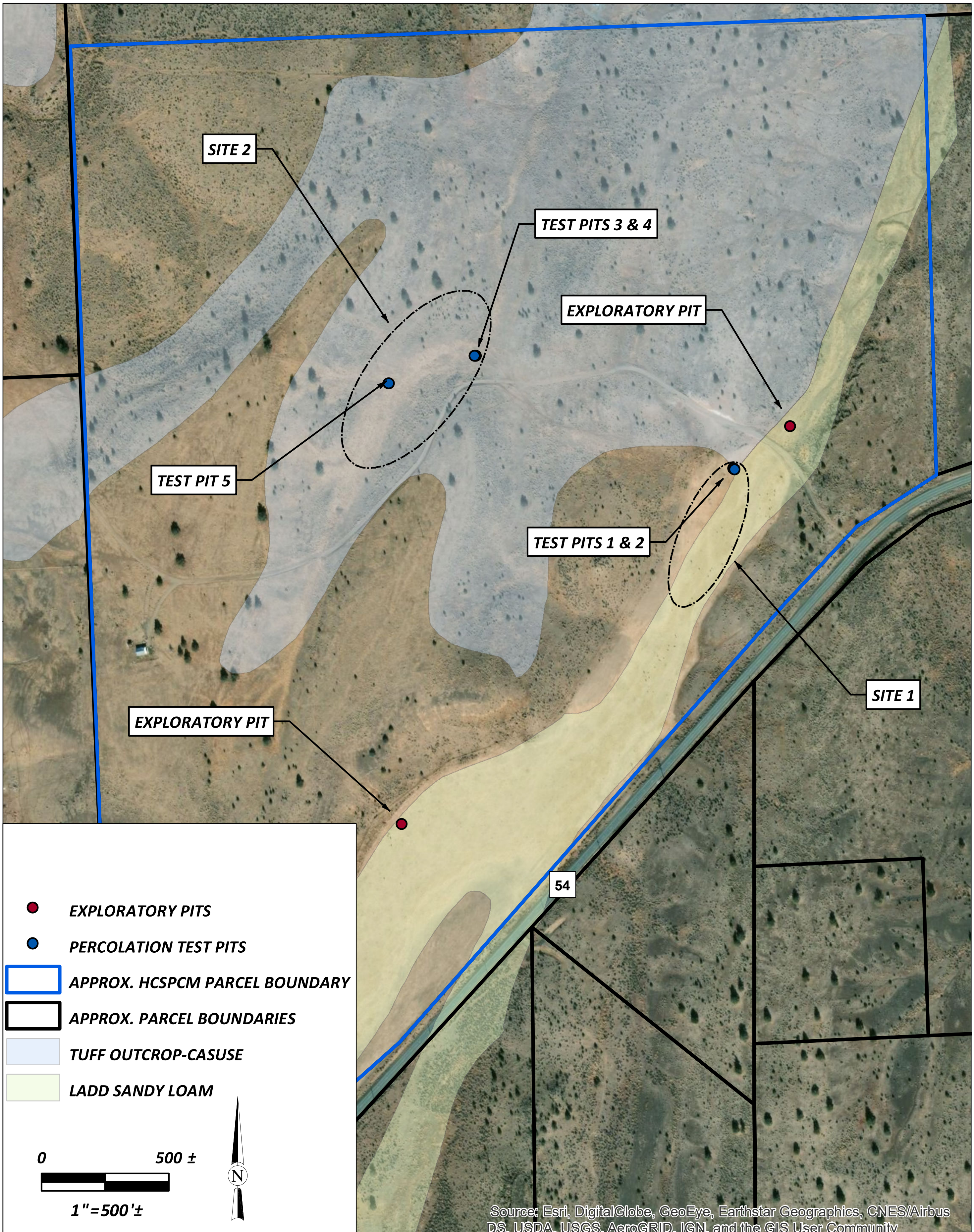
SITE 2

Pit three (3) final percolation rate was found to be 24 minutes/inch. The depth of this pit was approximately 2 ft.
Pit four (4) final percolation rate was recorded to be 34 minutes/inch. The depth of this pit was approximately 4 ft.

Pit five (5) final percolation rate was recorded to be 31 minutes/inch. The depth of this pit was approximately 4 ft.

The overall estimated percolation rate used for the preliminary analysis for the sizing of infiltration ponds for Site 2, was 30 min/inch or 48 in/day.

One infiltration test was done for each of the pits, a more comprehensive infiltration test and soil analysis is recommended prior to final design. The procedure calls for multiple infiltration tests be done in the same pit to verify that the rates do not vary significantly from test to test.



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SHN	City of Alturas Perliminary Engineering Report Alturas, CA	Infiltration Testing SHN 518004
December 2019	Infiltration_Testing	Figure 1

SHN CONSULTING ENGINEERS & GEOLOGISTS, INC.

803 Main Street Suite 401, Klamath Falls, OR 97601 541-827-7855

SOILS PERCOLATION TEST DATA SHEET 1 of 2

CLIENT	CITY OF ALTURAS	**DATE**	11/8/2019
JOB REF.	218018	**APN**	315-211-03
TEST PIT No.	PP-1 (4')	TESTED BY	PM
DEPTH TESTED	4 ft	DTW	>9.5'
PRE-SOAK	24 Hour	NRCS	CLAY/SANDY LOAM

NOTE: PIT LOCATIONS FOR PIT ONE (1) AND TWO (2) WERE OFFSET BY 5' TESTING DIFFERENT SOIL LAYERS.

Reading No.	Start Time	Stop Time	Interval (Minutes)	Water Level Drop (Inches)	Percolation Rate (Minutes per Inch)
1	10:59	11:19	20	7 3/4	2 4/7
2	11:19	11:39	15	1 1/4	12
3	11:39	11:59	20	1/4	80
4	11:59	12:19	20	3/8	53 1/3
Tested again with Driving Head					
1	12:42	12:54	12	11 1/2	1
2	12:54	1:07	13	3	4 1/3
3	1:07	1:47	40	1/2	80

STABILIZED PERCOLATION RATE = 80

TEST PIT No.	PP 2 (2FT)	TESTED BY	PM
DEPTH TESTED	24"	DTW	>9.5'
PRE-SOAK	24 Hour	NRCS	CLAY/SANDY LOAM

NOTE: PIT LOCATION PIT TWO (2) OFFSET FROM PIT ONE (1) TESTING DIFFERENT SOIL LAYERS.

Reading No.	Start Time	Stop Time	Interval (Minutes)	Water Level Drop (Inches)	Percolation Rate (Minutes per Inch)
1	11:03	11:23	20	2 5/8	7 5/8
2	11:23	11:43	20	1 1/8	17 7/9
3	11:43	12:03	20	3/4	26 2/3
4	12:03	12:23	20	5/8	32
5	12:23	13:08	45	1 1/8	40
6	13:08	13:45	37	7/8	42 2/7

STABILIZED PERCOLATION RATE = 42

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TEST PIT No. PP-3
DEPTH TESTED 24"
PRE-SOAK 24 Hour

TESTED BY PM
DTW >9.5'
NRCS TUFF CASUSE

NOTE: PIT LOCATIONS FOR PIT THREE (3) AND FOUR (4) WERE OFFSET BY 5' TESTING

Reading No.	Start Time	Stop Time	Interval (Minutes)	Water Level Drop (Inches)	Percolation Rate (Minutes per Inch)
1	11:48	12:08	20	3 1/2	6
2	12:08	12:28	20	1 1/2	13
3	12:28	12:48	20	1	20
4	12:48	13:08	20	7/8	23
5	13:08	13:28	20	3/4	27
6	13:28	13:58	30	1 1/4	24

STABILIZED PERCOLATION RATE = 24

TEST PIT No. PP-4
DEPTH TESTED 48"
PRE-SOAK 24 Hour

TESTED BY PM
DTW >9.5'
NRCS TUFF CASUSE

SOIL LAYERS (TOP OF HILL BY TRAILER)

Reading No.	Start Time	Stop Time	Interval (Minutes)	Water Level Drop (Inches)	Percolation Rate (Minutes per Inch)
1	11:45	12:05	20	2 1/8	9
2	12:05	12:27	22	1 3/8	16
3	12:27	12:47	20	3/4	27
4	12:47	13:09	22	1	22
5	13:09	13:27	18	1	18
6	13:27	13:57	30	7/8	34

STABILIZED PERCOLATION RATE = 34

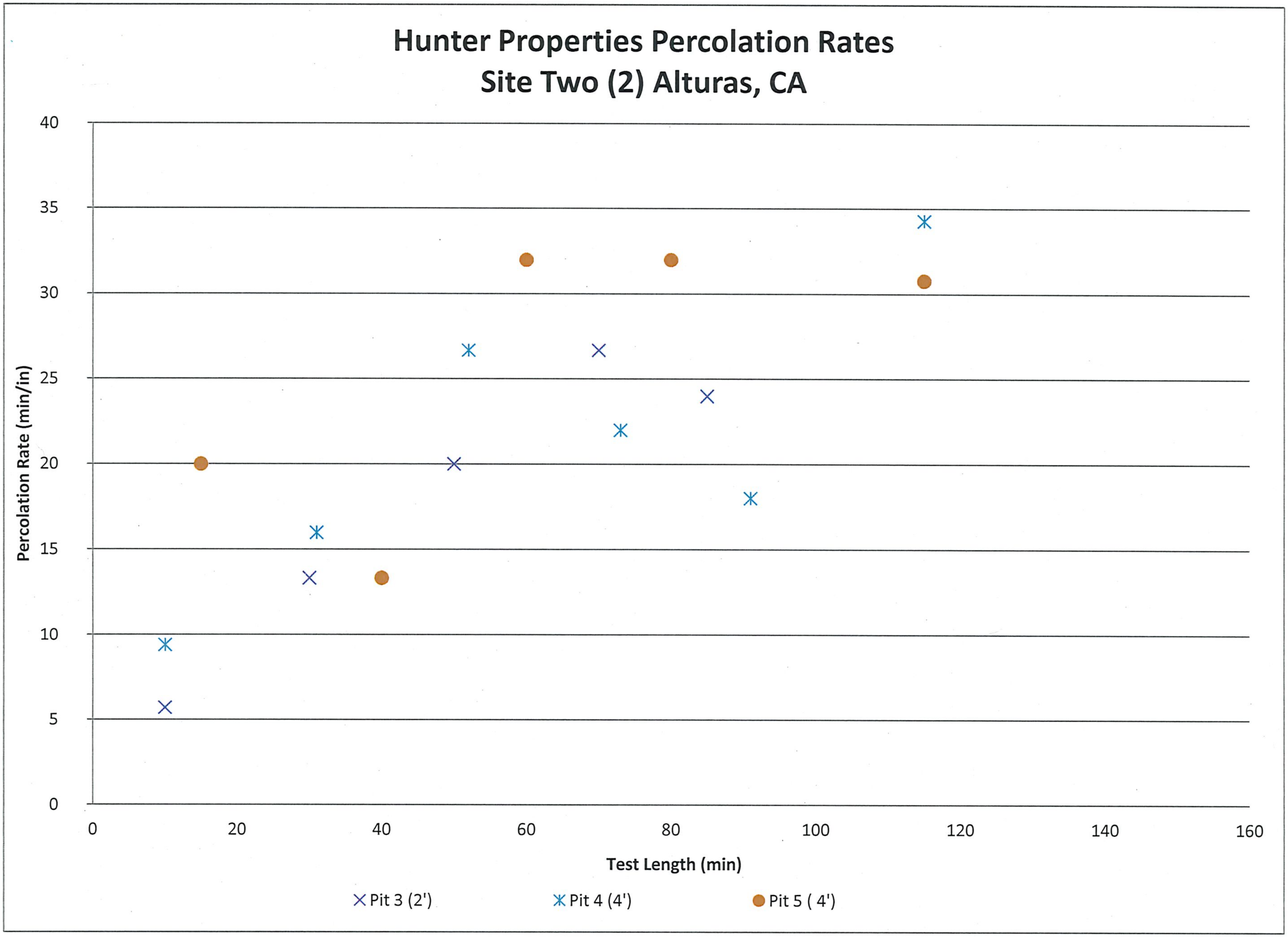
CONSULTING ENGINEERS & GEOLOGISTS, INC.
803 Main Street Suite 401, Klamath Falls, OR 97601 541-827-7855

TEST PIT No.	PP-5	TESTED BY	PM
DEPTH TESTED	24"	DTW	>10'
PRE-SOAK	24 Hour	NRCS	TUFF CASUSE

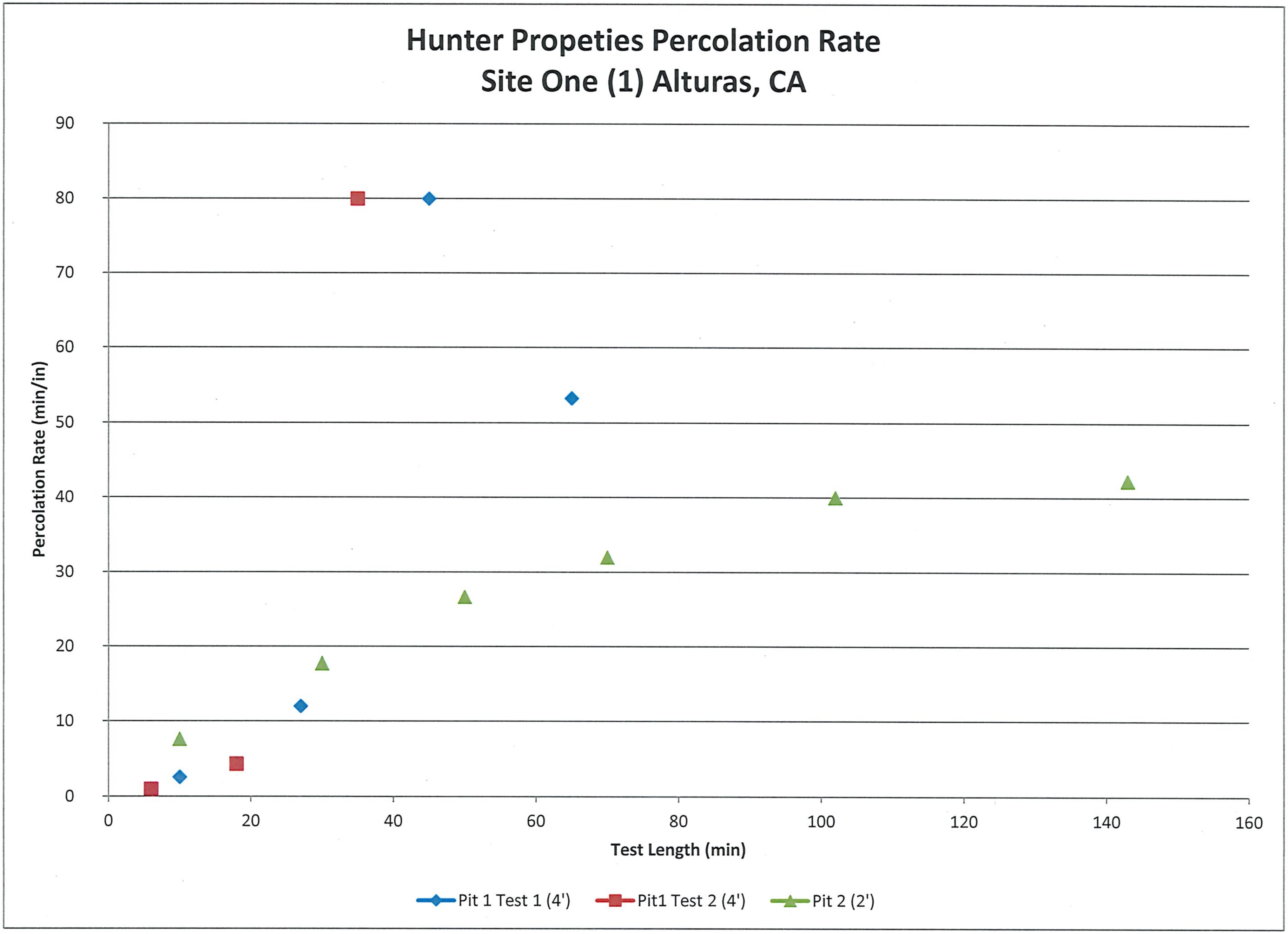
EXISTING POWERLINES (ABOVE TRAILER).

Reading No.	Start Time	Stop Time	Interval (Minutes)	Water Level Drop (Inches)	Percolation Rate (Minutes per Inch)
1	11:55	12:25	30	1 1/2	20
2	12:25	12:45	20	1 1/2	13
3	12:45	13:05	20	5/8	32
4	13:05	13:25	20	5/8	32
5	13:25	14:15	50	1 5/8	31

STABILIZED PERCOLATION RATE = 31



Hunter Properties Percolation Rates
Site Two (2) Alturas, CA
Percolation Rate (min/in)
40
35
30
25
20
15
10
5
0
0
20
40
60
80
100
120
140
160
Test Length (min)
Pit 3 (2')
Pit 4 (4')
Pit 5 (4')



Hunter Propeties Percolation Rate
Site One (1) Alturas, CA
Percolation Rate (min/in)
90
80
70
60
50
40
30
20
10
0
0
20
40
60
80
100
120
140
160
Test Length (min)
Pit 1 Test 1 (4')
Pit1 Test 2 (4')
Pit 2 (2')

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United States Department of Agriculture

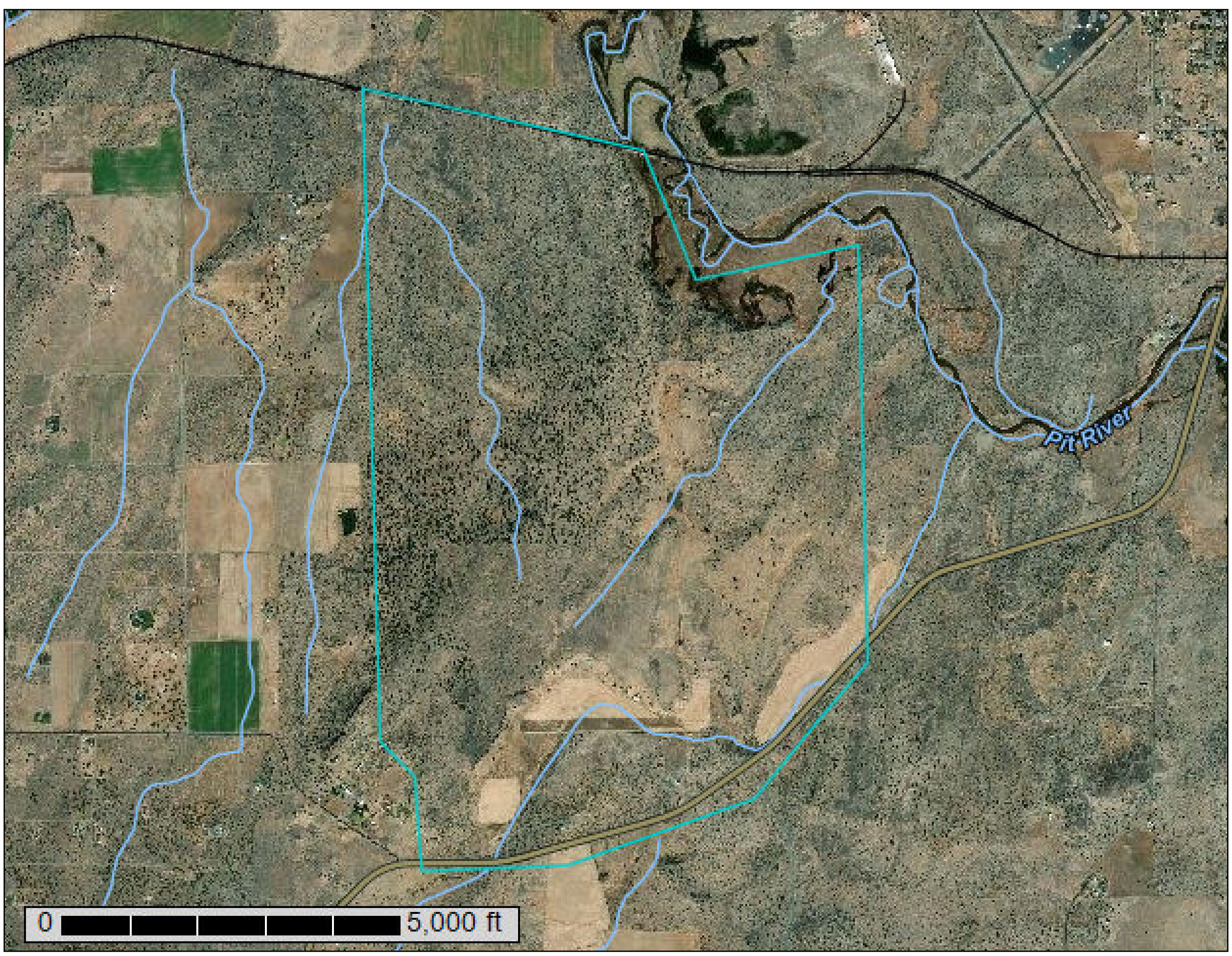
NRCS

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

Modoc County, California, Alturas Area



September 23, 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.

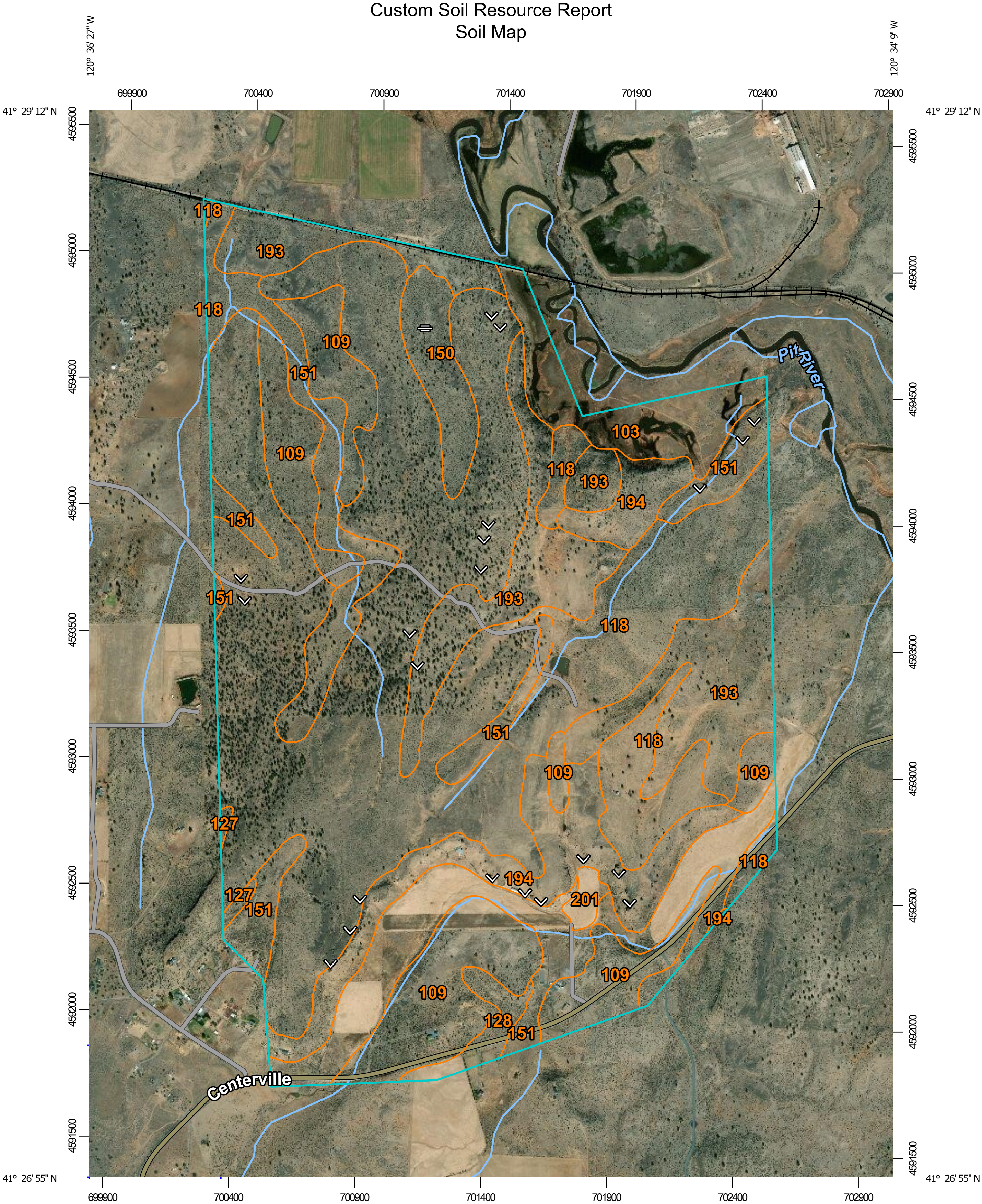
Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree 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.

Soil Map



Map Scale: 1:20,600 if printed on A portrait (8.5" x 11") sheet.

Meters: 0, 300, 600, 1200, 1800

Feet: 0, 1000, 2000, 4000, 6000

N

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: Modoc County, California, Alturas Area
Survey Area Data: Version 10, Sep 12, 2018

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Aug 1, 2016—Oct 25, 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
103	Alturas loam	57.8	3.7%
109	Bieber gravelly loam, 0 to 9 percent slopes	187.3	12.0%
118	Casuse sandy loam, 2 to 9 percent slopes	707.5	45.2%
127	Delma loam, 30 to 50 percent slopes	3.4	0.2%
128	Delma cobbly loam, 0 to 9 percent slopes	16.2	1.0%
150	Ladd sandy loam, 0 to 2 percent slopes	35.3	2.3%
151	Ladd sandy loam, 2 to 9 percent slopes	231.1	14.8%
193	Tuff outcrop-Casuse, eroded complex, 2 to 15 percent slopes	203.4	13.0%
194	Tuff outcrop-Casuse, eroded complex, 30 to 50 percent slopes	117.4	7.5%
201	Water	6.4	0.4%
Totals for Area of Interest		**1,565.8**	**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.

Modoc County, California, Alturas Area

103—Alturas loam

Map Unit Setting

National map unit symbol: jb3m
Elevation: 4,100 to 4,800 feet
Mean annual precipitation: 8 to 15 inches
Mean annual air temperature: 46 to 48 degrees F
Frost-free period: 80 to 130 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Alturas and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Alturas

Setting

Landform: Terraces
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from basic igneous rock

Typical profile

H1 - 0 to 17 inches: loam
H2 - 17 to 42 inches: clay loam
H3 - 42 to 60 inches: stratified sandy loam to gravelly loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: 40 to 50 inches to duripan
Natural drainage class: Moderately well drained
Runoff class: High
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 30 to 60 inches
Frequency of flooding: Rare
Frequency of ponding: None
Salinity, maximum in profile: Very slightly saline to moderately saline (2.0 to 8.0 mmhos/cm)
Sodium adsorption ratio, maximum in profile: 15.0
Available water storage in profile: Moderate (about 6.8 inches)

Interpretive groups

Land capability classification (irrigated): 3s
Land capability classification (nonirrigated): 3s
Hydrologic Soil Group: C
Ecological site: ALKALI TERRACE (R021XE136CA)
Hydric soil rating: No

Minor Components

Rumbo
Percent of map unit: 5 percent
Hydric soil rating: No

Unnamed
Percent of map unit: 5 percent
Hydric soil rating: No

Buntingville
Percent of map unit: 3 percent
Hydric soil rating: No

Barnard, gravelly loam, 0-9%
Percent of map unit: 1 percent
Hydric soil rating: No

Salisbury, gravelly loam, 0-9%
Percent of map unit: 1 percent
Hydric soil rating: No

109—Bieber gravelly loam, 0 to 9 percent slopes

Map Unit Setting
National map unit symbol: jb3t
Elevation: 4,300 to 5,000 feet
Mean annual precipitation: 10 to 14 inches
Mean annual air temperature: 46 to 48 degrees F
Frost-free period: 70 to 80 days
Farmland classification: Not prime farmland

Map Unit Composition
Bieber and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Bieber

Setting
Landform: Terraces
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from basic igneous rock

Typical profile
H1 - 0 to 6 inches: gravelly loam
H2 - 6 to 13 inches: gravelly clay loam
H3 - 13 to 18 inches: gravelly clay

H4 - 18 to 22 inches: indurated
H5 - 22 to 60 inches: indurated

Properties and qualities

Slope: 0 to 9 percent
Depth to restrictive feature: 8 to 22 inches to duripan
Natural drainage class: Well drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Very low (0.00 to 0.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
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: Very low (about 2.4 inches)

Interpretive groups

Land capability classification (irrigated): 4e
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: D
Ecological site: HARDPAN TERRACE (R021XE137CA)
Hydric soil rating: No

Minor Components

Barnard

Percent of map unit: 3 percent
Hydric soil rating: No

Lovejoy

Percent of map unit: 3 percent
Hydric soil rating: No

Daphnedale

Percent of map unit: 2 percent
Hydric soil rating: No

Unnamed

Percent of map unit: 2 percent
Hydric soil rating: No

Casuse

Percent of map unit: 2 percent
Hydric soil rating: No

Pineal

Percent of map unit: 2 percent
Hydric soil rating: No

Delma

Percent of map unit: 1 percent
Hydric soil rating: No

118—Casuse sandy loam, 2 to 9 percent slopes

Map Unit Setting

National map unit symbol: jb43
Elevation: 4,300 to 4,700 feet
Mean annual precipitation: 8 to 14 inches
Mean annual air temperature: 46 to 50 degrees F
Frost-free period: 80 to 90 days
Farmland classification: Not prime farmland

Map Unit Composition

Casuse and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Casuse

Setting

Landform: Terraces, escarpments
Landform position (two-dimensional): Shoulder
Landform position (three-dimensional): Riser
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Weakly cemented residuum weathered from tuff

Typical profile

H1 - 0 to 2 inches: sandy loam
H2 - 2 to 12 inches: clay loam
H3 - 12 to 60 inches: weathered bedrock

Properties and qualities

Slope: 2 to 9 percent
Depth to restrictive feature: 8 to 20 inches to paralithic bedrock
Natural drainage class: Well drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Very low (0.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
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: Very low (about 2.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: D
Ecological site: SHALLOW LOAMY (R021XE133CA)
Hydric soil rating: No

Minor Components

Unnamed

Percent of map unit: 8 percent
Hydric soil rating: No

Unnamed, moderately deep

Percent of map unit: 7 percent
Hydric soil rating: No

127—Delma loam, 30 to 50 percent slopes

Map Unit Setting

National map unit symbol: jb4d
Elevation: 4,300 to 5,300 feet
Mean annual precipitation: 10 to 16 inches
Mean annual air temperature: 46 to 48 degrees F
Frost-free period: 80 to 100 days
Farmland classification: Not prime farmland

Map Unit Composition

Delma and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Delma

Setting

Landform: Escarpments, lake terraces
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Riser
Down-slope shape: Concave, linear
Across-slope shape: Convex, linear
Parent material: Lacustrine deposits derived from basic igneous rock

Typical profile

H1 - 0 to 13 inches: loam
H2 - 13 to 18 inches: clay
H3 - 18 to 60 inches: weathered bedrock

Properties and qualities

Slope: 30 to 50 percent
Depth to restrictive feature: 8 to 20 inches to paralithic bedrock
Natural drainage class: Well drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Very low (0.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
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: Very low (about 2.8 inches)

Interpretive groups
Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: D
Ecological site: SHALLOW LOAMY (R021XE133CA)
Hydric soil rating: No

Minor Components

Daphnedale
Percent of map unit: 5 percent
Hydric soil rating: No

Casuse
Percent of map unit: 4 percent
Hydric soil rating: No

Ager
Percent of map unit: 3 percent
Hydric soil rating: No

Unnamed, eroded
Percent of map unit: 2 percent

Tuff outcrop
Percent of map unit: 1 percent

128—Delma cobbly loam, 0 to 9 percent slopes

Map Unit Setting
National map unit symbol: jb4f
Elevation: 4,300 to 5,300 feet
Mean annual precipitation: 10 to 16 inches
Mean annual air temperature: 46 to 48 degrees F
Frost-free period: 80 to 100 days
Farmland classification: Not prime farmland

Map Unit Composition
Delma and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Delma

Setting
Landform: Lake terraces, escarpments
Landform position (two-dimensional): Shoulder
Landform position (three-dimensional): Tread

Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Lacustrine deposits derived from basic igneous rock

Typical profile

H1 - 0 to 13 inches: cobbly loam
H2 - 13 to 18 inches: clay
H3 - 18 to 60 inches: weathered bedrock

Properties and qualities

Slope: 0 to 9 percent
Depth to restrictive feature: 8 to 20 inches to paralithic bedrock
Natural drainage class: Well drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Very low (0.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
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: Very low (about 2.0 inches)

Interpretive groups

Land capability classification (irrigated): 6e
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: D
Ecological site: SHALLOW LOAMY (R021XE133CA)
Hydric soil rating: No

Minor Components

Daphnedale

Percent of map unit: 8 percent
Hydric soil rating: No

Ager

Percent of map unit: 3 percent
Hydric soil rating: No

Barnard

Percent of map unit: 2 percent
Hydric soil rating: No

Casuse

Percent of map unit: 2 percent
Hydric soil rating: No

150—Ladd sandy loam, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: jb54
Elevation: 4,300 to 5,050 feet

Mean annual precipitation: 12 to 16 inches
Mean annual air temperature: 45 to 46 degrees F
Frost-free period: 80 to 100 days
Farmland classification: Prime farmland if irrigated

Map Unit Composition

Ladd and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Ladd

Setting

Landform: Alluvial fans
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Rise
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from basic igneous rock

Typical profile

H1 - 0 to 12 inches: sandy loam
H2 - 12 to 40 inches: clay loam
H3 - 40 to 60 inches: sandy loam

Properties and qualities

Slope: 0 to 2 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 (0.20 to 0.57 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
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: Moderate (about 8.7 inches)

Interpretive groups

Land capability classification (irrigated): 3s
Land capability classification (nonirrigated): 4s
Hydrologic Soil Group: C
Ecological site: LOAMY (R021XE131CA)
Hydric soil rating: No

Minor Components

Unnamed, calcareous subsoil

Percent of map unit: 6 percent
Hydric soil rating: No

Buntingville

Percent of map unit: 3 percent
Hydric soil rating: No

Ladd, sandy loam, 2 to 9% slopes

Percent of map unit: 2 percent

Hydric soil rating: No

Calimus

Percent of map unit: 2 percent
Hydric soil rating: No

Unnamed, loam surface

Percent of map unit: 2 percent
Hydric soil rating: No

151—Ladd sandy loam, 2 to 9 percent slopes

Map Unit Setting

National map unit symbol: jb55
Elevation: 4,300 to 5,050 feet
Mean annual precipitation: 12 to 16 inches
Mean annual air temperature: 45 to 46 degrees F
Frost-free period: 80 to 100 days
Farmland classification: Prime farmland if irrigated

Map Unit Composition

Ladd and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Ladd

Setting

Landform: Alluvial fans
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from basic igneous rock

Typical profile

H1 - 0 to 12 inches: sandy loam
H2 - 12 to 40 inches: clay loam
H3 - 40 to 60 inches: sandy loam

Properties and qualities

Slope: 2 to 9 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 (0.20 to 0.57 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
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: Moderate (about 8.7 inches)

Interpretive groups
Land capability classification (irrigated): 3e
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: C
Ecological site: LOAMY (R021XE131CA)
Hydric soil rating: No

Minor Components

Unnamed, calcareous subsoil
Percent of map unit: 5 percent
Hydric soil rating: No

Buntingville
Percent of map unit: 3 percent
Hydric soil rating: No

Calimus
Percent of map unit: 3 percent
Hydric soil rating: No

Lakeview, 0 to 2% slopes
Percent of map unit: 2 percent
Hydric soil rating: No

Modoc
Percent of map unit: 2 percent
Hydric soil rating: No

193—Tuff outcrop-Casuse, eroded complex, 2 to 15 percent slopes

Map Unit Setting
National map unit symbol: jb6j
Elevation: 4,000 to 4,700 feet
Mean annual precipitation: 8 to 14 inches
Mean annual air temperature: 46 to 50 degrees F
Frost-free period: 80 to 90 days
Farmland classification: Not prime farmland

Map Unit Composition
Tuff outcrop: 55 percent
Casuse and similar soils: 35 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Tuff Outcrop

Setting

Landform position (two-dimensional): Shoulder
Landform position (three-dimensional): Free face
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Tuff

Typical profile

H1 - 0 to 10 inches: unweathered bedrock

Properties and qualities

Slope: 2 to 15 percent
Depth to restrictive feature: About 0 inches to lithic bedrock
Runoff class: Very high
Available water storage in profile: Very low (about 0.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8s
Hydric soil rating: No

Description of Casuse

Setting

Landform: Terraces
Landform position (two-dimensional): Shoulder
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Residuum weathered from tuff

Typical profile

H1 - 0 to 2 inches: sandy loam
H2 - 2 to 12 inches: clay loam
H3 - 12 to 60 inches: weathered bedrock

Properties and qualities

Slope: 2 to 15 percent
Depth to restrictive feature: 8 to 20 inches to paralithic bedrock
Natural drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Very low (0.00 to 0.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
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: Very low (about 2.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: D
Ecological site: SHALLOW LOAMY (R021XE133CA)

Hydric soil rating: No

Minor Components

Daphnedale, cobbly loam, 0 to 9% slopes

Percent of map unit: 7 percent
Hydric soil rating: No

Ladd

Percent of map unit: 3 percent
Hydric soil rating: No

194—Tuff outcrop-Casuse, eroded complex, 30 to 50 percent slopes

Map Unit Setting

National map unit symbol: jb6k
Elevation: 4,000 to 4,700 feet
Mean annual precipitation: 8 to 14 inches
Mean annual air temperature: 46 to 50 degrees F
Frost-free period: 80 to 90 days
Farmland classification: Not prime farmland

Map Unit Composition

Tuff outcrop: 60 percent
Casuse and similar soils: 30 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Tuff Outcrop

Setting

Landform position (two-dimensional): Shoulder
Landform position (three-dimensional): Free face
Down-slope shape: Concave
Across-slope shape: Convex
Parent material: Tuff

Typical profile

H1 - 0 to 60 inches: bedrock

Properties and qualities

Slope: 30 to 50 percent
Depth to restrictive feature: About 0 inches to paralithic bedrock
Runoff class: Very high
Available water storage in profile: Very low (about 0.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8s
Hydric soil rating: No

Description of Casuse

Setting

Landform: Escarpments
Landform position (two-dimensional): Toeslope, shoulder
Landform position (three-dimensional): Free face, side slope
Down-slope shape: Linear, concave
Across-slope shape: Linear, convex
Parent material: Residuum weathered from tuff

Typical profile

H1 - 0 to 2 inches: cobbly sandy loam
H2 - 2 to 12 inches: clay loam
H3 - 12 to 60 inches: weathered bedrock

Properties and qualities

Slope: 30 to 50 percent
Depth to restrictive feature: 8 to 20 inches to paralithic bedrock
Natural drainage class: Well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Very low (0.00 to 0.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
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: Very low (about 2.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: D
Ecological site: SHALLOW LOAMY (R021XE133CA)
Hydric soil rating: No

Minor Components

Casuse, sandy loam, 2 to 9% slopes

Percent of map unit: 6 percent
Hydric soil rating: No

Daphnedale

Percent of map unit: 4 percent
Hydric soil rating: No

201—Water

Map Unit Composition

Water: 100 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

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Budgetary Cost Estimates 4

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Opinion of Probable Project Cost
City of Alturas WWTP
Alternative 1 Cost Summary

Item	Description	Units	Quantity	Unit Cost	Total Cost
Demolition					
1	Decommission Plant Components[2]	LS	1	$ 25,000	$ 25,000
2	Removing Existing Trickling Filter	LS	1	$ 41,000	$ 41,000
New Unit Processes					
3	Spiralift 1/4" Screen and Housing	LS	1	$ 309,000	$ 309,000
4	New Trickling Filters (x 4, with flow control and recirculation box, pumps, etc.)	LS	1	$ 1,744,000	$ 1,744,000
5	Nitrification/Denitrification	LS	1	$ 900,000	$ 900,000
6	New Aerobic Digester	EA	2	$ 386,000	$ 772,000
7	Metals Removal	LS	1	$ 1,500,000	$ 1,500,000
Rehabiltiated/Upgraded Facilities					
8	Rehabilitate Existing Influent Pump Stations - New VFD Pumps and Piping	LS	1	$ 200,000	$ 200,000
9	Convert disinfection system to hypochlorite	LS	1	$ 50,000	$ 50,000
10	Rehabilitate Secondary Clarifier (No. 1)	LS	1	$ 300,000	$ 300,000
11	Replace Back-up Generator and Electrical	LS	1	$ 57,000	$ 57,000
				Mobilization (12%):	$ 708,000
				Subtotal :	$ 6,606,000
				Contingency (30%):	$ 1,982,000
				Subtotal Construction:	**$ 8,588,000**
				Engineering/Construction Management (18%):	$ 1,546,000
				Environmental/Permitting (5%):	$ 430,000
				Administration/Legal (4%):	$ 344,000
				Total Project:	***$ 12,890,000***

Notes:

1. Refer to subsequent pages for additional information on each line item.

2. Decommissioning components of the existing plant involve terminatation of electrical connections throughout the plant and remove elevated mechanical infrastructure from the site. Components include Grit Chamber, Grinder, Primary Clarifier, and Digester. Concrete Substructures to remain.

3. Values rounded up to nearest $1,000

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Item No.: **1** **Decommision Plant Components**

Terminate Electrical Connections to WWTF treatment components and Removal of Existing Mechanical Infrastructure including the secondary clarifier distribution arm/baffling, Grit Chamber baffles and Mixer, Digester Roof and Mixer, and Primary Clarifier Scum baffles, drive housing, decking, etc.

$ 25,000.00 Allowance

Item No.: **2** **Removing Existing Trickling Filter**

Additional detail for capital construction line items

Item	Quantity	Unit	Unit Cost	Total	Source
Remove Existing Media Bed	1	LS	$ 2,500.00	$ 2,500.00	3
Removal of Existing Piping/Emmiters	1	LS	$ 1,750.00	$ 1,750.00	3
Cleaning piping, media, and emmiters	1	LS	$ 3,000.00	$ 3,000.00	3
Drain and Cap Existing Piping	1	LS	$ 2,250.00	$ 2,250.00	3
Clean out Trickling Filter Basin	1	LS	$ 3,000.00	$ 3,000.00	1
Demolish CMU block retaining wall	3000	SF	$ 3.63	$ 10,903.20	4
Demolish Original Concrete Wall	11940	CF	$ 0.68	$ 8,171.74	4
Earthwork back to Existing Grade	757	CY	$ 12.39	$ 9,383.36	4
			Subtotal :	$ 41,000.00	

Notes:

1. CMU Wall 8" wide CMU Blocks 2 walls L = 142' H = 7' ; 2 walls L = 72' H = 7'
2. Original Concrete Structure 2 walls L = 142' H = 5' W =1'; 2 walls L = 72' H = 5' W = 1'; Concrete Floor L = 140' H = 1' W = 70'
3. Earthwork to Existing Grade Dimensions Assumed; L = 142' W = 72' H =2' and Fill could be allocated from location onsite.

Sources:

1. Per Steve B
2. Per Anders R.
3. Per Phil M.
4. DCD Simple Estimator 2018

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JOB	518004		ALT 1.
SHEET NO.	3	OF	7
CALC'ED BY	PCM	DATE	3/12/2020
CHECKED BY	AHR	DATE	11/6/2020

Item No.: 3 **Spiralift 1/4" Screen and Housing**

Additional detail for capital construction line items

Item	Quantity	Unit	Unit Cost	Total	Source
Franklin Miller Spiralift	1	LS	$ 87,000.00	$ 87,000.00	1
Installation of Spiralift	1	LS	$ 174,000.00	$ 174,000.00	2
Building for New Headworks	240	SF	$ 200.00	$ 48,000.00	2
			Subtotal:	$ 309,000.00	

Note:
Installation Cost Assumed to be 2 x the Unit Budgetary Cost
Building Approximately 12' x 20' around Spiralift to protect it from the Environment

Sources:
1. Franklin Miller Budgetary Cost Estimate
2. Per Anders R.

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JOB	518004		ALT 1.
SHEET NO.	4	OF	7
CALC'ED BY	PCM	DATE	3/12/2020
CHECKED BY	AHR	DATE	11/6/2020

Item No.: 4 New Trickling Filters (x 4, with flow control and recirculation box, pumps, etc.)

Additional detail for capital construction line items

Item	Quantity	Unit	Unit Cost	Total	Source
Clearing and Grubbing Area	0.34	Acre	$ 6,127.76	$ 2,083.44	4
Rough Grading	1097	CY	$ 12.39	$ 13,592.66	3
Ditch Excavation	587	CY	$ 14.48	$ 8,499.76	4
General Excavation	1047	CY	$ 4.99	$ 5,226.99	3
Class 2 Agg Base (2' compacted)	94	Ton	$ 24.08	$ 2,269.49	4
Concrete Tanks (Forms and	188	CY	$ 954.00	$ 179,352.00	2
Material Cost and Installation Cost for 27' Distribution Arms	1	LS	$ 606,000.00	$ 606,000.00	5
Material and Installation Cost for Drive System and Control Panel	1	LS	$ 140,000.00	$ 140,000.00	5
Material and Installation Cost for Trickling Filter Media/Supports	4	EA	$ 132,000.00	$ 528,000.00	6
Piping	1057	LF	$ 150.00	$ 158,550.00	1
Recirculation Pumps, Control Boxes, Valving	1	LS	$ 100,000.00	$ 100,000.00	1
			Subtotal:	$ 1,744,000.00	

Notes:
1. Trickling Filter Beds Demensions; Diameter = 27', Height = 18'
2. Total Construction Cost (2 x the Unit Budgetary Cost)

Source:
1. Per Anders
2. Per Steve
3. DCD Simple Estimator
4. Odot 2018 Weighted Averages Awarded Price
5. WesTech Budgetary Quote
6. Brentwood Budgetary Quote Please note the distribution system for the TF don't include a steel bridge that supports the whole drive unit.

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Item No.: **5** **Nitrification/Denitrification**

Additional detail for capital construction line items

Item	Quantity	Unit	Unit Cost	Total	Source
Budgetary Quote from Triplepoint Environmental, NitrOx+D	1	LS	$ 600,000.00	$ 600,000.00	-
Site Work Installation	1	LS	$ 3,000,000.00	$ 300,000.00	-
			Subtotal Per NitrOx+D Unit	$ 900,000.00	

Item No.: **6** **New Aerobic Digester**

Additional detail for capital construction line items

Item	Quantity	Unit	Unit Cost	Total	Source
Exacavation and Grading	1	LS	$ 7,500.00	$ 7,500.00	1
Rebar and Foundation	1	LS	$ 10,000.00	$ 10,000.00	1
Piping including Earthwork	1	LS	$ 81,000.00	$ 81,000.00	1
Mixer	1	LS	$ 97,000.00	$ 97,000.00	1
Installation of Mixer	1	LS	$ 145,500.00	$ 145,500.00	4
Digester with Reinforcement	1	LS	$ 45,000.00	$ 45,000.00	1
			Subtotal Per Digester:	$ 386,000.00	

Notes:
1. 20% added to vendor costs to account for contractor markup
2. Aerobic Digester Demensions; H = 18' Dia 30'
3. Mixer cost provided by WesTech
4. Installation of Mixer assumed to be 1.5 x Unit Budgetary Cost
Sources:
1. 2007 National Construction Estimator

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JOB	518004		ALT 1.
SHEET NO.	6	OF	7
CALC'ED BY	PCM	DATE	3/12/2020
CHECKED BY	AHR	DATE	11/6/2020

Item No.: **7** **Metals Removal**

Item	Quantity	Unit	Unit Cost	Total	Source
Metals Removal	1	LS	$ 1,500,000.00	$ 1,500,000.00	-
			Subtotal:	$ 1,500,000.00	

Notes:

Sources:
1. Jim Coskey, JBI Water

Process:
Precipitation using contact clarifier
Need pH above 10.3
Will require pH reduction after process
See report text for additional description

Item No.: **8** **Rehabilitate Existing Influent Pump Stations - New VFD Pumps and Piping**

Additional detail for capital construction line items

Item	Quantity	Unit	Unit Cost	Total	Source
750 HP Variable Drive Pump	2	EA	$ 30,000.00	$ 60,000.00	1
350 HP Variable Drive Pump	1	EA	$ 15,000.00	$ 15,000.00	1
Piping, Valving, and Support	1	LS	$ 40,000.00	$ 40,000.00	2
Crane and Access Point	1	LS	$ 75,000.00	$ 75,000.00	1
Improve Existing Electrical	1	LS	$ 10,000.00	$ 10,000.00	1
			Subtotal :	$ 200,000.00	

Notes:
1. 20% added from Vendors Price for Shipping:
2. (2) 750 Hp Variable Drive Pumps
3. (1) 350 Hp Variable Drive Pump
4. Currently No Crane/ Access to remove Pumps Safely

Sources:
1. Per Anders R.
2. DCD Simple Estimator 2018

Item No.: **9** **Convert disinfection system to hypochlorite**

Additional detail for capital construction line items

Assume conversion from gaseous to liquid disinfection and dechlorination in existing building.

Allowance: $50,000

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Item No.: **10** **Rehabilitate Secondary Clarifier (No. 1)**

Additional detail for capital construction line items

Item	Quantity	Unit	Unit Cost	Total	Source
Material and Installation Cost for	1	LS	$ 260,000.000	$ 260,000.000	1
Material and Installation Cost for	1	LS	$ 16,000.00	$ 16,000.00	1
Replace Existing Valving	1	LS	$ 15,000.00	$ 15,000.00	2
Miscellaneous Repair of	1	LS	$ 5,000.00	$ 5,000.00	3
Sludge Pump	LS	1	$ 4,000.00	$ 4,000.00	3
			Subtotal:	$ 300,000.000	

Notes:
1. (1) 12" Ductile Iron Gate Valve
2. Total Construction Cost Assumed to be 2 x the Unit Budgetary Cost

Sources:
1. WesTech Budgetary Quote (Clarifier has steel bridge associated with the distributor arm that holds the wieght of
2. DCD Simple Estimator 2018
3. Per Anders R.

Item No.: **11** **Replace Back-up Generator and Electrical**

Additional detail for capital construction line items

Item	Quantity	Unit	Unit Cost	Total	Source
Generac Commercial 150KW	1	LS	$ 34,000.00	$ 34,000.00	1
Earthwork and Concrete Pad for	1	LS	$ 3,000.00	$ 3,000.00	2
Electrical Connection	1	LS	$ 20,000.00	$ 20,000.00	3
			Subtotal:	$ 57,000.00	

Sources:
1. Generac Website
2. DCD Simple Estimator 2018
3. Per Anders R.

Opinion of Probable Project Cost

City of Alturas WWTP

Alternative 2 Cost Summary

Item	Description	Units	Quantity	Unit Cost	Total Cost
Demolition					
1	Decommission Plant Components[2]	LS	1	$ 25,000	$ 25,000
2	Remove Existing Trickling Filter	LS	1	$ 41,000	$ 41,000
New Unit Processes					
3	Spiralift 1/4" Screen and Housing	LS	1	$ 309,000	$ 309,000
4	New Trickling Filters (x 4, with flow control and recirculation box, pumps, etc.)	LS	1	$ 1,744,000	$ 1,744,000
5	New Aerobic Digester	EA	2	$ 386,000	$ 772,000
6	Effluent Pump Station	LS	1	$ 900,000	$ 900,000
7	Effluent Force Main	LS	1	$ 582,000	$ 582,000
8	Infitration Ponds	LS	1	$ 157,000	$ 157,000
Rehabilitated/Upgraded Facilities					
9	Replace Back-up Generator and Electrical	LS	1	$ 56,000	$ 56,000
10	Rehabilitate Existing Influent Pump Stations - New VFD Pumps and Piping	LS	1	$ 200,000	$ 200,000
11	Rehabilitate Secondary Clarifier (No. 1)	LS	1	$ 300,000	$ 300,000
12	Effluent Flow Meter	LS	1	$ 15,000	$ 15,000
Other					
13	Groundwater Monitoring Wells	LS	1	$ 60,000	$ 60,000
				Mobilization (12%):	$ 620,000
				Subtotal :	$ 5,781,000
				Contingency (30%):	$ 1,735,000
				Subtotal Construction:	**$ 7,516,000**
				Land Acquisition:	$ 361,000
				Engineering/Construction Management (18%):	$ 1,353,000
				Environmental/Permitting (5%):	$ 376,000
				Administration/Legal (4%):	$ 301,000
				Total Project:	***$ 11,642,000***

Notes:

1. Refer to subsequent pages for additional information on each line item.

2. Decommissioning components of the existing plant involve terminatation of electrical connections throughout the plant and remove elevated mechanical infrastructure from the site. Components include Grit Chamber, Grinder, Primary Clarifier, and Digester. Concrete Substructures to remain.

3. Values rounded up to nearest $1,000

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JOB	518004		ALT 2.
SHEET NO.	2	OF	9
CALC'ED BY	PCM	DATE	3/12/2020
CHECKED BY	AHR	DATE	11/6/2020

Item No.: **1** **Decommision Plant Components**

Terminate Electrical Connections to WWTF treatment components and Removal of Existing Mechanical Infrastructure including the secondary clarifier distribution arm/baffling, Grit Chamber baffles and Mixer, Digester Roof and Mixer, and existing Grinder, and Primary Clarifier Scum baffles, drive housing, decking, etc.

$ 25,000.00 Allowance

Item No.: **2** **Remove Existing Trickling Filter**

Additional detail for capital construction line items

Item	Quantity	Unit	Unit Cost	Total	Source
Remove Existing Media Bed	1	LS	$ 2,500.00	$ 2,500.00	3
Removal of Existing Piping/Emmiters	1	LS	$ 1,750.00	$ 1,750.00	3
Cleaning piping, media, and emmiters	1	LS	$3,000	$ 3,000.00	3
Drain and Cap Existing Piping	1	LS	$2,250	$ 2,250.00	3
Clean out Trickling Filter Basin	1	LS	$3,000	$ 3,000.00	1
Demolish CMU block retaining wall	3000	SF	$ 3.63	$ 10,903.20	4
Demolish Original Concrete Wall	11940	CF	$ 0.68	$ 8,171.74	4
Earthwork back to Existing Grade	757	CY	$ 12.39	$ 9,379.23	4
			Subtotal :	$ 41,000.00	

Notes:

1. CMU Wall 8" wide CMU Blocks 2 walls L = 142' H = 7' ; 2 walls L = 72' H = 7'
2. Original Concrete Structure 2 walls L = 142' H = 5' W =1'; 2 walls L = 72' H = 5' W = 1'; Concrete Floor L = 140' H = 1' W = 70'
3. Earthwork to Existing Grade Demensions Assumed; L = 142' W = 72' H =2' and Fill could be allocated from location onsite.

Sources:

1. Per Steve B
2. Per Anders R.
3. Per Phil M.
4. DCD Simple Estimator 2018

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Item No.: 3 **Spiralift 1/4" Screen and Housing**

Additional detail for capital construction line items
1.2% added from Vendors Price for Shipping:

Item	Quantity	Unit	Unit Cost	Total	Source
Franklin Miller Spiralift Screen	1	LS	$ 87,000.00	$ 87,000.00	1
Installation fo Spiralift	1	LS	$ 174,000.00	$ 174,000.00	2
Building for New Headworks	240	SF	$ 200.00	$ 48,000.00	2
			Subtotal:	$ 309,000.00	

Note:
Installation Cost Assumed to be 2 x the Unit Budgetary Cost.
Building 12' x 20' around Helicoil Sieve to protect it from freezing.

Sources
1. Franklin Miller Budgetary Cost Estimate
2. Per Anders R.

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CALC'ED BY	PCM	DATE	3/12/2020
CHECKED BY	AHR	DATE	11/6/2020

Item No.: 4 New Trickling Filters (x 4, with flow control and recirculation box, pumps, etc.)

Additional detail for capital construction line items

Item	Quantity	Unit	Unit Cost	Total	Source
Clearing and Grubbing Area	0.34	Acre	$ 6,127.76	$ 2,083.44	4
Rough Grading	1097	CY	$ 12.39	$ 13,592.66	3
Ditch Excavation	587	CY	$ 14.48	$ 8,499.76	4
General Excavation	1047	CY	$ 4.99	$ 5,226.99	3
Class 2 Agg Base (2' compacted)	94	Ton	$ 24.08	$ 2,263.52	4
Concrete Tanks Forms and	188	CY	$ 954.00	$ 179,352.00	2
Material and Installation Cost for 27' Distribution Arms (x4)	1	LS	$ 606,000.00	$ 606,000.00	5
Material and Installation Cost for Drive System and Control Panel (x4)	1	LS	$ 140,000.00	$ 140,000.00	5
Material and Installation Cost for Trickling Filter Media/Supports	4	EA	$ 132,000.00	$ 528,000.00	6
Piping	1057	LF	$ 150.00	$ 158,550.00	3
Recirculation Pumps, Control Boxes, Va	1	LS	$ 100,000.00	$ 100,000.00	1
			Subtotal:	$ 1,744,000.00	

Notes:
1. Trickling Filter Beds Demensions; Diameter = 27', Height = 18'
2. Total Construction Cost (2 x the Unit Budgetary Cost)

Source:
1. Per Anders
2. 2007 National Construction Estimator
3. DCD Simple Estimator
4. Odot 2018 Weighted Averages Awarded Price
5. WesTech Budgetary Quote
6. Brentwood Budgetary Quote

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Item No.: 5 **New Aerobic Digester**

Additional detail for capital construction line items

Notes:

Item	Quantity	Unit	Unit Cost	Total	Source	
Exacavation and Grading	1	LS	$ 7,500.00	$ 7,500.00	1	$ 7,500.00
Rebar and Foundation	1	LS	$ 10,000.00	$ 10,000.00	1	$ 10,000.00
Piping including Earthwork	1	LS	$ 81,000.00	$ 81,000.00	1	$ 75,000.00
Mixer	1	LS	$ 97,000.00	$ 97,000.00	1	$ 97,000.00
Installation of Mixer	1	LS	$ 145,500.00	$ 145,500.00	4	$ 145,500.00
Digester with Reinforcement	1	LS	$45,000	$ 45,000.00	1	$ 45,000.00
			Subtotal Per Digester:	$ 386,000.00		

Notes:
1. 20% added to vendor costs to account for contractor markup
2. Digester Demensions H = 18' Dia 30'
3. Mixer cost provided by WesTech
4. Installation of Mixer assumed to be 1.5 x Unit Budgetary Cost

Sources:

1. 2007 National Construction Estimator

Item No.: 6 **Effluent Pump Station**

Additional detail for capital construction line items

Notes:

This would include the installation of a dry and wet well with capacity to pump from the post treated plant to the new infiltration beds. This would include (3) pumps. This amount would include connection to electric.

$ 900,000.00 Allowance

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Item No.: 7 **Effluent Force Main**

Additional detail for capital construction line items

Item	Quantity	Unit	Unit Cost	Total	Source
Install 8" Force Main From WWTF to Infiltration Ponds	11000	LF	$ 50.00	$ 550,000.00	1
Install 8" Force Main Ductile Iron Bridge Crossing with Supports	500	LF	$ 60.00	$ 30,000.00	1
Bridge Supports	1	LS	$ 1,300.00	$ 1,300.00	2
			Subtotal:	$ 582,000.00	

Note:
1. Cal Trans Guidence for Zone 1 & 2
2. DCD Simple Estimator

Item No.: 8 **Infitration Ponds**

Additional detail for capital construction line items

Item	Quantity	Unit	Unit Cost	Total	Source
Earthwork	26482	CY	$ 4.94	$ 130,932.30	1
Valving, Piping, and Restraints	1	LS	$ 17,070.00	$ 17,070.00	1
Eriosion Control	1	LS	$ 8,000.00	$ 8,000.00	2
			Subtotal:	$ 157,000.00	

Notes:
1. 20% added to vendor costs to account for contractor markup

Source:
1. 2018 DCD Simple Estimator
2. Per Anders

Item No.: 9 **Replace Back-up Generator and Electrical**

Additional detail for capital construction line items

Item	Quantity	Unit	Unit Cost	Total	Source
150 KW Generator	1	EA	$ 34,000.00	$ 34,000.00	1
Earthwork and Concrete Pad for	1	EA	$ 2,000.00	$ 2,000.00	2
Electrical Connection	1	EA	$ 20,000.00	$ 20,000.00	3
			Subtotal:	$ 56,000.00	

Notes:
1. One generator to replace existing plant back-up generator, second generator to be placed at new pump station.

Source:

1. Generac Website
2. 2018 DCD Simple Estimator
3. Per Anders R.

Item No.: 10 **Rehabilitate Existing Influent Pump Stations - New VFD Pumps and Piping**

Additional detail for capital construction line items
1.2% added from Vendors Price for Shipping:

Item	Quantity	Unit	Unit Cost	Total	Source
750 HP Variable Drive Pump	2	EA	$ 30,000.00	$ 60,000.00	1
350 HP Variable Drive Pump	1	EA	$ 15,000.00	$ 15,000.00	1
Piping, Valving, and Support	1	LS	$ 40,000.00	$ 40,000.00	2
Crane and Access Point	1	LS	$ 75,000.00	$ 75,000.00	1
Improve Existing Electrical System in	1	LS	$ 10,000.00	$ 10,000.00	1
			Subtotal :	$ 200,000.00	

Notes:
1. 20% added from Vendors Price for Shipping:
2. (2) 750 Hp Variable Drive Pumps
3. (1) 350 Hp Variable Drive Pump
4. Currently No Crane/ Access to remove Pumps Safely

Sources:
1. Per Anders
2. DCD Simple Estimator

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Item No.: 11 **Rehabilitate Secondary Clarifier (No. 1)**

Additional detail for capital construction line items

Item	Quantity	Unit	Unit Cost	Total	Source
(1) 28' Rake Arm, Surface Skimmer, and Walkway	1	LS	$ 260,000.000	$ 260,000.000	1
FRP Effluent Weir & Baffles	1	LS	$ 16,000.00	$ 16,000.00	1
Replace Existing Valving	1	LS	$ 15,000.00	$ 15,000.00	2
Miscellaneous Repair of Concrete	1	LS	$ 5,000.00	$ 5,000.00	3
Sludge Pump	1 LS		$ 4,000.00	$ 4,000.00	
			Subtotal:	$ 300,000.000	

Notes:
1. Construction Cost Assumed to be 2 x the Unit Budgetary Cost.
2. 12" Ductile Iron Gate Valve

Sources:
1. WesTech Budgetary Quote
2. 2018 DCD for Gate Valve

Item No.: 12 **Effluent Flow Meter**

Additional detail for capital construction line items

Item	Quantity	Unit	Unit Cost	Total	Source
Flow meter (mag meter)	1	EA	$ 15,000.00	$ 15,000.00	1
			Subtotal:	$ 15,000.00	

Notes:

Sources:
1. Per Anders

Item No.: **13** **Groundwater Monitoring Wells**

Additional detail for capital construction line items

Item	Quantity	Unit	Unit Cost	Total	Source
Groundwater Monitoring Wells	3	EA	$ 20,000.00	$ 60,000.000	1
			Subtotal:	$ 60,000.000	

Notes:
1. Actual cost of the monitoring wells dependent on depth to groundwater.

Sources:
1. Per Anders

Cost of Purchasing Property for Ponds

Additional detail for capital construction line items

Item	Quantity	Unit	Unit Cost	Total	Source
Parcel Property	277	AC	$ 1,300.00	$ 360,100.000	1
			Subtotal:	$ 361,000.000	

Notes:
1. Parcel Cost was provided by City of Alturas. Cost of parcel is $1000/ac. Estimated cost ($1300/ac) includes additional transaction fees (closing costs), legal costs, survey, etc.

Sources:
1. Per Anders

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Opinion of Probable Project Cost
City of Alturas WWTP
Alternative 3 Cost Summary

Item	Description	Units	Quantity	Unit Cost	Total Cost
Demolition					
1	Decommission Existing Plant[2]	LS	1	$ 25,000	$ 25,000
New Unit Processes					
2	Back-up Generators[3]	LS	1	$ 124,000	$ 124,000
3	Flow monitoring	LS	1	$ 15,000	$ 15,000
4	Spiralift 1/4" Screen w/ Construction and Housing	EA	1	$ 309,000	$ 309,000
5	Influent Pump Station	LS	1	$ 900,000	$ 900,000
6	Influent Force Main	LS	1	$ 582,000	$ 582,000
7	Aeration Basin	LS	1	$ 1,037,000	$ 1,037,000
8	Infiltration Ponds	LS	1	$ 156,000	$ 156,000
9	Groundwater Monitoring Wells	LS	1	$ 60,000	$ 60,000
10	Blower Building	SF	400	$ 200	$ 80,000
				Mobilization (12%):	$ 395,000
				Subtotal :	$ 3,263,000
				Contingency (30%):	$ 979,000
				Subtotal Construction:	**$ 4,242,000**
				Land Acquisition:	$ 361,000
				Engineering/Construction Management (18%):	$ 764,000
				Environmental/Permitting (5%):	$ 213,000
				Administration/Legal (4%):	$ 170,000
				Total Project:	***$ 5,750,000***

Notes:

1. Refer to subsequent pages for additional information on each line item.
2. Decommissioning of the most existing plant components including terminatation of electrical connections throughout the plant and removal of elevated mechanical infrastructure from the site. Concrete substructures to remain.

3. According to the Operator of Record for the City of Alturas WWTF, the current generator is not a reliable back-up power source. With new infrastructure being proposed, it should also have a source of backup power, therefore two (2) generators have been recommended for this upgrade. One (1) generator to provide backup power for the influent pump station and one (1) generator to provide backup power the aeration ponds.

4. Values rounded up to the nearest $1,000

Item No.: 1 **Decommission Existing Plant**

Terminate Electrical Connections to WWTF treatment components and Removal of Existing Mechanical Infrastructure.

$ 25,000.00 Allowance

Item No.: 2 **Back-up Generators**

Additional detail for capital construction line items

Notes:

Item	Quantity	Unit	Unit Cost	Total	Source
150 KW Generator[1]	2	EA	$ 34,000.00	$ 68,000.00	2
Electrical connection, automatic transfer switch	2	EA	$ 25,000.00	$ 50,000.00	
Earthwork and Concrete Pad for Generator	2	LS	$ 3,000.00	$ 6,000.00	1
			Subtotal:	$ 124,000.00	

Note:

1. Two Generator have been specified for this Alternative to provide back up power at both the Pump Station and the Aeration Ponds. The generator at the pump station will replace the existing generator lcoated at the existing WWTP.

Source:
1. DCD Simple Estimator
2. Generac Website

Item No.: 3 **Flow monitoring**

Additional detail for capital construction line items

Allowance for influent flow monitoring: $ 15,000
Magmeter at influent pump station discharge

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Item No.: 4 **Spiralift 1/4" Screen w/ Construction and Housing**

Additional detail for capital construction line items
1.2% added from Vendors Price for Shipping:

Item	Quantity	Unit	Unit Cost	Total	Source
Franklin Miller Spiralift Screen	1	LS	$ 87,000.00	$ 87,000.00	1
Installation of Spiralift	1	LS	$ 174,000.00	$ 174,000.00	2
Building for New Headworks	240	SF	$ 200.00	$ 48,000.00	2
			Subtotal:	$ 309,000.00	

Note:
Installation Cost Assumed to be 3 x the Unit Cost
Building 12' x 20' around Helicoil Sieve

Sources:
1. Franklin Miller Budgetary Cost Estimate
2. Per Anders R.

Item No.: 5 **Influent Pump Station**

Additional detail for capital construction line items

Installed $ 900,000 As per Anders and previous projects experience

Subtotal: $ 900,000

Item No.: 6 **Influent Force Main**

Additional detail for capital construction line items

Notes: 1. 20% added to vendor costs to account for contractor markup

Item	Quantity	Unit	Unit Cost	Total	Source
Install 8" Force Main From WWTF	11000	LF	$ 50.00	$ 550,000.00	1
Install 8" Ductile Iron From WWTF	500	LF	$ 60.00	$ 30,000.00	1
8" Bridge Support	1	LS	$ 1,300.00	$ 1,300.00	
			Subtotal:	$ 582,000.00	

Source:
1. Per Anders

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Item No.: **7** **Aeration Basin**

Additional detail for capital construction line items
1.2% added from Vendors Price for Shipping:

Item	Quantity	Unit	Unit Cost	Total	Source
Excavation	55543	CY	$ 4.12	$ 228,737.18	2
Rough Grading	21450	CY	$ 4.94	$ 106,053.09	2
Electrical Connection	1	LS	$ 40,000.00	$ 40,000.00	1
Valving and Piping	1	LS	$ 20,195.00	$ 20,195.00	2
60 mm Pond Liner	145368	SF	$ 0.80	$ 116,294.40	1
Triple Lagoon System	1	LS	$ 505,000.00	$ 505,000.00	3
Pontoon Boat with Jib for	1	LS	$ 20,000.00	$ 20,000.00	1
			Subtotal:	$ 1,037,000.00	

Note:
1. Total Construction cost (2 x Budgetary Unit value)
2. Backup Generator accounted for under Item 1.

Sources:
1. Per Anders R.
2. DCD Simple Estimator 2018
3. Triple Point Lagoons

Item No.: **8** **Infiltration Ponds**

Additional detail for capital construction line items

Item	Quantity	Unit	Unit Cost	Total	Source
Earthwork	26482	CY	$ 4.94	$ 130,932.30	3
Valving, Piping, and Restraints	1	LS	$ 20,000.00	$ 20,000.00	3
Erosion Control	1	LS	$ 5,000.00	$ 5,000.00	1
			Subtotal:	$ 156,000.00	

Source:
1. Per Anders
2. 2007 National Construction Editor
3. DCD Simple Estimator

Item No.: 9 **Groundwater Monitoring Wells**

Additional detail for capital construction line items

Item	Quantity	Unit	Unit Cost	Total	Source
Groundwater Monitoring Wells	3	EA	$ 20,000.00	$ 60,000.00	1
			Subtotal:	$ 60,000.00	

Sources:
1. Per Anders

Item No.: 10 **Blower Building**

Additional detail for capital construction line items

Item	Quantity	Unit	Unit Cost	Total	Source
Blower Building	400	SF	$ 200.00	$ 80,000.00	1
			Subtotal:	$ 80,000.00	

Notes:
1. 20' x 20' shed for Blower infrasturcture and storage of equipment.

Sources:
1. Per Anders

Cost of Purchasing Property for Ponds

Additional detail for capital construction line items

Item	Quantity	Unit	Unit Cost	Total	Source
Property	277	AC	$ 1,300.00	$ 361,000.00	1
			Subtotal:	$ 361,000.00	

Source:
1. Per City of Alturas

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Opinion of Annual Wastewater Operational Costs
City of Alturas Wastewater Planning Study

Item	Description	Alternative 1 Rehab WWTP w/ River Discharge	Alternative 2 Rehab WWTP w/ Land Discharge	Alternative 3 New WWTP w/ Land Discharge
1	Labor	$ 85,000	$ 85,000	$ 85,000
2	Chemicals	$ 95,000	$ 39,500	$ -
3	Testing/Reporting	$ 35,000	$ 24,500	$ 24,500
4	Sludge/solids hauling	$ 2,000	$ 2,000	$ 1,000
5	Electrical Costs	$ 28,500	$ 30,900	$ 48,800
6	Permitting	$ 5,000	$ 5,000	$ 5,000
	Annual O&M costs:	$ 250,500	$ 186,900	$ 164,300

Notes:
1. Other costs not listed are considered relatively equal between the three alternatives.

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Operations Cost Details for all alternatives

Item No.: 1 Labor

For all three alternatives, assume the following for labor including benefits for one full time person.
Per Jason Diven, City of Alturas

Annual Labor: $ 85,000 per year

Item No.: 2 Chemicals

For FY 2018/2019, the City spent $98,647 on chemicals, which include:
pH adjustment, coagulation, chlorination, dechlorination
No further breakdown of costs was available.

Assume the following:
1. For Alternative 1, assume minor reduction in coagulation, but increase for lime and pH adjustment.
2. For Alternative 2, assume reduction in coagulation, chlorination, and dechlorination,
use 40% of recent costs.
3. For Alternative 3, assume full elimination of chemicals, use $0.

	Alt 1	Alt 2	Alt 3
Chem costs:	$ 95,000	$ 39,500	$ -

Item No.: 3 Testing/Reporting

Current budget for testing fees is $35,000.
Assume same for Alt 1 with river discharge.
For Alts 2 and 3, reduced effluent testing but groundwater monitoring; assume 70%
of current budget.

	Alt 1	Alt 2	Alt 3
Testing:	$ 35,000	$ 24,500	$ 24,500

Item No.: 4 Sludge/solids hauling

Sludge handling in most recent year was $973.
Alt 1 includes solids removal at headworks plus sludge handling.
Alt 2 includes solids removal at headworks plus sludge handling.
Alt 3 includes only solids removal at headworks.
Assume following:

	Alt 1	Alt 2	Alt 3
Testing:	$ 2,000	$ 2,000	$ 1,000

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Operations Cost Details for all alternatives

Item No.: 5 Electrical Costs

Notes: 1. Assumed rate of: $0.17 per kWh Pacific Power
$0.07 per kWh Surprise Valley Electric
Rates cover meter charges for SVE

Notes:
2. 1 hp = 0.746 kW
3. Electrical budget for current FY is $28,500

Alt 1 Rehab WWTP w/ River Discharge

Assume same electrical costs as currently: $ 28,500 per year

Alt 2 Rehab WWTP w/ Land Discharge

Assume same electrical costs as currently:	$ 28,500	
Plus effluent pumping of approximately:	$ 2,400	
Total:	$ 30,900	per year

Effluent pumping based on 108 MG pumped per year using 14,000 kwh
All power in Pacific Power service area.

Alt 3 New WWTP w/ Land Dishcarge

Headworks plus pumping in Pacific Power service area
Blowers at new WWTP in SVE service area

Headworks screen (allowance):	$ 600	
Influent pumping (same as Alt 2):	$ 2,400	
Blowers (2x50hp=746 kW), running 24/7 =	653,496	kwh per year
Electrical cost for blower:	$ 45,800	
Total:	$ 48,800	

Item No.: 6 Permitting

Notes: Annual permit estimates were derived from the following fee equation, provided in the California Code of Regulations (Fee Schedule) by the California State Water Resources Control Board:

"Fee equals $2,572 plus 4,548 multiplied by the permitted flow, in mgd"

flow = 0.5 mgd
Annual Permit Fee = $ 4,846 *

* The annual permit fee is rounded to the nearest thousands for the planning stage.

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Present Value Analysis
City of Alturas Wastewater Planning Study

Data mostly from other spreadsheets

Discount rates from OMB Circular A-94 Appendix C November 2019
Duration 20 years
Nominal rate 2.3%
Real rate 0.3%

Project Component Alternatives	Capital Cost	Annual O&M	Present Value O&M	Salvage Value	Present Value Salvage	Net Present Value
Alternative 1	$ 12,890,000	$ 250,500	$4,855,598	$ 4,253,700	$ 4,006,344	$ 13,739,254
Alternative 2	$ 11,642,000	$ 186,900	$3,622,799	$ 3,841,860	$ 3,618,452	$ 11,646,347
Alternative 3	$ 5,750,000	$ 164,300	$3,184,729	$ 1,897,500	$ 1,787,159	$ 7,147,571

For salvage value, assume overall average 30-year life w/ straightline depreciation, so after 20 years, salvage is 33%.
Net Present Value = Capital Cost + Present Worth O&M - Present Worth Salvage.

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Aerator Manufacturer Design Data 5

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Basis of Design
Alturas, CA
16-Oct-19

Aeration Design Calculations

SUMMARY - General Design Parameters

v3.6.3		**Design Scenario Name**		**ADF**
	1	Influent Flowrate	MGD	0.500
	2	Influent Concentration	mg/L	240.0
	3	Effluent Concentration (summer)	mg/L	10.7
	4	Effluent Concentration (winter)	mg/L	29.0
	5	Actual Oxygen Supplied	lb/day	1522.8
	6	Has air been provided for nitrification?		No
	7	Number of Aerators		27
	8	Estimated Tubing Length	ft	4000
	9	Airflow	scfm	955
	10	Design Pressure (includes cushion)	psig	7.51
	11	Projected Brake Horsepower	bhp	35.55
	12	Min. Design Horsepower	hp	53

SUMMARY - Aerators

Air Supplied Via: Manifolds

Cell Name	**Aerator Type**	
Cell 1	750T	21
Cell 2	750T	6
Cell 3	750T	0
Cell 4	750T	0
Cell 5	750T	0
Cell 6	750T	0

SUMMARY - Biological Treatment Calculations

	Item	**Description**	**Units**	**ADF**
	1	Number of Treatment Cells		2
	2	Flow Regime		Series
	3	Site Elevation - HWL	MSL - ft	4370
Cell 1				
	4	Wastewater Flowrate	MGD	0.500
	5	Treatment Volume	M-Gal	6.7
	6	Treatment Time	days	13.3
	7	Treatment Type	-	Partial Mix
	8	Standard Reaction Rate, k_{20}	days^{-1}	0.28
Summer	9	Design Water Temp	°C	20
	10	Design Reaction Rate, k_T	days^{-1}	0.122
	11	Biological Treatment Efficiency	%	78.9%
	12	Influent BOD Loading	lb/day	1,000
	13	Influent BOD Concentration	mg/L	240.0
	14	BOD Removed	lb/day	788
	15	Effluent BOD Loading	lb/day	211
	16	Effluent BOD Concentration	mg/L	50.7
Winter	17	Design Water Temp	°C	0.5
	18	Biological Treatment Efficiency	%	65.2%
	19	BOD Removed	lb/day	651.8
	20	Effluent BOD Concentration	mg/L	83.5
	N1	Influent NBOD Loading	lb/day	104
	N2	Influent NBOD Concentration	mg/L	25.0
	N3	NBOD Removed* (Assumed)	lb/day	-
	N4	Effluent NBOD Loading*	lb/day	104
	N5	Effluent NBOD Concentration*	mg/L	25

Cell 2

	17	Wastewater Flowrate	MGD	0.500
	18	Treatment Volume	M-Gal	6.7
	19	Treatment Time	days	13.3
	21	Treatment Type	-	Partial Mix
	22	Standard Reaction Rate, k_{20}	$days^{-1}$	0.28
Summer	20	Design Water Temp	°C	20
	23	Design Reaction Rate, k_T	$days^{-1}$	0.122
	24	Biological Treatment Efficiency	%	78.9%
	25	Influent BOD Loading	lb/day	211
	26	Influent BOD Concentration	mg/L	50.7
	27	BOD Removed	lb/day	166
	28	Effluent BOD Loading	lb/day	45
	29	Effluent BOD Concentration	mg/L	10.7
Winter	17	Design Water Temp	°C	0.5
	18	Biological Treatment Efficiency	%	65.2%
	19	BOD Removed	lb/day	226.8
	20	Effluent BOD Concentration	mg/L	29.0
	N6	Influent NBOD Loading	lb/day	104
	N7	Influent NBOD Concentration	mg/L	25.0
	N8	NBOD Removed* (Assumed)	lb/day	-
	N9	Effluent NBOD Loading*	lb/day	104
	N10	Effluent NBOD Concentration*	mg/L	25
Cell 3				
Cell 4				
Cell 5				
Cell 6				

SUMMARY - Aeration Calculations

	Item	Description	Units	ADF
	1	Site Elevation	ft	4370
	N1	O_2 Loading Factor (BOD_5)	lb-O2/lb-BOD	1.5
	N2	O_2 Loading Factor ($NBOD_5$)	lb-O2/lb-NBO	4.6
	2	Alpha-value, α		0.60
	3	Beta-value, β		0.95
	4	Theta-value, θ		1.02
Cell 1				
	5	Lagoon Side Water Depth	ft	12
	6	Air Release Depth	ft	11.25
	N3	AOR - BOD	lb/day	1183
	N4	AOR - NBOD	lb/day	0
	7	AOR - Total	lb/day	1183
	8	SOTE/ft	%/ft	1.89%
	9	SOTE	%	21.27%
	10	Design DO Concentration	mg/L	2.0
	11	FTE		6.36%
	12	Air requirement	scfm	742
	13	Airflow per aeration unit	scfm/unit	35.3
	14	Aerator Type		750T
	15	Number of aeration units	units	21
	16	Water Pressure	psi	4.87
	17	Aerator Pressure Loss	psi	0.75
	18	Header/Feeder Pressure Allowance	psi	0.89
	19	Total Operating Pressure	psig	6.51
	20	Design Motor Pressure	psig	7.51
Cell 2				
	21	Lagoon Side Water Depth	ft	12
	22	Air Release Depth	ft	11.25
	N5	AOR - BOD	lb/day	340
	N6	AOR - NBOD	lb/day	0
	23	AOR	lb/day	340

24	SOTE/ft	%/ft	1.89%
25	SOTE	%	21.27%
26	Design DO Concentration	mg/L	2.0
27	FTE		6.36%
28	Air requirement	cfm	213
29	Airflow per aeration unit	cfm	35.6
30	Aerator Type		750T
31	Number of aeration units	units	6
32	Water Pressure	psi	4.87
33	Aerator Pressure Loss	psi	0.75
34	Header/Feeder Pressure Allowance	psi	0.89
35	Total Operating Pressure	psig	6.51
36	Design Motor Pressure	psig	7.51

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Midwest Office
1010 W. Lake Street | Suite 503 | Oak Park IL 60301

Tel: 312 428 4634 | Fax 312 957 4712
info@tpenv.com | tpenv.com

BUDGETARY ESTIMATE – LAGOON AERATION

PROJECT NO.: 3339
PROJECT NAME: Alturas WWTP
PROJECT LOCATION: Alturas, CA
DATE: October 22, 2019

PREPARED FOR

Anders Rasmussen, P.E.
SHN Engineers & Geologists

c/o
Kyle Menath
JBI Water & Wastewater

PREPARED BY

Triplepoint Environmental, LLC
Tom Daugherty, Western Region Manager
Office: (312) 428-4634
Fax: (312) 957-4712
Cell: (208) 699-7090
Email: tom@lagoons.com

Basis of Design

Site desires to evaluate lagoon based treatment using diffused aeration. A summary basis of design is in the table below. A detailed basis of design is attached herewith.

Parameter	Influent Average	Effluent Design Criteria
Design Flow	0.50 MGD	0.50 MGD[1]
BOD	240 mg/L	25 mg/L
TSS	300 mg/L	TBD
NH3-N	25 mg/L	TBD

1. It is understood daily peaks may reach 1.0 MGD. If the max month/average day is > 500,000 gpd TPE will recalculate and provide an updated scope of supply.

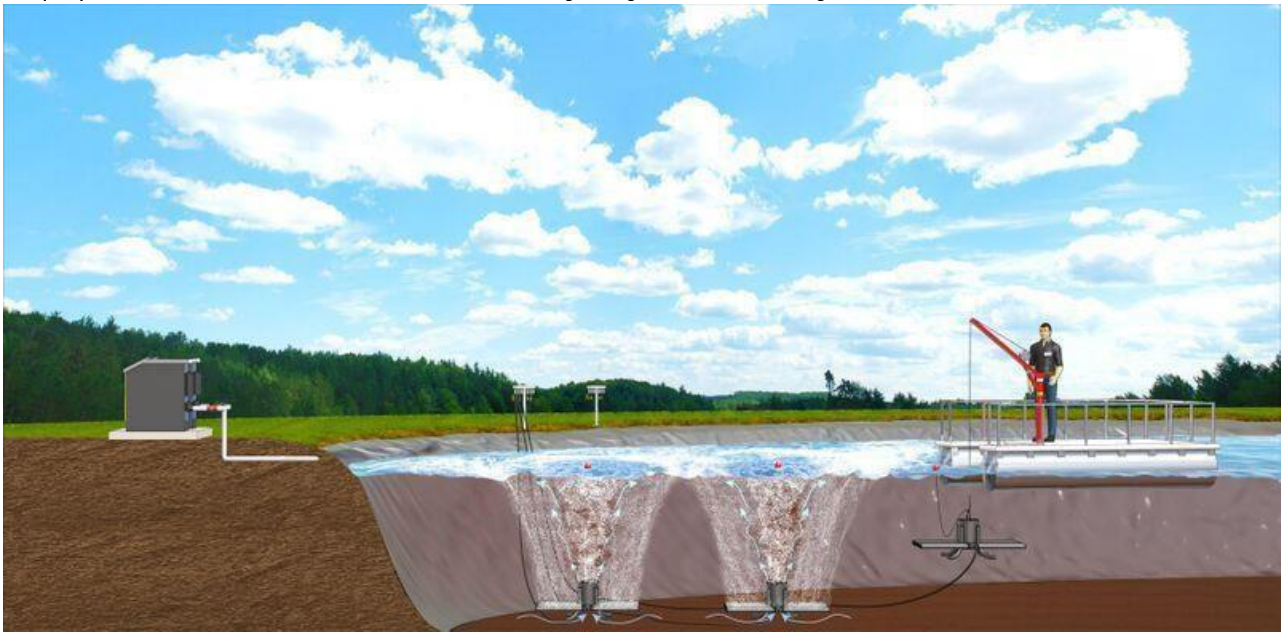
Discussion

Layout: Triplepoint designed a two cell lagoon system. Both cells measure 400' x 240' at the surface with 3:1 slope and 12' water depth. Each cell has a volume 0f 6.67 MG featuring 13.3 treatment days. Cell 1 will receive 21 aerators and Cell 2 will receive six aerators based on the design inputs.

Blower and Control Panel: Three Blowers are proposed at 30 HP each at the specified design depth. Two blowers are duty and one is standby. The NEMA 3R control panel features dual VFDs and switching to allow the third blower to be operated by an existing VFD.

Installation: Triplepoint will provide a turnkey installation quote upon request.

Triplepoint has a robust solution for retrofitting a lagoon or servicing individual aerators without dewatering.



The aerators are placed into position from a floating vessel. Buoys are attached to the aerators by stainless cables facilitating individual retrieval for maintenance. No electrical or moving parts are in the water.

Scope of Supply

Equipment	Quantity	Unit
Ares 750T Tube Aerators with Coarse and Fine Bubble	27	ea
Buoys with SS tether cables, SS quick disconnects	27	ea
High-flow Flexible Weighted Airline	4200	ft
SS Full-Port Ball valves for individual aerator control and barb set	27	ea
6-port Custom Welded 304 SS air distribution manifold (2 caps)	4	ea
4-port Custom Welded 304 SS air distribution manifold	2	ea
316 Stainless Steel hose clamps	60	ea
30 HP 460/60/3 Blower with Sound and Weather package (two duty one standby)	3	ea
NEMA 3R Control Panel with dual VFDs and A/B switch	1	ea
Blower spares, filter, belts, oil, spec grease	1	lot
Detailed Installation and layout plan (Shop Drawings)	1	ea
Person Days Triplepoint Installation Supervision, Start-up, and Training	4	ea
Optional: DO Real timer Blower Control ($9,000-$18,000 depending on options)	0	ea
Optional: Additional Year of Warranty ($5,616)	0	ea
Installation quote upon request	0	ea
Freight FOB factory (TBD)	0	lot
TOTAL PRICE:	**$252,479**	

Conditions of Sale

Price and Payment

The quote in this proposal is in US Dollars and does not include applicable federal or state taxes, fees, or tariffs. It remains valid for a period of 45 days. Fifty (50) percent of the quote price is due upon contract acceptance, forty (40) percent upon shipment and ten (10) percent upon startup.

Installation

Triplepoint Environmental will provide installation supervision as part of this proposal along with certification of proper installation once complete. All installation labor is the responsibility of the customer. A separate proposal can be supplied for aeration installation. A floating vessel is required for installation unless cells are drained.

Supplied by Others

Air headers are not included in this scope of supply. Installation and blower connection to air distribution header and integration to SCADA or other plant specific data recording schema are not included. Site specific preferred embodiments of installation such as exterior conduit runs, cable ties, and the like are not included.

Delivery

The MARS Aeration diffusers and tubing will be delivered within a period of 10-14 weeks after submittal approval or receipt of purchase order. All packing and shipping costs are FOB origination unless otherwise quoted herein. Customer is responsible for paying all taxes and fees associated with shipping.

Blowers

All blowers to provide the recommended airflow for each MARS option at the recommended pressure found in the basis of design document attached herewith.

Warranty

Triplepoint Environmental offers the most competitive warranty in the industry, ensuring that your MARS/Ares products are free from defects in material or workmanship for a period of one (1) year from the date of installation completion.

Limits of Liability

Triplepoint Environmental shall not be liable for any loss of profits, business, goodwill, interruption of business, nor for incidental or consequential merchantability or fitness of purpose, damages related to this quote.

CONFIDENTIALITY NOTICE

The MARS/Ares Aeration system is the subject of one or more confidential patents filed in the United States Patent Office. The Client, Engineer, and any other parties contracted recognize the importance of maintaining the continued confidentiality of the design of the MARS/Ares Aeration system. The Client, Engineer and any other parties contracted agree that they shall not sell, transfer or disclose any such confidential information relating to the design of the MARS/Ares Aeration system to any other person, organization, or corporation without the express written authorization of Triplepoint Environmental LLC and pursuant to an enforceable agreement of confidentiality, except as required by law or as necessary in connection with the use, operation, maintenance, repair, or replacement of the system. Additionally, The Client, Engineer and any other parties contracted all agree to preserve the confidentiality of this proposal and all materials attached and not to distribute or copy such materials for any other parties not previously authorized by Triplepoint Environmental LLC.

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Phone: (541) 827-7855 Email: info@shn-engr.com Web: shn-engr.com
803 Main Street, Suite 401, Klamath Falls, OR 97601

Technical Memorandum

Reference:	518004
Date:	9/16/2021
To:	Bruce Grove, SHN
From:	Anders Rasmussen, PE, Jonathan Blout, EIT
Subject:	**City of Alturas Wastewater Treatment Plant Hydrologic Analysis for Wastewater Discharge Reduction**

This memorandum presents data regarding the wastewater discharge flow from the City of Alturas Wastewater Treatment Plant (WWTP) with respect to in-stream flows in the Pit River and provides analysis of the effect to Pit River flows of removing the WWTP discharge.

The City of Alturas WWTP currently discharges treated effluent to the Pit River. The proposed project entails discharge to new percolation and evaporation ponds in lieu of discharge to the Pit River. Under the city's existing NPDES permit, the WWTP is prohibited from contributing more than five percent (5%) of the in-stream flow in the Pit River.

Data collected by the City of Alturas WWTP, as provided in Figure 1, is a daily record of dilution ratios (shown as a percentage of discharge to in-stream flow) collected between the dates of January 2017 - June 2021. A summary of this data is provided in Table 1. The new proposed wastewater treatment process would result in, what is in our opinion, an insignificant reduction in total flow in the Pit River. The maximum percentage of in-stream flows represented by the WWTP discharge is 5% (1/20), and a mean value of 0.36% (1/277).

The Pit River experiences annual fluctuations in depth ranging between two feet and eight feet (Data provided by USGS water monitoring station of the Pit River 11348500 near Canby, CA). According to the USGS water monitoring station, the average flow is 61 cfs. Also, provided is a USGS stage-discharge chart (Figure 2) that shows the Pit River has an average depth of 2.8 feet. Of this 2.8 feet, the discharged effluent contributes, on average, a depth of 0.12 inches.

Analysis of the Pit River at its minimum depth of 2 feet shows that the release of treated water to the Pit River contributes minimally to the total flow. The maximum allowable dilution ratio is 5% which means that the Pit River flow must be a minimum of 20 times the effluent flow. The measured dilution ratio approaches this value when the Pit River is experiencing its minimum flow rate. In this case, maximum discharge from the WWTP equates to a height of approximately 1.2 inches in contribution to the depth of the river.

Lastly, it should be noted that the measured dilution ratios between January 2017 – June 2021 infrequently exceed 2.6% (less than 10% of days measured during the 54-month time period). The dilution ratio only exceeds 2.6% when the Pit River experiences its lowest flows in the winter months.

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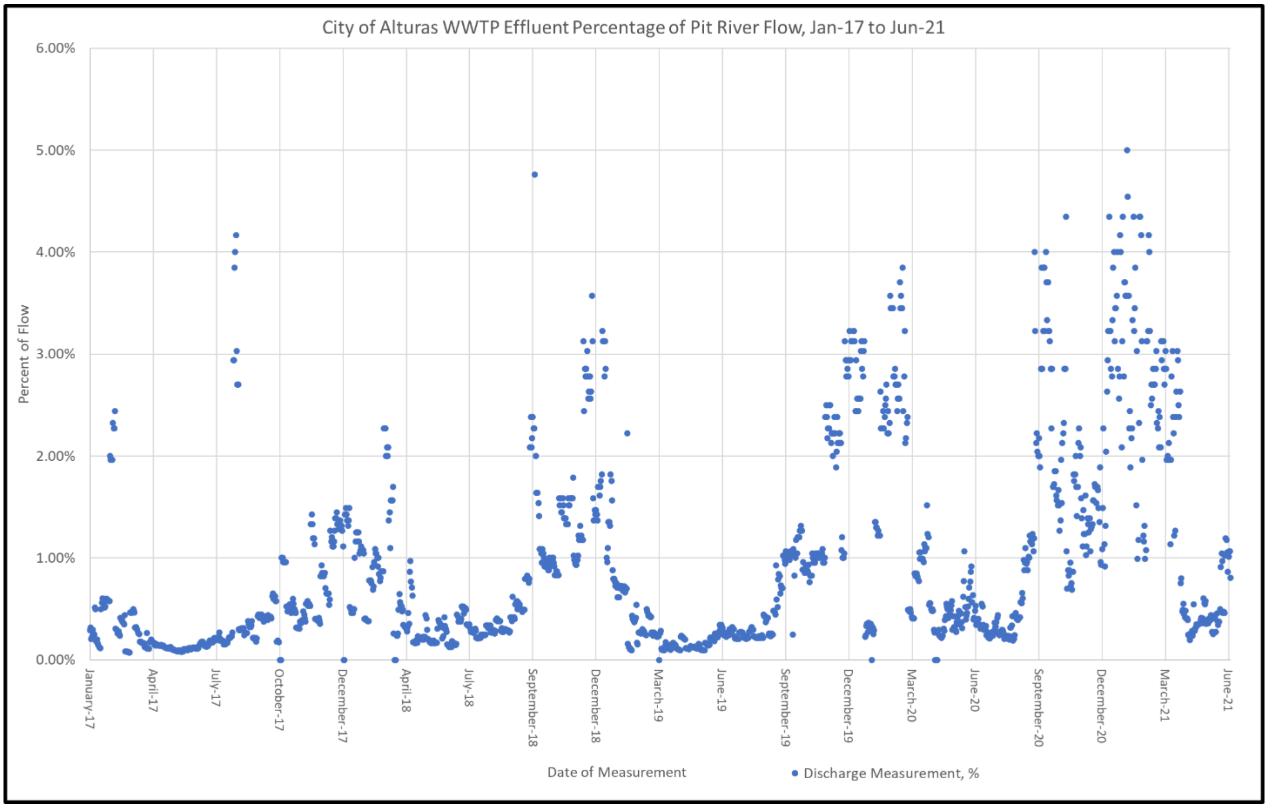

Figure 1. Measured Dilution as Percentage of Pit River In-Stream Flow.

Table 1. Summary Comparison of Discharge Flow Rate
Hydrologic Analysis
Alturas, California

Statistic	Percentage[1]
Median	0.49%
Average	0.36%
90th Percentile	2.56%
99th Percentile	4.0%
Maximum	5.0%

1. Flow rate as percentage of Pit River in-stream flow rate.

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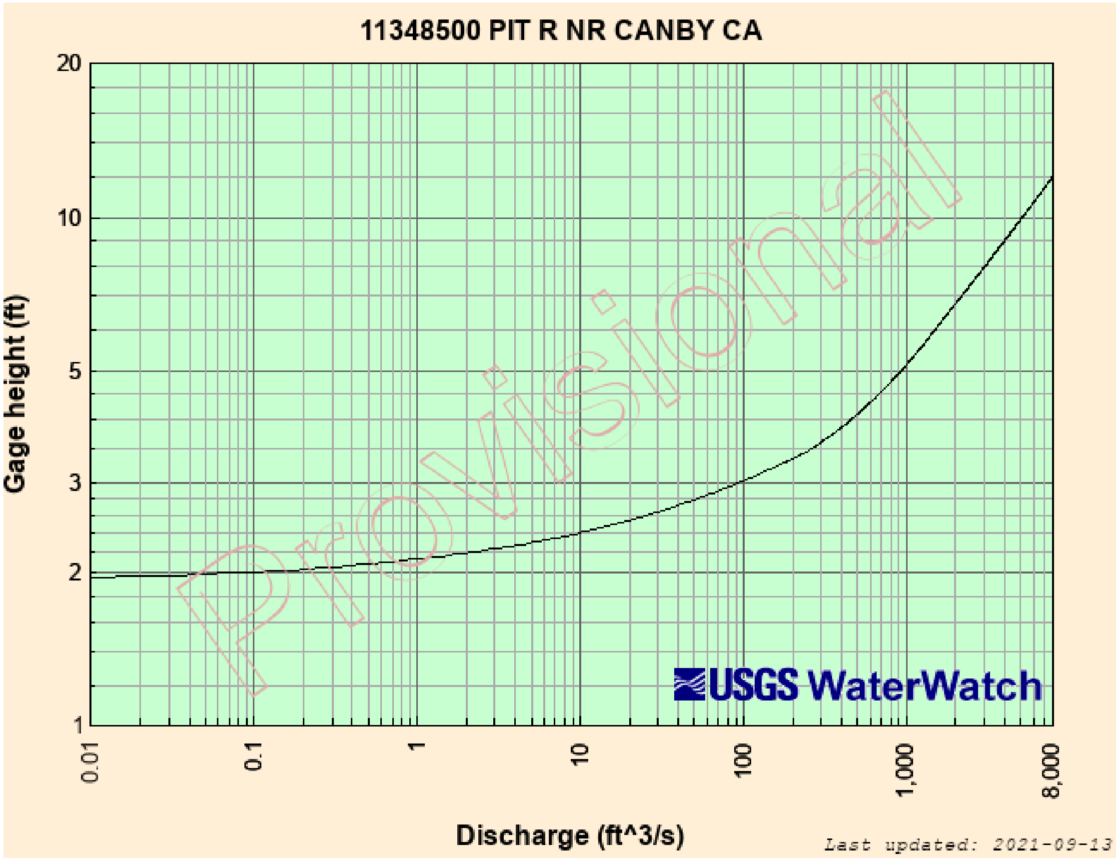
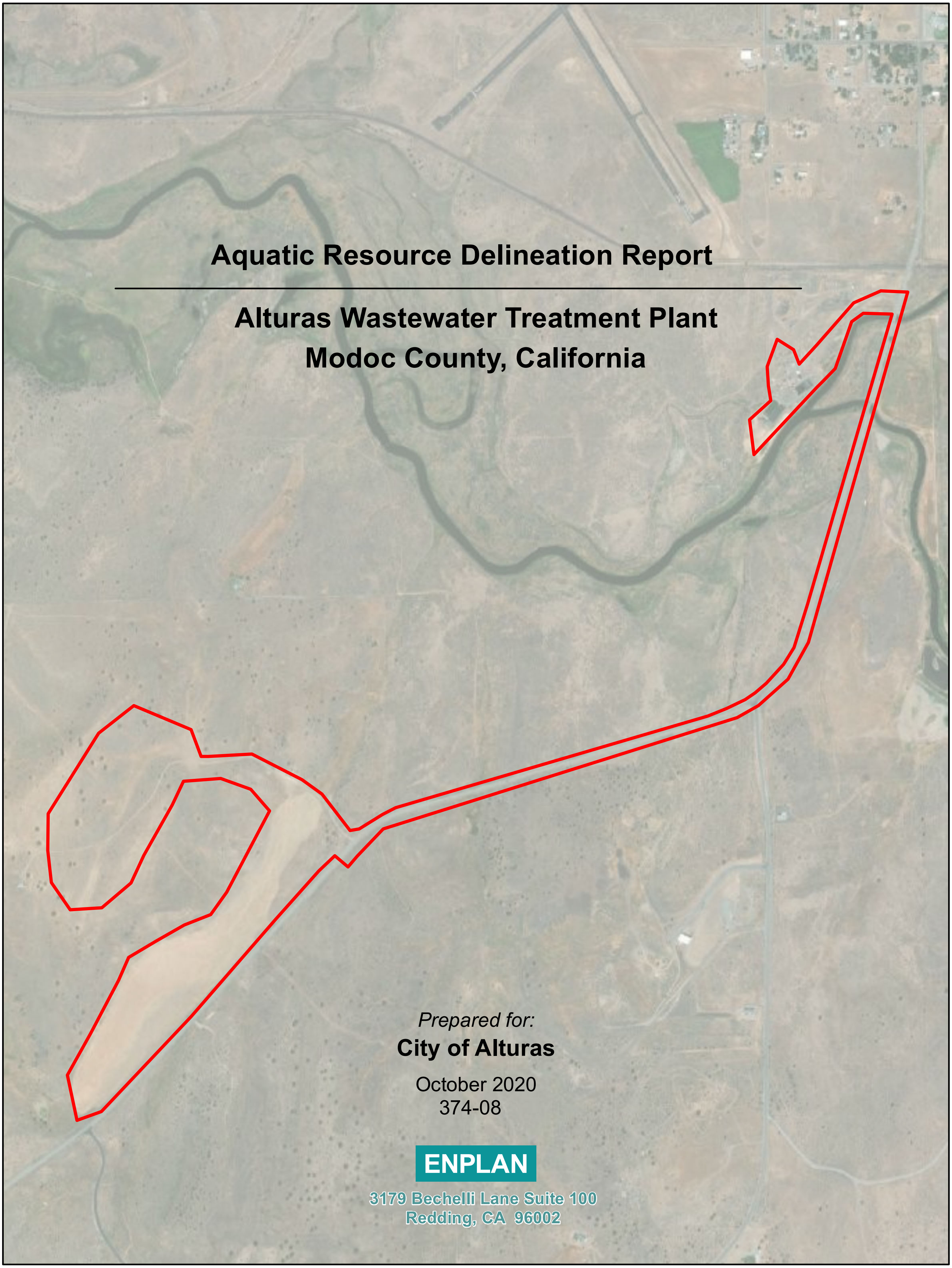


Figure 2. USGS Pit River Rating Chart.

Appendix B

Aquatic Resource Delineation Report



Aquatic Resource Delineation Report

Alturas Wastewater Treatment Plant
Modoc County, California

Prepared for:

City of Alturas

October 2020
374-08

ENPLAN

3179 Bechelli Lane Suite 100
Redding, CA 96002

Alturas Wastewater Treatment Plant Improvement Project
Aquatic Resource Delineation Report

Applicant/Land Owner:
City of Alturas
200 W. North Street
Alturas, CA 96101
Attn: Jason Diven

Access:
The wastewater treatment plant and site of the proposed treatment ponds are located along County Road 54 southwest of the City of Alturas. The improvement areas are accessible from County Road 54.

I. INTRODUCTION

The City of Alturas owns and operates a wastewater treatment plant (WWTP) just south of the City limits, on County Road 54 (N. West Street), in Modoc County. The WWTP is located along the north bank of the North Fork Pit River at its confluence with the South Fork Pit River. The WWTP provides primary and secondary treatment. Treated effluent is discharged to the Pit River. The City has had difficulty meeting permitted effluent limits for various constituents, including zinc, copper, aluminum, biological oxygen demand, total suspended solids, total coliform, toxicity, and total suspended solids. Therefore, the City is proposing improvements to WWTP to enhance system efficiency and comply with Central Valley Regional Water Quality Control Board (CVRWQCB) requirements.

As currently proposed, the City would decommission the existing WWTP; pump the raw wastewater to new, offsite aeration ponds; and dispose of the treated wastewater through land discharge via evaporation/percolation ponds at the offsite location. The new offsite facilities would be located on a portion of Modoc County Assessor's Parcel 022-130-042, which is on the northwest side of County Road 54, over a mile southwest of the current WWTP. A new pipeline would be constructed from the current WWTP to the new location in the County Road 54 right-of-way. The new ±2.1-mile force main would be attached to the existing Road 54 bridges over the North and South Forks of the Pit River; no in-water work would occur.

As shown in Figure 1 (Appendix A), the ±106-acre study site is situated in Sections 14, 22, 23, and 27, Township 42 North, Range 12 East ,of the U.S. Geological Survey's Alturas, CA, 7.5-minute quadrangle. The site ranges in elevation between 4,360 and 4,490 feet above sea level. The study consists of a portion of the developed

WWTP parcel, about 1.4 miles of road right-of-way along County Road 54, and approximately 70 undeveloped acres at the proposed new treatment/disposal site.

The existing WWTP site is primarily developed or intensively disturbed, although some sagebrush scrub habitat is present in places. The adjoining reach of the Pit River supports an herbaceous riparian community. Disturbed ruderal habitats and some intact sagebrush scrub habitat are present in the road right-of-way. The disposal site consists of a large, previously leveled and irrigated terrace near County Road 54 as well as rolling terrain with a very weedy, grazed, sagebrush scrub community.

The sagebrush scrub community is characterized by relatively open stands of big sagebrush (*Artemisia tridentata*, UPL), scattered western junipers (*Juniperus occidentalis*, UPL), and an herbaceous layer dominated by downy brome (*Bromus tectorum*, UPL) and red-stemmed filaree (*Erodium cicutarium*, UPL). In intact sagebrush scrub habitats along the road corridor, the understory includes many native species, including cushion pussytoes (*Antenarria dimorpha*, UPL), cold-desert phlox (*Phlox stansburyi*, UPL), and panicled zigadene (*Toxicoscorion paniculatum*, UPL). Ruderal species include puncture vine (*Tribulus terrestrus*, UPL), summer-cypress (*Kochia scoparia ssp. scoparia*, UPL), and Russian-thistle (*Salsola tragus*, UPL). Plant species associated with the Pit River and its floodplain include Baltic rush (*Juncus balticus* ssp. *ater*, FACW), alkali ryegrass (*Elymus triticoides*, FAC), and prickly lettuce (*Lactuca serriola*, FACU).

According to the U.S. Department of Agriculture, Natural Resources Conservation Service (NRCS, 2020), seven soil units have been mapped within the study site (Table 1). None of these soil units is considered hydric; however, Buntingville clay loam may contain inclusions of the Pit soil unit, which is hydric. A soils map is provided in Figure 2 (Appendix A).

The climate of the project vicinity consists of mild summers and cold winters. The average July maximum temperature in the City of Alturas is 88.2º F and the average minimum temperature in January is 16.5º F. Annual precipitation averages ±12.32 inches. (WRCC, 2016).

Table 1
Summary of On-Site Soil Units

Map Symbol	Soil Unit Name	Hydric Soil?	Hydric Inclusions Present?	Hydric* Criteria	Hydric Landforms
103	Alturas loam	N	N	—	—
109	Bieber gravelly loam, 0 to 9 percent slopes	N	N	—	—
112	Buntingville clay loam, 0 to 2 percent slopes	N	Y	2, 3, 4	Floodplains, basin floors, drainageways, depressions
118	Casuse sandy loam, 2 to 9 percent slopes	N	N	—	—
151	Ladd sandy loam, 2 to 9 percent slopes	N	N	—	—
193	Tuff outcrop-Casuse, eroded complex, 2 to 15 percent slopes	N	N	—	—
194	Tuff outcrop-Casuse, eroded complex, 30 to 50 percent slopes	N	N	—	—

* 2 Map unit components in Aquic suborders, great groups, or subgroups, Albolls suborder, Historthels great group, Histoturbels great group, or Andic, Cumulic, Pachic, or Vitrandic subgroups.

3. Map unit components that are frequently ponded for long duration or very long duration during the growing season.

4. Map unit components that are frequently flooded for long duration or very long duration during the growing season.

In all cases, the map unit components must also:(a) based on the range of characteristics for the soil series, at least in part meet one or more Field Indicators of Hydric Soils in the United States, or (b) show evidence that the soils meet the definition of a hydric soil.

II. METHODOLOGY

The field investigation was conducted on May 20, July 13, and September 26, 2020. Using the Army Corps of Engineers Antecedent Precipitation Calculator (U.S. Department of the Army, Corps of Engineers, 2020), it was determined that rainfall totals were sufficient to identify the presence/absence of wetlands, and establish the typical year flow regime/ordinary high-water mark of other waters (see Appendix B for results). Prior to undertaking the field study, National Wetlands Inventory maps (U.S. Fish and Wildlife Service, 2020) were reviewed to determine if any waters have been previously mapped in the study site.

The limit of the Corps of Engineers' jurisdiction over streams is concurrent with the typical year flow regime. As described in the Navigable Waters Protection Rule, the typical year means when precipitation and other climatic variables are within the normal periodic range (e.g., seasonally, annually) for the geographic area of the applicable aquatic resource based on a rolling thirty-year period.

The limit of State jurisdiction over streams is concurrent with the extent of the ordinary high water mark. For the purposes of jurisdiction, the State utilizes the Code of

Federal Regulations Title 33: Navigation and Navigable Waters-Sec. 328.3(e), which defines the ordinary high water mark as the line on the shore established by fluctuations of water indicated by physical characteristics. These may include a clear/natural line on the bank, shelving, changes in soil, destruction of terrestrial vegetation, presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas.

The field investigation was conducted in accordance with technical methods outlined in the *Corps of Engineers Wetlands Delineation Manual* (U.S. Department of the Army, Corps of Engineers, 1987), *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (U.S. Department of the Army, Corps of Engineers, 2008), and the *Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States* (Lichvar and McColley, 2008) (limited to determining State jurisdiction).

Scientific nomenclature for plants cited in this report is in accordance with *The Jepson Manual* (Baldwin et al., 2012). The indicator status of plants in this report is in accordance with the National Wetland Plant List (NWPL) (US Department of the Army, Corps of Engineers, 2018).

Wetland boundaries and the ordinary high water marks of the South Fork Pit River and North Fork Pit River were identified in the field and recorded with a global positioning system (GPS) unit capable of sub-meter accuracy. Coordinates for the centerlines of smaller streams were collected with the GPS unit, and stream widths were measured in the field. The GPS coordinates were downloaded into ArcMap for mapping and acreage calculations.

III. RESULTS

Review of the National Wetlands Inventory maps showed that the Pit River and two intermittent streams have been mapped in the study area. The Pit River crosses under County Road 54 in two places (as the North Fork Pit River and South Fork Pit River) and abuts the study area at the site of the existing WWTP. This feature is designated as R2UBH (Riverine, Lower Perennial, Unconsolidated Bottom, Permanently Flooded). The two intermittent streams are mapped in the proposed treatment/disposal site. One is shown in the previously leveled and irrigated terrace while the other is mapped in the rolling terrain northwest of the lower terrace. The intermittent streams are designated as R4SBC (Riverine, Intermittent, Streambed, Seasonally Flooded).

As a result of the field delineation effort, 17 features were mapped on the site within four categories: perennial stream, ephemeral stream, seasonal wetland, and wet meadow (Figures 3 - 5, Appendix A). The feature types are characterized below, with representative photos presented in Appendix C.

Neither of the two intermittent streams shown on the National Wetlands Inventory maps was observed in the field. A culvert is present under the treatment/disposal site access road at the lower end of the lower terrace, but no scouring or other evidence of a stream was observed. The mapped location of the stream in the rolling terrain consists of a broad upland swale with no evidence of stream formation. Photographs of the two purported stream locations are included in Appendix C.

Wetland determination data forms are provided in Appendix D. A table identifying the Cowardin type of each feature is provided in Appendix E.

Perennial Stream: Perennial streams are drainage channels with apparent bed and bank features that flow year-round. Flow from upstream channel reaches is the primary source of water; other sources include direct precipitation and seepage from surrounding soils. The onsite perennial streams are the North Fork Pit River and South Fork Pit River.

Ephemeral Stream: Ephemeral streams are drainage channels that have flowing water only during, and for a short duration after, precipitation events in a typical year. Ephemeral streams are located above the water table year-round. Runoff from rainfall or snowmelt is the primary source of water for stream flow. Groundwater is not a source of water for ephemeral streams. The predominant indicators of high flows in on-site ephemeral streams were scour and the presence of litter and debris.

Wet Meadow: Wet meadows are grasslands with sufficient water to support plants typically occurring in wetlands. Wet meadows generally have a dense cover of graminoid species and may be in areas with a high ground water table. Characteristic plant species in the on-site wet meadows include reed canary grass (*Phalaris arundinacea*, FACW), salt grass (*Distichlis spicata*, FAC), alkali ryegrass (*Elymus triticoides*, FAC), Baltic rush (*Juncus balticus* ssp. *ater*, FACW), and smooth scouring rush (*Equisetum laevigatum*, FACW).

Seasonal Wetland: Seasonal wetlands are inundated during the winter wet season and dry during the dry season. They generally have a sparse to moderate cover of forb species and are subject to long-term surface ponding. The dominant plant species in the on-site seasonal wetlands is cognate popcorn flower (*Plagiobothrys cognatus*, FACW).

IV. JURISDICTIONAL CONSIDERATIONS

Under the final Navigable Waters Protection Rule (NWPR), four categories of waters are federally regulated:

- The territorial seas and traditional navigable waters,
- Perennial and intermittent tributaries to those waters,
- Certain lakes, ponds, and impoundments, and
- Wetlands adjacent to jurisdictional waters.

A total of ±0.670 acres of waters were delineated on the site. This total includes two perennial streams (11:PS and 17:PS: ±0.293 acres); five wet meadows in the floodplain of the Pit River (12:WM, 13:WM, 14:WM, 15:WM, 16:WM: ±0.301 acres); seven isolated wet meadows (1:WM, 2:WM, 3:WM, 4:WM, 5:WM: ±0.032 acres); two isolated seasonal wetlands (9:SW, 10:SW: ±0.039 acres); and one on-site ephemeral streams (6:ES: ±0.004 acres).

The perennial streams appear to be subject to federal jurisdiction because they are tributary to traditional navigable waters. The ephemeral stream dissipates to uplands and clearly is not subject to federal jurisdiction under the NWPR. The seven wet meadows and two seasonal wetlands west of Westside Road (Features 1-5 and 7-10) do not appear to be subject to federal jurisdiction because they are not adjacent to jurisdictional waters. The five wet meadows in the Pit River floodplain (Features 12-16) warrant close examination with respect to their jurisdictional status.

12:WM and 13:WM are located on the west side of County Road 54. An elevated historical road corridor is present further west, more-or-less paralleling County Road 54 between the North and South Forks of the Pit River. The historical road separates the wetlands from the North Fork Pit River. A culvert entrance is present in the historical road berm northwest of Data Point 8 but appears to be blocked; no outlet was observed. Likewise, a constructed berm/historical bridge footing is present at the south end of 12:WM, between the wetland and the South Fork Pit River. River flows do not appear to overtop the berm in a typical year. Therefore, because 12:WM and 13:WM are not subject to flooding in a typical year and the road berms do not allow for a direct hydrologic surface connection during a typical year, these features do not appear to be subject to federal jurisdiction.

14:WM, 15:WM, and 16:WM are on the east side of County Road 54. An agricultural field is present to the east of the features. The field has been leveled and checked for surface irrigation. A berm and access road are on the north side of the field, adjacent to the North Fork Pit River. What appears to be a natural berm separates 16:WM from 15:WM. An access ramp from County Road 54 to the field separates 15:WM and 14:WM. 14:WM abuts the South Fork Pit River. As a wetland adjacent to a jurisdictional water (South Fork Pit River), 14:WM is subject to federal jurisdiction. 15:WM and 16:WM do not appear to be subject to federal jurisdiction because they do not abut a jurisdictional water, do not appear to be subject to flooding in a typical year, and are separated from the Pit River by created berms that do not allow for a surface connection to the Pit River in a typical year.

The applicant elects to use a “preliminary jurisdictional determination” for the ±0.459 acres of mapped waters (Pit River and 14:WM) that are anticipated to be subject to Corps jurisdiction under the Navigable Waters Protection Rule. If needed, an “approved jurisdictional determination” would be used to document that the remaining waters are not subject to Corps jurisdiction.

For the purposes of State Water Resources Control Board, all on-site waters appear to be subject to State jurisdiction in accordance with the State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State.

V. REFERENCES

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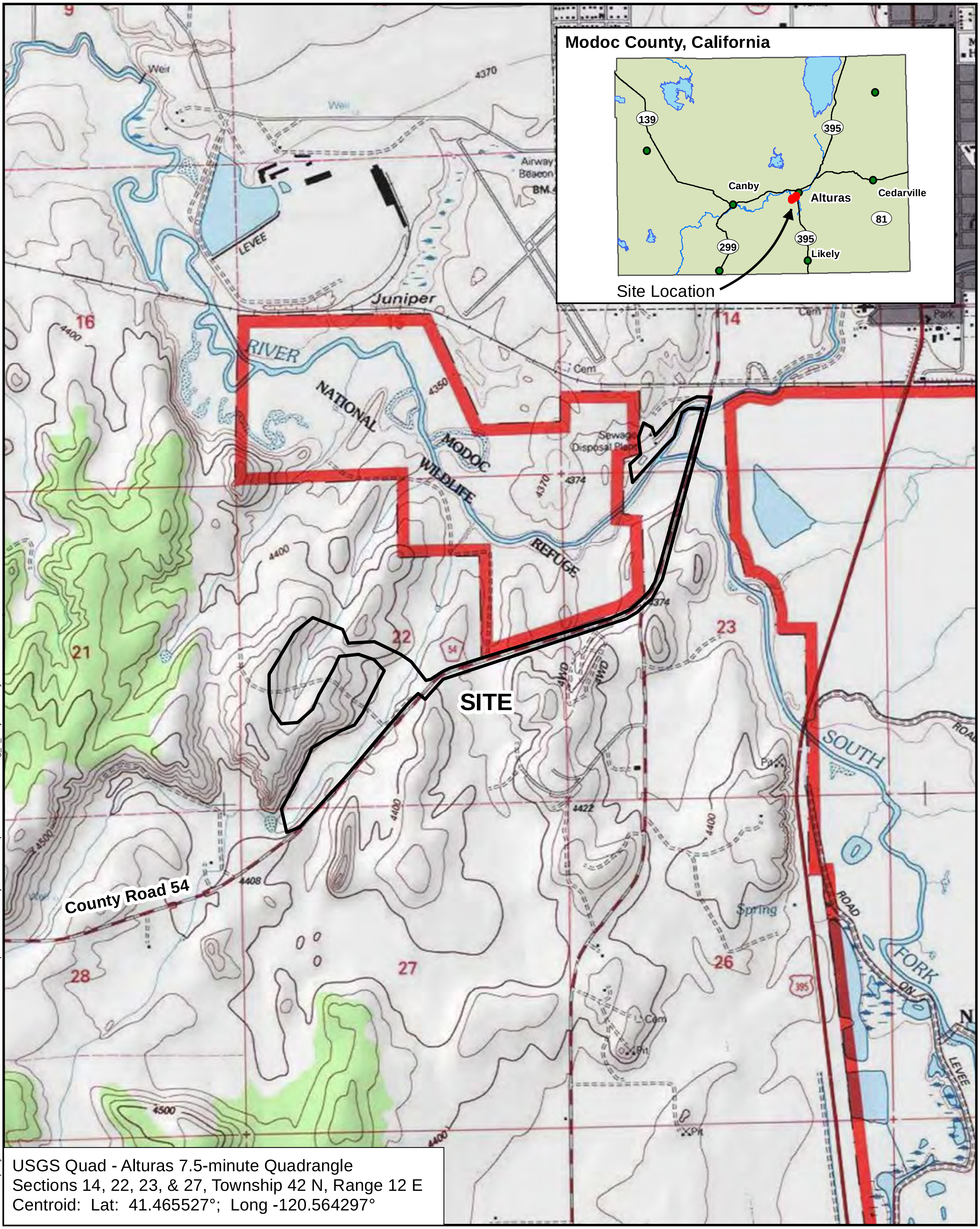
APPENDIX A

Maps



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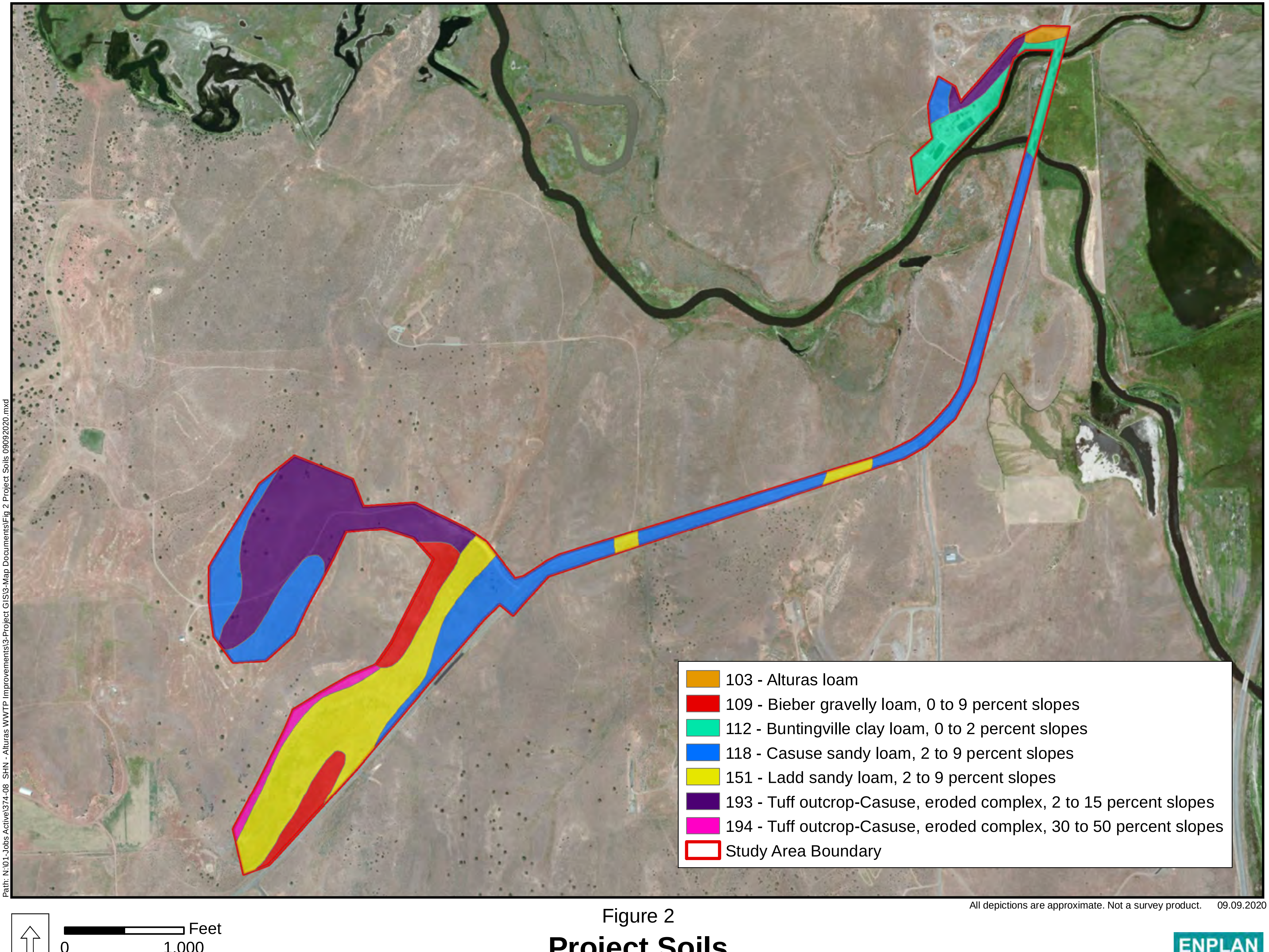
All depictions are approximate. Not a survey product. 10.14.20

0 2,000 Feet

Figure 1

Project Vicinity

ENPLAN



All depictions are approximate. Not a survey product. 09.09.2020

Figure 2

Project Soils

ENPLAN

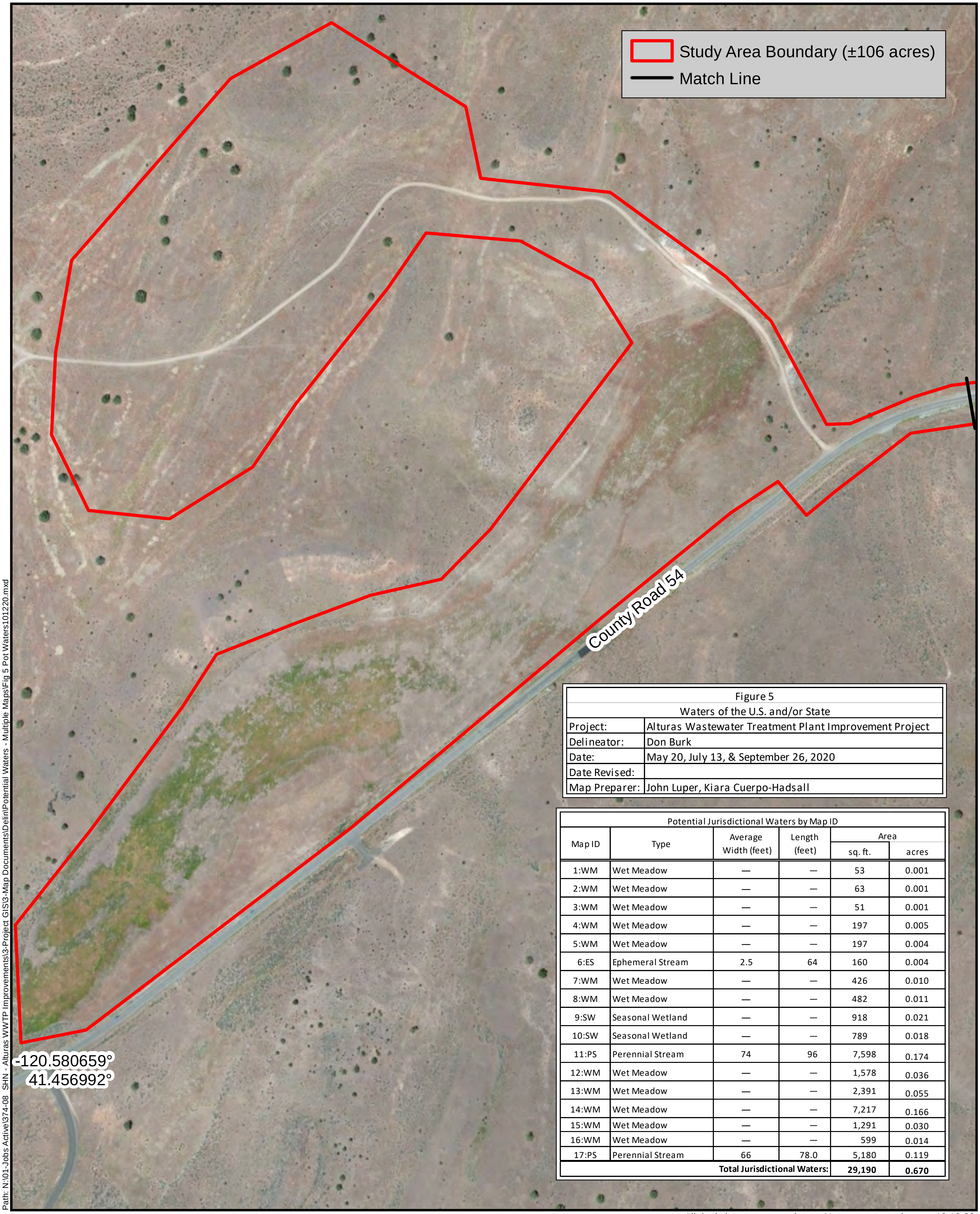


Figure 5	
Waters of the U.S. and/or State	
Project:	Alturas Wastewater Treatment Plant Improvement Project
Delineator:	Don Burk
Date:	May 20, July 13, & September 26, 2020
Date Revised:	
Map Preparer:	John Luper, Kiara Cuerpo-Hadsall

Potential Jurisdictional Waters by Map ID

Map ID	Type	Average Width (feet)	Length (feet)	Area	
				sq. ft.	acres
1:WM	Wet Meadow	—	—	53	0.001
2:WM	Wet Meadow	—	—	63	0.001
3:WM	Wet Meadow	—	—	51	0.001
4:WM	Wet Meadow	—	—	197	0.005
5:WM	Wet Meadow	—	—	197	0.004
6:ES	Ephemeral Stream	2.5	64	160	0.004
7:WM	Wet Meadow	—	—	426	0.010
8:WM	Wet Meadow	—	—	482	0.011
9:SW	Seasonal Wetland	—	—	918	0.021
10:SW	Seasonal Wetland	—	—	789	0.018
11:PS	Perennial Stream	74	96	7,598	0.174
12:WM	Wet Meadow	—	—	1,578	0.036
13:WM	Wet Meadow	—	—	2,391	0.055
14:WM	Wet Meadow	—	—	7,217	0.166
15:WM	Wet Meadow	—	—	1,291	0.030
16:WM	Wet Meadow	—	—	599	0.014
17:PS	Perennial Stream	66	78.0	5,180	0.119
			Total Jurisdictional Waters:	**29,190**	**0.670**

Path: N:\01-Jobs Active\374-08 SHN - Alturas WWTP Improvements\3-Project GIS\3-Map Documents\Delin\Potential Waters - Multiple Maps\Fig 5 Pot Waters101220.mxd

1 inch = 400 feet

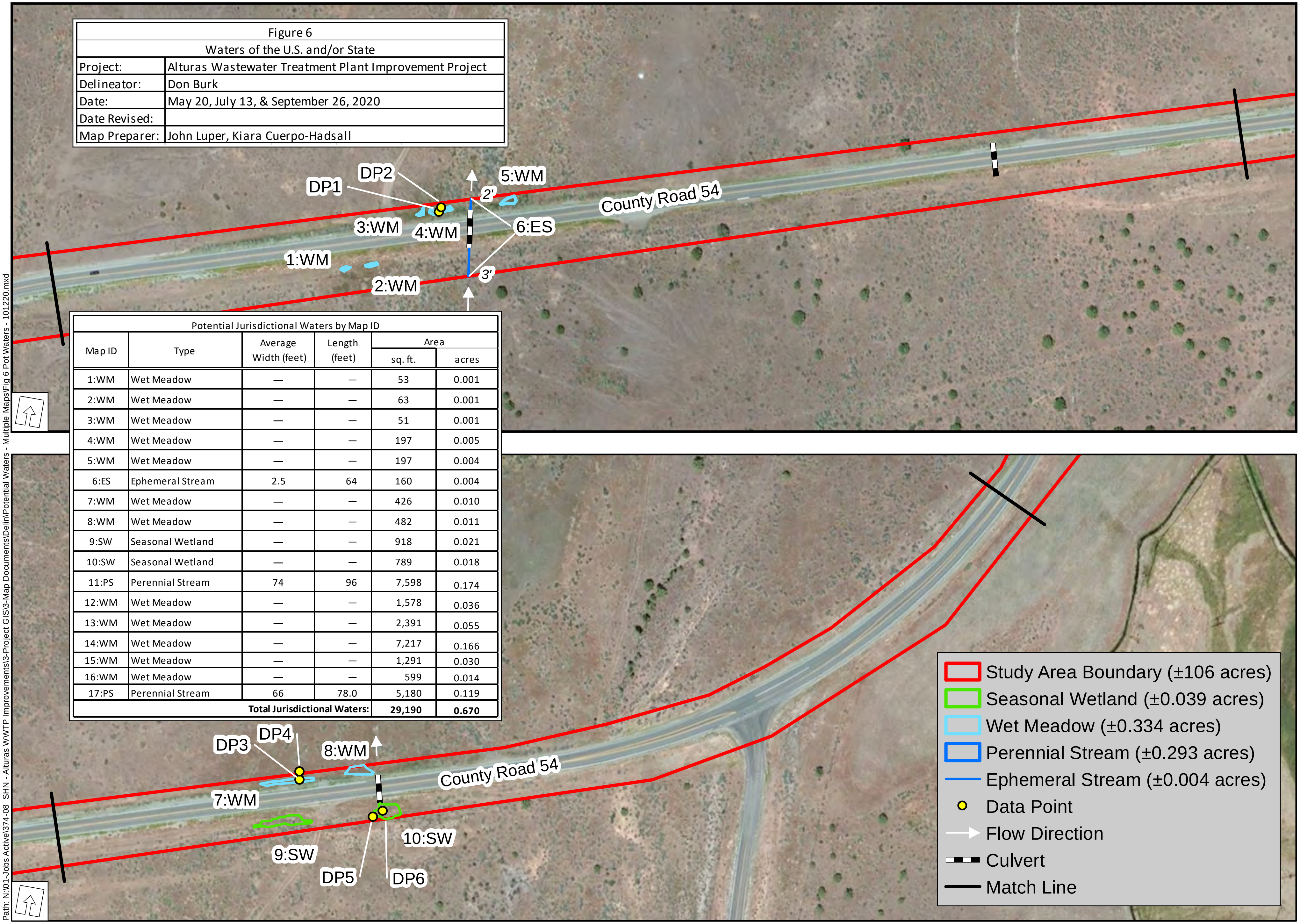
0 400 Feet

Boundaries are approximate until verified by the Army Corps of Engineers and Regional Water Quality Control Board.

All depictions are approximate. Not a survey product. 10.12.20

ENPLAN

Figure 6	
Waters of the U.S. and/or State	
Project:	Alturas Wastewater Treatment Plant Improvement Project
Delineator:	Don Burk
Date:	May 20, July 13, & September 26, 2020
Date Revised:	
Map Preparer:	John Luper, Kiara Cuerpo-Hadsall



Potential Jurisdictional Waters by Map ID

Map ID	Type	Average Width (feet)	Length (feet)	Area sq. ft.	Area acres
1:WM	Wet Meadow	—	—	53	0.001
2:WM	Wet Meadow	—	—	63	0.001
3:WM	Wet Meadow	—	—	51	0.001
4:WM	Wet Meadow	—	—	197	0.005
5:WM	Wet Meadow	—	—	197	0.004
6:ES	Ephemeral Stream	2.5	64	160	0.004
7:WM	Wet Meadow	—	—	426	0.010
8:WM	Wet Meadow	—	—	482	0.011
9:SW	Seasonal Wetland	—	—	918	0.021
10:SW	Seasonal Wetland	—	—	789	0.018
11:PS	Perennial Stream	74	96	7,598	0.174
12:WM	Wet Meadow	—	—	1,578	0.036
13:WM	Wet Meadow	—	—	2,391	0.055
14:WM	Wet Meadow	—	—	7,217	0.166
15:WM	Wet Meadow	—	—	1,291	0.030
16:WM	Wet Meadow	—	—	599	0.014
17:PS	Perennial Stream	66	78.0	5,180	0.119
			Total Jurisdictional Waters:	29,190	0.670

Path: N:\01-Jobs Active\374-08 SHN - Alturas WWTP Improvements\3-Project GIS\3-Map Documents\Delin\Potential Waters - Multiple Maps\Fig 6 Pot Waters - 101220.mxd

1 inch = 200 feet

Feet
0 200

Boundaries are approximate until verified by the Army Corps of Engineers and Regional Water Quality Control Board.

All depictions are approximate. Not a survey product. 10.12.20

ENPLAN

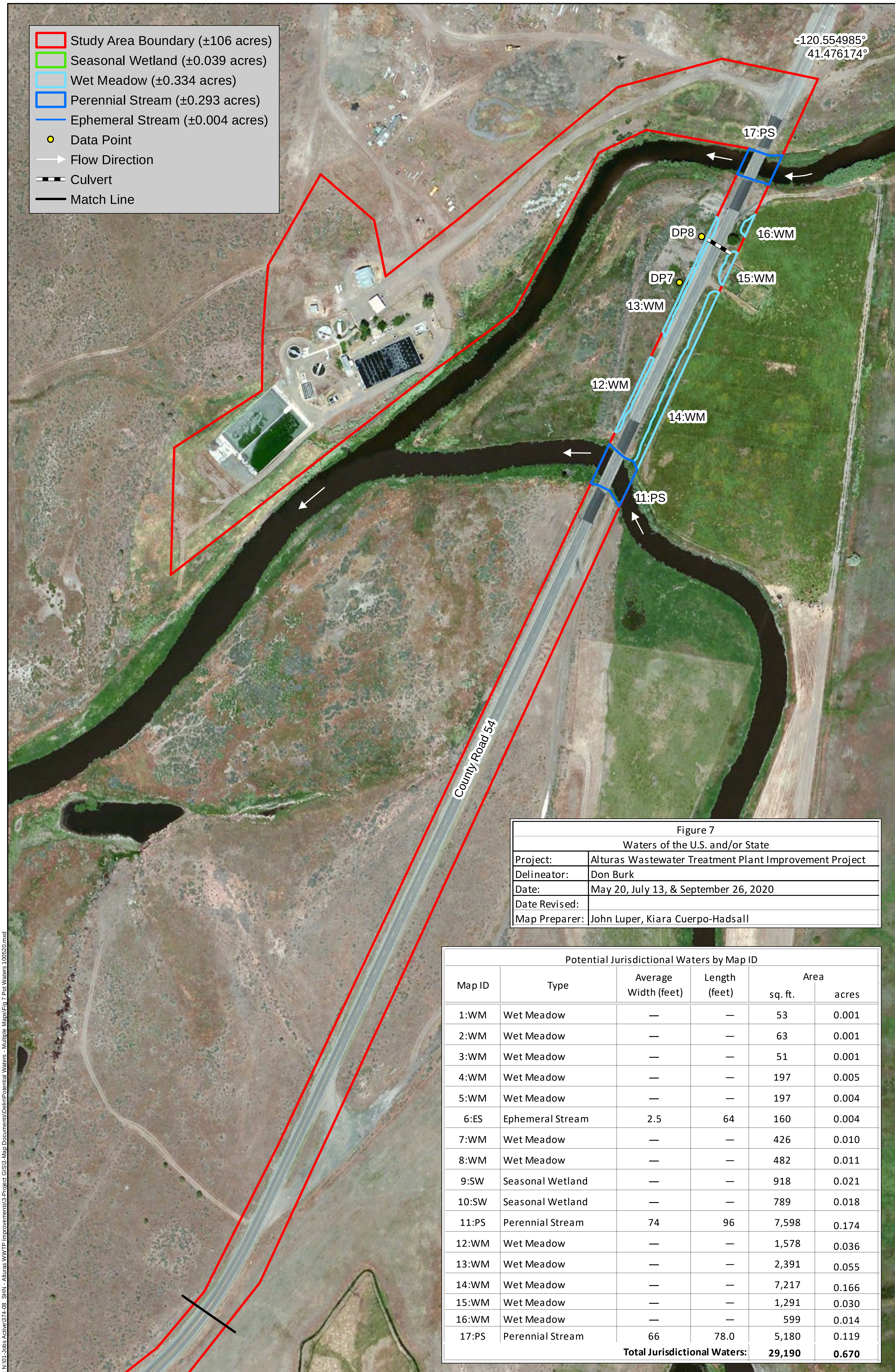


Figure 7	
Waters of the U.S. and/or State	
Project:	Alturas Wastewater Treatment Plant Improvement Project
Delineator:	Don Burk
Date:	May 20, July 13, & September 26, 2020
Date Revised:	
Map Preparer:	John Luper, Kiara Cuerpo-Hadsall

Potential Jurisdictional Waters by Map ID

Map ID	Type	Average Width (feet)	Length (feet)	Area sq. ft.	Area acres
1:WM	Wet Meadow	—	—	53	0.001
2:WM	Wet Meadow	—	—	63	0.001
3:WM	Wet Meadow	—	—	51	0.001
4:WM	Wet Meadow	—	—	197	0.005
5:WM	Wet Meadow	—	—	197	0.004
6:ES	Ephemeral Stream	2.5	64	160	0.004
7:WM	Wet Meadow	—	—	426	0.010
8:WM	Wet Meadow	—	—	482	0.011
9:SW	Seasonal Wetland	—	—	918	0.021
10:SW	Seasonal Wetland	—	—	789	0.018
11:PS	Perennial Stream	74	96	7,598	0.174
12:WM	Wet Meadow	—	—	1,578	0.036
13:WM	Wet Meadow	—	—	2,391	0.055
14:WM	Wet Meadow	—	—	7,217	0.166
15:WM	Wet Meadow	—	—	1,291	0.030
16:WM	Wet Meadow	—	—	599	0.014
17:PS	Perennial Stream	66	78.0	5,180	0.119
			Total Jurisdictional Waters:	**29,190**	**0.670**

Path: N:\01-Jobs Active\374-08 SHN - Alturas WWTP Improvements\3-Project GIS\3-Map Documents\Delin\Potential Waters - Multiple Maps\Fig 7 Pot Waters 100520.mxd

1 inch = 200 feet
Feet
0 200

Boundaries are approximate until verified by the Army Corps of Engineers and Regional Water Quality Control Board.

All depictions are approximate. Not a survey product.

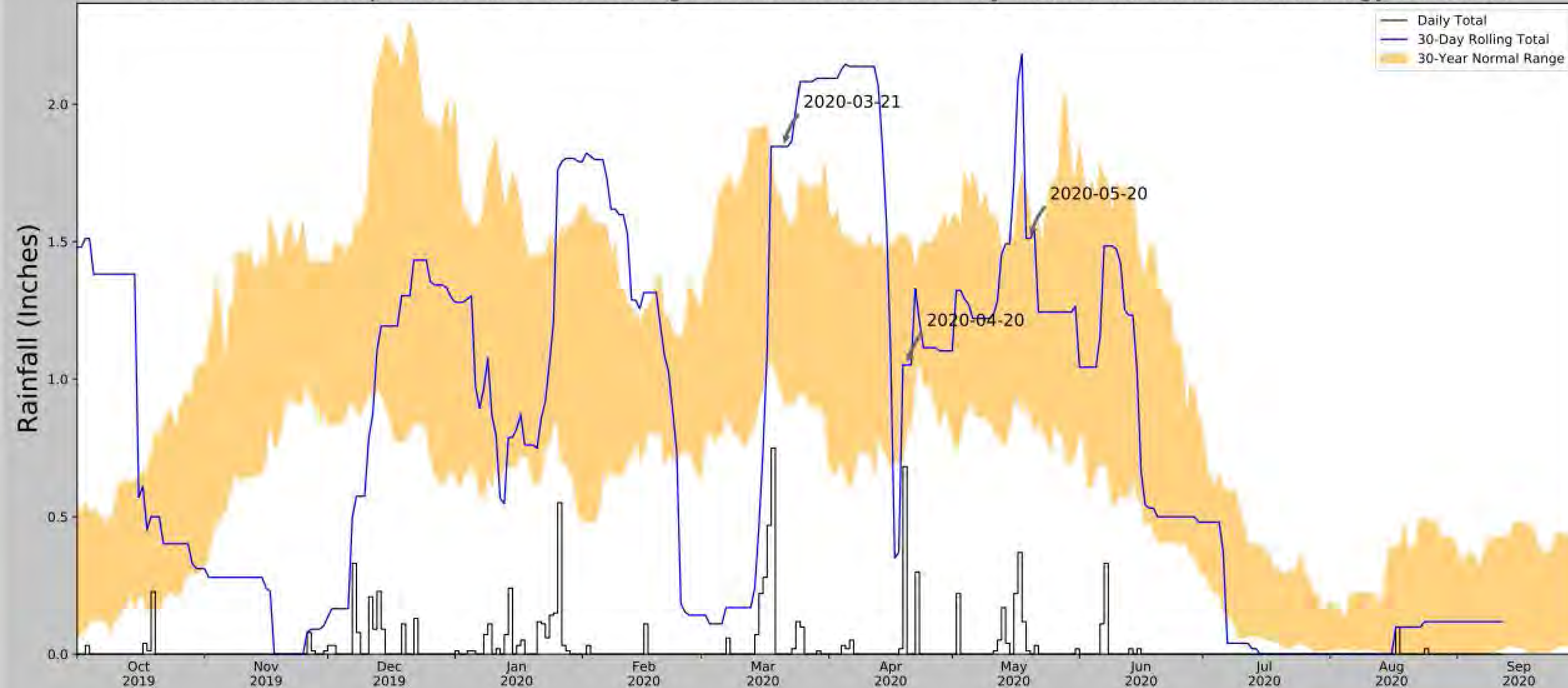
10.12.20

ENPLAN

APPENDIX B

Antecedent Precipitation Calculator Results

Antecedent Precipitation vs Normal Range based on NOAA's Daily Global Historical Climatology Network



Coordinates	41.456992, -120.580659
Observation Date	2020-05-20
Elevation (ft)	4386.93
Drought Index (PDSI)	Mild drought
WebWIMP H_2O Balance	Dry Season

30 Days Ending	30th %ile (in)	70th %ile (in)	Observed (in)	Wetness Condition	Condition Value	Month Weight	Product
2020-05-20	0.880315	1.605512	1.511811	Normal	2	3	6
2020-04-20	0.827165	1.514173	1.051181	Normal	2	2	4
2020-03-21	0.919685	1.612205	1.846457	Wet	3	1	3
Result							Normal Conditions - 13

Figure and tables made by the **Antecedent Precipitation Tool** Version 1.0

Written by Jason Deters
U.S. Army Corps of Engineers

Weather Station Name	Coordinates	Elevation (ft)	Distance (mi)	Elevation Δ	Weighted Δ	Days (Normal)	Days (Antecedent)
ALTURAS MUNI AP	41.4914, -120.5644	4375.0	2.522	11.93	1.165	7746	90
ALTURAS	41.49, -120.5436	4377.953	2.98	8.977	1.368	3592	0
CANBY 3 SW	41.4219, -120.9017	4310.04	16.805	76.89	8.854	3	0
CEDARVILLE	41.53, -120.1792	4687.992	21.38	301.062	16.058	11	0

APPENDIX C

Representative Photos


Typical upland roadside, with sagebrush, rubber rabbitbrush, Russian-thistle, and downy brome. View to north from near proposed disposal site.


Junction of North Fork and South Fork Pit River, with WWTP and uplands on left, view to northeast.

Ephemeral stream 1:ES, view to south.


Seasonal wetland10:SW and Data Point 6, view to east.

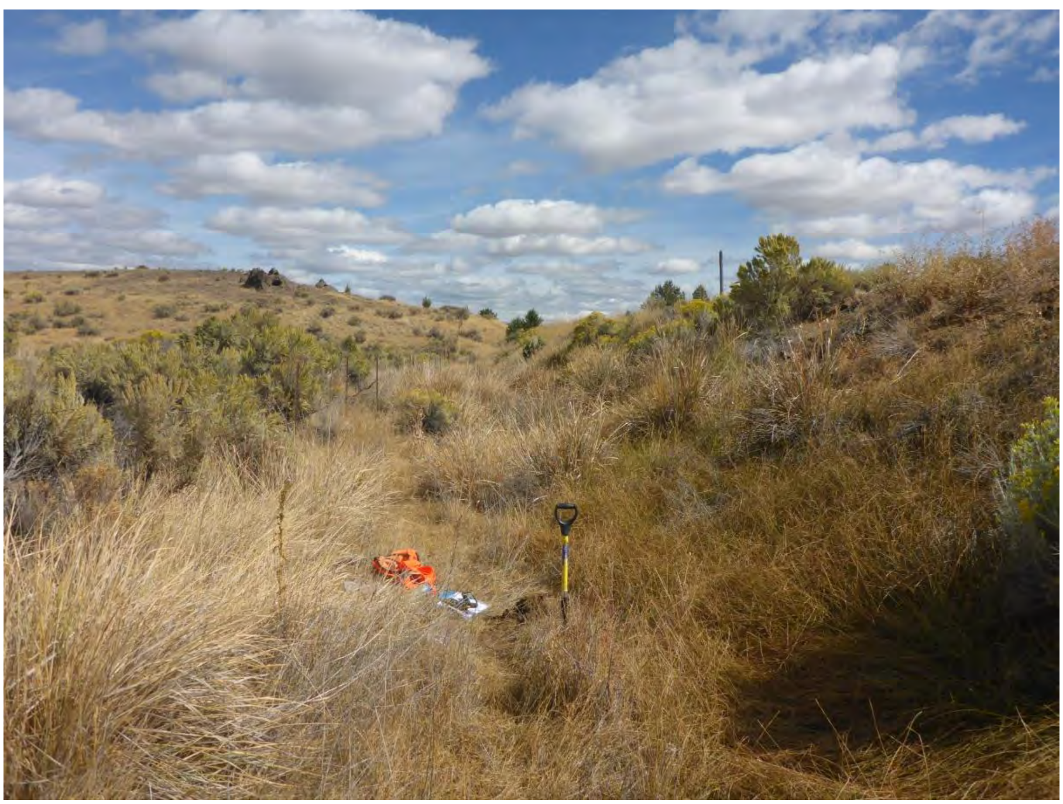

12:WM, view to north. Note historic road berm on left, colonized by sagebrush, and County Road 54 on right.

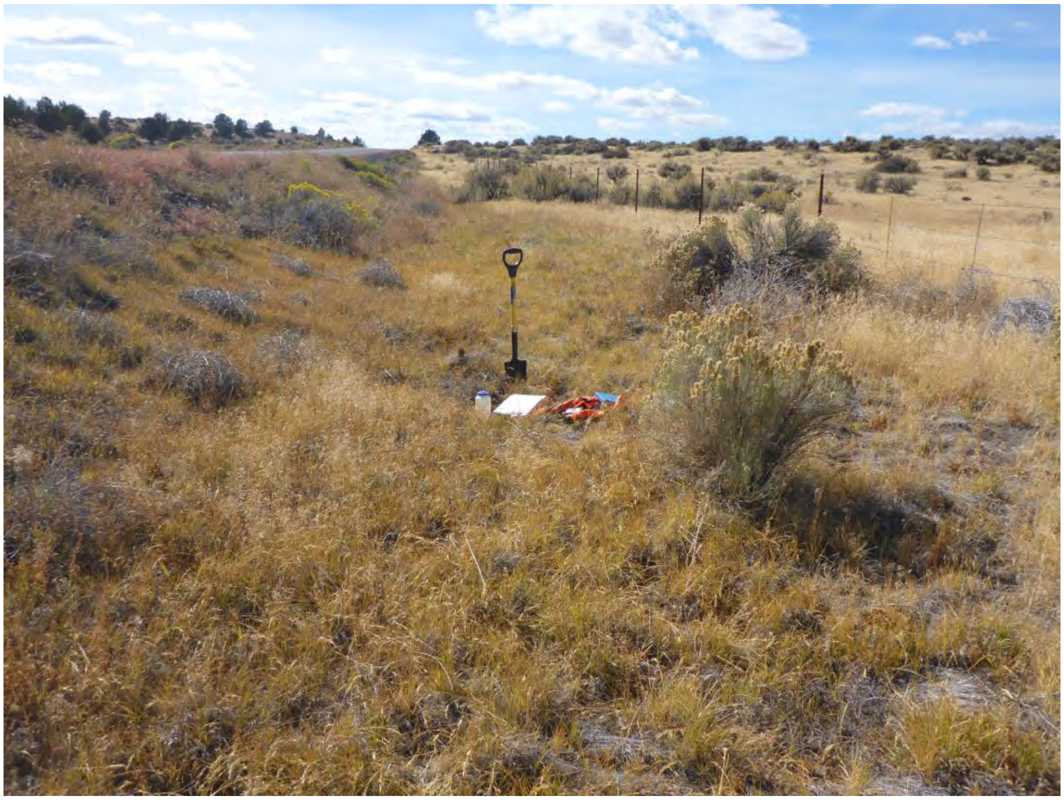

12:WM, view to south. Note historic bridge abutment/berm (behind telephone pole) separating WM from South Fork Pit River.


14:WM, dominated by *Elymus triticoides* (FAC). View to south, between the forks of the Pit River.


14:WM, view to south, closer to South Fork Pit River. Shovel marks elevation breakpoint, where vegetation transitions from *Elymus triticoides* (FAC) to *Phalaris arundinacea* (FACW).


Road/berm on north side of 16:WM, separating wetland from the North Fork Pit River.


5:WM with *Juncus balticus* (FACW) as dominant vegetation.


4:WM, with *Distichlis spicata* (FAC) as dominant vegetation.


Culvert under County Road 54 (on right) in upland situation with *Elymus caput-medusae* (UPL) as dominant vegetation. Midway between 5:WM and 7:WM.

Non-jurisdictional erosional rill channeling roadside runoff to uplands, view to north.
Midway between 8:WM and Westside Road (County Road 60).

Leveled terrace at disposal site supporting rye (*Secale cereale*, UPL), view from low point of access road to south (mapped as an intermittent stream on NWI, but no evidence observed in field).


,
Low area within western arm of treatment/disposal site, view to north (mapped as an intermittent stream on NWI, but no evidence observed in field).


Upper portion of treatment/disposal site, view to west. Site is on both sides of road from foreground to ridge.

APPENDIX D

Wetland Determination Data Forms

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Alturas Wastewater Treatment Plant City/County: Alturas/Modoc County Sampling Date: 9/26/20

Applicant/Owner: City of Alturas State: CA Sampling Point: DP 1

Investigator(s): Donald Burk Section, Township, Range: Sec 22, T42N, R12E

Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): concave Slope (%): 1%

Subregion (LRR): D Lat: 41° 27' 52.99" Long: 120° 34' 6.11" Datum: NAD83

Soil Map Unit Name: Casuse sandy loam, 2 to 9 percent slopes NWI classification: N.A.

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✔ No ___ (If no, explain in Remarks.)

Are Vegetation ___, Soil ___, or Hydrology ___ significantly disturbed? No Are "Normal Circumstances" present? Yes ✔ No ___

Are Vegetation ___, Soil ___, or Hydrology ___ naturally problematic? No (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✔	No ___
Hydric Soil Present?	Yes ✔	No ___
Wetland Hydrology Present?	Yes ✔	No ___

Is the Sampled Area within a Wetland? Yes ✔ No ___

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ___)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
= Total Cover			
Sapling/Shrub Stratum (Plot size: ___)			
1.			
2.			
3.			
4.			
5.			
= Total Cover			
Herb Stratum (Plot size: 5' x 5')			
1. Juncus balticus	50	Y	FACW
2. Sidalcea oregana	30	Y	FACW
3. Distichlis spicata	10	N	FAC
4. Miscellaneous	10	N	-
5.			
6.			
7.			
8.			
= Total Cover	100		
Woody Vine Stratum (Plot size: ___)			
1.			
2.			
= Total Cover			

% Bare Ground in Herb Stratum ___ % Cover of Biotic Crust ___

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species		x 1 =
FACW species		x 2 =
FAC species		x 3 =
FACU species		x 4 =
UPL species		x 5 =
Column Totals:	(A)	(B)

Prevalence Index = B/A = ___

Hydrophytic Vegetation Indicators:

- ✔ Dominance Test is >50%
- ___ Prevalence Index is ≤3.0[1]
- ___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✔ No ___

Remarks:

SOIL

Sampling Point: DP 1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-2	7.5YR 3/3	100					loam	
2-14	7.5 YR 2.5/2	95	black/yellow	5			loam	faint mottles

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ✔ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: hardpan

Depth (inches): 14"

Hydric Soil Present? Yes ✔ **No** ___

Remarks:

Upper soil layer appears to be recent drainage deposits. Soil was too loose to obtain mottle colors.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ✔ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ✔ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ✔ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ✔ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ___	No ✔	Depth (inches): ___
Water Table Present?	Yes ___	No ✔	Depth (inches): ___
Saturation Present? (includes capillary fringe)	Yes ___	No ✔	Depth (inches): ___

Wetland Hydrology Present? Yes ✔ **No** ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Alturas Wastewater Treatment Plant City/County: Alturas/Modoc County Sampling Date: 9/26/20

Applicant/Owner: City of Alturas State: CA Sampling Point: DP 1

Investigator(s): Donald Burk Section, Township, Range: Sec 22, T42N, R12E

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Subregion (LRR): D Lat: 41° 27' 52.99" Long: 120° 34' 6.11" Datum: NAD83

Soil Map Unit Name: Casuse sandy loam, 2 to 9 percent slopes NWI classification: N.A.

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✔ No ___ (If no, explain in Remarks.)

Are Vegetation ___, Soil ___, or Hydrology ___ significantly disturbed? No Are "Normal Circumstances" present? Yes ✔ No ___

Are Vegetation ___, Soil ___, or Hydrology ___ naturally problematic? No (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✔ No ___	**Is the Sampled Area within a Wetland?** **Yes** ✔ **No** ___
Hydric Soil Present?	Yes ✔ No ___	
Wetland Hydrology Present?	Yes ✔ No ___	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ___)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
= Total Cover			
Sapling/Shrub Stratum (Plot size: ___)			
1.			
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3.			
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3. Distichlis spicata	10	N	FAC
4. Miscellaneous	10	N	-
5.			
6.			
7.			
8.			
= Total Cover	100		
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1.			
2.			
= Total Cover			

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Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

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Total % Cover of:		Multiply by:
OBL species		x 1 =
FACW species		x 2 =
FAC species		x 3 =
FACU species		x 4 =
UPL species		x 5 =
Column Totals:	(A)	(B)

Prevalence Index = B/A = ___

Hydrophytic Vegetation Indicators:

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[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ✔ **No** ___

Remarks:

SOIL

Sampling Point: DP 1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-2	7.5YR 3/3	100					loam	
2-14	7.5 YR 2.5/2	95	black/yellow	5			loam	faint mottles

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

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- [ ] Histic Epipedon (A2)
- [ ] Black Histic (A3)
- [ ] Hydrogen Sulfide (A4)
- [ ] Stratified Layers (A5) (**LRR C**)
- [ ] 1 cm Muck (A9) (**LRR D**)
- [ ] Depleted Below Dark Surface (A11)
- [ ] Thick Dark Surface (A12)
- [ ] Sandy Mucky Mineral (S1)
- [ ] Sandy Gleyed Matrix (S4)
- [ ] Sandy Redox (S5)
- [ ] Stripped Matrix (S6)
- [ ] Loamy Mucky Mineral (F1)
- [ ] Loamy Gleyed Matrix (F2)
- [ ] Depleted Matrix (F3)
- [x] Redox Dark Surface (F6)
- [ ] Depleted Dark Surface (F7)
- [ ] Redox Depressions (F8)
- [ ] Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- [ ] 1 cm Muck (A9) (**LRR C**)
- [ ] 2 cm Muck (A10) (**LRR B**)
- [ ] Reduced Vertic (F18)
- [ ] Red Parent Material (TF2)
- [ ] Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: hardpan

Depth (inches): 14"

Hydric Soil Present? Yes ✔ No ___

Remarks:

Upper soil layer appears to be recent drainage deposits. Soil was too loose to obtain mottle colors.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- [ ] Surface Water (A1)
- [ ] High Water Table (A2)
- [ ] Saturation (A3)
- [ ] Water Marks (B1) (**Nonriverine**)
- [x] Sediment Deposits (B2) (**Nonriverine**)
- [ ] Drift Deposits (B3) (**Nonriverine**)
- [ ] Surface Soil Cracks (B6)
- [ ] Inundation Visible on Aerial Imagery (B7)
- [ ] Water-Stained Leaves (B9)
- [ ] Salt Crust (B11)
- [ ] Biotic Crust (B12)
- [ ] Aquatic Invertebrates (B13)
- [ ] Hydrogen Sulfide Odor (C1)
- [x] Oxidized Rhizospheres along Living Roots (C3)
- [ ] Presence of Reduced Iron (C4)
- [ ] Recent Iron Reduction in Tilled Soils (C6)
- [ ] Thin Muck Surface (C7)
- [ ] Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- [ ] Water Marks (B1) (**Riverine**)
- [ ] Sediment Deposits (B2) (**Riverine**)
- [ ] Drift Deposits (B3) (**Riverine**)
- [x] Drainage Patterns (B10)
- [ ] Dry-Season Water Table (C2)
- [ ] Crayfish Burrows (C8)
- [ ] Saturation Visible on Aerial Imagery (C9)
- [ ] Shallow Aquitard (D3)
- [x] FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No ✔ Depth (inches): ___

Water Table Present? Yes ___ No ✔ Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No ✔ Depth (inches): ___

Wetland Hydrology Present? Yes ✔ No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Alturas Wastewater Treatment Plant City/County: Alturas/Modoc County Sampling Date: 9/26/20

Applicant/Owner: City of Alturas State: CA Sampling Point: DP 1

Investigator(s): Donald Burk Section, Township, Range: Sec 22, T42N, R12E

Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): concave Slope (%): 1%

Subregion (LRR): D Lat: 41° 27' 52.99" Long: 120° 34' 6.11" Datum: NAD83

Soil Map Unit Name: Casuse sandy loam, 2 to 9 percent slopes NWI classification: N.A.

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✔ No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? No Are "Normal Circumstances" present? Yes ✔ No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? No (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✔	No ____
Hydric Soil Present?	Yes ✔	No ____
Wetland Hydrology Present?	Yes ✔	No ____

Is the Sampled Area within a Wetland? **Yes ✔** **No ____**

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: 5' x 5')			
1. Juncus balticus	50	Y	FACW
2. Sidalcea oregana	30	Y	FACW
3. Distichlis spicata	10	N	FAC
4. Miscellaneous	10	N	-
5.			
6.			
7.			
8.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum ____ % Cover of Biotic Crust ____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species		x 1 =
FACW species		x 2 =
FAC species		x 3 =
FACU species		x 4 =
UPL species		x 5 =
Column Totals:	(A)	(B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

- ✔ Dominance Test is >50%
- ___ Prevalence Index is ≤3.0[1]
- ___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes ✔** **No ____**

Remarks:

SOIL

Sampling Point: DP 1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-2	7.5YR 3/3	100					loam	
2-14	7.5 YR 2.5/2	95	black/yellow	5			loam	faint mottles

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ✔ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: hardpan

Depth (inches): 14"

Hydric Soil Present? Yes ✔ **No** ___

Remarks:

Upper soil layer appears to be recent drainage deposits. Soil was too loose to obtain mottle colors.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ✔ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ✔ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ✔ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ✔ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ___	No ✔	Depth (inches): ___
Water Table Present?	Yes ___	No ✔	Depth (inches): ___
Saturation Present? (includes capillary fringe)	Yes ___	No ✔	Depth (inches): ___

Wetland Hydrology Present? Yes ✔ **No** ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Alturas Wastewater Treatment Plant City/County: Alturas/Modoc County Sampling Date: 9/26/20

Applicant/Owner: City of Alturas State: CA Sampling Point: DP 1

Investigator(s): Donald Burk Section, Township, Range: Sec 22, T42N, R12E

Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): concave Slope (%): 1%

Subregion (LRR): D Lat: 41° 27' 52.99" Long: 120° 34' 6.11" Datum: NAD83

Soil Map Unit Name: Casuse sandy loam, 2 to 9 percent slopes NWI classification: N.A.

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✔ No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? No Are "Normal Circumstances" present? Yes ✔ No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? No (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✔ No ____	**Is the Sampled Area within a Wetland?** **Yes** ✔ **No** ____
Hydric Soil Present?	Yes ✔ No ____	
Wetland Hydrology Present?	Yes ✔ No ____	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
= Total Cover			
Sapling/Shrub Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
= Total Cover			
Herb Stratum (Plot size: 5' x 5')			
1. Juncus balticus	50	Y	FACW
2. Sidalcea oregana	30	Y	FACW
3. Distichlis spicata	10	N	FAC
4. Miscellaneous	10	N	-
5.			
6.			
7.			
8.			
= Total Cover	100		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
= Total Cover			

% Bare Ground in Herb Stratum ____ % Cover of Biotic Crust ____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species		x 1 =
FACW species		x 2 =
FAC species		x 3 =
FACU species		x 4 =
UPL species		x 5 =
Column Totals:	(A)	(B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

- ✔ Dominance Test is >50%
- ___ Prevalence Index is ≤3.0[1]
- ___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ✔ **No** ____

Remarks:

SOIL

Sampling Point: DP 1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-2	7.5YR 3/3	100					loam	
2-14	7.5 YR 2.5/2	95	black/yellow	5			loam	faint mottles

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ✔ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: hardpan

Depth (inches): 14"

Hydric Soil Present? Yes ✔ **No** ___

Remarks:

Upper soil layer appears to be recent drainage deposits. Soil was too loose to obtain mottle colors.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ✔ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ✔ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ✔ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ✔ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No ✔ Depth (inches): ___

Water Table Present? Yes ___ No ✔ Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No ✔ Depth (inches): ___

Wetland Hydrology Present? Yes ✔ **No** ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Alturas Wastewater Treatment Plant City/County: Alturas/Modoc County Sampling Date: 9/26/20

Applicant/Owner: City of Alturas State: CA Sampling Point: DP 1

Investigator(s): Donald Burk Section, Township, Range: Sec 22, T42N, R12E

Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): concave Slope (%): 1%

Subregion (LRR): D Lat: 41° 27' 52.99" Long: 120° 34' 6.11" Datum: NAD83

Soil Map Unit Name: Casuse sandy loam, 2 to 9 percent slopes NWI classification: N.A.

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✔ No ___ (If no, explain in Remarks.)

Are Vegetation ___, Soil ___, or Hydrology ___ significantly disturbed? No Are "Normal Circumstances" present? Yes ✔ No ___

Are Vegetation ___, Soil ___, or Hydrology ___ naturally problematic? No (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✔	No ___
Hydric Soil Present?	Yes ✔	No ___
Wetland Hydrology Present?	Yes ✔	No ___

Is the Sampled Area within a Wetland? Yes ✔ No ___

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ___)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
= Total Cover			
Sapling/Shrub Stratum (Plot size: ___)			
1.			
2.			
3.			
4.			
5.			
= Total Cover			
Herb Stratum (Plot size: 5' x 5')			
1. Juncus balticus	50	Y	FACW
2. Sidalcea oregana	30	Y	FACW
3. Distichlis spicata	10	N	FAC
4. Miscellaneous	10	N	-
5.			
6.			
7.			
8.			
= Total Cover	100		
Woody Vine Stratum (Plot size: ___)			
1.			
2.			
= Total Cover			

% Bare Ground in Herb Stratum ___ % Cover of Biotic Crust ___

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species		x 1 =
FACW species		x 2 =
FAC species		x 3 =
FACU species		x 4 =
UPL species		x 5 =
Column Totals:	(A)	(B)

Prevalence Index = B/A = ___

Hydrophytic Vegetation Indicators:

- ✔ Dominance Test is >50%
- ___ Prevalence Index is ≤3.0[1]
- ___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✔ No ___

Remarks:

SOIL

Sampling Point: DP 1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-2	7.5YR 3/3	100					loam	
2-14	7.5 YR 2.5/2	95	black/yellow	5			loam	faint mottles

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ✔ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: hardpan

Depth (inches): 14"

Hydric Soil Present? Yes ✔ **No** ___

Remarks:

Upper soil layer appears to be recent drainage deposits. Soil was too loose to obtain mottle colors.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ✔ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ✔ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ✔ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ✔ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No ✔ Depth (inches): ___

Water Table Present? Yes ___ No ✔ Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No ✔ Depth (inches): ___

Wetland Hydrology Present? Yes ✔ **No** ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Alturas Wastewater Treatment Plant City/County: Alturas/Modoc County Sampling Date: 9/26/20

Applicant/Owner: City of Alturas State: CA Sampling Point: DP 1

Investigator(s): Donald Burk Section, Township, Range: Sec 22, T42N, R12E

Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): concave Slope (%): 1%

Subregion (LRR): D Lat: 41° 27' 52.99" Long: 120° 34' 6.11" Datum: NAD83

Soil Map Unit Name: Casuse sandy loam, 2 to 9 percent slopes NWI classification: N.A.

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✔ No ___ (If no, explain in Remarks.)

Are Vegetation ___, Soil ___, or Hydrology ___ significantly disturbed? No Are "Normal Circumstances" present? Yes ✔ No ___

Are Vegetation ___, Soil ___, or Hydrology ___ naturally problematic? No (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✔ No ___	**Is the Sampled Area within a Wetland?** **Yes** ✔ **No** ___
Hydric Soil Present?	Yes ✔ No ___	
Wetland Hydrology Present?	Yes ✔ No ___	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ___)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	___ = Total Cover		
Sapling/Shrub Stratum (Plot size: ___)			
1.			
2.			
3.			
4.			
5.			
	___ = Total Cover		
Herb Stratum (Plot size: 5' x 5')			
1. Juncus balticus	50	Y	FACW
2. Sidalcea oregana	30	Y	FACW
3. Distichlis spicata	10	N	FAC
4. Miscellaneous	10	N	-
5.			
6.			
7.			
8.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: ___)			
1.			
2.			
	___ = Total Cover		

% Bare Ground in Herb Stratum ___ % Cover of Biotic Crust ___

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	___	x 1 = ___
FACW species	___	x 2 = ___
FAC species	___	x 3 = ___
FACU species	___	x 4 = ___
UPL species	___	x 5 = ___
Column Totals:	___ (A)	___ (B)

Prevalence Index = B/A = ___

Hydrophytic Vegetation Indicators:

- ✔ Dominance Test is >50%
- ___ Prevalence Index is ≤3.0[1]
- ___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ✔ **No** ___

Remarks:

SOIL

Sampling Point: DP 1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-2	7.5YR 3/3	100					loam	
2-14	7.5 YR 2.5/2	95	black/yellow	5			loam	faint mottles

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ✔ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: hardpan

Depth (inches): 14"

Hydric Soil Present? Yes ✔ **No** ___

Remarks:

Upper soil layer appears to be recent drainage deposits. Soil was too loose to obtain mottle colors.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ✔ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ✔ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ✔ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ✔ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No ✔ Depth (inches): ___

Water Table Present? Yes ___ No ✔ Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No ✔ Depth (inches): ___

Wetland Hydrology Present? Yes ✔ **No** ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Alturas Wastewater Treatment Plant City/County: Alturas/Modoc County Sampling Date: 9/26/20

Applicant/Owner: City of Alturas State: CA Sampling Point: DP 1

Investigator(s): Donald Burk Section, Township, Range: Sec 22, T42N, R12E

Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): concave Slope (%): 1%

Subregion (LRR): D Lat: 41° 27' 52.99" Long: 120° 34' 6.11" Datum: NAD83

Soil Map Unit Name: Casuse sandy loam, 2 to 9 percent slopes NWI classification: N.A.

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✔ No ___ (If no, explain in Remarks.)

Are Vegetation ___, Soil ___, or Hydrology ___ significantly disturbed? No Are "Normal Circumstances" present? Yes ✔ No ___

Are Vegetation ___, Soil ___, or Hydrology ___ naturally problematic? No (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✔	No ___
Hydric Soil Present?	Yes ✔	No ___
Wetland Hydrology Present?	Yes ✔	No ___

Is the Sampled Area within a Wetland? **Yes ✔ No ___**

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ___)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
= Total Cover			
Sapling/Shrub Stratum (Plot size: ___)			
1.			
2.			
3.			
4.			
5.			
= Total Cover			
Herb Stratum (Plot size: 5' x 5')			
1. Juncus balticus	50	Y	FACW
2. Sidalcea oregana	30	Y	FACW
3. Distichlis spicata	10	N	FAC
4. Miscellaneous	10	N	-
5.			
6.			
7.			
8.			
= Total Cover	100		
Woody Vine Stratum (Plot size: ___)			
1.			
2.			
= Total Cover			

% Bare Ground in Herb Stratum ___ % Cover of Biotic Crust ___

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	___	x 1 = ___
FACW species	___	x 2 = ___
FAC species	___	x 3 = ___
FACU species	___	x 4 = ___
UPL species	___	x 5 = ___
Column Totals:	___ (A)	___ (B)

Prevalence Index = B/A = ___

Hydrophytic Vegetation Indicators:

- ✔ Dominance Test is >50%
- ___ Prevalence Index is ≤3.0[1]
- ___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes ✔ No ___**

Remarks:

SOIL

Sampling Point: DP 1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-2	7.5YR 3/3	100					loam	
2-14	7.5 YR 2.5/2	95	black/yellow	5			loam	faint mottles

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ✔ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: hardpan

Depth (inches): 14"

Hydric Soil Present? Yes ✔ **No** ___

Remarks:

Upper soil layer appears to be recent drainage deposits. Soil was too loose to obtain mottle colors.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ✔ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ✔ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ✔ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ✔ FAC-Neutral Test (D5)

Field Observations:

	Yes	No	Depth (inches)
Surface Water Present?		✔	
Water Table Present?		✔	
Saturation Present? (includes capillary fringe)		✔	

Wetland Hydrology Present? Yes ✔ **No** ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Alturas Wastewater Treatment Plant City/County: Alturas/Modoc County Sampling Date: 9/26/20

Applicant/Owner: City of Alturas State: CA Sampling Point: DP 1

Investigator(s): Donald Burk Section, Township, Range: Sec 22, T42N, R12E

Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): concave Slope (%): 1%

Subregion (LRR): D Lat: 41° 27' 52.99" Long: 120° 34' 6.11" Datum: NAD83

Soil Map Unit Name: Casuse sandy loam, 2 to 9 percent slopes NWI classification: N.A.

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✔ No ___ (If no, explain in Remarks.)

Are Vegetation ___, Soil ___, or Hydrology ___ significantly disturbed? No Are "Normal Circumstances" present? Yes ✔ No ___

Are Vegetation ___, Soil ___, or Hydrology ___ naturally problematic? No (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✔ No ___	**Is the Sampled Area within a Wetland?** **Yes** ✔ **No** ___
Hydric Soil Present?	Yes ✔ No ___	
Wetland Hydrology Present?	Yes ✔ No ___	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ___)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
= Total Cover			
Sapling/Shrub Stratum (Plot size: ___)			
1.			
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3.			
4.			
5.			
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Herb Stratum (Plot size: 5' x 5')			
1. Juncus balticus	50	Y	FACW
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3. Distichlis spicata	10	N	FAC
4. Miscellaneous	10	N	-
5.			
6.			
7.			
8.			
= Total Cover	100		
Woody Vine Stratum (Plot size: ___)			
1.			
2.			
= Total Cover			

% Bare Ground in Herb Stratum ___ % Cover of Biotic Crust ___

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species		x 1 =
FACW species		x 2 =
FAC species		x 3 =
FACU species		x 4 =
UPL species		x 5 =
Column Totals:	(A)	(B)

Prevalence Index = B/A = ___

Hydrophytic Vegetation Indicators:

- ✔ Dominance Test is >50%
- ___ Prevalence Index is ≤3.0[1]
- ___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ✔ **No** ___

Remarks:

SOIL

Sampling Point: DP 1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
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2-14	7.5 YR 2.5/2	95	black/yellow	5			loam	faint mottles

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

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- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ✔ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: hardpan

Depth (inches): 14"

Hydric Soil Present? **Yes** ✔ **No** ___

Remarks:

Upper soil layer appears to be recent drainage deposits. Soil was too loose to obtain mottle colors.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ✔ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ✔ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ✔ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ✔ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No ✔ Depth (inches): ___

Water Table Present? Yes ___ No ✔ Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No ✔ Depth (inches): ___

Wetland Hydrology Present? **Yes** ✔ **No** ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

APPENDIX E

On-Site Waters by Cowardin Type

Waters_Name	State	Cowardin_Code	Meas_Type	Amount	Units	Latitude	Longitude
1:WM	CALIFORNIA	PEM	Area	0.001	ACRE	41.46440500	-120.56885100
2:WM	CALIFORNIA	PEM	Area	0.001	ACRE	41.46444600	-120.56870100
3:WM	CALIFORNIA	PEM	Area	0.001	ACRE	41.46470600	-120.56845600
4:WM	CALIFORNIA	PEM	Area	0.005	ACRE	41.46473200	-120.56834400
5:WM	CALIFORNIA	PEM	Area	0.004	ACRE	41.46482900	-120.56794100
6:ES	CALIFORNIA	R6	Area	0.004	ACRE	41.46467700	-120.56815900
7:WM	CALIFORNIA	PEM	Area	0.01	ACRE	41.46604900	-120.56240300
8:WM	CALIFORNIA	PEM	Area	0.011	ACRE	41.46614200	-120.56199100
9:SW	CALIFORNIA	PEM	Area	0.021	ACRE	41.46587700	-120.56239200
10:SW	CALIFORNIA	PUB	Area	0.018	ACRE	41.46598200	-120.56178100
11:PS	CALIFORNIA	R2UB	Area	0.174	ACRE	41.47350700	-120.55615400
12:WM	CALIFORNIA	PEM	Area	0.036	ACRE	41.47401200	-120.55608800
13:WM	CALIFORNIA	PEM	Area	0.055	ACRE	41.47483000	-120.55576800
14:WM	CALIFORNIA	PEM	Area	0.166	ACRE	41.47420700	-120.55575900
15:WM	CALIFORNIA	PEM	Area	0.03	ACRE	41.47490500	-120.55548700
16:WM	CALIFORNIA	PEM	Area	0.014	ACRE	41.47518300	-120.55538900
17:PS	CALIFORNIA	R2UB	Area	0.119	ACRE	41.47557500	-120.55534900

Appendix C

Biological Study Report

BIOLOGICAL STUDY REPORT

Alturas Wastewater Treatment Plant (WWTP) Improvement Project

Proposed treatment/disposal site, view to east from western site boundary

Prepared for:

City of Alturas

Prepared by:

Jacob Ewald, Qualified Biologist

October 2020

374-08

ENPLAN
3179 Bechelli Lane, Suite 100, Redding, CA 96002
(530) 221-0440
www.enplan.com

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TABLES

Table 1. California Natural Diversity Data Base (CNDDB) Report Summary

Table 2. California Native Plant Society (CNPS) Inventory of Rare and Endangered Plants

Table 3. Potential for Special-Status Species to Occur on the Project Sites

Table 4. Potential for Migratory Birds of Conservation Concern to Occur on the Project Sites

APPENDICES

Appendix A. U.S. Fish and Wildlife Service List of Threatened and Endangered Species

Appendix B. List of Vascular Plants Observed

Appendix C. Representative Photographs

1.0 INTRODUCTION

The purpose of this biological study report (BSR) is to identify and characterize sensitive biological resources likely to occur on the project site. This BSR is intended to serve as a baseline study to assist in the preparation of subsequent environmental documentation.

ENPLAN is an environmental consulting firm with over 35 years of experience with projects throughout northern California. All work associated with this project was performed by Jacob Ewald, Environmental Scientist with ENPLAN, and Donald Burk, Environmental Services Manager with ENPLAN.

Mr. Ewald has over four years of experience working as an environmental scientist throughout California. His experience includes endangered species surveys, nesting bird surveys, and stream surveys. In addition to working in the private sector, he has extensive experience conducting research and handling wildlife working as a field biologist for federal and state agencies in California. Mr. Ewald was responsible for drafting the current report.

Mr. Burk received his Master of Science degree in Botany, and Bachelor of Arts degree in Chemistry and Biological Sciences from California State University, Chico. Having worked in the environmental consulting field since 1981, he has an in-depth background in a broad spectrum of environmental studies. His experience includes managing the preparation of CEQA/NEPA environmental compliance documents, environmental site assessments, wildlife and botanical studies, wetland delineations, reclamation plans, and stream restoration projects. Mr. Burk was responsible for the biological surveys, wetland evaluation, and final report review.

2.0 PROJECT LOCATION AND DESCRIPTION

The City of Alturas owns and operates a wastewater treatment plant (WWTP) just south of the City limits, on County Road 54 (N. West Street), in Modoc County. The WWTP is located along the north bank of the North Fork Pit River at its confluence with the South Fork Pit River. The WWTP provides primary and secondary treatment. Treated effluent is discharged to the Pit River. The City has had difficulty meeting permitted effluent limits for various constituents, including zinc, copper, aluminum, biological oxygen demand, total suspended solids, total coliform, toxicity, and total suspended solids. Therefore, the City is proposing improvements to WWTP to enhance system efficiency and comply with Central Valley Regional Water Quality Control Board (CVRWQCB) requirements.

As currently proposed, the City would decommission the existing WWTP; pump the raw wastewater to new, offsite aeration ponds; and dispose of the treated wastewater through land discharge via evaporation/percolation ponds at the offsite location. The new offsite facilities would be located on a portion of Modoc County Assessor's Parcel 022-130-042, which is on the northwest side of County Road 54, over a mile southwest of the current WWTP. A new pipeline would be constructed from the current WWTP to the new location in the County Road 54 right-of-way. The new ±2.1-mile force main would be attached to the existing County Road 54 bridges over the North and South Forks of the Pit River; no in-water work would occur.

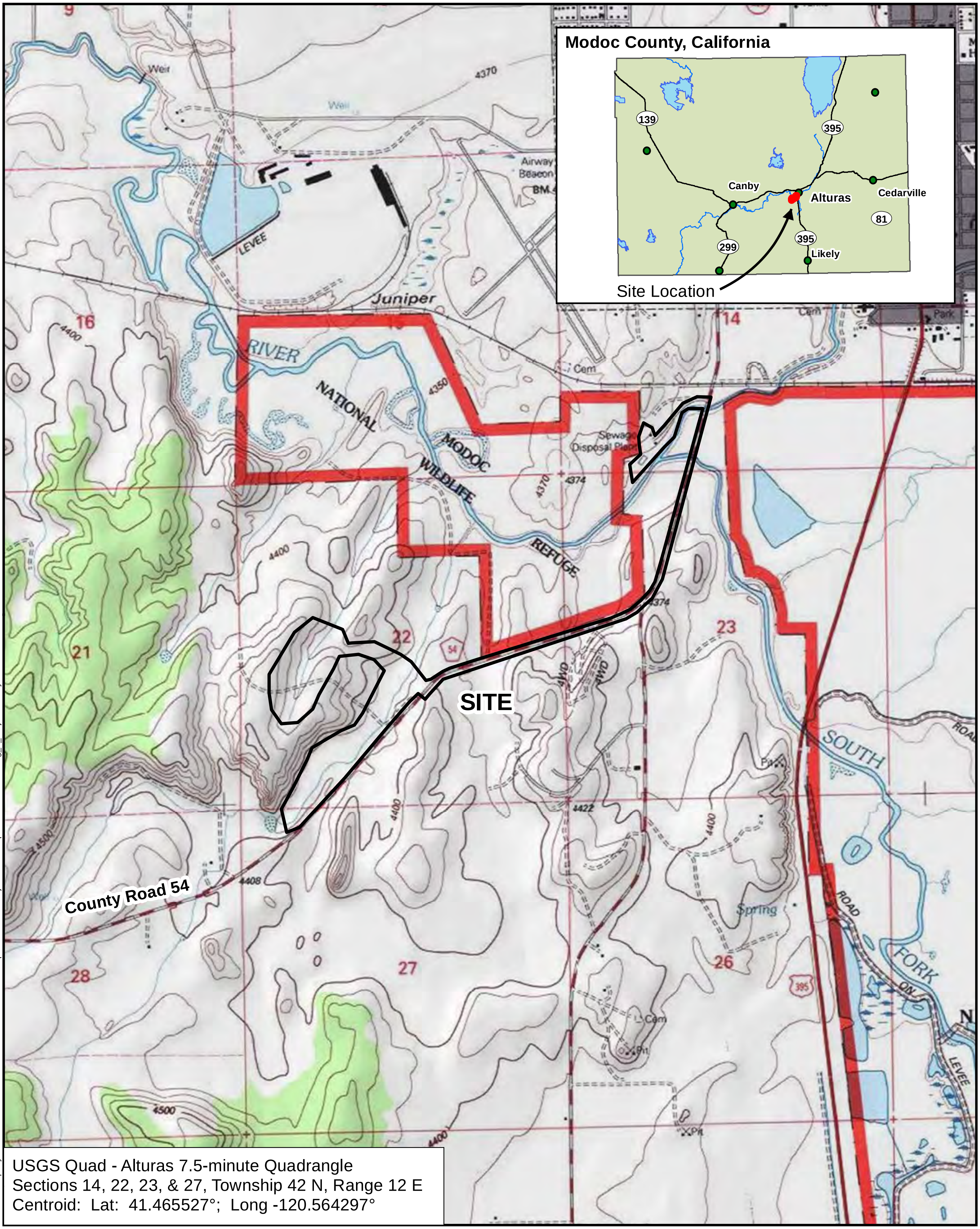
As shown in Figure 1, the ±106-acre study site is situated in Sections 14, 22, 23, and 27, Township 42 North, Range 12 East, of the U.S. Geological Survey's Alturas, CA, 7.5-minute quadrangle. The site ranges in elevation between 4,360 and 4,490 feet above sea level. The study consists of a portion of the developed WWTP parcel, about 1.4 miles of road right-of-way along County Road 54, and approximately 70 undeveloped acres at the proposed new treatment/disposal site.

Temporary staging of construction materials and equipment during construction of the proposed project would occur within the boundaries of the current study area. No physical improvements are needed to establish the staging areas.

3.0 RECORDS REVIEW AND FIELD RECONNAISSANCE

3.1 Records Review

Records reviewed for this evaluation consisted of California Natural Diversity Data Base (CNDDB) records for special-status plants, animals, and natural communities (see **Table 1**); California Native Plant Society (CNPS) Inventory of Rare and Endangered Plants (see **Table 2**); U.S. Fish and Wildlife Service (USFWS) records for federally listed, proposed, and Candidate plant and animal species under jurisdiction



USGS Quad - Alturas 7.5-minute Quadrangle
Sections 14, 22, 23, & 27, Township 42 N, Range 12 E
Centroid: Lat: 41.465527°; Long -120.564297°

Path: N:\companyfiles\01-Jobs Active\374-08 SHN - Alturas WWTP Improvements\3-Project GIS\3-Map Documents\Delin\Fig_1_Project Vicinity 080920.mxd

All depictions are approximate. Not a survey product. 10.14.20

Feet
0 2,000

Figure 1
Project Vicinity

ENPLAN

of the USFWS (see **Appendix A**); USFWS records for migratory birds of conservation concern (see **Appendix A**); soils records maintained by the U.S. Department of Agriculture's Natural Resources Conservation Service[1], and National Wetlands Inventory (NWI) maps[2]. The National Marine Fisheries Service (NMFS) does not maintain a species list for the project quadrangle; review of the NMFS EFH Mapper determined that the project site is not within a hydrologic unit designated as EFH for Chinook salmon. The CNDDB records search covered a five-mile radius around the project site. This entailed review of records for portions of the Alturas, Big Sage Reservoir, Dorris Reservoir, Mahogany Ridge, Rattlesnake Butte, and Surprise quadrangles.

3.2 Field Reconnaissance

To determine the presence/absence of special-status plant and animal species, ENPLAN biologists conducted botanical and wildlife surveys on May 20, July 13, and September 26, 2020. Some of the special-status species potentially occurring in the study area would not have been evident at the time the fieldwork was conducted. However, determination of their potential presence could readily be made based on observed habitat characteristics. A list of plants observed in the study area is included in **Appendix B**. Wildlife observations included American bullfrogs, western pond turtles, western fence lizards, killdeer, western kingbirds, Canada geese, black-billed magpies, American crows, turkey vultures, woodrats, Belding's ground squirrels, Nuttall's cottontails, coyote, and mule deer. Sandhill cranes were also heard in the distance, but they were not seen and are unlikely to use the project site. Numerous cliff swallows were observed calling and flying near the bridges over North Fork Pit River and South Fork Pit River in the study area. In addition, swallow nests were observed adhered to the side of these bridges. Representative photographs of the study area are provided in **Appendix C**.

[1] https://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx
[2] https://www.fws.gov/wetlands/data/mapper.html

4.0 NATURAL COMMUNITIES

The USFWS does not identify any designated critical habitats for federally listed species within the study area. Review of CNDDB records showed that the proposed treatment disposal site is within an pronghorn antelope kidding ground and in or adjacent to a pronghorn migration corridor. Review of the National Wetlands Inventory maps showed that the Pit River and two intermittent streams have been mapped in the study area.

Field review confirmed the presence of the North and South Forks of the Pit River in the proposed pipeline corridor in the County Road 54 right-of-way (with the two features totaling 0.293 acres). In addition, one ephemeral stream (±0.004 acres), 12 wet meadows (totaling 0.333 acres) and two seasonal wetlands (totaling 0.039 acres) were observed alongside County Road 54 during the field review. As further documented in the Aquatic Resource Delineation Report, no evidence of the two intermittent streams shown on the NWI maps was observed during the field review. Other communities observed during the field study consisted of urban/ruderal habitat, a big sagebrush community, and cropland. Each of the communities is briefly described below. Sensitive natural communities are limited to the streams and wetlands, as well as any portions of the big sagebrush community that support pronghorn migration and kidding grounds.

Riverine

Both the North Fork Pit River and South Fork Pit River flow through the study area, crossing under County Road 54 and converging on the east side of the WWTP. Both reaches have low gradients, silty bottoms, and support negligible amounts of woody riparian vegetation. The river banks range from moderately steep with dense herbaceous riparian vegetation to near-vertical cut faces with no vegetation. Bankside vegetation includes reed canary grass, Baltic rush, poison hemlock, tansy, nettle, and other species, while aquatic plants include water buttercup, cattail, creeping spikerush, Eurasian water-milfoil, and diverse-leaved pondweed. The ephemeral stream consists of a somewhat scoured bed closely surrounded by upland vegetation; no riparian vegetation is present adjacent to the ephemeral stream.

In the study area, the Pit River support various fish, waterfowl, and invertebrates, and provides suitable foraging and dispersal habitat for frogs, toads, turtles, and other species. Fish species expected to occur in this reach of the Pit River include hardhead, Sacramento sucker, Sacramento pikeminnow, Pit sculpin, speckled dace, and rainbow trout. Due to its limited flow duration, the ephemeral stream has negligible value for wildlife.

It is anticipated that the sewer force main would be attached to the two bridges over the Pit River reaches. Although no in-water work would occur, construction activities could result in indirect effects to the Pit River and downstream habitats if sediments or other pollutants enter the on-site drainages and degrade habitat in the study area and/or downstream. However, with best management practices (BMPs) for the control of erosion and sedimentation, there would be no significant effect on the aquatic habitats.

Wetlands

As further documented in the Aquatic Resources Delineation Report, wetlands in the study area consist of wet meadows and seasonal wetlands. Wet meadows generally have a dense cover of grasses and grass-like species and may be in areas with a high ground water table. Characteristic plant species in the on-site wet meadows include reed canary grass, salt grass, alkali ryegrass, Baltic rush, and smooth scouring rush. Seasonal wetlands are saturated or inundated during the winter wet season and dry during the dry season. They generally have a sparse to moderate cover of forb species and are subject to long-term surface ponding. The dominant plant species in the on-site seasonal wetlands is cognate popcorn flower.

The on-site wetlands are all adjacent to County Road 54, which reduces their overall wildlife value (e.g., birds are less likely to nest in the wet meadows, grazing mammals are less likely to forage in the wetlands, and carnivores are less likely to use the wetlands for hunting). Nonetheless, the wet meadows provide food and shelter for garter snakes, tree frogs, toads, voles, and other small animals, while the seasonal wetlands support aquatic macroinvertebrates, which serve as a food source for waterfowl and other species.

If the wetland or riverine communities are disturbed by project construction activities, permits from the US Department of the Army, Regional Water Quality Control Board and/or California Department of Fish and Wildlife may be required. Standard conditions of the permits require that the pre-existing ground contours be restored following construction, appropriate erosion control measures be implemented, aquatic life movement not be substantially disrupted, floodplain management requirements be met, etc. With implementation of standard permit conditions, temporary impacts on the stream and wetland features would be less than significant.

Cropland

A leveled field is located on a low terrace paralleling County Road 54 in the planned treatment/disposal site. The field does not currently appear to be used for agricultural production, but may have been irrigated in the past (a small pond is present upslope of the field, outside the current study area). The field currently supports a dense stand of rye, which may be self-seeding. Grain croplands can provide foraging value to large game such as deer. In addition, waterfowl and sandhill cranes may eat waste grains left behind from agricultural activities in grain croplands. An abundance of Belding's ground squirrels was observed in the field in the spring.

Depending on final project plans, the terrace may be used for disposal of treated wastewater, which could enhance its agricultural productivity. Cropland is not considered as a natural community by the California Department of Fish and Wildlife; conversion of the existing community to an actively managed cropland or other use would not be considered as a significant environmental effect.

Urban/Ruderal

The urban/ruderal community consists of highly disturbed lands at the wastewater treatment plant and along County Road 54. Most of the natural ground surface has been leveled or overcovered with gravel, asphalt, treatment ponds and buildings. The vegetation includes many introduced weedy species such as downy brome, medusahead, bindweed, and red-stemmed filaree, with the road shoulders supporting large stands of summer-cypress and Russian-thistle. This habitat type is not identified as a natural community by California Department of Fish and Wildlife, and provides minimal wildlife values. Loss or disturbance of the habitat type is not considered a significant impact.

Big Sagebrush

The big sagebrush scrub community is abundant in the study area and vicinity. It occurs around the periphery of the WWTP, outside the County Road 54 road prism, and, with the exception of the leveled lower terrace, throughout the planned treatment/disposal area. The on-site sagebrush community is generally characterized by relatively open stands of big sagebrush, scattered western junipers, and an open to dense herbaceous layer. Several other shrub species are also represented, including rubber rabbitbrush, sticky-leaved rabbitbrush, gray horsebrush, and wild crab-apple.

At the proposed treatment/disposal site, which has historically supported grazing, the shrub layer is very open and the herbaceous layer is extremely weedy. Dominant herbaceous species include downy brome and red-stemmed filaree; other common weeds include Mediterranean sage, bull thistle, alyssum, tumble-mustard, and flixweed. In intact sagebrush scrub habitats along the road corridor, the understory includes many native species, including cushion pussytoes, cold-desert phlox, and panicled zigadene.

Sagebrush communities provide habitat for a number of wildlife species including lagomorphs, squirrels, rats, mice, sage grouse, and various other birds. The sagebrush community in and adjacent to the study area may also support habitat for large game species such as pronghorn antelope and mule deer. Indirect impacts to wildlife species could occur if the project damaged or removed essential breeding and foraging habitat, or disrupted migration patterns.

The big sagebrush community is not identified as a sensitive natural community by CDFW. Therefore, loss or disturbance of the habitat type is not generally considered a significant impact. Nonetheless, it should be noted that CDFW mapping shows the project site as being in a pronghorn kidding ground and adjacent to a pronghorn migration corridor. Richard Shinn, CDFW Wildlife Biologist – Modoc County, was contacted to determine if the proposed project would adversely affect these important habitat elements. He commented that he has not observed pronghorn in the project area. Further, the relatively small size of the project area and its proximity to the City of Alturas, coupled with the large home ranges maintained by pronghorn, would reduce any potential impact of the proposed project on pronghorn to less than significant (pers. comm. R. Shinn, CDFW). Therefore, the on-site big sagebrush community does not provide special wildlife values that would elevate it to a sensitive level.

5.0 SPECIAL-STATUS SPECIES

5.1 Special-Status Plant Species

Review of the U.S. Fish and Wildlife Service species lists (see **Appendix A**) for the study area identified two federally listed plant species, Greene's tuctoria and slender Orcutt grass, as potentially being affected by the proposed project. The study area does not contain designated critical habitat for federally listed plant species.

A review of CNDDB records showed that two special-status plants, Macdougal's lomatium and Lilliput lupine, have been reported in or adjacent to the study area. In May 1994, 100+ individuals of Macdougal's lomatium were observed on both sides of a road (primarily on the north side) about 0.2 miles south of the confluence of the North and South Forks of the Pit River. The population was reported to occur on private lands and Modoc National Wildlife Refuge lands, on nearly barren volcanic gravels. Two occurrences of Lilliput lupine were reported in August 1993 and another in May 1994, on private lands on both sides of County Road 54 south of its intersection with Westside Road (County Road 60). The populations were in tall sagebrush habitat on gravelly volcanic hills and consisted of 10 plants, 100+ plants, and 10-20 plants. A fourth occurrence of less than 100 plants was mapped in August 1993, on private land south of County Road 54 near the proposed treatment/disposal site.

CNDDB records also show that the following 15 special-status plants have been reported within a five-mile radius of the project site: Boggs Lake hedge-hyssop, doublet, eel-grass pondweed, falcate saltbush, grass alisma, Great Basin downingia, Intermountain lupine, Janish's beardtongue, Liddon's sedge, Nuttall's ribbon-leaved pondweed, prostrate buckwheat, rayless mountain ragwort, Sheldon's sedge, water star-grass, and wheat sedge. The CNPS Inventory (**Table 2**) identifies two additional (non-status) plants within the Alturas quadrangle: Mexican mosquito fern and Modoc Plateau milk-vetch.

The potential for each special-status plant species to occur on the project site is evaluated in **Table 3**. As documented in **Table 3**, none of these or any other special-status plant species were observed during the botanical survey. The described habitat and location for Macdougal's lomatium appears to be primarily or entirely outside the County Road 54 right-of-way. Suitable intact habitat capable of supporting Lilliput lupine was observed in the County Road 54 right-of-way in the vicinity of the previous reports, but no individuals were present. Given lack of access rights, no attempt was made to survey suitable habitats outside the road right-of-way. With construction work in the County Road 54 corridor confined to the road right-of-way, no impacts on special-status plants are anticipated.

5.2 Special-Status Wildlife Species

Review of the USFWS species list for the study area (see **Appendix A**) identified the following federally listed animal species as potentially being affected by the proposed project: gray wolf, North American wolverine, and yellow-billed cuckoo. The USFWS species list does not identify designated critical habitat in the study area for any federally listed animal species.

Review of CNDDB records showed that two special-status animal species, gray wolf and Swainson's hawk, have been reported in the study area; gray wolf is broadly mapped to include the project site and Swainson's hawk is broadly mapped to include the current WWTP site. Thirteen special-status animals have been reported within a five-mile radius of the project site: American badger, bank swallow, golden eagle, greater sage-grouse, greater sandhill crane, hardhead, northern leopard frog, Oregon spotted frog, prairie falcon, tricolored blackbird, western pond turtle, and western white-tailed jackrabbit. One non-status animal species, the North American porcupine, has been mapped within the five-mile search radius.

The potential for each special-status animal species to occur on the project sites is evaluated in **Table 3**. As documented in **Table 3**, western pond turtles and greater sandhill cranes were observed during the survey. Other special-status wildlife species that could potentially be present in the study area include Swainson’s hawks and hardhead. Each of these four species is addressed in more detail below.

Hardhead

Hardhead are found in small to large streams, lakes, and reservoirs at low to mid-elevations. Water temperatures preferred by hardhead are relatively warm, possibly even exceeding 20 degrees Celsius. Gravel or rock substrate is generally required for laying eggs.

The project area is located near the confluence of the North and South Forks of the Pit River. The current wastewater treatment facility is located less than 100 feet from the Pit River; the proposed sewer main to the new treatment/disposal site would cross over both forks of the Pit River. The UC Davis PISCES website shows that the extant range of the hardhead extends upstream to the confluence of the North and South Forks of the Pit River, and then has a several-mile gap. The County Road 54 bridge sites are excluded from the current range of the species, perhaps due to the silty substrate. Nonetheless, it is likely that hardhead move through the project area.

Hardhead would not be directly affected by the proposed project because no in-stream work is planned; instead, the sewer main would be attached to the two bridges over the Pit River. Nonetheless, project construction could potentially result in indirect impacts to hardhead and other aquatic species if sediments or other pollutants enter the river and degrade the water quality in the study area and/or downstream. However, with BMPs for the control of erosion and sedimentation, there would be no significant indirect effects on hardhead.

Further, it should be noted that the current wastewater facility discharges treated effluent into the Pit River. With the proposed treatment/disposal system, all effluent would be discharged to uplands. Because the proposed project would improve water quality in the Pit River, the project is expected to result in a long-term benefit to hardhead and other aquatic species.

Greater Sandhill Crane

Greater sandhill cranes nest in wetland habitats near grain fields in northeastern California. Nests generally consist of large mounds of vegetation in shallow water. Shallow islands bordered by tules and cattails are ideal nesting sites, though natural hummocks or muskrat houses may also be used as nest sites.

During the survey, the biologist identified greater sandhill cranes by call. The biologist did not visually confirm the presence of the greater sandhill cranes, and he estimated their distance at over a half-mile from the project site. The on-site wet meadows and riparian vegetation surrounding the Pit River do not provide suitable nesting habitat for sandhill cranes, due to their relatively small size and proximity to human activity. Therefore, greater sandhill cranes are not expected to be present, and the project would not adversely affect greater sandhill cranes.

Western Pond Turtle

Western pond turtles are found in permanent or semi-permanent aquatic habitats from sea level to approximately 6,000 feet in elevation. These turtles prefer ponds or slow-flowing streams with deep pools. The presence of suitable basking sites is an important habitat component for western pond turtles. Basking sites may include partially submerged logs, rocks, mats of floating vegetation, or open mud banks. In the fall, western pond turtles leave aquatic sites and overwinter in uplands, returning to return to the aquatic sites in the spring.

Mating typically occurs in late April or early May but may occur year-round. Females emigrate from their aquatic habitat to an upland location to nest and deposit between one and 13 eggs. Females may lay more than one clutch a year, but they most commonly deposit eggs between May and August. The western pond turtle usually nests on sandy banks near water or in fields with sunny spots. Nests are generally constructed within 500 feet of a waterbody, but may be up to 1,500 feet away. Hatchlings stay in the nest after hatching until spring, following a similar pattern to the adults' overwintering. Given this life cycle, pond turtles can be present in upland areas nearly year-round.

Numerous western pond turtles were observed in the Pit River during the field survey. The pond turtles are also likely to use suitable upland habitats surrounding the river for nesting and overwintering. The study area includes suitable upland habitat for pond turtle nesting and overwintering near the current WWTP site; the remaining portions of the project site are unsuitable. Additionally, while the force main would cross the Pit River at two locations, all construction would occur within the road ROW in heavily modified, marginal habitat.

The current WWTP sits less than 100 feet from the Pit River and North Fork Pit River. Although a chain-link fence surrounds most of the current WWTP site, western pond turtles could potentially utilize habitat outside of the fenced area. Construction activities could potentially disturb western pond turtles or their nests/eggs if pond turtles move into the project site to nest or overwinter.

Direct construction impacts can be avoided/minimized by erecting temporary exclusionary fencing around the unfenced portion of the current WWTP site. Prior to the commencement of construction activities at the current WWTP site, a qualified biologist would then conduct a pre-construction survey, with any pond turtles encountered relocated to a safe location outside of the fencing. Additionally, if western pond turtles are encountered within the exclusionary fencing during project construction, the qualified biologist would be contacted and construction activities within 50 feet of the turtle would be halted until the turtle has left the area or is relocated by the qualified biologist.

Construction activities could result in indirect effects on western pond turtles if sediments or other pollutants enter the river and degrade pond turtle habitat in the study area and/or downstream. However, with BMPs for the control of erosion and sedimentation, there would be no significant indirect effects on the western pond turtle. Further, as discussed above with respect to hardhead, because wastewater would no longer be discharged into the Pit River, the project is expected to result in a long-term benefit to western pond turtles and other aquatic species due to improved water quality.

Gray Wolf

Gray wolves are habitat generalists that can be found in the northern hemisphere from 20 degrees latitude to the polar ice pack. Key components of preferred wolf habitat include a year-round abundance of natural prey, secluded denning and rendezvous sites, and sufficient space with minimal human disturbance. Dens may be a hollow log or a tunnel excavated in loose soil. Den sites are often near water, and are usually elevated to detect approaching enemies. Wolf packs establish and defend territories that may range from 20 to 400 square miles. Wolves travel over large areas to hunt, and may cover as much as 30 miles in a day. Young wolves may disperse several hundred miles to seek out a mate or to establish their own pack.

While CNDDB records indicate that gray wolves were observed in the study area, this observation dates back to 1911. Gray wolves were previously extirpated from California in the 1920s; the first modern sighting of gray wolves in California occurred in 2011 in Siskiyou County. Currently, the only known established wolf pack in California is in the Lassen/Plumas County area. Although gray wolves could potentially travel through the project area, given the extent of human activity, they would not den in the study area; no impacts to the gray wolf are expected.

Swainson's Hawk

In northeastern California, Swainson's hawks nest in riparian areas, oak savannahs, and juniper-sage flats. As the study area contains juniper-sage flats, suitable habitat for Swainson's hawks is present. According to CNDDB records, a pair of Swainson's hawks nested in a juniper just west of the confluence of the North and South Forks of the Pit River in 1972 and again in 1980. No nests or adults were observed in 1981 or 1982. The hawks are occasionally observed at the Modoc National Wildlife Refuge, but have not been reported to nest there. Given the known presence of Swainson's hawks in the general area and the presence of potentially suitable nest trees, Swainson's hawks could potentially nest in the study area in future years. However, with the implementation of mitigations for nesting birds (see below), no significant effects to Swainson's hawk would occur.

6.0 NESTING MIGRATORY BIRDS

Under the Migratory Bird Treaty Act (MBTA) of 1918, migratory bird species, their nests, and their eggs are protected from injury or death, and any project-related disturbances during the nesting period. In addition, California Fish and Game Code §3503 and §3503.5 provide regulatory protection to resident and migratory birds and all birds of prey within the State.

The USFWS identified the following migratory *Birds of Conservation Concern* as potentially affected by the proposed project: bald eagle, Brewer's sparrow, Clark's grebe, golden eagle, long-billed curlew, sage thrasher, tricolored blackbird, willet, and willow flycatcher. The potential for each of these species to utilize the project site is evaluated in Table 4. As noted in the table, sage thrasher, Brewer's sparrow, and long-billed curlew have some potential to nest on the project site.

Cliff swallow nests were observed in the study area, attached to two bridges where County Road 54 crosses the North Fork Pit River and South Fork Pit River. Cliff swallows are expected to uses the bridges as nesting sites on an annual basis. Given the abundance of suitable nesting habitat elsewhere in the study area, it is likely that other birds also nest in the study area. Nesting birds could be directly or indirectly affected by construction activities. Direct effects could include mortality resulting from construction equipment operating in an area containing an active nest with eggs or chicks. Indirect effects could include nest abandonment by adults in response to loud noise levels or human encroachment, or a reduction in the amount of food available to young birds due to changes in feeding behavior by adults.

In the local area, most birds nest between February 1 and August 31. The potential for adversely affecting nesting birds can be greatly minimized by conducting demolition and construction activities either before February 1 or after August 31. If this is not possible, a nesting survey should be conducted prior to commencement of demolition or construction. If active nests are found, demolition and construction activities would need to be postponed until after the young birds have fledged.

It should be noted that cliff swallows are very likely to return to the bridges and attempt to nest on the structures. While it is possible to cover the bridges with sheeting or other materials to discourage nesting, these methods are not entirely reliable. To ensure that nest construction is not completed, routine monitoring and removal of incipient nests would be necessary. If feasible, we recommend that the sewer main over the Pit River be installed outside of the nesting season.

7.0 NOXIOUS WEEDS

The introduction and spread of noxious weeds during construction activities has the potential to impact natural habitats. A noxious weed is a plant that has been defined as a pest by federal or state law. In California, the California Department of Food and Agriculture (CDFA) maintains a list of plants that are considered threats to the well-being of the state. Each noxious weed identified by the CDFA receives a rating that reflects the importance of the pest, the likelihood that eradication or control efforts would be successful, and the present distribution of the pest within the state. Below is a description of ratings categories that apply to the study area[3]:

> **Category A.** A pest of known economic or environmental detriment and is either not known to be established in California or it is present in a limited distribution that allows for the possibility of eradication or successful containment. A-rated pests are prohibited from entering the state because they have been determined to be detrimental to agriculture.
>
> **Category B.** A pest of known economic or environmental detriment and, if present in California, it is of limited distribution. B-rated pests are eligible to enter the state if the receiving county has agreed to accept them.
>
> **Category C.** A pest of known economic or environmental detriment and, if present in California, it is usually widespread. C-rated organisms are eligible to enter the state as long as the commodities with which they are associated conform to pest cleanliness standards when found in nursery stock shipments.

One Category A noxious weed (Scotch thistle), three Category B noxious weed (Mediterranean sage, heart-podded hoary cress, and lens-podded hoary cress) and four Category C noxious weeds (bull thistle, Russian-thistle, bindweed, and puncture vine) were observed in the study area during the botanical survey. A number of other weeds rated as invasive by the California Invasive Plant Council were also observed in the study area, including herb sophia, summer-cypress, Canada thistle, downy brome, red-stemmed filaree, Eurasian water-milfoil, Fuller's teasel, poison hemlock, and tansy.

Construction activities have a high potential to export weeds outside of the project area and/or to import additional weed species into the area. The potential for introduction and spread of noxious weeds can be avoided/minimized by using only certified weed-free erosion control materials, mulch, and seed; limiting any import or export of fill material to material that is known to be weed free; and requiring the construction contractor to thoroughly wash all equipment at a commercial wash facility prior to entering and upon leaving the work site.

8.0 CONCLUSIONS AND RECOMMENDATIONS

Based on the records search results, field observations, and the above analyses, we make the following findings:

1. Sensitive natural communities present in the study area are limited to aquatic features: the Pit River, an ephemeral stream, seasonal wetlands, and wet meadows. These features should be avoided to the extent feasible. Where avoidance is not feasible, mitigation for the loss or disturbance of the communities shall be provided in accordance with the requirements of the Department of Army permit, Water Quality Certification, and Streambed Alteration Agreement.

2. No special-status plant species would be directly or indirectly affected by project implementation because no special-status plants are present in the study area.

3. Hardhead, a State Species of Special Concern, are likely to be present in the Pit River. However, no adverse impacts on hardhead are anticipated because no in-water work would be conducted and Best Management Practices for erosion control and spill prevention would be implemented.

[3] https://www.cdfa.ca.gov/plant/IPC/encycloweedia/winfo_weedratings.html

4. Western pond turtles, a State Species of Special Concern, are present in the Pit River in and adjacent to the study area, and may nest and/or overwinter in portions of the study area. Potential impacts to western pond turtles shall be avoided and/or minimized through implementation of the following measures:

   Western Pond Turtle Avoidance/Minimization Measures.

   a. *Exclusionary fencing shall be erected around the unfenced portions of the current WWTP site to prevent access to the site by nesting and overwintering pond turtles.*

   b. *Prior to commencement of construction activities at the current WWTP site, a qualified biologist shall conduct a pre-construction survey for western pond turtles and shall relocate any western pond turtles encountered to a safe location outside of the exclusionary fencing.*

   c. *If western pond turtles are encountered within the exclusionary fencing at any time during construction, construction personnel shall contact the qualified biologist and halt construction activities within 50 feet of the turtle until the turtle has left the area or is relocated by the qualified biologist.*

5. Implementation of the following measures will avoid the potential for adverse effects to nesting Swainson's hawks, long-billed curlews, Brewer's sparrows, sage thrashers, and other birds:

   Avoid Disturbing Nesting Birds. In order to avoid impacts to nesting birds, including 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 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 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 impacted the survey results (e.g., weather conditions, excess noise, the presence of predators, etc.).

The results of the survey shall be submitted to the California Department of Fish and Wildlife 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 City of Alturas shall contact the California Department of Fish and Wildlife and the U.S. Fish and Wildlife Service 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.

6. Indirect impacts to special-status animal species and sensitive habitats will be avoided and/or minimized because, in accordance with existing regulatory agency requirements, BMPs for erosion and sediment control will be implemented throughout construction.

7. Implementation of the following measures will adequately minimize the potential for the introduction and spread of noxious weeds in the study area:

   Avoid/Minimize the Potential for Introduction and Spread of Noxious Weeds. *The potential for introduction and spread of noxious weeds shall be avoided/minimized by:*

   a. Using only certified weed-free erosion control materials, mulch, and seed,

   b. Limiting any import or export of fill material to material that is known to be weed free, and

   c. Requiring the construction contractor to thoroughly wash all equipment at a commercial wash facility prior to entering and upon leaving the job site.

TABLES

Table 1. CNDDB (Rarefind) Report Summary

Table 2. California Native Plant Society Inventory of Rare and Endangered Plants

Table 3. Potential for Special-Status Species to Occur on the Project Site

Table 4. Potential for Migratory Birds of Conservation Concern to Occur on the Study Site

TABLE 1
Rarefind (CNDDB) Report Summary

Five-Mile Radius around Project Area
October 8, 2020

Listed Element	Quadrangle [1]						Status [2]
	A	BSR	DR	MR	RB	SS	
ANIMALS							
American badger						•	SSSC
Bank swallow	•				•		ST
Golden eagle				•			SFP, WL
Gray wolf	•						FE, SE
Greater sage-grouse			•				SSSC
Greater sandhill crane	•		•				ST, SFP
Hardhead					•		SSSC
North American porcupine	•				•		None
Northern leopard frog	•						SSSC
Prairie falcon		•		•	•		WL
Swainson's hawk	•		•				ST
Tricolored blackbird	•						ST, SSSC
Western pond turtle	•					•	SSSC
Western white-tailed jackrabbit			•				SSSC
PLANTS							
Boggs Lake hedge-hyssop		•					SE, 1B.2
Doublet	•			•	•		2B.3
Eel-grass pondweed	•						2B.2
Falcate saltbush					•		2B.2
Grass alisma				•			2B.2
Great Basin downingia	•						2B.2
Intermountain lupine			•				2B.3
Janish's beardtongue	•	•					2B.2
Liddon's sedge				•			2B.3
Lilliput lupine	•				•		2B.2
Macdougal's lomatium	•						2B.2
Nuttall's ribbon-leaved pondweed	•					•	2B.2
Prostrate buckwheat	•						1B.2
Rayless mountain ragwort		•					2B.2
Sheldon's sedge	•						2B.2
Water star-grass					•		2B.2
Wheat sedge	•						2B.2

Highlighting denotes the quadrangle in which the project site is located

[1]QUADRANGLE CODE

A = Alturas
BSR = Big Sage Reservoir
DR = Dorris Reservoir
MR = Mahogany Ridge
RB = Rattlesnake Butte
SS = Surprise Station

[2]STATUS CODES

Federal

FE	Federally Listed – Endangered
FT	Federally Listed – Threatened
FC	Federal Candidate Species
FP	Federal Proposed Species
FD	Federally Delisted
FSC	Federal Species of Concern

State

SFP	State Fully Protected
SR	State Rare
SE	State Listed – Endangered
ST	State Listed – Threatened
SC	State Candidate Species
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 Alturas 7.5-minute Quadrangles

October 8, 2020

Common Name/ Scientific Name	CA Rare Plant Rank	Blooming Period	State Listing Status	Federal Listing Status
Doublet *Dimeresia howellii*	2B.3	May-Sep	None	None
Eel-grass pondweed *Potamogeton zosteriformis*	2B.2	Jun-Jul	None	None
Grass alisma *Alisma gramineum*	2B.2	Jun-Aug	None	None
Great Basin downingia *Downingia laeta*	2B.2	May-Jul	None	None
Janish's beardtongue *Penstemon janishiae*	2B.2	May-Jul	None	None
Lilliput lupine *Lupinus uncialis*	2B.2	May-Jul	None	None
MacDougal's lomatium *Lomatium foeniculaceum* ssp. *macdougalii*	2B.2	Apr-Jul	None	None
Mexican mosquito fern *Azolla microphylla*	4.2	Aug	None	None
Modoc Plateau milk-vetch *Astragalus pulsiferae* var. *coronensis*	4.2	May-Jul	None	None
Nuttall's ribbon-leaved pondweed *Potamogeton epihydrus*	2B.2	(Jun) Jul-Sep	None	None
Prostrate buckwheat *Eriogonum prociduum*	1B.2	May-Aug	None	None
Sheldon's sedge *Carex sheldonii*	2B.2	May-Aug	None	None
Water star-grass *Heteranthera dubia*	2B.2	Jul-Oct	None	None
Wheat sedge *Carex atherodes*	2B.2	Jun-Aug	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. 2020. Inventory of Rare and Endangered Plants of California (online edition, v8-03 0.39). http://www.rareplants.cnps.org. Accessed October 8, 2020.*

TABLE 3

Potential for Special-Status Species Identified by the USFWS and CNDDB to Occur on the Project Site

October 2020

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						
Boggs Lake hedge-hyssop *Gratiola heterosepala*	SE, 1B.2	Boggs Lake hedge-hyssop occurs in marshes, swamps, and vernal pools. The species is reported from sea level to 7,800 feet in elevation. The flowering period is April through August.	Yes	No	No	Potentially suitable habitat for Boggs Lake hedge-hyssop is present in the onsite seasonal wetlands. However, the species was not observed during the botanical survey and is not expected to be present.
Doublet *Dimeresia howellii*	2B.3	Doublet occurs on dry, gravelly volcanic slopes supporting pinyon-juniper woodland. The species is reported between 4,350 and 7,550 feet in elevation. The flowering period is May through September.	Yes	No	No	According to CNDDB records, doublet was reported ±0.75 miles west of the project site in 1996. The species was not observed during the botanical survey and is not expected to be present.
Eel-grass pondweed *Potamogeton zosteriformis*	2B.2	Eel-grass pondweed occurs in ponds, lakes, streams, marshes, and swamps. The species is reported up to 6,000 feet in elevation. The flowering period is June and July.	Yes	No	Pot.	Potentially suitable habitat for eel-grass pondweed is present in the Pit River. The species was not observed during the botanical survey, but in-water access was limited.
Falcate saltbush *Atriplex gardneri var. falcata*	2B.2	Falcate saltbush usually occurs on subalkaline soils in low chenopod scrub and Great Basin scrub between 3,900 and 5,600 feet. The flowering period is May to August.	Yes	No	No	According to CNDDB records, falcate saltbush was reported ±4 miles northwest of the project site in 1957. The species was not observed during the botanical survey and is not expected to be present.
Grass alisma *Alisma gramineum*	2B.2	Grass alisma occurs in marshes and swamps. The species is reported between 1,200 and 5,900 feet in elevation. The flowering period is June through August.	Yes	No	Pot.	Potentially suitable habitat for grass alisma is present in the Pit River. The species was not observed during the botanical survey, but in-water access was limited.
Great Basin downingia *Downingia laeta*	2B.2	Great Basin downingia occurs in Great Basin scrub, meadows and seeps, freshwater marshes, pinyon-juniper woodland, and vernal pools.	Yes	No	No	Wet meadows and Great Basin scrub are present on the project site. However, the species was not observed during the botanical survey and is not expected to be present.

TABLE 3

Potential for Special-Status Species Identified by the USFWS and CNDDB to Occur on the Project Site

October 2020

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
Greene's tuctoria *Tuctoria greenei*	FE, SR, 1B.1	Greene's tuctoria occurs in vernal pools in valley and foothill grasslands below 3,500 feet in elevation. The flowering period is May through July.	Yes	No	No	Marginally suitable habitat for Greene's tuctoria is present on the onsite seasonal wetlands. However, the species was not observed during the botanical survey and is not expected to be present.
Intermountain lupine *Lupinus pusillus* var. *intermontanus*	2B.3	Intermountain lupine occurs on sandy soils in Great Basin scrub. The species is reported between 4,000 and 5,200. The flowering period is May to June.	Yes	No	No	Although potentially suitable habitat is present, Intermountain lupine was not observed during the botanical survey. Thus, Intermountain lupine is not expected to be present.
Janish's beardtongue *Penstemon janishiae*	2B.2	Janish's beardtongue occurs on volcanic and gravelly soils in Great Basin scrub, pinyon-juniper woodlands, and lower montane coniferous forests in Lassen and Modoc counties. Janish's beardtongue is found between 3,500 and 7,700 feet in elevation. The flowering period is May through July.	Yes	No	No	According to CNDDB records, Janish's beardtongue was reported ±1.2 miles northwest of the project site in 1996. The species was not observed during the botanical survey and is not expected to be present.
Liddon's sedge *Carex petasata*	2B.3	Liddon's sedge occurs in meadows and coniferous forest between 1,900 and 10,900 feet in elevation. The flowering period is May through July.	Yes	No	Pot.	Potentially suitable habitat for Liddon's sedge is present along the Pit River. The species was not observed during the botanical survey but access to the river banks was limited primarily to the vicinity of the two Road 54 bridges
Lilliput lupine *Lupinus uncialis*	2B.2	Lilliput lupine occurs on hilltops, bluffs, barrens, and talus in sagebrush scrub and on limestone, rhyolite, and volcanic ash in pinyon-juniper woodland. The species is reported between 4,300 and 5,200. The flowering period is May to July.	Yes	No	No	According to CNDDB records, Lilliput lupine was reported on or adjacent to the project site in 1993 and 1994. The species was not observed during the botanical survey and is not expected to be present.
Macdougal's lomatium *Lomatium foeniculaceum* ssp. *macdougalii*	2B.2	MacDougal's lomatium occurs on volcanic soil in chenopod scrub, Great Basin scrub, lower montane coniferous forest, and pinyon-juniper woodland. The species is reported between 4,600 and 5,900 feet. The flowering period is April to July.	Yes	No	No	According to CNDDB records, Macdougal's lomatium was reported on or near the project site in 1994. The species was not observed during the botanical survey and is not expected to be present.

TABLE 3

Potential for Special-Status Species Identified by the USFWS and CNDDB to Occur on the Project Site

October 2020

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
Nuttall's ribbon-leaved pondweed *Potamogeton epihydrus*	2B.2	Nuttall's ribbon-leaved pondweed is a perennial rhizomatous herb that occurs in marshes, swamps, and in shallow lakes, ponds, streams, and irrigation ditches. The species is found between 1,200 and 7,200 feet in elevation. The flowering period is July through September.	Yes	No	Pot.	Potentially suitable habitat for Nuttall's ribbon-leaved pondweed is present in the Pit River. The species was not observed during the botanical survey, but in-water access was limited.
Prostrate buckwheat *Eriogonum prociduum*	1B.2	Prostrate buckwheat occurs on volcanic soil in Great Basin scrub, pinyon-juniper woodland, and upper montane coniferous forest. The species is reported between 4,300 and 8,900. The flowering period is May through August.	Yes	No	No	According to CNDDB records, prostrate buckwheat was reported ±1.8 miles west of the project site in 2016. The species was not observed during the botanical survey and is not expected to be present.
Rayless mountain ragwort *Packera indecora*	2B.2	Rayless mountain ragwort occurs in meadows and seeps. The species is reported between 5,300 and 6,500 feet. The flowering period is July through August.	No	No	No	The project site is nearly 1,000 feet below the known elevation range of rayless mountain. The species was not observed during the botanical survey and is not expected to be present.
Sheldon's sedge *Carex sheldonii*	2B.2	Sheldon's sedge occurs in marshes, swamps, and riparian scrub within lower montane coniferous forests. The species is reported between 3,900 and 6,600 feet in elevation. The flowering period is May through August.	Yes	No	Pot.	Potentially suitable habitat for Sheldon's sedge is present along the Pit River. The species was not observed during the botanical survey, but access to the river banks was limited primarily to the vicinity of the two Road 54 bridges.
Slender Orcutt grass *Orcuttia tenuis*	FT, SE, 1B.1	Slender Orcutt grass is an annual herb that occurs in vernal pools and similar habitats, occasionally on reservoir edges or stream floodplains, and on clay soils with seasonal inundation. Surrounding habitat types may include valley grassland, oak woodland, coniferous forest, and sagebrush scrub. The species is found between 100 and 5,800 feet in elevation. The flowering period is May through September.	Yes	No	No	Marginally suitable habitat for slender Orcutt grass is present in the onsite seasonal wetlands. However, the species was not observed during the botanical survey and is not expected to be present.

TABLE 3

Potential for Special-Status Species Identified by the USFWS and CNDDB to Occur on the Project Site

October 2020

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
Water star-grass *Heteranthera dubia*	2B.2	Water star-grass occurs in marshes and swamps and requires a water pH of 7 or greater. The species is reported between sea level and 5,000 feet in elevation. The flowering period is July through October.	Yes	No	Pot.	Potentially suitable habitat for water star-grass is present in the Pit River. The species was not observed during the botanical survey, but in-water access was limited.
Wheat sedge *Carex atherodes*	2B.2	Wheat sedge occurs in meadows, seeps, marshes, and swamps in pinyon-juniper woodland. This species is reported between 4,300 and 5,000 feet. The flowering period is June through August.	Yes	No	Pot.	According to CNDDB records, wheat sedge reported in an irrigation ditch east of the project site in 1947. Potentially suitable habitat is present along the Pit River; the species was not observed during the botanical survey, but access to the river banks was limited primarily to the vicinity of the two Road 54 bridges.
BIRDS						
Bank swallow *Riparia riparia*	ST	Bank swallows require vertical banks and cliffs with fine-textured or sandy soils near streams, rivers, ponds, lakes, or the ocean for nesting.	Yes	No	No	The Pit River adjacent to the wastewater treatment plant has potentially suitable vertical banks for bank swallow nesting. Bank swallows are reported as occasional summer residents of the Modoc National Wildlife Refuge. The species was not observed during the wildlife survey and is not expected to nest on or adjacent to the project site.
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.	No	No	No	Golden eagles are reported as uncommon to occasional permanent residents of the Modoc National Wildlife Refuge. No large trees or cliff walls are present on the project site, and the species was not observed during the wildlife survey. Thus, golden eagles would not nest on the project site.

TABLE 3

Potential for Special-Status Species Identified by the USFWS and CNDDB to Occur on the Project Site

October 2020

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
Greater sage-grouse *Centrocercus urophasianus*	SSSC	Greater sage grouse inhabit contiguous sagebrush communities in northeastern California. Research suggests that a population of sage-grouse tied to a single lek (breeding site) might depend on more than 75,000 acres of unbroken sagebrush habitat, while a dispersed population with multiple nearby leks may use 250,000 acres.	No	No	No	Greater sage-grouse are rarely reported at the Modoc National Wildlife Refuge. No suitable breeding habitat for the species is present on the project site due to habitat fragmentation and human activity. Sage grouse were not observed during the wildlife survey and are not expected to nest on the site.
Greater sandhill crane *Antigone canadensis tabida*	ST, SFP	Greater sandhill cranes nest in wetland habitats near grain fields in northeastern California. Nests generally consist of large mounds of vegetation in shallow water. Shallow islands bordered by tules and cattails are ideal nesting sites; natural hummocks or muskrat houses may also be used as nest sites.	No	No	No	Sandhill cranes were observed flying in the distance during the wildlife survey, and commonly nest at the Modoc National Wildlife Refuge. However, due to the absence of suitable habitat the species would not nest on or adjacent to the project site.
Swainson's hawk *Buteo swainsoni*	ST	Swainson's hawks nest in riparian areas and oak savannas in and around the Central Valley, as well as in similar communities and juniper-sage flats in northeastern California.	Yes	No	Pot.	According to CNDDB records, a pair of Swainson's hawks nested in a juniper just west of the confluence of the North and South Forks of the Pit River in 1972 and again in 1980. No nests or adults were observed in 1981 or 1982. The hawks are occasionally observed at the Modoc National Wildlife Refuge, but are not known to nest there. The species was not observed during the wildlife survey but could potentially nest on or near the project site in subsequent years.
Tricolored blackbird *Agelaius tricolor*	ST, SSSC	Tricolored blackbirds are colonial nesters and generally nest near open water. Nesting areas must be large enough to support a minimum colony of about 50 pairs. Tricolored blackbirds generally construct nests in dense cattails or tules, although they can also nest in thickets of willow, blackberry, wild rose, and tall herbs.	No	No	No	Tricolored blackbirds occasionally nest at the Modoc National Wildlife Refuge. However, no dense stands of cattails, tules, or other riparian vegetation are present in or near the project area. The species was not observed during the wildlife survey and is not expected to nest on the project site.

TABLE 3

Potential for Special-Status Species Identified by the USFWS and CNDDB to Occur on the Project Site

October 2020

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
Yellow-billed cuckoo *Coccyzus americanus*	FT, SE	Yellow-billed cuckoos inhabit and nest in extensive deciduous riparian thickets or forests with dense, low-level or understory foliage, and which abut slow-moving watercourses, backwaters, or seeps. Willows are almost always a dominant component of the vegetation. In the Sacramento Valley, the western yellow-billed cuckoo also utilizes adjacent orchards, especially of walnut, for nesting.	No	No	No	The yellow-billed cuckoo is reported as a rare migrant on the Modoc National Wildlife Refuge. However, the project site lacks deciduous riparian thickets and riparian forests preferred for nesting. The species was not observed during the wildlife survey and is not expected nest on the project site.
AMPHIBIANS						
Northern leopard frog *Lithobates pipiens*	SSSC	The northern leopard frog is most common in water bodies with abundant aquatic vegetation. They are found in permanent ponds, swamps, marshes, and slow-moving streams throughout forest, open, and urban areas. Important habitat requirements include shoreline cover, and submerged/emergent aquatic vegetation.	Yes	No	No	CNDDB records indicate that a northern leopard frog was collected in "Alturas" in 1918. The species was not observed during the wildlife survey, nor is it known to occur in the nearby Modoc National Wildlife Refuge. Thus, northern leopard frogs are not expected to be present.
REPTILES						
Western pond turtle *Emys marmorata*	SSSC	Western pond turtle associate with permanent or nearly permanent still or slow-moving waters. Pond turtles require basking sites such as partially submerged logs, rocks, or open mud banks, and suitable uplands (sandy banks or open grassy fields) for nesting. Courtship and nesting occur during spring. Nests are generally constructed within 500 feet of a waterbody. Pond turtles leave aquatic sites in the fall and overwinter in nearby uplands.	Yes	No	Yes	Numerous western pond turtles were observed in the Pit River during the wildlife survey.

TABLE 3

Potential for Special-Status Species Identified by the USFWS and CNDDB to Occur on the Project Site

October 2020

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						
Hardhead *Mylopharodon conocephalus*	SSSC	Hardhead inhabit low to mid-elevation streams in the Sacramento River, San Joaquin River, and Russian River watersheds. Hardhead spawn in clear, deep pools, with rock substrate and low water flow.	Yes	No	Pot.	The UC Davis PISCES website shows that the extant range of the hardhead extends upstream to the confluence of the North and South Forks of the Pit River, and then has a several-mile gap. The Road 54 bridge sites are excluded from the current range of the species, perhaps due to the silty substrate. Nonetheless, it is likely that hardhead move through the project area.
MAMMALS						
American badger *Taxidea taxus*	SSSC	Badgers generally inhabit dry, open areas in shrub, forest, and herbaceous habitats, with friable soils. Badgers dig burrows in dry, sandy soil, often on tops of hills in areas with sparse overstory.	Yes	No	No	CNDDB records indicate an American badger was observed near the project area in 1920. Badgers are also known to occur in the Modoc National Wildlife Refuge. Although potentially suitable habitat is present, no badgers were observed during the survey and American badgers are not expected to be present in the project area.

TABLE 3

Potential for Special-Status Species Identified by the USFWS and CNDDB to Occur on the Project Site

October 2020

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
Gray wolf *Canis lupis*	FE, SE	Gray wolves are habitat generalists; populations can be found in any habitat type in the Northern Hemisphere from about 20° latitude to the polar ice pack. Preferred habitats include a year-round abundance of prey, secluded denning and rendezvous sites, and minimal human activity. Dens may be a hollow log or a tunnel excavated in loose soil. Den sites are often near water and are usually elevated. Wolf packs establish and defend territories that may range from 20 to 400 square miles. Wolves travel over large areas to hunt, and may cover as much as 30 miles a day. Young wolves may disperse several hundred miles to seek out a mate or to establish their own pack.	No	No	No	Gray wolves historically occurred in Modoc County. However, the species was considered extirpated in California 1924 until 2011, when a lone wolf from Oregon entered the state. The state now supports one known wolf pack, in Lassen and Plumas counties. The species was not observed during the wildlife survey and is not expected to be present given the extensive human activity in the area.
North American wolverine *Gulo gulo luscus*	FPT	Wolverines inhabit high mountains, near the tree-line, where conditions are cold year-round and snow cover persists into late spring. Females use birthing dens that are excavated in deep, persistent snowpacks. Birthing dens consist of tunnels with runways and bed sites and may 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 the North American wolverine is present on the project site, and no breeding populations of wolverines are currently known in California. Wolverines were not observed during the wildlife survey and would not be present on the project site.

TABLE 3

Potential for Special-Status Species Identified by the USFWS and CNDDB to Occur on the Project Site

October 2020

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
Western white-tailed jackrabbit *Lepus townsendii townsendii*	SSSC	Western white-tailed jackrabbits occur in sagebrush, subalpine conifer, juniper, alpine dwarf shrub, and perennial grassland habitats. They prefer open areas with scattered shrubs and exposed flat-topped hills with open stands of trees, and a brush and herbaceous understory.	Yes	No	No	According to CNDDB records, western white-tailed jackrabbit was reported ±2 miles east of the project site in 1959. However, the species is not reported from the Modoc National Wildlife Refuge, was not observed during the wildlife survey, and is not expected to be present.

[1] **Status Codes**

Federal:

FE Federally Listed – Endangered
FT Federally Listed – Threatened
FC Federal Candidate Species
FP Federal Proposed Species
FD Federal Delisted

State:

SFP State Fully Protected
SR State Rare
SE State Listed - Endangered
ST State Listed - Threatened
SC State Candidate Species
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

TABLE 4
Potential for Birds of Conservation Concern to Occur on the Project Site

October 2020

Common Name	Scientific Name	General Habitat Description	Habitat Present (Y/N)	Species Present (Y/N/POT.)	Rationale/Comments
Bald eagle	*Haliaeetus leucocephalus*	Bald eagles nest in large, old-growth trees or snags in mixed stands near open bodies of water. Adults tend to use the same breeding areas year after year and often use the same nest, though a breeding area may include one or more alternate nests. Bald eagles do not usually begin nesting if human disturbance is evident. In California, the bald eagle nesting season is from February through July.	No	No	Bald eagles are reported as common winter residents of the Modoc National Wildlife Refuge, but are not reported to nest at the refuge. No suitable nesting habitat for the bald eagle is present in the project site. No bald eagles or eagle nests were observed during the biological surveys. Thus, the bald eagle is not expected to nest in or adjacent to the project site.
Brewer's sparrow	*Spizella breweri*	Breeding habitat for the Brewer's sparrow typically consists of sagebrush scrub, but may also include large clearings in pinyon-juniper woodlands with a vegetative composition similar to sagebrush scrub. Winter habitat for Brewer's sparrow consists of sagebrush scrub, as well as desert scrub habitats dominated by saltbush and creosote. The breeding season is May 15 to August 10.	Yes	Pot.	Brewer's sparrows are reported as uncommon summer residents of the Modoc National Wildlife Refuge, and have been noted to nest at the refuge. Potentially suitable nesting habitat for Brewer's sparrow is present in the project site. Implementation of the nesting bird survey recommended in the Biological Study Report would ensure that nesting Brewer's sparrows are not adversely affected by project implementation.
Clark's grebe	*Aechmophorus clarkii*	Clark's grebes inhabit lakes, marshes and bays. During the winter, they also occur along seacoasts. Clark's grebes nest on large inland lakes over shallow water on floating platforms of vegetation. The breeding season is January 1 to December 31.	No	No	Clark's grebes are reported as common summer residents of the Modoc National Wildlife Refuge, and have been noted to nest at the refuge. No suitable nesting habitat for Clark's grebe is present in the project site. Thus, the Clark's grebe is not expected to nest in the project site.

TABLE 4
Potential for Birds of Conservation Concern to Occur on the Project Site

October 2020

Common Name	Scientific Name	General Habitat Description	Habitat Present (Y/N)	Species Present (Y/N/POT.)	Rationale/Comments
Golden eagle	*Aquila chrysaetos*	Golden eagles inhabit open and semi-open habitats, including oak woodlands, shrublands, grasslands, and deserts. Nesting habitat consists of large trees in open areas, cliff-walled canyons, and, occasionally, structures such as transmission towers. The breeding season is December through August.	No	No	Golden eagles are reported as uncommon to occasional permanent resident of the Modoc National Wildlife Refuge. No suitable nesting habitat for golden eagle is present in the project site. Thus, the golden eagle is not expected to nest in the project site.
Long-billed curlew	*Numenius americanus*	In California, long-billed curlews breed in interior grasslands and wet meadows, usually adjacent to lakes or marshes, with breeding occurring primarily in northeastern California (portions of Siskiyou, Modoc, and Lassen Counties). Nests are usually located in relatively flat areas with 4-8 inches of grass cover. Low areas with damp spots nearby are favored areas as they provide better forage for the young. Curlews may nest in pastures that are not too heavily grazed, but rarely nest in agricultural fields. The breeding season is April 1 to July 31.	Pot.	Pot.	Long-billed curlews are reported as uncommon summer residents of the Modoc National Wildlife Refuge, and have been noted to nest at the refuge. Marginally suitable nesting habitat for long-billed curlews is present in the project site. Implementation of the nesting bird survey recommended in the Biological Study Report would ensure that nesting long-billed curlew are not adversely affected by project implementation.
Sage thrasher	*Oreoscoptes montanus*	The sage thrasher breeds exclusively in shrub steppe habitats. Expanses of dense sagebrush provide concealment, while bare ground provides foraging opportunities. During migration and winter, they transition to grasslands with scattered shrubs and open pinyon-juniper woodlands. Sage thrashers build nests on or near the ground, and pick dense, tall shrubs with overhead cover. The breeding season is April 15 August 10.	Yes	Pot.	Sage thrashers are reported as occasional to common summer residents of the Modoc National Wildlife Refuge, and have been noted to nest at the refuge. Potentially suitable nesting habitat for sage thrashers is present in the project site. Implementation of the nesting bird survey recommended in the Biological Study Report would ensure that nesting sage thrashers are not adversely affected by project implementation.

TABLE 4
Potential for Birds of Conservation Concern to Occur on the Project Site

October 2020

Common Name	Scientific Name	General Habitat Description	Habitat Present (Y/N)	Species Present (Y/N/POT.)	Rationale/Comments
Tricolored blackbird	*Agelaius tricolor*	Tricolored blackbirds are colonial nesters and generally nest near open water. Nesting areas must be large enough to support a minimum colony of about 50 pairs. Tricolored blackbirds generally construct nests in dense cattails or tules, although they can also nest in thickets of willow, blackberry, wild rose and tall herbs. The breeding season is March 15 to August 10.	No	No	Tricolored blackbirds are reported as occasional summer residents of the Modoc National Wildlife Refuge, and have been noted to nest at the refuge. No suitable nesting habitat for tricolored blackbirds is present in the project site. Thus, the tricolored blackbird is not expected to nest in the project site.
Willet	*Tringa semipalmata*	Habitats for the willet include marshes, wet meadows, mudflats, and beaches. In California, willets nest inland, around freshwater marshes in open country, especially in native grasslands. Nesting occurs on islands and edges of alkali lakes in the Great Basin. In migration and winter, willets may be found on mudflats, tidal estuaries, and sandy beaches. The breeding season is April 20 to August 5.	No	No	Willets are reported as common summer residents of the Modoc National Wildlife Refuge, and have been noted to nest at the refuge. No suitable nesting habitat for willet is present in the project site. Thus, the willet is not expected to nest in the project site.
Willow flycatcher	*Empidonax traillii*	Willow flycatchers breed in willow thickets and other brushy areas near streams, marshes, or other wetlands, and in clear-cuts and other open areas with nearby trees or brush between 2,000 and 8,000 feet in elevation. The breeding season is May 20 to August 31.	No	No	Willow flycatchers are reported as occasional summer residents of the Modoc National Wildlife Refuge, and have been noted to nest at the refuge. No suitable nesting habitat for willow flycatcher is present in the project site. Thus, the willow flycatcher is not expected to nest in the project site.

APPENDIX A

U.S. Fish and Wildlife Service List of Threatened and Endangered Species

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Klamath Falls Fish And Wildlife Office
1936 California Avenue
Klamath Falls, OR 97601
Phone: (541) 885-8481 Fax: (541) 885-7837

In Reply Refer To: October 08, 2020
Consultation Code: 08EKLA00-2020-SLI-0071
Event Code: 08EKLA00-2021-E-00006
Project Name: Alturas Waste Water Treatment Plant

Subject: Updated list of threatened and endangered species that may occur in your proposed project location, and/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 designated and proposed 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.*). For anadromous fish species (i.e., salmon), please contact the National Marine Fisheries Service at http://www.westcoast.fisheries.noaa.gov/protected_species/species_list/species_lists.html.

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. These provisions apply to non-Federal lands when there is a Federal nexus (e.g., funding or permits).

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 threatened, endangered, proposed, 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 ECOS-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 ECOS-IPaC system by completing the same process used to receive the enclosed list.

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq.;* http://www.fws.gov/midwest/eagle/protect/laws.html). The Service developed the National Bald Eagle Management Guidelines (http://www.fws.gov/northeast/ecologicalservices/eaglenationalguide.html) to provide guidance on measures that may be used to avoid and minimize adverse impacts to bald eagles. Projects affecting bald or golden eagles may require development of an eagle conservation plan (http://www.fws.gov/windenergy/eagle_guidance.html). Additionally, wind energy projects should follow the wind energy guidelines (http://www.fws.gov/windenergy/) for minimizing impacts to migratory birds, including bald and golden eagles, and bats.

The Migratory Bird Treaty Act (16 U.S.C. 703-712; http://www.fws.gov/midwest/eagle/protect/laws.html) implements protections for migratory birds. Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm; http://www.towerkill.com; and http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html.

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 Tracking Number in the header of this letter with any correspondence about your project that you submit to our office.

For projects in California, the office shown in the letterhead may not be the lead office for your project. Table 1 below provides lead Service field offices by county and land ownership/project type for northern California. Please refer to this table when you are ready to contact the field office corresponding to your project; a map and contact information for the Pacific Southwest Region field offices is located here: http://www.fws.gov/cno/es/.

Table 1: Lead Service offices by County and Ownership/Program in Northern California

County	Ownership/Program	Office Lead*
Lassen	Modoc National Forest	KFFWO
	Lassen National Forest	SFWO
	Toiyabe National Forest	RFWO
	BLM Surprise and Eagle Lake Resource Areas	RFWO
	BLM Alturas Resource Area	KFFWO
	Lassen Volcanic National Park	SFWO
	All other ownerships	By jurisdiction

		(see map)
Modoc	Modoc National Forest	KFFWO
	BLM Alturas Resource Area	KFFWO
	Klamath Basin National Wildlife Refuge Complex	KFFWO
	BLM Surprise and Eagle Lake Resource Areas	RFWO
	All other ownerships	By jurisdiction
		(see map)
Shasta	Shasta Trinity National Forest except Hat Creek Ranger District	YFWO
	(administered by Lassen National Forest)	
	Hat Creek Ranger District	SFWO
	Whiskeytown National Recreation Area	YFWO
	BLM Alturas Resource Area	KFFWO
	Caltrans	SFWO/ AFWO
	Ahjumawi Lava Springs State Park	SFWO
	All other ownerships	By jurisdiction
		(see map)
Siskiyou	Klamath National Forest	YFWO
	(except Ukonom District)	
	Six Rivers National Forest and Ukonom District of Klamath National Forest	AFWO
	Shasta Trinity National Forest	YFWO
	Lassen National Forest	SFWO
	Modoc National Forest	KFFWO

	Lava Beds National Volcanic Monument	KFFWO
	BLM Alturas Resource Area	KFFWO
	Klamath Basin National Wildlife Refuge Complex	KFFWO
	All other ownerships	By jurisdiction (see map)
All	FERC-ESA	By jurisdiction (see map)

*Office Leads:

AFWO=Arcata Fish and Wildlife Office

BDFWO=Bay Delta Fish and Wildlife Office

KFFWO=Klamath Falls Fish and Wildlife Office

RFWO=Reno Fish and Wildlife Office

YFWO=Yreka Fish and Wildlife Office

Attachment(s):

- Official Species List
- USFWS National Wildlife Refuges and Fish Hatcheries
- Migratory Birds
- Wetlands

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:

Klamath Falls Fish And Wildlife Office
1936 California Avenue
Klamath Falls, OR 97601
(541) 885-8481

Project Summary

Consultation Code: 08EKLA00-2020-SLI-0071

Event Code: 08EKLA00-2021-E-00006

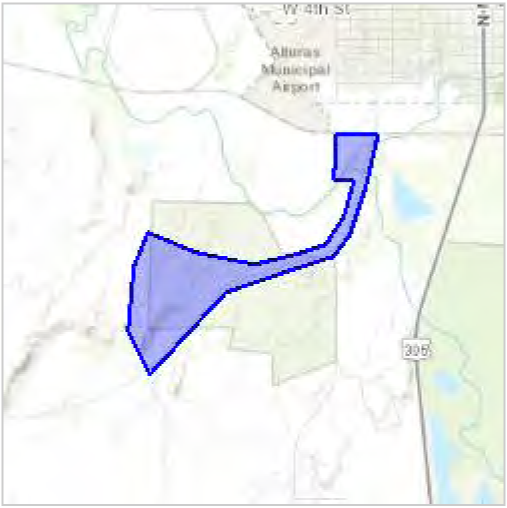
Project Name: Alturas Waste Water Treatment Plant

Project Type: WASTEWATER FACILITY

Project Description: The City of Alturas' Wastewater Treatment Plant (WWTP) has had difficulty meeting perm limits for various constituents and the WWTP has components that are well beyond their us need to be replaced. The work proposed includes the following: decommission the existing pump the raw wastewater to an offsite new WWTP utilizing aeration ponds, and use land d with infiltration/evaporation ponds at the offsite location.

Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/place/41.46635020142634N120.57828990529192W



Counties: Modoc, CA

Endangered Species Act Species

There is a total of 5 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.

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
Gray Wolf *Canis lupus* Population: U.S.A.: All of AL, AR, CA, CO, CT, DE, FL, GA, IA, IN, IL, KS, KY, LA, MA, MD, ME, MI, MO, MS, NC, ND, NE, NH, NJ, NV, NY, OH, OK, PA, RI, SC, SD, TN, TX, VA, VT, WI, and WV; and portions of AZ, NM, OR, UT, and WA. Mexico. There is **final** critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/4488	Endangered
North American Wolverine *Gulo gulo luscus* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/5123	Proposed Threatened

Birds

NAME	STATUS
Yellow-billed Cuckoo *Coccyzus americanus* Population: Western U.S. DPS There is **proposed** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/3911	Threatened

Flowering Plants

NAME	STATUS
Greene's Tuctoria *Tuctoria greenei* There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/1573	Endangered
Slender Orcutt Grass *Orcuttia tenuis* There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/1063	Threatened

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

USFWS National Wildlife Refuge Lands And Fish Hatcheries

Any activity proposed on lands managed by the National Wildlife Refuge system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

The following FWS National Wildlife Refuge Lands and Fish Hatcheries lie fully or partially within your project area:

FACILITY NAME	ACRES
Modoc National Wildlife Refuge	6,860

Modoc National Wildlife Refuge
P.O. Box 1610
Alturas, CA 96101-1610
(530) 233-3572

https://www.fws.gov/refuges/profiles/index.cfm?id=81690

Migratory Birds

Certain birds are protected under the Migratory Bird Treaty Act[1] and the Bald and Golden Eagle Protection Act[2].

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described below.

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1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.
3. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

The birds listed below are birds of particular concern either because they occur on the USFWS Birds of Conservation Concern (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ below. This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the E-bird data mapping tool (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found below.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
Bald Eagle *Haliaeetus leucocephalus* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1626	Breeds Dec 1 to Aug 31
Brewer's Sparrow *Spizella breweri* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/9291	Breeds May 15 to Aug 10

NAME	BREEDING SEASON
Clark's Grebe *Aechmophorus clarkii* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Jan 1 to Dec 31
Golden Eagle *Aquila chrysaetos* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/1680	Breeds Dec 1 to Aug 31
Long-billed Curlew *Numenius americanus* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/5511	Breeds Apr 1 to Jul 31
Sage Thrasher *Oreoscoptes montanus* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/9433	Breeds Apr 15 to Aug 10
Tricolored Blackbird *Agelaius tricolor* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/3910	Breeds Mar 15 to Aug 10
Willet *Tringa semipalmata* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Apr 20 to Aug 5
Willow Flycatcher *Empidonax traillii* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/3482	Breeds May 20 to Aug 31

Probability Of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

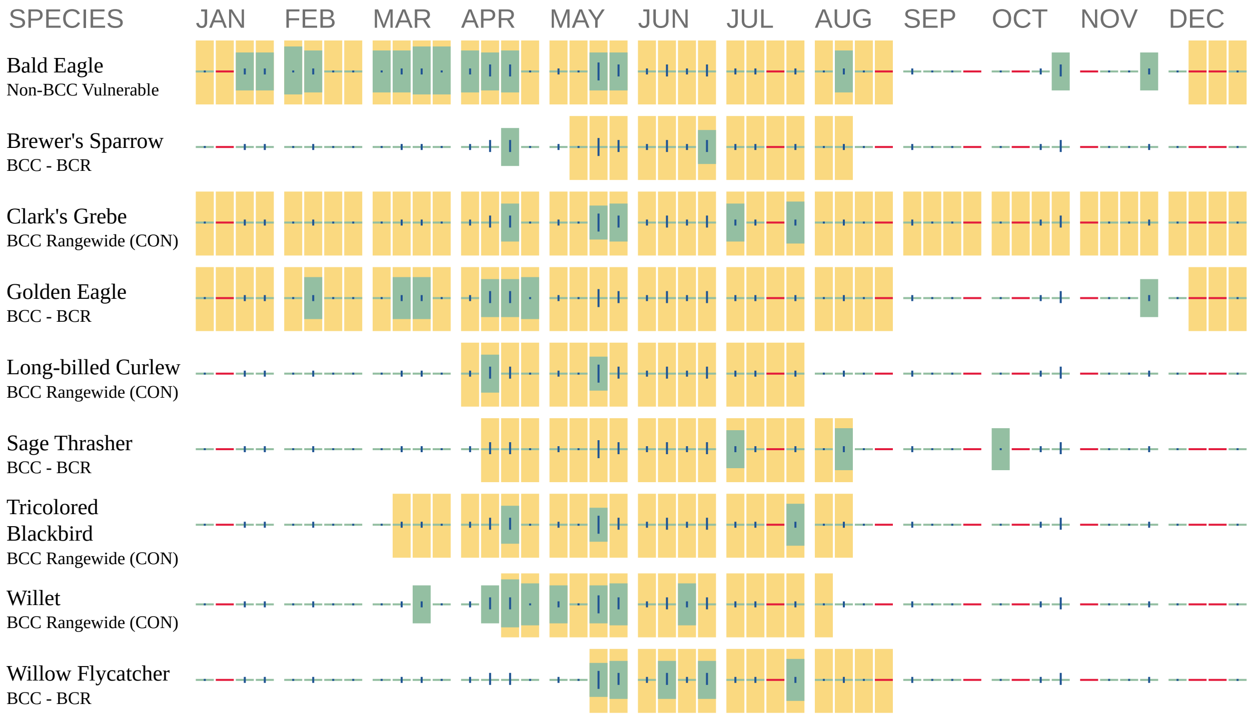
Breeding Season (■)
Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort (|)
Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

No Data (–)
A week is marked as having no data if there were no survey events for that week.

Survey Timeframe
Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.

■ probability of presence ■ breeding season | survey effort – no data



Additional information can be found using the following links:

- Birds of Conservation Concern http://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php
- Measures for avoiding and minimizing impacts to birds http://www.fws.gov/birds/management/project-assessment-tools-and-guidance/conservation-measures.php
- Nationwide conservation measures for birds http://www.fws.gov/migratorybirds/pdf/management/nationwidestandardconservationmeasures.pdf

Migratory Birds FAQ

Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

Nationwide Conservation Measures describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. Additional measures and/or permits may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the migratory birds potentially occurring in my specified location?

The Migratory Bird Resource List is comprised of USFWS Birds of Conservation Concern (BCC) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the AKN Phenology Tool.

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the Avian Knowledge Network (AKN). This data is derived from a growing collection of survey, banding, and citizen science datasets .

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering, migrating or present year-round in my project area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may refer to the following resources: The Cornell Lab of Ornithology All About Birds Bird Guide, or (if you are unsuccessful in locating the bird of interest there), the Cornell Lab of Ornithology Neotropical Birds guide. If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are Birds of Conservation Concern (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and

3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the Eagle Act requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects
For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the Northeast Ocean Data Portal. The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the Diving Bird Study and the nanotag studies or contact Caleb Spiegel or Pam Loring.

What if I have eagles on my list?
If your project has the potential to disturb or kill eagles, you may need to obtain a permit to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report
The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ “What does IPaC use to generate the migratory birds potentially occurring in my specified location”. Please be aware this report provides the “probability of presence” of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the “no data” indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ “Tell

me about conservation measures I can implement to avoid or minimize impacts to migratory birds” at the bottom of your migratory bird trust resources page.

Wetlands

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

FRESHWATER EMERGENT WETLAND

- PEM1A
- PEM1C

RIVERINE

- R4SBC
- R5UBF
- R2UBH

APPENDIX B

List of Vascular Plants Observed

CHECKLIST OF VASCULAR PLANT SPECIES OBSERVED

Alturas Wastewater Treatment Plant Project

May 20, July 13, and September 26, 2020

Amaranthaceae	**Amaranth Family**
Amaranthus albus	Tumbleweed
Amaranthus blitoides	Mat amaranth
Amaranthus powellii	Green amaranth
Apiaceae	**Carrot Family**
Conium maculatum	Poison hemlock
Lomatium nevadense var. *nevadense*	Nevada lomatium
Asteraceae	**Sunflower Family**
Achillea millefolium	Common yarrow
Agoseris grandiflora	Large-flowered agoseris
Antennaria dimorpha	Cushion pussytoes
Arctium minus	Burdock
Artemisia tridentata	Big sagebrush
Artemisia douglasiana	Mugwort
Chaenactis douglasii var. *douglasii*	Douglas' dustymaiden
Chrysothamnus viscidiflorus ssp. *puberlus*	Sticky leaved rabbitbrush
Cirsium arvense	Canadian thistle
Cirsium vulgare	Bull thistle
Crepis occidentalis	Western hawks-beard
Ericameria nauseosa	White-stemmed rabbitbrush
Erigeron divergens	Diffuse daisy
Eriophyllum lanatum	Woolly sunflower
Grindelia nana	Idaho resin-weed
Helianthus annuus	Common sunflower
Iva axillaris	Poverty weed
Lactuca serriola	Prickly lettuce
Lagophylla ramosissima	Common hareleaf
Matricaria discoidea	Pineapple weed
Onopordum acanthium ssp. *acanthium*	Scotch thistle
Sonchus asper subsp. *asper*	Prickly sow thistle
Tanacetum vulgare	Tansy
Taraxacum officinale	Dandelion
Tetradymia canescens	Spineless horsebrush
Tragopogon dubius	Goat’s beard
Wyethia mollis	Woolly mule ears
Boraginaceae	**Borage Family**
Amsinckia tessellata var. *tessellata*	Bristly fiddleneck
Myosotis laxa	Bay forget-me-not
Phacelia mutabilis	Changeable phacelia
Plagiobothrys cognatus	Cognate popcorn-flower
Plagiobothrys tenellus	Slender popcorn-flower

CHECKLIST OF VASCULAR PLANT SPECIES OBSERVED

Alturas Wastewater Treatment Plant Project

Brassicaceae	**Mustard Family**
Alyssum simplex	Alyssum
Capsella bursa-pastoris	Shepherd's purse
Descurainia sophia	Flixweed
Draba verna	Whitlow grass
Erysimum repandum	Spreading wallflower
Lepidium campestre	English peppergrass
Lepidium chalepense	Lens-podded hoary cress
Lepidium draba	Heart-podded hoary cress
Lepidium perfoliatum	Round-leaved peppergrass
Sisymbrium altissimum	Tumble-mustard
Caryophyllaceae	**Pink Family**
Holosteum umbellatum subsp. *umbellatum*	Jagged chickweed
Chenopodiaceae	**Goosefoot Family**
Chenopodium sp.	Goosefoot
Chenopodium hians	Gaping goosefoot
Kochia scoparia ssp. *scoparia*	Summer-cypress
Monolepis nuttalliana	Nuttall's poverty weed
Salsola tragus	Russian thistle
Convolvulaceae	**Morning Glory Family**
Convolvulus arvensis	Bindweed
Cupressaceae	**Cypress Family**
Juniperus occidentalis	Western juniper
Cyperaceae	**Sedge Family**
Carex sp.	Sedge
Carex douglasii	Douglas' sedge
Eleocharis macrostachya	Creeping spikerush
Scirpus microcarpus	Small-fruited bulrush
Dipsacaceae	**Teasel Family**
Dipsacus fullonum	Wild teasel
Equisetaceae	**Horsetail Family**
Equisetum laevigatum	Smooth scouring rush
Euphorbiaceae	**Spurge Family**
Croton setigerus	Dove weed
Euphorbia serpillifolia subsp. *serpillifolia*	Thymeleaf sandmat
Fabaceae	**Legume Family**
Astragalus curvicarpus var. *curvicarpus*	Coiled locoweed
Astragalus purshii	Milkvetch
Medicago sp.	Bur-clover
Medicago sativa	Alfalfa
Melilotus indicus	Indian sweetclover

CHECKLIST OF VASCULAR PLANT SPECIES OBSERVED

Alturas Wastewater Treatment Plant Project

Geraniaceae	**Geranium Family**
Erodium cicutarium	Red-stemmed filaree
Haloragaceae	**Water-Milfoil Family**
Myriophyllum spicatum	Eurasian water-milfoil
Juncaceae	**Rush Family**
Juncus balticus subsp. *ater*	Baltic rush
Lamiaceae	**Mint Family**
Marrubium vulgare	Horehound
Salvia aethiopis	Mediterranean sage
Malvaceae	**Mallow Family**
Sidalcea oregana subsp. *oregana*	Oregon checkerbloom
Melanthiaceae	**False-Hellebore Family**
Toxicoscordion paniculatum	Panicled zigadene
Onagraceae	**Evening-Primrose Family**
Epilobium brachycarpum	Tall annual willowherb
Epilobium ciliatum subsp. *ciliatum*	Fringed willowherb
Plantaginaceae	**Plantain Family**
Penstemon deustus	Hot-rock beard-tongue
Poaceae	**Grass Family**
Agropyron cristatum subsp. *pectinatum*	Desert crested wheatgrass
Alopecurus pratensis	Meadow foxtail
Bromus commutatus	Meadow brome
Bromus inermis	Smooth brome
Bromus tectorum	Downy brome
Distichlis spicata	Saltgrass
Elymus caput-medusae	Medusahead
Elymus cinereus	Basin wild-rye
Elymus elymoides	Squirreltail
Elymus lanceolatus	Thickspike wheatgrass
Elymus trachycaulis	Slender wheatgrass
Elymus triticoides	Alkali ryegrass
Hordeum brachyantherum	Meadow barley
Hordeum murinum subsp. *glaucum*	Glaucous wall barley
Hordeum murinum subsp. *leporinum*	Hare wall barley
Phalaris arundinacea	Reed canary grass
Poa bulbosa	Bulbous bluegrass
Poa compressa	Canadian bluegrass
Poa secunda subsp. *secunda*	One-sided bluegrass
Polypogon monspeliensis	Annual beardgrass
Secale cereale	Rye
Setaria sp.	Bristlegrass

CHECKLIST OF VASCULAR PLANT SPECIES OBSERVED

Alturas Wastewater Treatment Plant Project

Polemoniaceae	**Phlox Family**
Navarretia sp.	Navarretia
Phlox stansburyi	Cold desert phlox
Polygonaceae	**Buckwheat Family**
Eriogonum vimineum	Wicker buckwheat
Polygonum aviculare	Common knotweed
Rumex crispus	Curly dock
Rumex triangulivavlis	Callose-valved willow dock
Ranunculaceae	**Buttercup Family**
Ranunculus sp.	Buttercup
Ranunculus aquatilis var. *diffusus*	Water buttercup
Ranunculus testiculatus	Testiculate buttercup
Rosaceae	**Rose Family**
Peraphyllum ramosissimum	Wild crab-apple
Purshia tridentata	Antelope bush
Salicaceae	**Willow Family**
Salix exigua	Sandbar willow
Salix lasiolepis	Arroyo willow
Sapindaceae	**Soapberry Family**
Acer negundo	Box elder
Scrophulariaceae	**Snapdragon Family**
Verbascum blattaria	Moth mullein
Verbascum thapsus	Woolly mullein
Typhaceae	**Cattail Family**
Typha sp.	Cattail
Ulmaceae	**Elm Family**
Ulmus sp. *(minor?)*	Elm
Ulmus parviflora	Chinese elm
Urticaceae	**Nettle Family**
Urtica dioica subsp. *holosericea*	Hoary creek nettle
Zygophyllaceae	**Caltrop Family**
Tribulus terrestris	Puncture vine

APPENDIX C

Representative Photographs


City of Alturas wastewater treatment plant


Riverine community with minimal riparian vegetation

Ephemeral stream surrounded by a big sagebrush community


Cropland habitat


Typical wet meadow wetland along County Road 54


Big sagebrush community with Cropland in mid-ground


Cliff swallows at the County Road 54 bridge over the South Fork Pit River


Three western pond turtles in the Pit River, adjacent to the wastewater treatment plant

1062 G St., Suite I, Arcata, CA 95521-5800 707-822-5785
Civil Engineering, Environmental Services, Geosciences, Planning & Permitting, Surveying

Technical Memorandum

Reference: 518004.500
Date: November 12, 2018
To: Anders Rasmussen
From: Gretchen O'Brien
Subject: Alturas Wastewater Pond - Bird Deterrent Methods Research

Background

Bird strikes by airplanes is a common occurrence and most often happens when the aircraft is less than 500 feet off the ground during take-off and landing (DeVault et al., 2017). The Alturas Municipal Airport is just north of the Alturas wastewater treatment plant. Creating a treated wastewater retention pond with in such close proximity to the airport will require wildlife management mitigation measures to reduce the chance of bird strikes by aircraft. An internet research effort was conducted to create recommendations for implementing wildlife deterrents from the proposed pond(s).

Specific measures to deter birds from the proposed pond(s) near the Alturas Municipal Airport should take into consideration the types of species that occur in the region, the juxtaposition of other habitat, existing wildlife management techniques being utilized at the Alturas Municipal Airport, and necessary design features of the pond(s) to achieve project goals. Based on the location of the proposed pond(s) in the proximity of the Modoc National Wildlife Refuge and the waterfowl that breed, overwinter, or migrate through the area, the primary concern for bird strikes may be waterfowl and other larger water birds such as Canada Goose (*Branta canadensis*), although the Alturas Public Works director has reported that, to his knowledge, there has never been a bird strike by an aircraft at the Alturas Municipal Airport in the past ten years or so (Pers. Comm., Picotte, 2018).

Research Results Summary

Several studies have been conducted to test the efficacy of bird deterrents from airports, water sources, and agricultural crops. The common conclusions among the research papers investigated were that an integrative approach to bird deterrent methods, in combination with pond design and management, is the most effective.

Pond Design

Pond design recommendations include linear or circular shapes to minimize the perimeter and geographic isolation from other water sources (Blackwell et al., 2008). Geographic isolation of created ponds, away from other water sources, may decrease the probability of use by waterfowl (Blackwell et al., 2008). Bottom-lined ponds help to reduce vegetation growth which can provide a food source for waterfowl (National Academy of Sciences, 2011). Keeping the pond surface free of floating vegetation and the pond edges free of vegetative cover and woody debris can reduce the attractiveness to birds (Blackwell et al., 2008).

Exclusion Methods
Covering and dewatering ponds are considered the most effective bird deterrent from open water ponds, although this is not an option for the Alturas wastewater retention pond(s). Exclusion methods may need to be incorporated into the pond design. Overhead wires are the most researched and effective method of bird exclusion (National Academy of Sciences, 2011). Gridwire™ and Stealthnet™ products at BirdBarrier.com may be useful for waterfowl exclusion from ponds, installed in a grid pattern directly over the surface of the water. This will discourage birds from landing on the water while allowing for evaporation.

Deterrents
The National Academy of Sciences conducted a literature review to evaluate the relative effectiveness of bird repellent techniques. The research results determined that human effigies, or models, that moved frequently and were dressed in bright colors were the most effective as bird deterrents. This conclusion was also made by a study that specifically tested scarecrows and predator models for scaring birds away (Marsh et al., 1992). Studies also show that lifelike human effigies in combination with broadcasting a waterfowl distress call periodically was effective in deterring birds from a specific area (National Academy of Sciences, 2011; Marsh et al., 1992; DeVault et al., 2017). Birds often habituate to visual and auditory deterrents unless they are moved frequently, and by changing the look of an effigy (e.g. different clothing) and the distress call emitted, can also increase the effectiveness of the deterrents (DeVault et al., 2017, Marsh et al., 1992).

Conclusion
The combination of pond design, pond placement, and an integrative suite of avian deterrent methods will be the best approach to preventing the attraction of birds to a wastewater retention pond at the Alturas wastewater treatment plant. The following recommendations summarize a suggested plan for bird deterrents to help prevent bird strikes at the Alturas Municipal Airport.

Recommendations
- Design pond(s) in a circular or linear shape to reduce perimeter.
- Place pond(s) isolated, as far away as possible from other water sources.
- Manage vegetation and woody debris in and around the pond to reduce food and cover resources for birds.
- Use a combination of bird deterrent methods:
    - Exclusion: Grid wires placed over the surface of the pond(s), may also need anti-perch spikes on the wires to deter smaller birds from using the wires.
    - Visual deterrent: Lifelike human effigy dressed in brightly colored, loose-fitting clothing (to blow in the wind) placed on a floating island just big enough for the effigy (disallow space for birds to land). Most effective if the effigy moves and clothing changed periodically.
    - Audio deterrent: Broadcast a recording of various waterfowl distress calls, either periodically or motion detected. Most effective if the type of calls and location change periodically. According to the USDA, birds react most to sounds from 1 to 3 kHz.
    - Place all deterrents concurrently with pond creation before birds begin to investigate the resource.
- Coordinate with the Alturas Municipal Airport managers regarding wildlife management methods and monitoring bird strikes.

References

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Picotte, Joe. (November 9, 2018). Email regarding bird strikes at Alturas Municipal Airport.

Appendix D

Cultural Resource Inventory Report

NOTE TO REVIEWER: Information contained in the *Cultural Resources Inventory for the City of Alturas Wastewater Facilities Improvement Project* (DZC, 2020) 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 City of Alturas Planning and Zoning Division directly in order to inquire about its availability.

Appendix E
Air Quality Data

Alturas Wastewater Treatment Plant Improvement Project

Modoc County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Heavy Industry	2.15	1000sqft	0.05	2,150.00	0
General Office Building	0.67	1000sqft	0.02	670.00	0
Other Asphalt Surfaces	0.25	1000sqft	0.01	250.00	0

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	2.5	**Precipitation Freq (Days)**	78
Climate Zone	14			**Operational Year**	2025
Utility Company	PacifiCorp				
CO2 Intensity (lb/MWhr)	1656.39	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use -

Construction Phase - Construction schedule per project engineer.

Off-road Equipment - Trenching equipment per project engineer.

Off-road Equipment -

Grading - Acres of grading per project engineer. Site will be balanced (no import/export of material).

Demolition - Building square footage proposed for demolition per project engineer.

Stationary Sources - Emergency Generators and Fire Pumps - Generator type and use per project engineer.

Off-road Equipment -

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	100.00	90.00
tblConstructionPhase	NumDays	10.00	60.00
tblConstructionPhase	NumDays	2.00	60.00
tblConstructionPhase	NumDays	1.00	30.00
tblConstructionPhase	PhaseEndDate	12/20/2023	9/20/2024
tblConstructionPhase	PhaseEndDate	12/6/2023	11/1/2024
tblConstructionPhase	PhaseEndDate	7/14/2023	9/22/2023
tblConstructionPhase	PhaseEndDate	7/19/2023	6/21/2024
tblConstructionPhase	PhaseEndDate	12/13/2023	9/6/2024
tblConstructionPhase	PhaseEndDate	7/17/2023	9/25/2023
tblConstructionPhase	PhaseStartDate	12/14/2023	9/16/2024
tblConstructionPhase	PhaseStartDate	7/20/2023	7/1/2024
tblConstructionPhase	PhaseStartDate	7/18/2023	4/1/2024
tblConstructionPhase	PhaseStartDate	12/7/2023	9/2/2024
tblConstructionPhase	PhaseStartDate	7/15/2023	8/15/2023
tblGrading	AcresOfGrading	0.00	15.00

tblOffRoadEquipment	LoadFactor	0.50	0.50
tblOffRoadEquipment	LoadFactor	0.37	0.37
tblOffRoadEquipment	OffRoadEquipmentType		Trenchers
tblOffRoadEquipment	OffRoadEquipmentType		Tractors/Loaders/Backhoes
tblOffRoadEquipment	OffRoadEquipmentType		Dumpers/Tenders
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblStationaryGeneratorsPumpsEF	CH4_EF	0.07	0.07
tblStationaryGeneratorsPumpsEF	ROG_EF	2.2480e-003	2.2477e-003
tblStationaryGeneratorsPumpsUse	HorsePowerValue	0.00	2,015.00
tblStationaryGeneratorsPumpsUse	HoursPerYear	0.00	20.00
tblStationaryGeneratorsPumpsUse	NumberOfEquipment	0.00	1.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2023	1.3298	12.6507	12.3263	0.0255	1.2582	0.5126	1.7708	0.1942	0.4819	0.6760	0.0000	2,477.8667	2,477.8667	0.5271	0.0000	2,491.0437
2024	15.1326	21.6337	26.0842	0.0419	1.3372	1.1358	2.1969	0.5271	1.0511	1.3296	0.0000	3,989.0450	3,989.0450	1.0994	0.0000	4,016.5299
Maximum	**15.1326**	**21.6337**	**26.0842**	**0.0419**	**1.3372**	**1.1358**	**2.1969**	**0.5271**	**1.0511**	**1.3296**	**0.0000**	**3,989.0450**	**3,989.0450**	**1.0994**	**0.0000**	**4,016.5299**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2023	1.3298	12.6507	12.3263	0.0255	1.2582	0.5126	1.7708	0.1942	0.4819	0.6760	0.0000	2,477.8667	2,477.8667	0.5271	0.0000	2,491.0437
2024	15.1326	21.6337	26.0842	0.0419	1.3372	1.1358	2.1969	0.5271	1.0511	1.3296	0.0000	3,989.0450	3,989.0450	1.0994	0.0000	4,016.5299
Maximum	**15.1326**	**21.6337**	**26.0842**	**0.0419**	**1.3372**	**1.1358**	**2.1969**	**0.5271**	**1.0511**	**1.3296**	**0.0000**	**3,989.0450**	**3,989.0450**	**1.0994**	**0.0000**	**4,016.5299**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.0784	0.0000	3.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		6.7000e-004	6.7000e-004	0.0000		7.2000e-004
Energy	6.1000e-004	5.5400e-003	4.6600e-003	3.0000e-005		4.2000e-004	4.2000e-004		4.2000e-004	4.2000e-004		6.6522	6.6522	1.3000e-004	1.2000e-004	6.6917
Mobile	0.0279	0.0923	0.3006	8.4000e-004	0.0698	9.5000e-004	0.0707	0.0187	8.9000e-004	0.0196		84.3969	84.3969	3.8500e-003		84.4931
Stationary	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.1069**	**0.0978**	**0.3056**	**8.7000e-004**	**0.0698**	**1.3700e-003**	**0.0712**	**0.0187**	**1.3100e-003**	**0.0200**		**91.0497**	**91.0497**	**3.9800e-003**	**1.2000e-004**	**91.1855**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.0784	0.0000	3.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		6.7000e-004	6.7000e-004	0.0000		7.2000e-004
Energy	6.1000e-004	5.5400e-003	4.6600e-003	3.0000e-005		4.2000e-004	4.2000e-004		4.2000e-004	4.2000e-004		6.6522	6.6522	1.3000e-004	1.2000e-004	6.6917
Mobile	0.0279	0.0923	0.3006	8.4000e-004	0.0698	9.5000e-004	0.0707	0.0187	8.9000e-004	0.0196		84.3969	84.3969	3.8500e-003		84.4931
Stationary	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.1069**	**0.0978**	**0.3056**	**8.7000e-004**	**0.0698**	**1.3700e-003**	**0.0712**	**0.0187**	**1.3100e-003**	**0.0200**		**91.0497**	**91.0497**	**3.9800e-003**	**1.2000e-004**	**91.1855**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	7/3/2023	9/22/2023	5	60	
2	Site Preparation	Site Preparation	8/15/2023	9/25/2023	5	30	
3	Grading	Grading	4/1/2024	6/21/2024	5	60	
4	Building Construction	Building Construction	7/1/2024	11/1/2024	5	90	
5	Paving	Paving	9/2/2024	9/6/2024	5	5	
6	Architectural Coating	Architectural Coating	9/16/2024	9/20/2024	5	5	
7	Trenching	Trenching	6/3/2024	10/4/2024	5	90	

Acres of Grading (Site Preparation Phase): 15

Acres of Grading (Grading Phase): 15

Acres of Paving: 0.01

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 4,230; Non-Residential Outdoor: 1,410; Striped Parking Area: 15 (Architectural Coating – sqft)

<u>OffRoad Equipment</u>

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	1	6.00	78	0.48
Paving	Cement and Mortar Mixers	4	6.00	9	0.56
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Grading	Concrete/Industrial Saws	1	8.00	81	0.73
Building Construction	Cranes	1	4.00	231	0.29
Building Construction	Forklifts	2	6.00	89	0.20
Site Preparation	Graders	1	8.00	187	0.41
Paving	Pavers	1	7.00	130	0.42
Paving	Rollers	1	7.00	80	0.38
Demolition	Rubber Tired Dozers	1	1.00	247	0.40
Grading	Rubber Tired Dozers	1	1.00	247	0.40
Building Construction	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Demolition	Tractors/Loaders/Backhoes	2	6.00	97	0.37
Grading	Tractors/Loaders/Backhoes	2	6.00	97	0.37
Paving	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Trenching	Trenchers	2	8.00	78	0.50
Trenching	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Trenching	Dumpers/Tenders	2	8.00	16	0.38

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	4	10.00	0.00	136.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	2	5.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Grading	4	10.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	5	1.00	1.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Paving	7	18.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	0.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Trenching	6	15.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Demolition - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.4968	0.0000	0.4968	0.0752	0.0000	0.0752			0.0000			0.0000
Off-Road	0.6463	5.7787	7.3926	0.0120		0.2821	0.2821		0.2698	0.2698		1,148.4055	1,148.4055	0.2089		1,153.6290
Total	**0.6463**	**5.7787**	**7.3926**	**0.0120**	**0.4968**	**0.2821**	**0.7789**	**0.0752**	**0.2698**	**0.3450**		**1,148.4055**	**1,148.4055**	**0.2089**		**1,153.6290**

3.2 Demolition - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0148	0.6015	0.1227	1.7700e-003	0.0396	1.9700e-003	0.0416	0.0109	1.8900e-003	0.0128		185.1292	185.1292	3.5300e-003		185.2175
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0892	0.0545	0.5913	1.3500e-003	0.1277	1.2700e-003	0.1290	0.0339	1.1700e-003	0.0350		134.6002	134.6002	6.5400e-003		134.7637
Total	**0.1041**	**0.6560**	**0.7140**	**3.1200e-003**	**0.1674**	**3.2400e-003**	**0.1706**	**0.0447**	**3.0600e-003**	**0.0478**		**319.7294**	**319.7294**	**0.0101**		**319.9812**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.4968	0.0000	0.4968	0.0752	0.0000	0.0752			0.0000			0.0000
Off-Road	0.6463	5.7787	7.3926	0.0120		0.2821	0.2821		0.2698	0.2698	0.0000	1,148.4055	1,148.4055	0.2089		1,153.6290
Total	**0.6463**	**5.7787**	**7.3926**	**0.0120**	**0.4968**	**0.2821**	**0.7789**	**0.0752**	**0.2698**	**0.3450**	**0.0000**	**1,148.4055**	**1,148.4055**	**0.2089**		**1,153.6290**

3.2 Demolition - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0148	0.6015	0.1227	1.7700e-003	0.0396	1.9700e-003	0.0416	0.0109	1.8900e-003	0.0128		185.1292	185.1292	3.5300e-003		185.2175
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0892	0.0545	0.5913	1.3500e-003	0.1277	1.2700e-003	0.1290	0.0339	1.1700e-003	0.0350		134.6002	134.6002	6.5400e-003		134.7637
Total	**0.1041**	**0.6560**	**0.7140**	**3.1200e-003**	**0.1674**	**3.2400e-003**	**0.1706**	**0.0447**	**3.0600e-003**	**0.0478**		**319.7294**	**319.7294**	**0.0101**		**319.9812**

3.3 Site Preparation - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.5303	0.0000	0.5303	0.0573	0.0000	0.0573			0.0000			0.0000
Off-Road	0.5348	6.1887	3.9239	9.7300e-003		0.2266	0.2266		0.2084	0.2084		942.4317	942.4317	0.3048		950.0517
Total	**0.5348**	**6.1887**	**3.9239**	**9.7300e-003**	**0.5303**	**0.2266**	**0.7568**	**0.0573**	**0.2084**	**0.2657**		**942.4317**	**942.4317**	**0.3048**		**950.0517**

3.3 Site Preparation - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0446	0.0273	0.2957	6.8000e-004	0.0639	6.3000e-004	0.0645	0.0169	5.8000e-004	0.0175		67.3001	67.3001	3.2700e-003		67.3819
Total	**0.0446**	**0.0273**	**0.2957**	**6.8000e-004**	**0.0639**	**6.3000e-004**	**0.0645**	**0.0169**	**5.8000e-004**	**0.0175**		**67.3001**	**67.3001**	**3.2700e-003**		**67.3819**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.5303	0.0000	0.5303	0.0573	0.0000	0.0573			0.0000			0.0000
Off-Road	0.5348	6.1887	3.9239	9.7300e-003		0.2266	0.2266		0.2084	0.2084	0.0000	942.4317	942.4317	0.3048		950.0517
Total	**0.5348**	**6.1887**	**3.9239**	**9.7300e-003**	**0.5303**	**0.2266**	**0.7568**	**0.0573**	**0.2084**	**0.2657**	**0.0000**	**942.4317**	**942.4317**	**0.3048**		**950.0517**

3.3 Site Preparation - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0446	0.0273	0.2957	6.8000e-004	0.0639	6.3000e-004	0.0645	0.0169	5.8000e-004	0.0175		67.3001	67.3001	3.2700e-003		67.3819
Total	**0.0446**	**0.0273**	**0.2957**	**6.8000e-004**	**0.0639**	**6.3000e-004**	**0.0645**	**0.0169**	**5.8000e-004**	**0.0175**		**67.3001**	**67.3001**	**3.2700e-003**		**67.3819**

3.4 Grading - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					1.0179	0.0000	1.0179	0.4424	0.0000	0.4424			0.0000			0.0000
Off-Road	0.6156	5.4776	7.3949	0.0120		0.2504	0.2504		0.2392	0.2392		1,148.6874	1,148.6874	0.2080		1,153.8870
Total	**0.6156**	**5.4776**	**7.3949**	**0.0120**	**1.0179**	**0.2504**	**1.2683**	**0.4424**	**0.2392**	**0.6816**		**1,148.6874**	**1,148.6874**	**0.2080**		**1,153.8870**

3.4 Grading - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0816	0.0482	0.5263	1.3000e-003	0.1277	1.2000e-003	0.1289	0.0339	1.1000e-003	0.0350		129.5337	129.5337	5.6400e-003		129.6748
Total	**0.0816**	**0.0482**	**0.5263**	**1.3000e-003**	**0.1277**	**1.2000e-003**	**0.1289**	**0.0339**	**1.1000e-003**	**0.0350**		**129.5337**	**129.5337**	**5.6400e-003**		**129.6748**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					1.0179	0.0000	1.0179	0.4424	0.0000	0.4424			0.0000			0.0000
Off-Road	0.6156	5.4776	7.3949	0.0120		0.2504	0.2504		0.2392	0.2392	0.0000	1,148.6874	1,148.6874	0.2080		1,153.8870
Total	**0.6156**	**5.4776**	**7.3949**	**0.0120**	**1.0179**	**0.2504**	**1.2683**	**0.4424**	**0.2392**	**0.6816**	**0.0000**	**1,148.6874**	**1,148.6874**	**0.2080**		**1,153.8870**

3.4 Grading - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0816	0.0482	0.5263	1.3000e-003	0.1277	1.2000e-003	0.1289	0.0339	1.1000e-003	0.0350		129.5337	129.5337	5.6400e-003		129.6748
Total	**0.0816**	**0.0482**	**0.5263**	**1.3000e-003**	**0.1277**	**1.2000e-003**	**0.1289**	**0.0339**	**1.1000e-003**	**0.0350**		**129.5337**	**129.5337**	**5.6400e-003**		**129.6748**

3.5 Building Construction - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.5950	5.9739	7.0675	0.0114		0.2824	0.2824		0.2598	0.2598		1,104.9834	1,104.9834	0.3574		1,113.9177
Total	**0.5950**	**5.9739**	**7.0675**	**0.0114**		**0.2824**	**0.2824**		**0.2598**	**0.2598**		**1,104.9834**	**1,104.9834**	**0.3574**		**1,113.9177**

3.5 Building Construction - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	3.7300e-003	0.1020	0.0306	2.6000e-004	6.1200e-003	2.0000e-004	6.3300e-003	1.7600e-003	1.9000e-004	1.9600e-003		26.8487	26.8487	8.1000e-004		26.8689
Worker	8.1600e-003	4.8200e-003	0.0526	1.3000e-004	0.0128	1.2000e-004	0.0129	3.3900e-003	1.1000e-004	3.5000e-003		12.9534	12.9534	5.6000e-004		12.9675
Total	**0.0119**	**0.1068**	**0.0832**	**3.9000e-004**	**0.0189**	**3.2000e-004**	**0.0192**	**5.1500e-003**	**3.0000e-004**	**5.4600e-003**		**39.8021**	**39.8021**	**1.3700e-003**		**39.8364**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.5950	5.9739	7.0675	0.0114		0.2824	0.2824		0.2598	0.2598	0.0000	1,104.9834	1,104.9834	0.3574		1,113.9177
Total	**0.5950**	**5.9739**	**7.0675**	**0.0114**		**0.2824**	**0.2824**		**0.2598**	**0.2598**	**0.0000**	**1,104.9834**	**1,104.9834**	**0.3574**		**1,113.9177**

3.5 Building Construction - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	3.7300e-003	0.1020	0.0306	2.6000e-004	6.1200e-003	2.0000e-004	6.3300e-003	1.7600e-003	1.9000e-004	1.9600e-003		26.8487	26.8487	8.1000e-004		26.8689
Worker	8.1600e-003	4.8200e-003	0.0526	1.3000e-004	0.0128	1.2000e-004	0.0129	3.3900e-003	1.1000e-004	3.5000e-003		12.9534	12.9534	5.6000e-004		12.9675
Total	**0.0119**	**0.1068**	**0.0832**	**3.9000e-004**	**0.0189**	**3.2000e-004**	**0.0192**	**5.1500e-003**	**3.0000e-004**	**5.4600e-003**		**39.8021**	**39.8021**	**1.3700e-003**		**39.8364**

3.6 Paving - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.5904	5.2297	7.0314	0.0113		0.2429	0.2429		0.2269	0.2269		1,036.2393	1,036.2393	0.3019		1,043.7858
Paving	5.2400e-003					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.5956**	**5.2297**	**7.0314**	**0.0113**		**0.2429**	**0.2429**		**0.2269**	**0.2269**		**1,036.2393**	**1,036.2393**	**0.3019**		**1,043.7858**

3.6 Paving - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1470	0.0868	0.9474	2.3400e-003	0.2299	2.1600e-003	0.2321	0.0610	1.9900e-003	0.0630		233.1607	233.1607	0.0102		233.4146
Total	**0.1470**	**0.0868**	**0.9474**	**2.3400e-003**	**0.2299**	**2.1600e-003**	**0.2321**	**0.0610**	**1.9900e-003**	**0.0630**		**233.1607**	**233.1607**	**0.0102**		**233.4146**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.5904	5.2297	7.0314	0.0113		0.2429	0.2429		0.2269	0.2269	0.0000	1,036.2393	1,036.2393	0.3019		1,043.7858
Paving	5.2400e-003					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.5956**	**5.2297**	**7.0314**	**0.0113**		**0.2429**	**0.2429**		**0.2269**	**0.2269**	**0.0000**	**1,036.2393**	**1,036.2393**	**0.3019**		**1,043.7858**

3.6 Paving - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1470	0.0868	0.9474	2.3400e-003	0.2299	2.1600e-003	0.2321	0.0610	1.9900e-003	0.0630		233.1607	233.1607	0.0102		233.4146
Total	**0.1470**	**0.0868**	**0.9474**	**2.3400e-003**	**0.2299**	**2.1600e-003**	**0.2321**	**0.0610**	**1.9900e-003**	**0.0630**		**233.1607**	**233.1607**	**0.0102**		**233.4146**

3.7 Architectural Coating - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	13.1055					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1808	1.2188	1.8101	2.9700e-003		0.0609	0.0609		0.0609	0.0609		281.4481	281.4481	0.0159		281.8443
Total	**13.2862**	**1.2188**	**1.8101**	**2.9700e-003**		**0.0609**	**0.0609**		**0.0609**	**0.0609**		**281.4481**	**281.4481**	**0.0159**		**281.8443**

3.7 Architectural Coating - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	13.1055					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1808	1.2188	1.8101	2.9700e-003		0.0609	0.0609		0.0609	0.0609	0.0000	281.4481	281.4481	0.0159		281.8443
Total	**13.2862**	**1.2188**	**1.8101**	**2.9700e-003**		**0.0609**	**0.0609**		**0.0609**	**0.0609**	**0.0000**	**281.4481**	**281.4481**	**0.0159**		**281.8443**

3.7 Architectural Coating - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

3.8 Trenching - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.1170	10.1642	10.1652	0.0145		0.6063	0.6063		0.5605	0.5605		1,380.559 1	1,380.559 1	0.4202		1,391.063 2
Total	**1.1170**	**10.1642**	**10.1652**	**0.0145**		**0.6063**	**0.6063**		**0.5605**	**0.5605**		**1,380.559 1**	**1,380.559 1**	**0.4202**		**1,391.063 2**

3.8 Trenching - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1225	0.0723	0.7895	1.9500e-003	0.1916	1.8000e-003	0.1934	0.0508	1.6600e-003	0.0525		194.3006	194.3006	8.4600e-003		194.5122
Total	**0.1225**	**0.0723**	**0.7895**	**1.9500e-003**	**0.1916**	**1.8000e-003**	**0.1934**	**0.0508**	**1.6600e-003**	**0.0525**		**194.3006**	**194.3006**	**8.4600e-003**		**194.5122**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.1170	10.1642	10.1652	0.0145		0.6063	0.6063		0.5605	0.5605	0.0000	1,380.5591	1,380.5591	0.4202		1,391.0632
Total	**1.1170**	**10.1642**	**10.1652**	**0.0145**		**0.6063**	**0.6063**		**0.5605**	**0.5605**	**0.0000**	**1,380.5591**	**1,380.5591**	**0.4202**		**1,391.0632**

3.8 Trenching - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1225	0.0723	0.7895	1.9500e-003	0.1916	1.8000e-003	0.1934	0.0508	1.6600e-003	0.0525		194.3006	194.3006	8.4600e-003		194.5122
Total	**0.1225**	**0.0723**	**0.7895**	**1.9500e-003**	**0.1916**	**1.8000e-003**	**0.1934**	**0.0508**	**1.6600e-003**	**0.0525**		**194.3006**	**194.3006**	**8.4600e-003**		**194.5122**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0279	0.0923	0.3006	8.4000e-004	0.0698	9.5000e-004	0.0707	0.0187	8.9000e-004	0.0196		84.3969	84.3969	3.8500e-003		84.4931
Unmitigated	0.0279	0.0923	0.3006	8.4000e-004	0.0698	9.5000e-004	0.0707	0.0187	8.9000e-004	0.0196		84.3969	84.3969	3.8500e-003		84.4931

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Heavy Industry	3.23	3.23	3.23	12,460	12,460
General Office Building	7.39	1.65	0.70	15,501	15,501
Other Asphalt Surfaces	0.00	0.00	0.00		
Total	10.62	4.87	3.93	27,961	27,961

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
General Heavy Industry	14.70	6.60	6.60	59.00	28.00	13.00	92	5	3
General Office Building	14.70	6.60	6.60	33.00	48.00	19.00	77	19	4
Other Asphalt Surfaces	14.70	6.60	6.60	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
General Heavy Industry	0.538320	0.035605	0.207933	0.131393	0.038345	0.007151	0.015560	0.014962	0.002135	0.001840	0.004958	0.000990	0.000808
General Office Building	0.538320	0.035605	0.207933	0.131393	0.038345	0.007151	0.015560	0.014962	0.002135	0.001840	0.004958	0.000990	0.000808
Other Asphalt Surfaces	0.538320	0.035605	0.207933	0.131393	0.038345	0.007151	0.015560	0.014962	0.002135	0.001840	0.004958	0.000990	0.000808

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	6.1000e-004	5.5400e-003	4.6600e-003	3.0000e-005		4.2000e-004	4.2000e-004		4.2000e-004	4.2000e-004		6.6522	6.6522	1.3000e-004	1.2000e-004	6.6917
NaturalGas Unmitigated	6.1000e-004	5.5400e-003	4.6600e-003	3.0000e-005		4.2000e-004	4.2000e-004		4.2000e-004	4.2000e-004		6.6522	6.6522	1.3000e-004	1.2000e-004	6.6917

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
General Heavy Industry	20.6753	2.2000e-004	2.0300e-003	1.7000e-003	1.0000e-005		1.5000e-004	1.5000e-004		1.5000e-004	1.5000e-004		2.4324	2.4324	5.0000e-005	4.0000e-005	2.4469
General Office Building	35.8679	3.9000e-004	3.5200e-003	2.9500e-003	2.0000e-005		2.7000e-004	2.7000e-004		2.7000e-004	2.7000e-004		4.2198	4.2198	8.0000e-005	8.0000e-005	4.2448
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**6.1000e-004**	**5.5500e-003**	**4.6500e-003**	**3.0000e-005**		**4.2000e-004**	**4.2000e-004**		**4.2000e-004**	**4.2000e-004**		**6.6522**	**6.6522**	**1.3000e-004**	**1.2000e-004**	**6.6917**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
General Heavy Industry	0.0206753	2.2000e-004	2.0300e-003	1.7000e-003	1.0000e-005		1.5000e-004	1.5000e-004		1.5000e-004	1.5000e-004		2.4324	2.4324	5.0000e-005	4.0000e-005	2.4469
General Office Building	0.0358679	3.9000e-004	3.5200e-003	2.9500e-003	2.0000e-005		2.7000e-004	2.7000e-004		2.7000e-004	2.7000e-004		4.2198	4.2198	8.0000e-005	8.0000e-005	4.2448
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**6.1000e-004**	**5.5500e-003**	**4.6500e-003**	**3.0000e-005**		**4.2000e-004**	**4.2000e-004**		**4.2000e-004**	**4.2000e-004**		**6.6522**	**6.6522**	**1.3000e-004**	**1.2000e-004**	**6.6917**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0784	0.0000	3.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		6.7000e-004	6.7000e-004	0.0000		7.2000e-004
Unmitigated	0.0784	0.0000	3.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		6.7000e-004	6.7000e-004	0.0000		7.2000e-004

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0180					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0604					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	3.0000e-005	0.0000	3.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		6.7000e-004	6.7000e-004	0.0000		7.2000e-004
Total	**0.0784**	**0.0000**	**3.1000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**6.7000e-004**	**6.7000e-004**	**0.0000**		**7.2000e-004**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0180					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0604					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	3.0000e-005	0.0000	3.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		6.7000e-004	6.7000e-004	0.0000		7.2000e-004
Total	**0.0784**	**0.0000**	**3.1000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**6.7000e-004**	**6.7000e-004**	**0.0000**		**7.2000e-004**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
Emergency Generator	1	0	20	2015	0.73	Diesel

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

10.1 Stationary Sources

Unmitigated/Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Equipment Type	lb/day										lb/day					
Emergency Generator - Diesel (750 - 9999 HP)	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

11.0 Vegetation

Alturas Wastewater Treatment Plant Improvement Project

Modoc County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Heavy Industry	2.15	1000sqft	0.05	2,150.00	0
General Office Building	0.67	1000sqft	0.02	670.00	0
Other Asphalt Surfaces	0.25	1000sqft	0.01	250.00	0

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	2.5	**Precipitation Freq (Days)**	78
Climate Zone	14			**Operational Year**	2025
Utility Company	PacifiCorp				
CO2 Intensity (lb/MWhr)	1656.39	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use -

Construction Phase - Construction schedule per project engineer.

Off-road Equipment - Trenching equipment per project engineer.

Off-road Equipment -

Grading - Acres of grading per project engineer. Site will be balanced (no import/export of material).

Demolition - Building square footage proposed for demolition per project engineer.

Stationary Sources - Emergency Generators and Fire Pumps - Generator type and use per project engineer.

Off-road Equipment -

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	100.00	90.00
tblConstructionPhase	NumDays	10.00	60.00
tblConstructionPhase	NumDays	2.00	60.00
tblConstructionPhase	NumDays	1.00	30.00
tblConstructionPhase	PhaseEndDate	12/20/2023	9/20/2024
tblConstructionPhase	PhaseEndDate	12/6/2023	11/1/2024
tblConstructionPhase	PhaseEndDate	7/14/2023	9/22/2023
tblConstructionPhase	PhaseEndDate	7/19/2023	6/21/2024
tblConstructionPhase	PhaseEndDate	12/13/2023	9/6/2024
tblConstructionPhase	PhaseEndDate	7/17/2023	9/25/2023
tblConstructionPhase	PhaseStartDate	12/14/2023	9/16/2024
tblConstructionPhase	PhaseStartDate	7/20/2023	7/1/2024
tblConstructionPhase	PhaseStartDate	7/18/2023	4/1/2024
tblConstructionPhase	PhaseStartDate	12/7/2023	9/2/2024
tblConstructionPhase	PhaseStartDate	7/15/2023	8/15/2023
tblGrading	AcresOfGrading	0.00	15.00

tblOffRoadEquipment	LoadFactor	0.50	0.50
tblOffRoadEquipment	LoadFactor	0.37	0.37
tblOffRoadEquipment	OffRoadEquipmentType		Trenchers
tblOffRoadEquipment	OffRoadEquipmentType		Tractors/Loaders/Backhoes
tblOffRoadEquipment	OffRoadEquipmentType		Dumpers/Tenders
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblStationaryGeneratorsPumpsEF	CH4_EF	0.07	0.07
tblStationaryGeneratorsPumpsEF	ROG_EF	2.2480e-003	2.2477e-003
tblStationaryGeneratorsPumpsUse	HorsePowerValue	0.00	2,015.00
tblStationaryGeneratorsPumpsUse	HoursPerYear	0.00	20.00
tblStationaryGeneratorsPumpsUse	NumberOfEquipment	0.00	1.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2023	0.0314	0.2869	0.3069	6.1000e-004	0.0286	0.0120	0.0405	4.6500e-003	0.0113	0.0160	0.0000	53.4760	53.4760	0.0102	0.0000	53.7298
2024	0.1397	0.9175	1.0772	1.7100e-003	0.0438	0.0484	0.0922	0.0168	0.0449	0.0617	0.0000	148.8274	148.8274	0.0387	0.0000	149.7945
Maximum	**0.1397**	**0.9175**	**1.0772**	**1.7100e-003**	**0.0438**	**0.0484**	**0.0922**	**0.0168**	**0.0449**	**0.0617**	**0.0000**	**148.8274**	**148.8274**	**0.0387**	**0.0000**	**149.7945**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2023	0.0314	0.2869	0.3069	6.1000e-004	0.0286	0.0120	0.0405	4.6500e-003	0.0113	0.0160	0.0000	53.4760	53.4760	0.0102	0.0000	53.7298
2024	0.1397	0.9175	1.0772	1.7100e-003	0.0438	0.0484	0.0922	0.0168	0.0449	0.0617	0.0000	148.8272	148.8272	0.0387	0.0000	149.7943
Maximum	**0.1397**	**0.9175**	**1.0772**	**1.7100e-003**	**0.0438**	**0.0484**	**0.0922**	**0.0168**	**0.0449**	**0.0617**	**0.0000**	**148.8272**	**148.8272**	**0.0387**	**0.0000**	**149.7943**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	7-3-2023	10-2-2023	0.3124	0.3124
3	1-3-2024	4-2-2024	0.0044	0.0044
4	4-3-2024	7-2-2024	0.3055	0.3055
5	7-3-2024	9-30-2024	0.6206	0.6206
		Highest	0.6206	0.6206

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0143	0.0000	3.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	5.0000e-005	5.0000e-005	0.0000	0.0000	6.0000e-005
Energy	1.1000e-004	1.0100e-003	8.5000e-004	1.0000e-005		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005	0.0000	13.5825	13.5825	2.4000e-004	7.0000e-005	13.6080
Mobile	4.0900e-003	0.0152	0.0483	1.3000e-004	0.0103	1.5000e-004	0.0105	2.7700e-003	1.4000e-004	2.9100e-003	0.0000	11.4600	11.4600	5.4000e-004	0.0000	11.4734
Stationary	0.0331	0.1479	0.0843	1.6000e-004		4.8600e-003	4.8600e-003		4.8600e-003	4.8600e-003	0.0000	15.3461	15.3461	2.1500e-003	0.0000	15.3999
Waste						0.0000	0.0000		0.0000	0.0000	0.6678	0.0000	0.6678	0.0395	0.0000	1.6546
Water						0.0000	0.0000		0.0000	0.0000	0.1955	2.6973	2.8928	0.0201	4.8000e-004	3.5403
Total	**0.0516**	**0.1641**	**0.1335**	**3.0000e-004**	**0.0103**	**5.0900e-003**	**0.0154**	**2.7700e-003**	**5.0800e-003**	**7.8500e-003**	**0.8634**	**43.0860**	**43.9493**	**0.0625**	**5.5000e-004**	**45.6761**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0143	0.0000	3.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	5.0000e-005	5.0000e-005	0.0000	0.0000	6.0000e-005
Energy	1.1000e-004	1.0100e-003	8.5000e-004	1.0000e-005		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005	0.0000	13.5825	13.5825	2.4000e-004	7.0000e-005	13.6080
Mobile	4.0900e-003	0.0152	0.0483	1.3000e-004	0.0103	1.5000e-004	0.0105	2.7700e-003	1.4000e-004	2.9100e-003	0.0000	11.4600	11.4600	5.4000e-004	0.0000	11.4734
Stationary	0.0331	0.1479	0.0843	1.6000e-004		4.8600e-003	4.8600e-003		4.8600e-003	4.8600e-003	0.0000	15.3461	15.3461	2.1500e-003	0.0000	15.3999
Waste						0.0000	0.0000		0.0000	0.0000	0.6678	0.0000	0.6678	0.0395	0.0000	1.6546
Water						0.0000	0.0000		0.0000	0.0000	0.1955	2.6973	2.8928	0.0201	4.8000e-004	3.5403
Total	**0.0516**	**0.1641**	**0.1335**	**3.0000e-004**	**0.0103**	**5.0900e-003**	**0.0154**	**2.7700e-003**	**5.0800e-003**	**7.8500e-003**	**0.8634**	**43.0860**	**43.9493**	**0.0625**	**5.5000e-004**	**45.6761**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	7/3/2023	9/22/2023	5	60	
2	Site Preparation	Site Preparation	8/15/2023	9/25/2023	5	30	
3	Grading	Grading	4/1/2024	6/21/2024	5	60	
4	Building Construction	Building Construction	7/1/2024	11/1/2024	5	90	
5	Paving	Paving	9/2/2024	9/6/2024	5	5	
6	Architectural Coating	Architectural Coating	9/16/2024	9/20/2024	5	5	
7	Trenching	Trenching	6/3/2024	10/4/2024	5	90	

Acres of Grading (Site Preparation Phase): 15

Acres of Grading (Grading Phase): 15

Acres of Paving: 0.01

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 4,230; Non-Residential Outdoor: 1,410; Striped Parking Area: 15 (Architectural Coating – sqft)

<u>OffRoad Equipment</u>

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	1	6.00	78	0.48
Paving	Cement and Mortar Mixers	4	6.00	9	0.56
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Grading	Concrete/Industrial Saws	1	8.00	81	0.73
Building Construction	Cranes	1	4.00	231	0.29
Building Construction	Forklifts	2	6.00	89	0.20
Site Preparation	Graders	1	8.00	187	0.41
Paving	Pavers	1	7.00	130	0.42
Paving	Rollers	1	7.00	80	0.38
Demolition	Rubber Tired Dozers	1	1.00	247	0.40
Grading	Rubber Tired Dozers	1	1.00	247	0.40
Building Construction	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Demolition	Tractors/Loaders/Backhoes	2	6.00	97	0.37
Grading	Tractors/Loaders/Backhoes	2	6.00	97	0.37
Paving	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Trenching	Trenchers	2	8.00	78	0.50
Trenching	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Trenching	Dumpers/Tenders	2	8.00	16	0.38

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	4	10.00	0.00	136.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	2	5.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Grading	4	10.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	5	1.00	1.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Paving	7	18.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	0.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Trenching	6	15.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Demolition - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0149	0.0000	0.0149	2.2600e-003	0.0000	2.2600e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0194	0.1734	0.2218	3.6000e-004		8.4600e-003	8.4600e-003		8.0900e-003	8.0900e-003	0.0000	31.2545	31.2545	5.6900e-003	0.0000	31.3966
Total	**0.0194**	**0.1734**	**0.2218**	**3.6000e-004**	**0.0149**	**8.4600e-003**	**0.0234**	**2.2600e-003**	**8.0900e-003**	**0.0104**	**0.0000**	**31.2545**	**31.2545**	**5.6900e-003**	**0.0000**	**31.3966**

3.2 Demolition - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	4.5000e-004	0.0182	3.8700e-003	5.0000e-005	1.1400e-003	6.0000e-005	1.2000e-003	3.1000e-004	6.0000e-005	3.7000e-004	0.0000	4.9963	4.9963	1.0000e-004	0.0000	4.9989
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.8500e-003	1.9700e-003	0.0179	4.0000e-005	3.6500e-003	4.0000e-005	3.6900e-003	9.7000e-004	4.0000e-005	1.0100e-003	0.0000	3.5206	3.5206	1.7000e-004	0.0000	3.5250
Total	**3.3000e-003**	**0.0202**	**0.0218**	**9.0000e-005**	**4.7900e-003**	**1.0000e-004**	**4.8900e-003**	**1.2800e-003**	**1.0000e-004**	**1.3800e-003**	**0.0000**	**8.5170**	**8.5170**	**2.7000e-004**	**0.0000**	**8.5238**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0149	0.0000	0.0149	2.2600e-003	0.0000	2.2600e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0194	0.1734	0.2218	3.6000e-004		8.4600e-003	8.4600e-003		8.0900e-003	8.0900e-003	0.0000	31.2544	31.2544	5.6900e-003	0.0000	31.3966
Total	**0.0194**	**0.1734**	**0.2218**	**3.6000e-004**	**0.0149**	**8.4600e-003**	**0.0234**	**2.2600e-003**	**8.0900e-003**	**0.0104**	**0.0000**	**31.2544**	**31.2544**	**5.6900e-003**	**0.0000**	**31.3966**

3.2 Demolition - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	4.5000e-004	0.0182	3.8700e-003	5.0000e-005	1.1400e-003	6.0000e-005	1.2000e-003	3.1000e-004	6.0000e-005	3.7000e-004	0.0000	4.9963	4.9963	1.0000e-004	0.0000	4.9989
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.8500e-003	1.9700e-003	0.0179	4.0000e-005	3.6500e-003	4.0000e-005	3.6900e-003	9.7000e-004	4.0000e-005	1.0100e-003	0.0000	3.5206	3.5206	1.7000e-004	0.0000	3.5250
Total	**3.3000e-003**	**0.0202**	**0.0218**	**9.0000e-005**	**4.7900e-003**	**1.0000e-004**	**4.8900e-003**	**1.2800e-003**	**1.0000e-004**	**1.3800e-003**	**0.0000**	**8.5170**	**8.5170**	**2.7000e-004**	**0.0000**	**8.5238**

3.3 Site Preparation - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					7.9500e-003	0.0000	7.9500e-003	8.6000e-004	0.0000	8.6000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	8.0200e-003	0.0928	0.0589	1.5000e-004		3.4000e-003	3.4000e-003		3.1300e-003	3.1300e-003	0.0000	12.8244	12.8244	4.1500e-003	0.0000	12.9281
Total	**8.0200e-003**	**0.0928**	**0.0589**	**1.5000e-004**	**7.9500e-003**	**3.4000e-003**	**0.0114**	**8.6000e-004**	**3.1300e-003**	**3.9900e-003**	**0.0000**	**12.8244**	**12.8244**	**4.1500e-003**	**0.0000**	**12.9281**

3.3 Site Preparation - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	7.1000e-004	4.9000e-004	4.4800e-003	1.0000e-005	9.1000e-004	1.0000e-005	9.2000e-004	2.4000e-004	1.0000e-005	2.5000e-004	0.0000	0.8802	0.8802	4.0000e-005	0.0000	0.8812
Total	**7.1000e-004**	**4.9000e-004**	**4.4800e-003**	**1.0000e-005**	**9.1000e-004**	**1.0000e-005**	**9.2000e-004**	**2.4000e-004**	**1.0000e-005**	**2.5000e-004**	**0.0000**	**0.8802**	**0.8802**	**4.0000e-005**	**0.0000**	**0.8812**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					7.9500e-003	0.0000	7.9500e-003	8.6000e-004	0.0000	8.6000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	8.0200e-003	0.0928	0.0589	1.5000e-004		3.4000e-003	3.4000e-003		3.1300e-003	3.1300e-003	0.0000	12.8244	12.8244	4.1500e-003	0.0000	12.9281
Total	**8.0200e-003**	**0.0928**	**0.0589**	**1.5000e-004**	**7.9500e-003**	**3.4000e-003**	**0.0114**	**8.6000e-004**	**3.1300e-003**	**3.9900e-003**	**0.0000**	**12.8244**	**12.8244**	**4.1500e-003**	**0.0000**	**12.9281**

3.3 Site Preparation - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	7.1000e-004	4.9000e-004	4.4800e-003	1.0000e-005	9.1000e-004	1.0000e-005	9.2000e-004	2.4000e-004	1.0000e-005	2.5000e-004	0.0000	0.8802	0.8802	4.0000e-005	0.0000	0.8812
Total	**7.1000e-004**	**4.9000e-004**	**4.4800e-003**	**1.0000e-005**	**9.1000e-004**	**1.0000e-005**	**9.2000e-004**	**2.4000e-004**	**1.0000e-005**	**2.5000e-004**	**0.0000**	**0.8802**	**0.8802**	**4.0000e-005**	**0.0000**	**0.8812**

3.4 Grading - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0305	0.0000	0.0305	0.0133	0.0000	0.0133	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0185	0.1643	0.2219	3.6000e-004		7.5100e-003	7.5100e-003		7.1800e-003	7.1800e-003	0.0000	31.2622	31.2622	5.6600e-003	0.0000	31.4037
Total	**0.0185**	**0.1643**	**0.2219**	**3.6000e-004**	**0.0305**	**7.5100e-003**	**0.0381**	**0.0133**	**7.1800e-003**	**0.0205**	**0.0000**	**31.2622**	**31.2622**	**5.6600e-003**	**0.0000**	**31.4037**

3.4 Grading - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.6100e-003	1.7400e-003	0.0158	4.0000e-005	3.6500e-003	4.0000e-005	3.6900e-003	9.7000e-004	3.0000e-005	1.0100e-003	0.0000	3.3880	3.3880	1.5000e-004	0.0000	3.3917
Total	**2.6100e-003**	**1.7400e-003**	**0.0158**	**4.0000e-005**	**3.6500e-003**	**4.0000e-005**	**3.6900e-003**	**9.7000e-004**	**3.0000e-005**	**1.0100e-003**	**0.0000**	**3.3880**	**3.3880**	**1.5000e-004**	**0.0000**	**3.3917**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0305	0.0000	0.0305	0.0133	0.0000	0.0133	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0185	0.1643	0.2219	3.6000e-004		7.5100e-003	7.5100e-003		7.1800e-003	7.1800e-003	0.0000	31.2621	31.2621	5.6600e-003	0.0000	31.4036
Total	**0.0185**	**0.1643**	**0.2219**	**3.6000e-004**	**0.0305**	**7.5100e-003**	**0.0381**	**0.0133**	**7.1800e-003**	**0.0205**	**0.0000**	**31.2621**	**31.2621**	**5.6600e-003**	**0.0000**	**31.4036**

3.4 Grading - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.6100e-003	1.7400e-003	0.0158	4.0000e-005	3.6500e-003	4.0000e-005	3.6900e-003	9.7000e-004	3.0000e-005	1.0100e-003	0.0000	3.3880	3.3880	1.5000e-004	0.0000	3.3917
Total	**2.6100e-003**	**1.7400e-003**	**0.0158**	**4.0000e-005**	**3.6500e-003**	**4.0000e-005**	**3.6900e-003**	**9.7000e-004**	**3.0000e-005**	**1.0100e-003**	**0.0000**	**3.3880**	**3.3880**	**1.5000e-004**	**0.0000**	**3.3917**

3.5 Building Construction - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0268	0.2688	0.3180	5.1000e-004		0.0127	0.0127		0.0117	0.0117	0.0000	45.1091	45.1091	0.0146	0.0000	45.4738
Total	**0.0268**	**0.2688**	**0.3180**	**5.1000e-004**		**0.0127**	**0.0127**		**0.0117**	**0.0117**	**0.0000**	**45.1091**	**45.1091**	**0.0146**	**0.0000**	**45.4738**

3.5 Building Construction - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.8000e-004	4.6100e-003	1.5600e-003	1.0000e-005	2.7000e-004	1.0000e-005	2.7000e-004	8.0000e-005	1.0000e-005	9.0000e-005	0.0000	1.0814	1.0814	4.0000e-005	0.0000	1.0823
Worker	3.9000e-004	2.6000e-004	2.3800e-003	1.0000e-005	5.5000e-004	1.0000e-005	5.5000e-004	1.5000e-004	0.0000	1.5000e-004	0.0000	0.5082	0.5082	2.0000e-005	0.0000	0.5088
Total	**5.7000e-004**	**4.8700e-003**	**3.9400e-003**	**2.0000e-005**	**8.2000e-004**	**2.0000e-005**	**8.2000e-004**	**2.3000e-004**	**1.0000e-005**	**2.4000e-004**	**0.0000**	**1.5896**	**1.5896**	**6.0000e-005**	**0.0000**	**1.5911**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0268	0.2688	0.3180	5.1000e-004		0.0127	0.0127		0.0117	0.0117	0.0000	45.1090	45.1090	0.0146	0.0000	45.4738
Total	**0.0268**	**0.2688**	**0.3180**	**5.1000e-004**		**0.0127**	**0.0127**		**0.0117**	**0.0117**	**0.0000**	**45.1090**	**45.1090**	**0.0146**	**0.0000**	**45.4738**

3.5 Building Construction - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.8000e-004	4.6100e-003	1.5600e-003	1.0000e-005	2.7000e-004	1.0000e-005	2.7000e-004	8.0000e-005	1.0000e-005	9.0000e-005	0.0000	1.0814	1.0814	4.0000e-005	0.0000	1.0823
Worker	3.9000e-004	2.6000e-004	2.3800e-003	1.0000e-005	5.5000e-004	1.0000e-005	5.5000e-004	1.5000e-004	0.0000	1.5000e-004	0.0000	0.5082	0.5082	2.0000e-005	0.0000	0.5088
Total	**5.7000e-004**	**4.8700e-003**	**3.9400e-003**	**2.0000e-005**	**8.2000e-004**	**2.0000e-005**	**8.2000e-004**	**2.3000e-004**	**1.0000e-005**	**2.4000e-004**	**0.0000**	**1.5896**	**1.5896**	**6.0000e-005**	**0.0000**	**1.5911**

3.6 Paving - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	1.4800e-003	0.0131	0.0176	3.0000e-005		6.1000e-004	6.1000e-004		5.7000e-004	5.7000e-004	0.0000	2.3502	2.3502	6.8000e-004	0.0000	2.3673
Paving	1.0000e-005					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**1.4900e-003**	**0.0131**	**0.0176**	**3.0000e-005**		**6.1000e-004**	**6.1000e-004**		**5.7000e-004**	**5.7000e-004**	**0.0000**	**2.3502**	**2.3502**	**6.8000e-004**	**0.0000**	**2.3673**

3.6 Paving - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.9000e-004	2.6000e-004	2.3800e-003	1.0000e-005	5.5000e-004	1.0000e-005	5.5000e-004	1.5000e-004	0.0000	1.5000e-004	0.0000	0.5082	0.5082	2.0000e-005	0.0000	0.5088
Total	**3.9000e-004**	**2.6000e-004**	**2.3800e-003**	**1.0000e-005**	**5.5000e-004**	**1.0000e-005**	**5.5000e-004**	**1.5000e-004**	**0.0000**	**1.5000e-004**	**0.0000**	**0.5082**	**0.5082**	**2.0000e-005**	**0.0000**	**0.5088**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	1.4800e-003	0.0131	0.0176	3.0000e-005		6.1000e-004	6.1000e-004		5.7000e-004	5.7000e-004	0.0000	2.3502	2.3502	6.8000e-004	0.0000	2.3673
Paving	1.0000e-005					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**1.4900e-003**	**0.0131**	**0.0176**	**3.0000e-005**		**6.1000e-004**	**6.1000e-004**		**5.7000e-004**	**5.7000e-004**	**0.0000**	**2.3502**	**2.3502**	**6.8000e-004**	**0.0000**	**2.3673**

3.6 Paving - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.9000e-004	2.6000e-004	2.3800e-003	1.0000e-005	5.5000e-004	1.0000e-005	5.5000e-004	1.5000e-004	0.0000	1.5000e-004	0.0000	0.5082	0.5082	2.0000e-005	0.0000	0.5088
Total	**3.9000e-004**	**2.6000e-004**	**2.3800e-003**	**1.0000e-005**	**5.5000e-004**	**1.0000e-005**	**5.5000e-004**	**1.5000e-004**	**0.0000**	**1.5000e-004**	**0.0000**	**0.5082**	**0.5082**	**2.0000e-005**	**0.0000**	**0.5088**

3.7 Architectural Coating - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.0328					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	4.5000e-004	3.0500e-003	4.5300e-003	1.0000e-005		1.5000e-004	1.5000e-004		1.5000e-004	1.5000e-004	0.0000	0.6383	0.6383	4.0000e-005	0.0000	0.6392
Total	**0.0332**	**3.0500e-003**	**4.5300e-003**	**1.0000e-005**		**1.5000e-004**	**1.5000e-004**		**1.5000e-004**	**1.5000e-004**	**0.0000**	**0.6383**	**0.6383**	**4.0000e-005**	**0.0000**	**0.6392**

3.7 Architectural Coating - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.0328					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	4.5000e-004	3.0500e-003	4.5300e-003	1.0000e-005		1.5000e-004	1.5000e-004		1.5000e-004	1.5000e-004	0.0000	0.6383	0.6383	4.0000e-005	0.0000	0.6392
Total	**0.0332**	**3.0500e-003**	**4.5300e-003**	**1.0000e-005**		**1.5000e-004**	**1.5000e-004**		**1.5000e-004**	**1.5000e-004**	**0.0000**	**0.6383**	**0.6383**	**4.0000e-005**	**0.0000**	**0.6392**

3.7 Architectural Coating - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.8 Trenching - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0503	0.4574	0.4574	6.5000e-004		0.0273	0.0273		0.0252	0.0252	0.0000	56.3590	56.3590	0.0172	0.0000	56.7878
Total	**0.0503**	**0.4574**	**0.4574**	**6.5000e-004**		**0.0273**	**0.0273**		**0.0252**	**0.0252**	**0.0000**	**56.3590**	**56.3590**	**0.0172**	**0.0000**	**56.7878**

3.8 Trenching - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.8700e-003	3.9100e-003	0.0356	8.0000e-005	8.2200e-003	8.0000e-005	8.3000e-003	2.1900e-003	7.0000e-005	2.2600e-003	0.0000	7.6229	7.6229	3.3000e-004	0.0000	7.6312
Total	**5.8700e-003**	**3.9100e-003**	**0.0356**	**8.0000e-005**	**8.2200e-003**	**8.0000e-005**	**8.3000e-003**	**2.1900e-003**	**7.0000e-005**	**2.2600e-003**	**0.0000**	**7.6229**	**7.6229**	**3.3000e-004**	**0.0000**	**7.6312**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0503	0.4574	0.4574	6.5000e-004		0.0273	0.0273		0.0252	0.0252	0.0000	56.3589	56.3589	0.0172	0.0000	56.7877
Total	**0.0503**	**0.4574**	**0.4574**	**6.5000e-004**		**0.0273**	**0.0273**		**0.0252**	**0.0252**	**0.0000**	**56.3589**	**56.3589**	**0.0172**	**0.0000**	**56.7877**

3.8 Trenching - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.8700e-003	3.9100e-003	0.0356	8.0000e-005	8.2200e-003	8.0000e-005	8.3000e-003	2.1900e-003	7.0000e-005	2.2600e-003	0.0000	7.6229	7.6229	3.3000e-004	0.0000	7.6312
Total	**5.8700e-003**	**3.9100e-003**	**0.0356**	**8.0000e-005**	**8.2200e-003**	**8.0000e-005**	**8.3000e-003**	**2.1900e-003**	**7.0000e-005**	**2.2600e-003**	**0.0000**	**7.6229**	**7.6229**	**3.3000e-004**	**0.0000**	**7.6312**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	4.0900e-003	0.0152	0.0483	1.3000e-004	0.0103	1.5000e-004	0.0105	2.7700e-003	1.4000e-004	2.9100e-003	0.0000	11.4600	11.4600	5.4000e-004	0.0000	11.4734
Unmitigated	4.0900e-003	0.0152	0.0483	1.3000e-004	0.0103	1.5000e-004	0.0105	2.7700e-003	1.4000e-004	2.9100e-003	0.0000	11.4600	11.4600	5.4000e-004	0.0000	11.4734

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Heavy Industry	3.23	3.23	3.23	12,460	12,460
General Office Building	7.39	1.65	0.70	15,501	15,501
Other Asphalt Surfaces	0.00	0.00	0.00		
Total	10.62	4.87	3.93	27,961	27,961

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
General Heavy Industry	14.70	6.60	6.60	59.00	28.00	13.00	92	5	3
General Office Building	14.70	6.60	6.60	33.00	48.00	19.00	77	19	4
Other Asphalt Surfaces	14.70	6.60	6.60	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
General Heavy Industry	0.538320	0.035605	0.207933	0.131393	0.038345	0.007151	0.015560	0.014962	0.002135	0.001840	0.004958	0.000990	0.000808
General Office Building	0.538320	0.035605	0.207933	0.131393	0.038345	0.007151	0.015560	0.014962	0.002135	0.001840	0.004958	0.000990	0.000808
Other Asphalt Surfaces	0.538320	0.035605	0.207933	0.131393	0.038345	0.007151	0.015560	0.014962	0.002135	0.001840	0.004958	0.000990	0.000808

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	12.4812	12.4812	2.2000e-004	5.0000e-005	12.5001
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	12.4812	12.4812	2.2000e-004	5.0000e-005	12.5001
NaturalGas Mitigated	1.1000e-004	1.0100e-003	8.5000e-004	1.0000e-005		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005	0.0000	1.1013	1.1013	2.0000e-005	2.0000e-005	1.1079
NaturalGas Unmitigated	1.1000e-004	1.0100e-003	8.5000e-004	1.0000e-005		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005	0.0000	1.1013	1.1013	2.0000e-005	2.0000e-005	1.1079

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
General Heavy Industry	7546.5	4.0000e-005	3.7000e-004	3.1000e-004	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005	0.0000	0.4027	0.4027	1.0000e-005	1.0000e-005	0.4051
General Office Building	13091.8	7.0000e-005	6.4000e-004	5.4000e-004	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005	0.0000	0.6986	0.6986	1.0000e-005	1.0000e-005	0.7028
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**1.1000e-004**	**1.0100e-003**	**8.5000e-004**	**0.0000**		**8.0000e-005**	**8.0000e-005**		**8.0000e-005**	**8.0000e-005**	**0.0000**	**1.1013**	**1.1013**	**2.0000e-005**	**2.0000e-005**	**1.1079**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
General Heavy Industry	7546.5	4.0000e-005	3.7000e-004	3.1000e-004	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005	0.0000	0.4027	0.4027	1.0000e-005	1.0000e-005	0.4051
General Office Building	13091.8	7.0000e-005	6.4000e-004	5.4000e-004	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005	0.0000	0.6986	0.6986	1.0000e-005	1.0000e-005	0.7028
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**1.1000e-004**	**1.0100e-003**	**8.5000e-004**	**0.0000**		**8.0000e-005**	**8.0000e-005**		**8.0000e-005**	**8.0000e-005**	**0.0000**	**1.1013**	**1.1013**	**2.0000e-005**	**2.0000e-005**	**1.1079**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Heavy Industry	9202	6.9137	1.2000e-004	3.0000e-005	6.9242
General Office Building	7410.2	5.5675	1.0000e-004	2.0000e-005	5.5759
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**12.4812**	**2.2000e-004**	**5.0000e-005**	**12.5001**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Heavy Industry	9202	6.9137	1.2000e-004	3.0000e-005	6.9242
General Office Building	7410.2	5.5675	1.0000e-004	2.0000e-005	5.5759
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**12.4812**	**2.2000e-004**	**5.0000e-005**	**12.5001**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0143	0.0000	3.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	5.0000e-005	5.0000e-005	0.0000	0.0000	6.0000e-005
Unmitigated	0.0143	0.0000	3.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	5.0000e-005	5.0000e-005	0.0000	0.0000	6.0000e-005

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	3.2800e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0110					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	3.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	5.0000e-005	5.0000e-005	0.0000	0.0000	6.0000e-005
Total	**0.0143**	**0.0000**	**3.0000e-005**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**5.0000e-005**	**5.0000e-005**	**0.0000**	**0.0000**	**6.0000e-005**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	3.2800e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0110					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	3.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	5.0000e-005	5.0000e-005	0.0000	0.0000	6.0000e-005
Total	**0.0143**	**0.0000**	**3.0000e-005**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**5.0000e-005**	**5.0000e-005**	**0.0000**	**0.0000**	**6.0000e-005**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	2.8928	0.0201	4.8000e-004	3.5403
Unmitigated	2.8928	0.0201	4.8000e-004	3.5403

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Heavy Industry	0.497188 / 0	2.1790	0.0162	3.9000e-004	2.7011
General Office Building	0.119082 / 0.0729855	0.7138	3.8900e-003	9.0000e-005	0.8392
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**2.8928**	**0.0201**	**4.8000e-004**	**3.5403**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Heavy Industry	0.497188 / 0	2.1790	0.0162	3.9000e-004	2.7011
General Office Building	0.119082 / 0.0729855	0.7138	3.8900e-003	9.0000e-005	0.8392
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**2.8928**	**0.0201**	**4.8000e-004**	**3.5403**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	0.6678	0.0395	0.0000	1.6546
Unmitigated	0.6678	0.0395	0.0000	1.6546

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Heavy Industry	2.67	0.5420	0.0320	0.0000	1.3428
General Office Building	0.62	0.1259	7.4400e-003	0.0000	0.3118
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**0.6678**	**0.0395**	**0.0000**	**1.6546**

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Heavy Industry	2.67	0.5420	0.0320	0.0000	1.3428
General Office Building	0.62	0.1259	7.4400e-003	0.0000	0.3118
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**0.6678**	**0.0395**	**0.0000**	**1.6546**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
Emergency Generator	1	0	20	2015	0.73	Diesel

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

10.1 Stationary Sources

Unmitigated/Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Equipment Type	tons/yr										MT/yr					
Emergency Generator - Diesel (750 - 9999 HP)	0.0331	0.1479	0.0843	1.6000e-004		4.8600e-003	4.8600e-003		4.8600e-003	4.8600e-003	0.0000	15.3461	15.3461	2.1500e-003	0.0000	15.3999
Total	**0.0331**	**0.1479**	**0.0843**	**1.6000e-004**		**4.8600e-003**	**4.8600e-003**		**4.8600e-003**	**4.8600e-003**	**0.0000**	**15.3461**	**15.3461**	**2.1500e-003**	**0.0000**	**15.3999**

11.0 Vegetation

Alturas Wastewater Treatment Plant Improvement Project

Modoc County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Heavy Industry	2.15	1000sqft	0.05	2,150.00	0
General Office Building	0.67	1000sqft	0.02	670.00	0
Other Asphalt Surfaces	0.25	1000sqft	0.01	250.00	0

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	2.5	**Precipitation Freq (Days)**	78
Climate Zone	14			**Operational Year**	2025
Utility Company	PacifiCorp				
CO2 Intensity (lb/MWhr)	1656.39	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Alturas Wastewater Treatment Plant Improvement Project - Modoc County, Annual

Project Characteristics -

Land Use -

Construction Phase - Construction schedule per project engineer.

Off-road Equipment - Trenching equipment per project engineer.

Off-road Equipment -

Grading - Acres of grading per project engineer. Site will be balanced (no import/export of material).

Demolition - Building square footage proposed for demolition per project engineer.

Stationary Sources - Emergency Generators and Fire Pumps - Generator type and use per project engineer.

Off-road Equipment -

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	100.00	90.00
tblConstructionPhase	NumDays	10.00	60.00
tblConstructionPhase	NumDays	2.00	60.00
tblConstructionPhase	NumDays	1.00	30.00
tblConstructionPhase	PhaseEndDate	12/20/2023	9/20/2024
tblConstructionPhase	PhaseEndDate	12/6/2023	11/1/2024
tblConstructionPhase	PhaseEndDate	7/14/2023	9/22/2023
tblConstructionPhase	PhaseEndDate	7/19/2023	6/21/2024
tblConstructionPhase	PhaseEndDate	12/13/2023	9/6/2024
tblConstructionPhase	PhaseEndDate	7/17/2023	9/25/2023
tblConstructionPhase	PhaseStartDate	12/14/2023	9/16/2024
tblConstructionPhase	PhaseStartDate	7/20/2023	7/1/2024
tblConstructionPhase	PhaseStartDate	7/18/2023	4/1/2024
tblConstructionPhase	PhaseStartDate	12/7/2023	9/2/2024
tblConstructionPhase	PhaseStartDate	7/15/2023	8/15/2023
tblGrading	AcresOfGrading	0.00	15.00

tblOffRoadEquipment	LoadFactor	0.50	0.50
tblOffRoadEquipment	LoadFactor	0.37	0.37
tblOffRoadEquipment	OffRoadEquipmentType		Trenchers
tblOffRoadEquipment	OffRoadEquipmentType		Tractors/Loaders/Backhoes
tblOffRoadEquipment	OffRoadEquipmentType		Dumpers/Tenders
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblStationaryGeneratorsPumpsEF	CH4_EF	0.07	0.07
tblStationaryGeneratorsPumpsEF	ROG_EF	2.2480e-003	2.2477e-003
tblStationaryGeneratorsPumpsUse	HorsePowerValue	0.00	2,015.00
tblStationaryGeneratorsPumpsUse	HoursPerYear	0.00	20.00
tblStationaryGeneratorsPumpsUse	NumberOfEquipment	0.00	1.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2023	0.0314	0.2869	0.3069	6.1000e-004	0.0286	0.0120	0.0405	4.6500e-003	0.0113	0.0160	0.0000	53.4760	53.4760	0.0102	0.0000	53.7298
2024	0.1397	0.9175	1.0772	1.7100e-003	0.0438	0.0484	0.0922	0.0168	0.0449	0.0617	0.0000	148.8274	148.8274	0.0387	0.0000	149.7945
Maximum	**0.1397**	**0.9175**	**1.0772**	**1.7100e-003**	**0.0438**	**0.0484**	**0.0922**	**0.0168**	**0.0449**	**0.0617**	**0.0000**	**148.8274**	**148.8274**	**0.0387**	**0.0000**	**149.7945**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2023	0.0314	0.2869	0.3069	6.1000e-004	0.0286	0.0120	0.0405	4.6500e-003	0.0113	0.0160	0.0000	53.4760	53.4760	0.0102	0.0000	53.7298
2024	0.1397	0.9175	1.0772	1.7100e-003	0.0438	0.0484	0.0922	0.0168	0.0449	0.0617	0.0000	148.8272	148.8272	0.0387	0.0000	149.7943
Maximum	**0.1397**	**0.9175**	**1.0772**	**1.7100e-003**	**0.0438**	**0.0484**	**0.0922**	**0.0168**	**0.0449**	**0.0617**	**0.0000**	**148.8272**	**148.8272**	**0.0387**	**0.0000**	**149.7943**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	7-3-2023	10-2-2023	0.3124	0.3124
3	1-3-2024	4-2-2024	0.0044	0.0044
4	4-3-2024	7-2-2024	0.3055	0.3055
5	7-3-2024	9-30-2024	0.6206	0.6206
		Highest	0.6206	0.6206

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0143	0.0000	3.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	5.0000e-005	5.0000e-005	0.0000	0.0000	6.0000e-005
Energy	1.1000e-004	1.0100e-003	8.5000e-004	1.0000e-005		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005	0.0000	13.5825	13.5825	2.4000e-004	7.0000e-005	13.6080
Mobile	4.0900e-003	0.0152	0.0483	1.3000e-004	0.0103	1.5000e-004	0.0105	2.7700e-003	1.4000e-004	2.9100e-003	0.0000	11.4600	11.4600	5.4000e-004	0.0000	11.4734
Stationary	0.0331	0.1479	0.0843	1.6000e-004		4.8600e-003	4.8600e-003		4.8600e-003	4.8600e-003	0.0000	15.3461	15.3461	2.1500e-003	0.0000	15.3999
Waste						0.0000	0.0000		0.0000	0.0000	0.6678	0.0000	0.6678	0.0395	0.0000	1.6546
Water						0.0000	0.0000		0.0000	0.0000	0.1955	2.6973	2.8928	0.0201	4.8000e-004	3.5403
Total	**0.0516**	**0.1641**	**0.1335**	**3.0000e-004**	**0.0103**	**5.0900e-003**	**0.0154**	**2.7700e-003**	**5.0800e-003**	**7.8500e-003**	**0.8634**	**43.0860**	**43.9493**	**0.0625**	**5.5000e-004**	**45.6761**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0143	0.0000	3.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	5.0000e-005	5.0000e-005	0.0000	0.0000	6.0000e-005
Energy	1.1000e-004	1.0100e-003	8.5000e-004	1.0000e-005		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005	0.0000	13.5825	13.5825	2.4000e-004	7.0000e-005	13.6080
Mobile	4.0900e-003	0.0152	0.0483	1.3000e-004	0.0103	1.5000e-004	0.0105	2.7700e-003	1.4000e-004	2.9100e-003	0.0000	11.4600	11.4600	5.4000e-004	0.0000	11.4734
Stationary	0.0331	0.1479	0.0843	1.6000e-004		4.8600e-003	4.8600e-003		4.8600e-003	4.8600e-003	0.0000	15.3461	15.3461	2.1500e-003	0.0000	15.3999
Waste						0.0000	0.0000		0.0000	0.0000	0.6678	0.0000	0.6678	0.0395	0.0000	1.6546
Water						0.0000	0.0000		0.0000	0.0000	0.1955	2.6973	2.8928	0.0201	4.8000e-004	3.5403
Total	**0.0516**	**0.1641**	**0.1335**	**3.0000e-004**	**0.0103**	**5.0900e-003**	**0.0154**	**2.7700e-003**	**5.0800e-003**	**7.8500e-003**	**0.8634**	**43.0860**	**43.9493**	**0.0625**	**5.5000e-004**	**45.6761**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	7/3/2023	9/22/2023	5	60	
2	Site Preparation	Site Preparation	8/15/2023	9/25/2023	5	30	
3	Grading	Grading	4/1/2024	6/21/2024	5	60	
4	Building Construction	Building Construction	7/1/2024	11/1/2024	5	90	
5	Paving	Paving	9/2/2024	9/6/2024	5	5	
6	Architectural Coating	Architectural Coating	9/16/2024	9/20/2024	5	5	
7	Trenching	Trenching	6/3/2024	10/4/2024	5	90	

Acres of Grading (Site Preparation Phase): 15

Acres of Grading (Grading Phase): 15

Acres of Paving: 0.01

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 4,230; Non-Residential Outdoor: 1,410; Striped Parking Area: 15 (Architectural Coating – sqft)

<u>OffRoad Equipment</u>

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	1	6.00	78	0.48
Paving	Cement and Mortar Mixers	4	6.00	9	0.56
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Grading	Concrete/Industrial Saws	1	8.00	81	0.73
Building Construction	Cranes	1	4.00	231	0.29
Building Construction	Forklifts	2	6.00	89	0.20
Site Preparation	Graders	1	8.00	187	0.41
Paving	Pavers	1	7.00	130	0.42
Paving	Rollers	1	7.00	80	0.38
Demolition	Rubber Tired Dozers	1	1.00	247	0.40
Grading	Rubber Tired Dozers	1	1.00	247	0.40
Building Construction	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Demolition	Tractors/Loaders/Backhoes	2	6.00	97	0.37
Grading	Tractors/Loaders/Backhoes	2	6.00	97	0.37
Paving	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Trenching	Trenchers	2	8.00	78	0.50
Trenching	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Trenching	Dumpers/Tenders	2	8.00	16	0.38

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	4	10.00	0.00	136.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	2	5.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Grading	4	10.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	5	1.00	1.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Paving	7	18.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	0.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Trenching	6	15.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Demolition - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0149	0.0000	0.0149	2.2600e-003	0.0000	2.2600e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0194	0.1734	0.2218	3.6000e-004		8.4600e-003	8.4600e-003		8.0900e-003	8.0900e-003	0.0000	31.2545	31.2545	5.6900e-003	0.0000	31.3966
Total	**0.0194**	**0.1734**	**0.2218**	**3.6000e-004**	**0.0149**	**8.4600e-003**	**0.0234**	**2.2600e-003**	**8.0900e-003**	**0.0104**	**0.0000**	**31.2545**	**31.2545**	**5.6900e-003**	**0.0000**	**31.3966**

3.2 Demolition - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	4.5000e-004	0.0182	3.8700e-003	5.0000e-005	1.1400e-003	6.0000e-005	1.2000e-003	3.1000e-004	6.0000e-005	3.7000e-004	0.0000	4.9963	4.9963	1.0000e-004	0.0000	4.9989
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.8500e-003	1.9700e-003	0.0179	4.0000e-005	3.6500e-003	4.0000e-005	3.6900e-003	9.7000e-004	4.0000e-005	1.0100e-003	0.0000	3.5206	3.5206	1.7000e-004	0.0000	3.5250
Total	**3.3000e-003**	**0.0202**	**0.0218**	**9.0000e-005**	**4.7900e-003**	**1.0000e-004**	**4.8900e-003**	**1.2800e-003**	**1.0000e-004**	**1.3800e-003**	**0.0000**	**8.5170**	**8.5170**	**2.7000e-004**	**0.0000**	**8.5238**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0149	0.0000	0.0149	2.2600e-003	0.0000	2.2600e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0194	0.1734	0.2218	3.6000e-004		8.4600e-003	8.4600e-003		8.0900e-003	8.0900e-003	0.0000	31.2544	31.2544	5.6900e-003	0.0000	31.3966
Total	**0.0194**	**0.1734**	**0.2218**	**3.6000e-004**	**0.0149**	**8.4600e-003**	**0.0234**	**2.2600e-003**	**8.0900e-003**	**0.0104**	**0.0000**	**31.2544**	**31.2544**	**5.6900e-003**	**0.0000**	**31.3966**

3.2 Demolition - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	4.5000e-004	0.0182	3.8700e-003	5.0000e-005	1.1400e-003	6.0000e-005	1.2000e-003	3.1000e-004	6.0000e-005	3.7000e-004	0.0000	4.9963	4.9963	1.0000e-004	0.0000	4.9989
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.8500e-003	1.9700e-003	0.0179	4.0000e-005	3.6500e-003	4.0000e-005	3.6900e-003	9.7000e-004	4.0000e-005	1.0100e-003	0.0000	3.5206	3.5206	1.7000e-004	0.0000	3.5250
Total	**3.3000e-003**	**0.0202**	**0.0218**	**9.0000e-005**	**4.7900e-003**	**1.0000e-004**	**4.8900e-003**	**1.2800e-003**	**1.0000e-004**	**1.3800e-003**	**0.0000**	**8.5170**	**8.5170**	**2.7000e-004**	**0.0000**	**8.5238**

3.3 Site Preparation - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					7.9500e-003	0.0000	7.9500e-003	8.6000e-004	0.0000	8.6000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	8.0200e-003	0.0928	0.0589	1.5000e-004		3.4000e-003	3.4000e-003		3.1300e-003	3.1300e-003	0.0000	12.8244	12.8244	4.1500e-003	0.0000	12.9281
Total	**8.0200e-003**	**0.0928**	**0.0589**	**1.5000e-004**	**7.9500e-003**	**3.4000e-003**	**0.0114**	**8.6000e-004**	**3.1300e-003**	**3.9900e-003**	**0.0000**	**12.8244**	**12.8244**	**4.1500e-003**	**0.0000**	**12.9281**

3.3 Site Preparation - 2023

Unmitigated Construction Off-Site

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	7.1000e-004	4.9000e-004	4.4800e-003	1.0000e-005	9.1000e-004	1.0000e-005	9.2000e-004	2.4000e-004	1.0000e-005	2.5000e-004	0.0000	0.8802	0.8802	4.0000e-005	0.0000	0.8812
Total	**7.1000e-004**	**4.9000e-004**	**4.4800e-003**	**1.0000e-005**	**9.1000e-004**	**1.0000e-005**	**9.2000e-004**	**2.4000e-004**	**1.0000e-005**	**2.5000e-004**	**0.0000**	**0.8802**	**0.8802**	**4.0000e-005**	**0.0000**	**0.8812**

Mitigated Construction On-Site

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	tons/yr										MT/yr					
Fugitive Dust					7.9500e-003	0.0000	7.9500e-003	8.6000e-004	0.0000	8.6000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	8.0200e-003	0.0928	0.0589	1.5000e-004		3.4000e-003	3.4000e-003		3.1300e-003	3.1300e-003	0.0000	12.8244	12.8244	4.1500e-003	0.0000	12.9281
Total	**8.0200e-003**	**0.0928**	**0.0589**	**1.5000e-004**	**7.9500e-003**	**3.4000e-003**	**0.0114**	**8.6000e-004**	**3.1300e-003**	**3.9900e-003**	**0.0000**	**12.8244**	**12.8244**	**4.1500e-003**	**0.0000**	**12.9281**

3.3 Site Preparation - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	7.1000e-004	4.9000e-004	4.4800e-003	1.0000e-005	9.1000e-004	1.0000e-005	9.2000e-004	2.4000e-004	1.0000e-005	2.5000e-004	0.0000	0.8802	0.8802	4.0000e-005	0.0000	0.8812
Total	**7.1000e-004**	**4.9000e-004**	**4.4800e-003**	**1.0000e-005**	**9.1000e-004**	**1.0000e-005**	**9.2000e-004**	**2.4000e-004**	**1.0000e-005**	**2.5000e-004**	**0.0000**	**0.8802**	**0.8802**	**4.0000e-005**	**0.0000**	**0.8812**

3.4 Grading - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0305	0.0000	0.0305	0.0133	0.0000	0.0133	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0185	0.1643	0.2219	3.6000e-004		7.5100e-003	7.5100e-003		7.1800e-003	7.1800e-003	0.0000	31.2622	31.2622	5.6600e-003	0.0000	31.4037
Total	**0.0185**	**0.1643**	**0.2219**	**3.6000e-004**	**0.0305**	**7.5100e-003**	**0.0381**	**0.0133**	**7.1800e-003**	**0.0205**	**0.0000**	**31.2622**	**31.2622**	**5.6600e-003**	**0.0000**	**31.4037**

3.4 Grading - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.6100e-003	1.7400e-003	0.0158	4.0000e-005	3.6500e-003	4.0000e-005	3.6900e-003	9.7000e-004	3.0000e-005	1.0100e-003	0.0000	3.3880	3.3880	1.5000e-004	0.0000	3.3917
Total	**2.6100e-003**	**1.7400e-003**	**0.0158**	**4.0000e-005**	**3.6500e-003**	**4.0000e-005**	**3.6900e-003**	**9.7000e-004**	**3.0000e-005**	**1.0100e-003**	**0.0000**	**3.3880**	**3.3880**	**1.5000e-004**	**0.0000**	**3.3917**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0305	0.0000	0.0305	0.0133	0.0000	0.0133	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0185	0.1643	0.2219	3.6000e-004		7.5100e-003	7.5100e-003		7.1800e-003	7.1800e-003	0.0000	31.2621	31.2621	5.6600e-003	0.0000	31.4036
Total	**0.0185**	**0.1643**	**0.2219**	**3.6000e-004**	**0.0305**	**7.5100e-003**	**0.0381**	**0.0133**	**7.1800e-003**	**0.0205**	**0.0000**	**31.2621**	**31.2621**	**5.6600e-003**	**0.0000**	**31.4036**

3.4 Grading - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.6100e-003	1.7400e-003	0.0158	4.0000e-005	3.6500e-003	4.0000e-005	3.6900e-003	9.7000e-004	3.0000e-005	1.0100e-003	0.0000	3.3880	3.3880	1.5000e-004	0.0000	3.3917
Total	**2.6100e-003**	**1.7400e-003**	**0.0158**	**4.0000e-005**	**3.6500e-003**	**4.0000e-005**	**3.6900e-003**	**9.7000e-004**	**3.0000e-005**	**1.0100e-003**	**0.0000**	**3.3880**	**3.3880**	**1.5000e-004**	**0.0000**	**3.3917**

3.5 Building Construction - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0268	0.2688	0.3180	5.1000e-004		0.0127	0.0127		0.0117	0.0117	0.0000	45.1091	45.1091	0.0146	0.0000	45.4738
Total	**0.0268**	**0.2688**	**0.3180**	**5.1000e-004**		**0.0127**	**0.0127**		**0.0117**	**0.0117**	**0.0000**	**45.1091**	**45.1091**	**0.0146**	**0.0000**	**45.4738**

3.5 Building Construction - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.8000e-004	4.6100e-003	1.5600e-003	1.0000e-005	2.7000e-004	1.0000e-005	2.7000e-004	8.0000e-005	1.0000e-005	9.0000e-005	0.0000	1.0814	1.0814	4.0000e-005	0.0000	1.0823
Worker	3.9000e-004	2.6000e-004	2.3800e-003	1.0000e-005	5.5000e-004	1.0000e-005	5.5000e-004	1.5000e-004	0.0000	1.5000e-004	0.0000	0.5082	0.5082	2.0000e-005	0.0000	0.5088
Total	**5.7000e-004**	**4.8700e-003**	**3.9400e-003**	**2.0000e-005**	**8.2000e-004**	**2.0000e-005**	**8.2000e-004**	**2.3000e-004**	**1.0000e-005**	**2.4000e-004**	**0.0000**	**1.5896**	**1.5896**	**6.0000e-005**	**0.0000**	**1.5911**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0268	0.2688	0.3180	5.1000e-004		0.0127	0.0127		0.0117	0.0117	0.0000	45.1090	45.1090	0.0146	0.0000	45.4738
Total	**0.0268**	**0.2688**	**0.3180**	**5.1000e-004**		**0.0127**	**0.0127**		**0.0117**	**0.0117**	**0.0000**	**45.1090**	**45.1090**	**0.0146**	**0.0000**	**45.4738**

3.5 Building Construction - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.8000e-004	4.6100e-003	1.5600e-003	1.0000e-005	2.7000e-004	1.0000e-005	2.7000e-004	8.0000e-005	1.0000e-005	9.0000e-005	0.0000	1.0814	1.0814	4.0000e-005	0.0000	1.0823
Worker	3.9000e-004	2.6000e-004	2.3800e-003	1.0000e-005	5.5000e-004	1.0000e-005	5.5000e-004	1.5000e-004	0.0000	1.5000e-004	0.0000	0.5082	0.5082	2.0000e-005	0.0000	0.5088
Total	**5.7000e-004**	**4.8700e-003**	**3.9400e-003**	**2.0000e-005**	**8.2000e-004**	**2.0000e-005**	**8.2000e-004**	**2.3000e-004**	**1.0000e-005**	**2.4000e-004**	**0.0000**	**1.5896**	**1.5896**	**6.0000e-005**	**0.0000**	**1.5911**

3.6 Paving - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	1.4800e-003	0.0131	0.0176	3.0000e-005		6.1000e-004	6.1000e-004		5.7000e-004	5.7000e-004	0.0000	2.3502	2.3502	6.8000e-004	0.0000	2.3673
Paving	1.0000e-005					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**1.4900e-003**	**0.0131**	**0.0176**	**3.0000e-005**		**6.1000e-004**	**6.1000e-004**		**5.7000e-004**	**5.7000e-004**	**0.0000**	**2.3502**	**2.3502**	**6.8000e-004**	**0.0000**	**2.3673**

3.6 Paving - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.9000e-004	2.6000e-004	2.3800e-003	1.0000e-005	5.5000e-004	1.0000e-005	5.5000e-004	1.5000e-004	0.0000	1.5000e-004	0.0000	0.5082	0.5082	2.0000e-005	0.0000	0.5088
Total	**3.9000e-004**	**2.6000e-004**	**2.3800e-003**	**1.0000e-005**	**5.5000e-004**	**1.0000e-005**	**5.5000e-004**	**1.5000e-004**	**0.0000**	**1.5000e-004**	**0.0000**	**0.5082**	**0.5082**	**2.0000e-005**	**0.0000**	**0.5088**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	1.4800e-003	0.0131	0.0176	3.0000e-005		6.1000e-004	6.1000e-004		5.7000e-004	5.7000e-004	0.0000	2.3502	2.3502	6.8000e-004	0.0000	2.3673
Paving	1.0000e-005					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**1.4900e-003**	**0.0131**	**0.0176**	**3.0000e-005**		**6.1000e-004**	**6.1000e-004**		**5.7000e-004**	**5.7000e-004**	**0.0000**	**2.3502**	**2.3502**	**6.8000e-004**	**0.0000**	**2.3673**

3.6 Paving - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.9000e-004	2.6000e-004	2.3800e-003	1.0000e-005	5.5000e-004	1.0000e-005	5.5000e-004	1.5000e-004	0.0000	1.5000e-004	0.0000	0.5082	0.5082	2.0000e-005	0.0000	0.5088
Total	**3.9000e-004**	**2.6000e-004**	**2.3800e-003**	**1.0000e-005**	**5.5000e-004**	**1.0000e-005**	**5.5000e-004**	**1.5000e-004**	**0.0000**	**1.5000e-004**	**0.0000**	**0.5082**	**0.5082**	**2.0000e-005**	**0.0000**	**0.5088**

3.7 Architectural Coating - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.0328					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	4.5000e-004	3.0500e-003	4.5300e-003	1.0000e-005		1.5000e-004	1.5000e-004		1.5000e-004	1.5000e-004	0.0000	0.6383	0.6383	4.0000e-005	0.0000	0.6392
Total	**0.0332**	**3.0500e-003**	**4.5300e-003**	**1.0000e-005**		**1.5000e-004**	**1.5000e-004**		**1.5000e-004**	**1.5000e-004**	**0.0000**	**0.6383**	**0.6383**	**4.0000e-005**	**0.0000**	**0.6392**

3.7 Architectural Coating - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.0328					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	4.5000e-004	3.0500e-003	4.5300e-003	1.0000e-005		1.5000e-004	1.5000e-004		1.5000e-004	1.5000e-004	0.0000	0.6383	0.6383	4.0000e-005	0.0000	0.6392
Total	**0.0332**	**3.0500e-003**	**4.5300e-003**	**1.0000e-005**		**1.5000e-004**	**1.5000e-004**		**1.5000e-004**	**1.5000e-004**	**0.0000**	**0.6383**	**0.6383**	**4.0000e-005**	**0.0000**	**0.6392**

3.7 Architectural Coating - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.8 Trenching - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0503	0.4574	0.4574	6.5000e-004		0.0273	0.0273		0.0252	0.0252	0.0000	56.3590	56.3590	0.0172	0.0000	56.7878
Total	**0.0503**	**0.4574**	**0.4574**	**6.5000e-004**		**0.0273**	**0.0273**		**0.0252**	**0.0252**	**0.0000**	**56.3590**	**56.3590**	**0.0172**	**0.0000**	**56.7878**

3.8 Trenching - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.8700e-003	3.9100e-003	0.0356	8.0000e-005	8.2200e-003	8.0000e-005	8.3000e-003	2.1900e-003	7.0000e-005	2.2600e-003	0.0000	7.6229	7.6229	3.3000e-004	0.0000	7.6312
Total	**5.8700e-003**	**3.9100e-003**	**0.0356**	**8.0000e-005**	**8.2200e-003**	**8.0000e-005**	**8.3000e-003**	**2.1900e-003**	**7.0000e-005**	**2.2600e-003**	**0.0000**	**7.6229**	**7.6229**	**3.3000e-004**	**0.0000**	**7.6312**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0503	0.4574	0.4574	6.5000e-004		0.0273	0.0273		0.0252	0.0252	0.0000	56.3589	56.3589	0.0172	0.0000	56.7877
Total	**0.0503**	**0.4574**	**0.4574**	**6.5000e-004**		**0.0273**	**0.0273**		**0.0252**	**0.0252**	**0.0000**	**56.3589**	**56.3589**	**0.0172**	**0.0000**	**56.7877**

3.8 Trenching - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.8700e-003	3.9100e-003	0.0356	8.0000e-005	8.2200e-003	8.0000e-005	8.3000e-003	2.1900e-003	7.0000e-005	2.2600e-003	0.0000	7.6229	7.6229	3.3000e-004	0.0000	7.6312
Total	**5.8700e-003**	**3.9100e-003**	**0.0356**	**8.0000e-005**	**8.2200e-003**	**8.0000e-005**	**8.3000e-003**	**2.1900e-003**	**7.0000e-005**	**2.2600e-003**	**0.0000**	**7.6229**	**7.6229**	**3.3000e-004**	**0.0000**	**7.6312**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	4.0900e-003	0.0152	0.0483	1.3000e-004	0.0103	1.5000e-004	0.0105	2.7700e-003	1.4000e-004	2.9100e-003	0.0000	11.4600	11.4600	5.4000e-004	0.0000	11.4734
Unmitigated	4.0900e-003	0.0152	0.0483	1.3000e-004	0.0103	1.5000e-004	0.0105	2.7700e-003	1.4000e-004	2.9100e-003	0.0000	11.4600	11.4600	5.4000e-004	0.0000	11.4734

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Heavy Industry	3.23	3.23	3.23	12,460	12,460
General Office Building	7.39	1.65	0.70	15,501	15,501
Other Asphalt Surfaces	0.00	0.00	0.00		
Total	10.62	4.87	3.93	27,961	27,961

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
General Heavy Industry	14.70	6.60	6.60	59.00	28.00	13.00	92	5	3
General Office Building	14.70	6.60	6.60	33.00	48.00	19.00	77	19	4
Other Asphalt Surfaces	14.70	6.60	6.60	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
General Heavy Industry	0.538320	0.035605	0.207933	0.131393	0.038345	0.007151	0.015560	0.014962	0.002135	0.001840	0.004958	0.000990	0.000808
General Office Building	0.538320	0.035605	0.207933	0.131393	0.038345	0.007151	0.015560	0.014962	0.002135	0.001840	0.004958	0.000990	0.000808
Other Asphalt Surfaces	0.538320	0.035605	0.207933	0.131393	0.038345	0.007151	0.015560	0.014962	0.002135	0.001840	0.004958	0.000990	0.000808

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	12.4812	12.4812	2.2000e-004	5.0000e-005	12.5001
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	12.4812	12.4812	2.2000e-004	5.0000e-005	12.5001
NaturalGas Mitigated	1.1000e-004	1.0100e-003	8.5000e-004	1.0000e-005		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005	0.0000	1.1013	1.1013	2.0000e-005	2.0000e-005	1.1079
NaturalGas Unmitigated	1.1000e-004	1.0100e-003	8.5000e-004	1.0000e-005		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005	0.0000	1.1013	1.1013	2.0000e-005	2.0000e-005	1.1079

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
General Heavy Industry	7546.5	4.0000e-005	3.7000e-004	3.1000e-004	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005	0.0000	0.4027	0.4027	1.0000e-005	1.0000e-005	0.4051
General Office Building	13091.8	7.0000e-005	6.4000e-004	5.4000e-004	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005	0.0000	0.6986	0.6986	1.0000e-005	1.0000e-005	0.7028
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**1.1000e-004**	**1.0100e-003**	**8.5000e-004**	**0.0000**		**8.0000e-005**	**8.0000e-005**		**8.0000e-005**	**8.0000e-005**	**0.0000**	**1.1013**	**1.1013**	**2.0000e-005**	**2.0000e-005**	**1.1079**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
General Heavy Industry	7546.5	4.0000e-005	3.7000e-004	3.1000e-004	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005	0.0000	0.4027	0.4027	1.0000e-005	1.0000e-005	0.4051
General Office Building	13091.8	7.0000e-005	6.4000e-004	5.4000e-004	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005	0.0000	0.6986	0.6986	1.0000e-005	1.0000e-005	0.7028
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**1.1000e-004**	**1.0100e-003**	**8.5000e-004**	**0.0000**		**8.0000e-005**	**8.0000e-005**		**8.0000e-005**	**8.0000e-005**	**0.0000**	**1.1013**	**1.1013**	**2.0000e-005**	**2.0000e-005**	**1.1079**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Heavy Industry	9202	6.9137	1.2000e-004	3.0000e-005	6.9242
General Office Building	7410.2	5.5675	1.0000e-004	2.0000e-005	5.5759
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**12.4812**	**2.2000e-004**	**5.0000e-005**	**12.5001**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Heavy Industry	9202	6.9137	1.2000e-004	3.0000e-005	6.9242
General Office Building	7410.2	5.5675	1.0000e-004	2.0000e-005	5.5759
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**12.4812**	**2.2000e-004**	**5.0000e-005**	**12.5001**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0143	0.0000	3.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	5.0000e-005	5.0000e-005	0.0000	0.0000	6.0000e-005
Unmitigated	0.0143	0.0000	3.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	5.0000e-005	5.0000e-005	0.0000	0.0000	6.0000e-005

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	3.2800e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0110					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	3.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	5.0000e-005	5.0000e-005	0.0000	0.0000	6.0000e-005
Total	**0.0143**	**0.0000**	**3.0000e-005**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**5.0000e-005**	**5.0000e-005**	**0.0000**	**0.0000**	**6.0000e-005**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	3.2800e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0110					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	3.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	5.0000e-005	5.0000e-005	0.0000	0.0000	6.0000e-005
Total	**0.0143**	**0.0000**	**3.0000e-005**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**5.0000e-005**	**5.0000e-005**	**0.0000**	**0.0000**	**6.0000e-005**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	2.8928	0.0201	4.8000e-004	3.5403
Unmitigated	2.8928	0.0201	4.8000e-004	3.5403

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Heavy Industry	0.497188 / 0	2.1790	0.0162	3.9000e-004	2.7011
General Office Building	0.119082 / 0.0729855	0.7138	3.8900e-003	9.0000e-005	0.8392
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**2.8928**	**0.0201**	**4.8000e-004**	**3.5403**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Heavy Industry	0.497188 / 0	2.1790	0.0162	3.9000e-004	2.7011
General Office Building	0.119082 / 0.0729855	0.7138	3.8900e-003	9.0000e-005	0.8392
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**2.8928**	**0.0201**	**4.8000e-004**	**3.5403**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	0.6678	0.0395	0.0000	1.6546
Unmitigated	0.6678	0.0395	0.0000	1.6546

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Heavy Industry	2.67	0.5420	0.0320	0.0000	1.3428
General Office Building	0.62	0.1259	7.4400e-003	0.0000	0.3118
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**0.6678**	**0.0395**	**0.0000**	**1.6546**

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Heavy Industry	2.67	0.5420	0.0320	0.0000	1.3428
General Office Building	0.62	0.1259	7.4400e-003	0.0000	0.3118
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**0.6678**	**0.0395**	**0.0000**	**1.6546**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
Emergency Generator	1	0	20	2015	0.73	Diesel

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

10.1 Stationary Sources

Unmitigated/Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Equipment Type	tons/yr										MT/yr					
Emergency Generator - Diesel (750 - 9999 HP)	0.0331	0.1479	0.0843	1.6000e-004		4.8600e-003	4.8600e-003		4.8600e-003	4.8600e-003	0.0000	15.3461	15.3461	2.1500e-003	0.0000	15.3999
Total	**0.0331**	**0.1479**	**0.0843**	**1.6000e-004**		**4.8600e-003**	**4.8600e-003**		**4.8600e-003**	**4.8600e-003**	**0.0000**	**15.3461**	**15.3461**	**2.1500e-003**	**0.0000**	**15.3999**

11.0 Vegetation

Alturas Wastewater Treatment Plant Improvement Project

Modoc County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Heavy Industry	2.15	1000sqft	0.05	2,150.00	0
General Office Building	0.67	1000sqft	0.02	670.00	0
Other Asphalt Surfaces	0.25	1000sqft	0.01	250.00	0

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	2.5	**Precipitation Freq (Days)**	78
Climate Zone	14			**Operational Year**	2025
Utility Company	PacifiCorp				
CO2 Intensity (lb/MWhr)	1656.39	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use -

Construction Phase - Construction schedule per project engineer.

Off-road Equipment - Trenching equipment per project engineer.

Off-road Equipment -

Grading - Acres of grading per project engineer. Site will be balanced (no import/export of material).

Demolition - Building square footage proposed for demolition per project engineer.

Stationary Sources - Emergency Generators and Fire Pumps - Generator type and use per project engineer.

Off-road Equipment -

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	100.00	90.00
tblConstructionPhase	NumDays	10.00	60.00
tblConstructionPhase	NumDays	2.00	60.00
tblConstructionPhase	NumDays	1.00	30.00
tblConstructionPhase	PhaseEndDate	12/20/2023	9/20/2024
tblConstructionPhase	PhaseEndDate	12/6/2023	11/1/2024
tblConstructionPhase	PhaseEndDate	7/14/2023	9/22/2023
tblConstructionPhase	PhaseEndDate	7/19/2023	6/21/2024
tblConstructionPhase	PhaseEndDate	12/13/2023	9/6/2024
tblConstructionPhase	PhaseEndDate	7/17/2023	9/25/2023
tblConstructionPhase	PhaseStartDate	12/14/2023	9/16/2024
tblConstructionPhase	PhaseStartDate	7/20/2023	7/1/2024
tblConstructionPhase	PhaseStartDate	7/18/2023	4/1/2024
tblConstructionPhase	PhaseStartDate	12/7/2023	9/2/2024
tblConstructionPhase	PhaseStartDate	7/15/2023	8/15/2023
tblGrading	AcresOfGrading	0.00	15.00

tblOffRoadEquipment	LoadFactor	0.50	0.50
tblOffRoadEquipment	LoadFactor	0.37	0.37
tblOffRoadEquipment	OffRoadEquipmentType		Trenchers
tblOffRoadEquipment	OffRoadEquipmentType		Tractors/Loaders/Backhoes
tblOffRoadEquipment	OffRoadEquipmentType		Dumpers/Tenders
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblStationaryGeneratorsPumpsEF	CH4_EF	0.07	0.07
tblStationaryGeneratorsPumpsEF	ROG_EF	2.2480e-003	2.2477e-003
tblStationaryGeneratorsPumpsUse	HorsePowerValue	0.00	2,015.00
tblStationaryGeneratorsPumpsUse	HoursPerYear	0.00	20.00
tblStationaryGeneratorsPumpsUse	NumberOfEquipment	0.00	1.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2023	1.3298	12.6507	12.3263	0.0255	1.2582	0.5126	1.7708	0.1942	0.4819	0.6760	0.0000	2,477.866 7	2,477.866 7	0.5271	0.0000	2,491.043 7
2024	15.1326	21.6337	26.0842	0.0419	1.3372	1.1358	2.1969	0.5271	1.0511	1.3296	0.0000	3,989.045 0	3,989.045 0	1.0994	0.0000	4,016.529 9
Maximum	**15.1326**	**21.6337**	**26.0842**	**0.0419**	**1.3372**	**1.1358**	**2.1969**	**0.5271**	**1.0511**	**1.3296**	**0.0000**	**3,989.045 0**	**3,989.045 0**	**1.0994**	**0.0000**	**4,016.529 9**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2023	1.3298	12.6507	12.3263	0.0255	1.2582	0.5126	1.7708	0.1942	0.4819	0.6760	0.0000	2,477.866 7	2,477.866 7	0.5271	0.0000	2,491.043 7
2024	15.1326	21.6337	26.0842	0.0419	1.3372	1.1358	2.1969	0.5271	1.0511	1.3296	0.0000	3,989.045 0	3,989.045 0	1.0994	0.0000	4,016.529 9
Maximum	**15.1326**	**21.6337**	**26.0842**	**0.0419**	**1.3372**	**1.1358**	**2.1969**	**0.5271**	**1.0511**	**1.3296**	**0.0000**	**3,989.045 0**	**3,989.045 0**	**1.0994**	**0.0000**	**4,016.529 9**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.0784	0.0000	3.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		6.7000e-004	6.7000e-004	0.0000		7.2000e-004
Energy	6.1000e-004	5.5400e-003	4.6600e-003	3.0000e-005		4.2000e-004	4.2000e-004		4.2000e-004	4.2000e-004		6.6522	6.6522	1.3000e-004	1.2000e-004	6.6917
Mobile	0.0279	0.0923	0.3006	8.4000e-004	0.0698	9.5000e-004	0.0707	0.0187	8.9000e-004	0.0196		84.3969	84.3969	3.8500e-003		84.4931
Stationary	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.1069**	**0.0978**	**0.3056**	**8.7000e-004**	**0.0698**	**1.3700e-003**	**0.0712**	**0.0187**	**1.3100e-003**	**0.0200**		**91.0497**	**91.0497**	**3.9800e-003**	**1.2000e-004**	**91.1855**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.0784	0.0000	3.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		6.7000e-004	6.7000e-004	0.0000		7.2000e-004
Energy	6.1000e-004	5.5400e-003	4.6600e-003	3.0000e-005		4.2000e-004	4.2000e-004		4.2000e-004	4.2000e-004		6.6522	6.6522	1.3000e-004	1.2000e-004	6.6917
Mobile	0.0279	0.0923	0.3006	8.4000e-004	0.0698	9.5000e-004	0.0707	0.0187	8.9000e-004	0.0196		84.3969	84.3969	3.8500e-003		84.4931
Stationary	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.1069**	**0.0978**	**0.3056**	**8.7000e-004**	**0.0698**	**1.3700e-003**	**0.0712**	**0.0187**	**1.3100e-003**	**0.0200**		**91.0497**	**91.0497**	**3.9800e-003**	**1.2000e-004**	**91.1855**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	7/3/2023	9/22/2023	5	60	
2	Site Preparation	Site Preparation	8/15/2023	9/25/2023	5	30	
3	Grading	Grading	4/1/2024	6/21/2024	5	60	
4	Building Construction	Building Construction	7/1/2024	11/1/2024	5	90	
5	Paving	Paving	9/2/2024	9/6/2024	5	5	
6	Architectural Coating	Architectural Coating	9/16/2024	9/20/2024	5	5	
7	Trenching	Trenching	6/3/2024	10/4/2024	5	90	

Acres of Grading (Site Preparation Phase): 15

Acres of Grading (Grading Phase): 15

Acres of Paving: 0.01

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 4,230; Non-Residential Outdoor: 1,410; Striped Parking Area: 15 (Architectural Coating – sqft)

<u>OffRoad Equipment</u>

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	1	6.00	78	0.48
Paving	Cement and Mortar Mixers	4	6.00	9	0.56
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Grading	Concrete/Industrial Saws	1	8.00	81	0.73
Building Construction	Cranes	1	4.00	231	0.29
Building Construction	Forklifts	2	6.00	89	0.20
Site Preparation	Graders	1	8.00	187	0.41
Paving	Pavers	1	7.00	130	0.42
Paving	Rollers	1	7.00	80	0.38
Demolition	Rubber Tired Dozers	1	1.00	247	0.40
Grading	Rubber Tired Dozers	1	1.00	247	0.40
Building Construction	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Demolition	Tractors/Loaders/Backhoes	2	6.00	97	0.37
Grading	Tractors/Loaders/Backhoes	2	6.00	97	0.37
Paving	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Trenching	Trenchers	2	8.00	78	0.50
Trenching	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Trenching	Dumpers/Tenders	2	8.00	16	0.38

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	4	10.00	0.00	136.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	2	5.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Grading	4	10.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	5	1.00	1.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Paving	7	18.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	0.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Trenching	6	15.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Demolition - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.4968	0.0000	0.4968	0.0752	0.0000	0.0752			0.0000			0.0000
Off-Road	0.6463	5.7787	7.3926	0.0120		0.2821	0.2821		0.2698	0.2698		1,148.405 5	1,148.405 5	0.2089		1,153.629 0
Total	**0.6463**	**5.7787**	**7.3926**	**0.0120**	**0.4968**	**0.2821**	**0.7789**	**0.0752**	**0.2698**	**0.3450**		**1,148.405 5**	**1,148.405 5**	**0.2089**		**1,153.629 0**

3.2 Demolition - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0148	0.6015	0.1227	1.7700e-003	0.0396	1.9700e-003	0.0416	0.0109	1.8900e-003	0.0128		185.1292	185.1292	3.5300e-003		185.2175
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0892	0.0545	0.5913	1.3500e-003	0.1277	1.2700e-003	0.1290	0.0339	1.1700e-003	0.0350		134.6002	134.6002	6.5400e-003		134.7637
Total	**0.1041**	**0.6560**	**0.7140**	**3.1200e-003**	**0.1674**	**3.2400e-003**	**0.1706**	**0.0447**	**3.0600e-003**	**0.0478**		**319.7294**	**319.7294**	**0.0101**		**319.9812**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.4968	0.0000	0.4968	0.0752	0.0000	0.0752			0.0000			0.0000
Off-Road	0.6463	5.7787	7.3926	0.0120		0.2821	0.2821		0.2698	0.2698	0.0000	1,148.4055	1,148.4055	0.2089		1,153.6290
Total	**0.6463**	**5.7787**	**7.3926**	**0.0120**	**0.4968**	**0.2821**	**0.7789**	**0.0752**	**0.2698**	**0.3450**	**0.0000**	**1,148.4055**	**1,148.4055**	**0.2089**		**1,153.6290**

3.2 Demolition - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0148	0.6015	0.1227	1.7700e-003	0.0396	1.9700e-003	0.0416	0.0109	1.8900e-003	0.0128		185.1292	185.1292	3.5300e-003		185.2175
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0892	0.0545	0.5913	1.3500e-003	0.1277	1.2700e-003	0.1290	0.0339	1.1700e-003	0.0350		134.6002	134.6002	6.5400e-003		134.7637
Total	**0.1041**	**0.6560**	**0.7140**	**3.1200e-003**	**0.1674**	**3.2400e-003**	**0.1706**	**0.0447**	**3.0600e-003**	**0.0478**		**319.7294**	**319.7294**	**0.0101**		**319.9812**

3.3 Site Preparation - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.5303	0.0000	0.5303	0.0573	0.0000	0.0573			0.0000			0.0000
Off-Road	0.5348	6.1887	3.9239	9.7300e-003		0.2266	0.2266		0.2084	0.2084		942.4317	942.4317	0.3048		950.0517
Total	**0.5348**	**6.1887**	**3.9239**	**9.7300e-003**	**0.5303**	**0.2266**	**0.7568**	**0.0573**	**0.2084**	**0.2657**		**942.4317**	**942.4317**	**0.3048**		**950.0517**

3.3 Site Preparation - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0446	0.0273	0.2957	6.8000e-004	0.0639	6.3000e-004	0.0645	0.0169	5.8000e-004	0.0175		67.3001	67.3001	3.2700e-003		67.3819
Total	**0.0446**	**0.0273**	**0.2957**	**6.8000e-004**	**0.0639**	**6.3000e-004**	**0.0645**	**0.0169**	**5.8000e-004**	**0.0175**		**67.3001**	**67.3001**	**3.2700e-003**		**67.3819**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.5303	0.0000	0.5303	0.0573	0.0000	0.0573			0.0000			0.0000
Off-Road	0.5348	6.1887	3.9239	9.7300e-003		0.2266	0.2266		0.2084	0.2084	0.0000	942.4317	942.4317	0.3048		950.0517
Total	**0.5348**	**6.1887**	**3.9239**	**9.7300e-003**	**0.5303**	**0.2266**	**0.7568**	**0.0573**	**0.2084**	**0.2657**	**0.0000**	**942.4317**	**942.4317**	**0.3048**		**950.0517**

3.3 Site Preparation - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0446	0.0273	0.2957	6.8000e-004	0.0639	6.3000e-004	0.0645	0.0169	5.8000e-004	0.0175		67.3001	67.3001	3.2700e-003		67.3819
Total	**0.0446**	**0.0273**	**0.2957**	**6.8000e-004**	**0.0639**	**6.3000e-004**	**0.0645**	**0.0169**	**5.8000e-004**	**0.0175**		**67.3001**	**67.3001**	**3.2700e-003**		**67.3819**

3.4 Grading - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					1.0179	0.0000	1.0179	0.4424	0.0000	0.4424			0.0000			0.0000
Off-Road	0.6156	5.4776	7.3949	0.0120		0.2504	0.2504		0.2392	0.2392		1,148.6874	1,148.6874	0.2080		1,153.8870
Total	**0.6156**	**5.4776**	**7.3949**	**0.0120**	**1.0179**	**0.2504**	**1.2683**	**0.4424**	**0.2392**	**0.6816**		**1,148.6874**	**1,148.6874**	**0.2080**		**1,153.8870**

3.4 Grading - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0816	0.0482	0.5263	1.3000e-003	0.1277	1.2000e-003	0.1289	0.0339	1.1000e-003	0.0350		129.5337	129.5337	5.6400e-003		129.6748
Total	**0.0816**	**0.0482**	**0.5263**	**1.3000e-003**	**0.1277**	**1.2000e-003**	**0.1289**	**0.0339**	**1.1000e-003**	**0.0350**		**129.5337**	**129.5337**	**5.6400e-003**		**129.6748**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					1.0179	0.0000	1.0179	0.4424	0.0000	0.4424			0.0000			0.0000
Off-Road	0.6156	5.4776	7.3949	0.0120		0.2504	0.2504		0.2392	0.2392	0.0000	1,148.6874	1,148.6874	0.2080		1,153.8870
Total	**0.6156**	**5.4776**	**7.3949**	**0.0120**	**1.0179**	**0.2504**	**1.2683**	**0.4424**	**0.2392**	**0.6816**	**0.0000**	**1,148.6874**	**1,148.6874**	**0.2080**		**1,153.8870**

3.4 Grading - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0816	0.0482	0.5263	1.3000e-003	0.1277	1.2000e-003	0.1289	0.0339	1.1000e-003	0.0350		129.5337	129.5337	5.6400e-003		129.6748
Total	**0.0816**	**0.0482**	**0.5263**	**1.3000e-003**	**0.1277**	**1.2000e-003**	**0.1289**	**0.0339**	**1.1000e-003**	**0.0350**		**129.5337**	**129.5337**	**5.6400e-003**		**129.6748**

3.5 Building Construction - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.5950	5.9739	7.0675	0.0114		0.2824	0.2824		0.2598	0.2598		1,104.9834	1,104.9834	0.3574		1,113.9177
Total	**0.5950**	**5.9739**	**7.0675**	**0.0114**		**0.2824**	**0.2824**		**0.2598**	**0.2598**		**1,104.9834**	**1,104.9834**	**0.3574**		**1,113.9177**

3.5 Building Construction - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	3.7300e-003	0.1020	0.0306	2.6000e-004	6.1200e-003	2.0000e-004	6.3300e-003	1.7600e-003	1.9000e-004	1.9600e-003		26.8487	26.8487	8.1000e-004		26.8689
Worker	8.1600e-003	4.8200e-003	0.0526	1.3000e-004	0.0128	1.2000e-004	0.0129	3.3900e-003	1.1000e-004	3.5000e-003		12.9534	12.9534	5.6000e-004		12.9675
Total	**0.0119**	**0.1068**	**0.0832**	**3.9000e-004**	**0.0189**	**3.2000e-004**	**0.0192**	**5.1500e-003**	**3.0000e-004**	**5.4600e-003**		**39.8021**	**39.8021**	**1.3700e-003**		**39.8364**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.5950	5.9739	7.0675	0.0114		0.2824	0.2824		0.2598	0.2598	0.0000	1,104.9834	1,104.9834	0.3574		1,113.9177
Total	**0.5950**	**5.9739**	**7.0675**	**0.0114**		**0.2824**	**0.2824**		**0.2598**	**0.2598**	**0.0000**	**1,104.9834**	**1,104.9834**	**0.3574**		**1,113.9177**

3.5 Building Construction - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	3.7300e-003	0.1020	0.0306	2.6000e-004	6.1200e-003	2.0000e-004	6.3300e-003	1.7600e-003	1.9000e-004	1.9600e-003		26.8487	26.8487	8.1000e-004		26.8689
Worker	8.1600e-003	4.8200e-003	0.0526	1.3000e-004	0.0128	1.2000e-004	0.0129	3.3900e-003	1.1000e-004	3.5000e-003		12.9534	12.9534	5.6000e-004		12.9675
Total	**0.0119**	**0.1068**	**0.0832**	**3.9000e-004**	**0.0189**	**3.2000e-004**	**0.0192**	**5.1500e-003**	**3.0000e-004**	**5.4600e-003**		**39.8021**	**39.8021**	**1.3700e-003**		**39.8364**

3.6 Paving - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.5904	5.2297	7.0314	0.0113		0.2429	0.2429		0.2269	0.2269		1,036.2393	1,036.2393	0.3019		1,043.7858
Paving	5.2400e-003					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.5956**	**5.2297**	**7.0314**	**0.0113**		**0.2429**	**0.2429**		**0.2269**	**0.2269**		**1,036.2393**	**1,036.2393**	**0.3019**		**1,043.7858**

3.6 Paving - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1470	0.0868	0.9474	2.3400e-003	0.2299	2.1600e-003	0.2321	0.0610	1.9900e-003	0.0630		233.1607	233.1607	0.0102		233.4146
Total	**0.1470**	**0.0868**	**0.9474**	**2.3400e-003**	**0.2299**	**2.1600e-003**	**0.2321**	**0.0610**	**1.9900e-003**	**0.0630**		**233.1607**	**233.1607**	**0.0102**		**233.4146**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.5904	5.2297	7.0314	0.0113		0.2429	0.2429		0.2269	0.2269	0.0000	1,036.239 3	1,036.239 3	0.3019		1,043.785 8
Paving	5.2400e-003					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.5956**	**5.2297**	**7.0314**	**0.0113**		**0.2429**	**0.2429**		**0.2269**	**0.2269**	**0.0000**	**1,036.239 3**	**1,036.239 3**	**0.3019**		**1,043.785 8**

3.6 Paving - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1470	0.0868	0.9474	2.3400e-003	0.2299	2.1600e-003	0.2321	0.0610	1.9900e-003	0.0630		233.1607	233.1607	0.0102		233.4146
Total	**0.1470**	**0.0868**	**0.9474**	**2.3400e-003**	**0.2299**	**2.1600e-003**	**0.2321**	**0.0610**	**1.9900e-003**	**0.0630**		**233.1607**	**233.1607**	**0.0102**		**233.4146**

3.7 Architectural Coating - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	13.1055					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1808	1.2188	1.8101	2.9700e-003		0.0609	0.0609		0.0609	0.0609		281.4481	281.4481	0.0159		281.8443
Total	**13.2862**	**1.2188**	**1.8101**	**2.9700e-003**		**0.0609**	**0.0609**		**0.0609**	**0.0609**		**281.4481**	**281.4481**	**0.0159**		**281.8443**

3.7 Architectural Coating - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	13.1055					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1808	1.2188	1.8101	2.9700e-003		0.0609	0.0609		0.0609	0.0609	0.0000	281.4481	281.4481	0.0159		281.8443
Total	**13.2862**	**1.2188**	**1.8101**	**2.9700e-003**		**0.0609**	**0.0609**		**0.0609**	**0.0609**	**0.0000**	**281.4481**	**281.4481**	**0.0159**		**281.8443**

3.7 Architectural Coating - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

3.8 Trenching - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.1170	10.1642	10.1652	0.0145		0.6063	0.6063		0.5605	0.5605		1,380.559 1	1,380.559 1	0.4202		1,391.063 2
Total	**1.1170**	**10.1642**	**10.1652**	**0.0145**		**0.6063**	**0.6063**		**0.5605**	**0.5605**		**1,380.559 1**	**1,380.559 1**	**0.4202**		**1,391.063 2**

3.8 Trenching - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1225	0.0723	0.7895	1.9500e-003	0.1916	1.8000e-003	0.1934	0.0508	1.6600e-003	0.0525		194.3006	194.3006	8.4600e-003		194.5122
Total	**0.1225**	**0.0723**	**0.7895**	**1.9500e-003**	**0.1916**	**1.8000e-003**	**0.1934**	**0.0508**	**1.6600e-003**	**0.0525**		**194.3006**	**194.3006**	**8.4600e-003**		**194.5122**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.1170	10.1642	10.1652	0.0145		0.6063	0.6063		0.5605	0.5605	0.0000	1,380.559 1	1,380.559 1	0.4202		1,391.063 2
Total	**1.1170**	**10.1642**	**10.1652**	**0.0145**		**0.6063**	**0.6063**		**0.5605**	**0.5605**	**0.0000**	**1,380.559 1**	**1,380.559 1**	**0.4202**		**1,391.063 2**

3.8 Trenching - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1225	0.0723	0.7895	1.9500e-003	0.1916	1.8000e-003	0.1934	0.0508	1.6600e-003	0.0525		194.3006	194.3006	8.4600e-003		194.5122
Total	**0.1225**	**0.0723**	**0.7895**	**1.9500e-003**	**0.1916**	**1.8000e-003**	**0.1934**	**0.0508**	**1.6600e-003**	**0.0525**		**194.3006**	**194.3006**	**8.4600e-003**		**194.5122**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0279	0.0923	0.3006	8.4000e-004	0.0698	9.5000e-004	0.0707	0.0187	8.9000e-004	0.0196		84.3969	84.3969	3.8500e-003		84.4931
Unmitigated	0.0279	0.0923	0.3006	8.4000e-004	0.0698	9.5000e-004	0.0707	0.0187	8.9000e-004	0.0196		84.3969	84.3969	3.8500e-003		84.4931

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Heavy Industry	3.23	3.23	3.23	12,460	12,460
General Office Building	7.39	1.65	0.70	15,501	15,501
Other Asphalt Surfaces	0.00	0.00	0.00		
Total	10.62	4.87	3.93	27,961	27,961

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
General Heavy Industry	14.70	6.60	6.60	59.00	28.00	13.00	92	5	3
General Office Building	14.70	6.60	6.60	33.00	48.00	19.00	77	19	4
Other Asphalt Surfaces	14.70	6.60	6.60	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
General Heavy Industry	0.538320	0.035605	0.207933	0.131393	0.038345	0.007151	0.015560	0.014962	0.002135	0.001840	0.004958	0.000990	0.000808
General Office Building	0.538320	0.035605	0.207933	0.131393	0.038345	0.007151	0.015560	0.014962	0.002135	0.001840	0.004958	0.000990	0.000808
Other Asphalt Surfaces	0.538320	0.035605	0.207933	0.131393	0.038345	0.007151	0.015560	0.014962	0.002135	0.001840	0.004958	0.000990	0.000808

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	6.1000e-004	5.5400e-003	4.6600e-003	3.0000e-005		4.2000e-004	4.2000e-004		4.2000e-004	4.2000e-004		6.6522	6.6522	1.3000e-004	1.2000e-004	6.6917
NaturalGas Unmitigated	6.1000e-004	5.5400e-003	4.6600e-003	3.0000e-005		4.2000e-004	4.2000e-004		4.2000e-004	4.2000e-004		6.6522	6.6522	1.3000e-004	1.2000e-004	6.6917

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
General Heavy Industry	20.6753	2.2000e-004	2.0300e-003	1.7000e-003	1.0000e-005		1.5000e-004	1.5000e-004		1.5000e-004	1.5000e-004		2.4324	2.4324	5.0000e-005	4.0000e-005	2.4469
General Office Building	35.8679	3.9000e-004	3.5200e-003	2.9500e-003	2.0000e-005		2.7000e-004	2.7000e-004		2.7000e-004	2.7000e-004		4.2198	4.2198	8.0000e-005	8.0000e-005	4.2448
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**6.1000e-004**	**5.5500e-003**	**4.6500e-003**	**3.0000e-005**		**4.2000e-004**	**4.2000e-004**		**4.2000e-004**	**4.2000e-004**		**6.6522**	**6.6522**	**1.3000e-004**	**1.2000e-004**	**6.6917**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
General Heavy Industry	0.0206753	2.2000e-004	2.0300e-003	1.7000e-003	1.0000e-005		1.5000e-004	1.5000e-004		1.5000e-004	1.5000e-004		2.4324	2.4324	5.0000e-005	4.0000e-005	2.4469
General Office Building	0.0358679	3.9000e-004	3.5200e-003	2.9500e-003	2.0000e-005		2.7000e-004	2.7000e-004		2.7000e-004	2.7000e-004		4.2198	4.2198	8.0000e-005	8.0000e-005	4.2448
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**6.1000e-004**	**5.5500e-003**	**4.6500e-003**	**3.0000e-005**		**4.2000e-004**	**4.2000e-004**		**4.2000e-004**	**4.2000e-004**		**6.6522**	**6.6522**	**1.3000e-004**	**1.2000e-004**	**6.6917**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0784	0.0000	3.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		6.7000e-004	6.7000e-004	0.0000		7.2000e-004
Unmitigated	0.0784	0.0000	3.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		6.7000e-004	6.7000e-004	0.0000		7.2000e-004

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0180					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0604					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	3.0000e-005	0.0000	3.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		6.7000e-004	6.7000e-004	0.0000		7.2000e-004
Total	**0.0784**	**0.0000**	**3.1000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**6.7000e-004**	**6.7000e-004**	**0.0000**		**7.2000e-004**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0180					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0604					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	3.0000e-005	0.0000	3.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		6.7000e-004	6.7000e-004	0.0000		7.2000e-004
Total	**0.0784**	**0.0000**	**3.1000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**6.7000e-004**	**6.7000e-004**	**0.0000**		**7.2000e-004**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
Emergency Generator	1	0	20	2015	0.73	Diesel

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

10.1 Stationary Sources

Unmitigated/Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Equipment Type	lb/day										lb/day					
Emergency Generator - Diesel (750 - 9999 HP)	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

11.0 Vegetation

Alturas Wastewater Treatment Plant Improvement Project

Modoc County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Heavy Industry	2.15	1000sqft	0.05	2,150.00	0
General Office Building	0.67	1000sqft	0.02	670.00	0
Other Asphalt Surfaces	0.25	1000sqft	0.01	250.00	0

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	2.5	**Precipitation Freq (Days)**	78
Climate Zone	14			**Operational Year**	2025
Utility Company	PacifiCorp				
CO2 Intensity (lb/MWhr)	1656.39	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use -

Construction Phase - Construction schedule per project engineer.

Off-road Equipment - Trenching equipment per project engineer.

Off-road Equipment -

Grading - Acres of grading per project engineer. Site will be balanced (no import/export of material).

Demolition - Building square footage proposed for demolition per project engineer.

Stationary Sources - Emergency Generators and Fire Pumps - Generator type and use per project engineer.

Off-road Equipment -

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	100.00	90.00
tblConstructionPhase	NumDays	10.00	60.00
tblConstructionPhase	NumDays	2.00	60.00
tblConstructionPhase	NumDays	1.00	30.00
tblConstructionPhase	PhaseEndDate	12/20/2023	9/20/2024
tblConstructionPhase	PhaseEndDate	12/6/2023	11/1/2024
tblConstructionPhase	PhaseEndDate	7/14/2023	9/22/2023
tblConstructionPhase	PhaseEndDate	7/19/2023	6/21/2024
tblConstructionPhase	PhaseEndDate	12/13/2023	9/6/2024
tblConstructionPhase	PhaseEndDate	7/17/2023	9/25/2023
tblConstructionPhase	PhaseStartDate	12/14/2023	9/16/2024
tblConstructionPhase	PhaseStartDate	7/20/2023	7/1/2024
tblConstructionPhase	PhaseStartDate	7/18/2023	4/1/2024
tblConstructionPhase	PhaseStartDate	12/7/2023	9/2/2024
tblConstructionPhase	PhaseStartDate	7/15/2023	8/15/2023
tblGrading	AcresOfGrading	0.00	15.00

tblOffRoadEquipment	LoadFactor	0.50	0.50
tblOffRoadEquipment	LoadFactor	0.37	0.37
tblOffRoadEquipment	OffRoadEquipmentType		Trenchers
tblOffRoadEquipment	OffRoadEquipmentType		Tractors/Loaders/Backhoes
tblOffRoadEquipment	OffRoadEquipmentType		Dumpers/Tenders
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblStationaryGeneratorsPumpsEF	CH4_EF	0.07	0.07
tblStationaryGeneratorsPumpsEF	ROG_EF	2.2480e-003	2.2477e-003
tblStationaryGeneratorsPumpsUse	HorsePowerValue	0.00	2,015.00
tblStationaryGeneratorsPumpsUse	HoursPerYear	0.00	20.00
tblStationaryGeneratorsPumpsUse	NumberOfEquipment	0.00	1.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2023	1.3564	12.7089	12.3972	0.0254	1.2582	0.5127	1.7709	0.1942	0.4820	0.6762	0.0000	2,463.7904	2,463.7904	0.5273	0.0000	2,476.9722
2024	15.1586	21.7087	26.1815	0.0416	1.3372	1.1358	2.1969	0.5271	1.0511	1.3296	0.0000	3,965.4890	3,965.4890	1.0986	0.0000	3,992.9528
Maximum	**15.1586**	**21.7087**	**26.1815**	**0.0416**	**1.3372**	**1.1358**	**2.1969**	**0.5271**	**1.0511**	**1.3296**	**0.0000**	**3,965.4890**	**3,965.4890**	**1.0986**	**0.0000**	**3,992.9528**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2023	1.3564	12.7089	12.3972	0.0254	1.2582	0.5127	1.7709	0.1942	0.4820	0.6762	0.0000	2,463.7904	2,463.7904	0.5273	0.0000	2,476.9722
2024	15.1586	21.7087	26.1815	0.0416	1.3372	1.1358	2.1969	0.5271	1.0511	1.3296	0.0000	3,965.4890	3,965.4890	1.0986	0.0000	3,992.9528
Maximum	**15.1586**	**21.7087**	**26.1815**	**0.0416**	**1.3372**	**1.1358**	**2.1969**	**0.5271**	**1.0511**	**1.3296**	**0.0000**	**3,965.4890**	**3,965.4890**	**1.0986**	**0.0000**	**3,992.9528**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.0784	0.0000	3.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		6.7000e-004	6.7000e-004	0.0000		7.2000e-004
Energy	6.1000e-004	5.5400e-003	4.6600e-003	3.0000e-005		4.2000e-004	4.2000e-004		4.2000e-004	4.2000e-004		6.6522	6.6522	1.3000e-004	1.2000e-004	6.6917
Mobile	0.0268	0.1074	0.3367	8.1000e-004	0.0698	9.5000e-004	0.0708	0.0187	8.9000e-004	0.0196		80.7682	80.7682	3.8900e-003		80.8654
Stationary	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.1059**	**0.1129**	**0.3417**	**8.4000e-004**	**0.0698**	**1.3700e-003**	**0.0712**	**0.0187**	**1.3100e-003**	**0.0200**		**87.4210**	**87.4210**	**4.0200e-003**	**1.2000e-004**	**87.5578**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.0784	0.0000	3.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		6.7000e-004	6.7000e-004	0.0000		7.2000e-004
Energy	6.1000e-004	5.5400e-003	4.6600e-003	3.0000e-005		4.2000e-004	4.2000e-004		4.2000e-004	4.2000e-004		6.6522	6.6522	1.3000e-004	1.2000e-004	6.6917
Mobile	0.0268	0.1074	0.3367	8.1000e-004	0.0698	9.5000e-004	0.0708	0.0187	8.9000e-004	0.0196		80.7682	80.7682	3.8900e-003		80.8654
Stationary	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.1059**	**0.1129**	**0.3417**	**8.4000e-004**	**0.0698**	**1.3700e-003**	**0.0712**	**0.0187**	**1.3100e-003**	**0.0200**		**87.4210**	**87.4210**	**4.0200e-003**	**1.2000e-004**	**87.5578**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	7/3/2023	9/22/2023	5	60	
2	Site Preparation	Site Preparation	8/15/2023	9/25/2023	5	30	
3	Grading	Grading	4/1/2024	6/21/2024	5	60	
4	Building Construction	Building Construction	7/1/2024	11/1/2024	5	90	
5	Paving	Paving	9/2/2024	9/6/2024	5	5	
6	Architectural Coating	Architectural Coating	9/16/2024	9/20/2024	5	5	
7	Trenching	Trenching	6/3/2024	10/4/2024	5	90	

Acres of Grading (Site Preparation Phase): 15

Acres of Grading (Grading Phase): 15

Acres of Paving: 0.01

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 4,230; Non-Residential Outdoor: 1,410; Striped Parking Area: 15 (Architectural Coating – sqft)

<u>OffRoad Equipment</u>

Alturas Wastewater Treatment Plant Improvement Project - Modoc County, Winter

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	1	6.00	78	0.48
Paving	Cement and Mortar Mixers	4	6.00	9	0.56
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Grading	Concrete/Industrial Saws	1	8.00	81	0.73
Building Construction	Cranes	1	4.00	231	0.29
Building Construction	Forklifts	2	6.00	89	0.20
Site Preparation	Graders	1	8.00	187	0.41
Paving	Pavers	1	7.00	130	0.42
Paving	Rollers	1	7.00	80	0.38
Demolition	Rubber Tired Dozers	1	1.00	247	0.40
Grading	Rubber Tired Dozers	1	1.00	247	0.40
Building Construction	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Demolition	Tractors/Loaders/Backhoes	2	6.00	97	0.37
Grading	Tractors/Loaders/Backhoes	2	6.00	97	0.37
Paving	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Trenching	Trenchers	2	8.00	78	0.50
Trenching	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Trenching	Dumpers/Tenders	2	8.00	16	0.38

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	4	10.00	0.00	136.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	2	5.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Grading	4	10.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	5	1.00	1.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Paving	7	18.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	0.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Trenching	6	15.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Demolition - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.4968	0.0000	0.4968	0.0752	0.0000	0.0752			0.0000			0.0000
Off-Road	0.6463	5.7787	7.3926	0.0120		0.2821	0.2821		0.2698	0.2698		1,148.405 5	1,148.405 5	0.2089		1,153.629 0
Total	**0.6463**	**5.7787**	**7.3926**	**0.0120**	**0.4968**	**0.2821**	**0.7789**	**0.0752**	**0.2698**	**0.3450**		**1,148.405 5**	**1,148.405 5**	**0.2089**		**1,153.629 0**

3.2 Demolition - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0156	0.6230	0.1373	1.7300e-003	0.0396	2.1100e-003	0.0417	0.0109	2.0200e-003	0.0129		181.4506	181.4506	4.0100e-003		181.5508
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1064	0.0790	0.6289	1.2800e-003	0.1277	1.2700e-003	0.1290	0.0339	1.1700e-003	0.0350		127.6685	127.6685	6.3500e-003		127.8272
Total	**0.1220**	**0.7020**	**0.7662**	**3.0100e-003**	**0.1674**	**3.3800e-003**	**0.1707**	**0.0447**	**3.1900e-003**	**0.0479**		**309.1190**	**309.1190**	**0.0104**		**309.3780**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.4968	0.0000	0.4968	0.0752	0.0000	0.0752			0.0000			0.0000
Off-Road	0.6463	5.7787	7.3926	0.0120		0.2821	0.2821		0.2698	0.2698	0.0000	1,148.4055	1,148.4055	0.2089		1,153.6290
Total	**0.6463**	**5.7787**	**7.3926**	**0.0120**	**0.4968**	**0.2821**	**0.7789**	**0.0752**	**0.2698**	**0.3450**	**0.0000**	**1,148.4055**	**1,148.4055**	**0.2089**		**1,153.6290**

3.2 Demolition - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0156	0.6230	0.1373	1.7300e-003	0.0396	2.1100e-003	0.0417	0.0109	2.0200e-003	0.0129		181.4506	181.4506	4.0100e-003		181.5508
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1064	0.0790	0.6289	1.2800e-003	0.1277	1.2700e-003	0.1290	0.0339	1.1700e-003	0.0350		127.6685	127.6685	6.3500e-003		127.8272
Total	**0.1220**	**0.7020**	**0.7662**	**3.0100e-003**	**0.1674**	**3.3800e-003**	**0.1707**	**0.0447**	**3.1900e-003**	**0.0479**		**309.1190**	**309.1190**	**0.0104**		**309.3780**

3.3 Site Preparation - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.5303	0.0000	0.5303	0.0573	0.0000	0.0573			0.0000			0.0000
Off-Road	0.5348	6.1887	3.9239	9.7300e-003		0.2266	0.2266		0.2084	0.2084		942.4317	942.4317	0.3048		950.0517
Total	**0.5348**	**6.1887**	**3.9239**	**9.7300e-003**	**0.5303**	**0.2266**	**0.7568**	**0.0573**	**0.2084**	**0.2657**		**942.4317**	**942.4317**	**0.3048**		**950.0517**

3.3 Site Preparation - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0532	0.0395	0.3144	6.4000e-004	0.0639	6.3000e-004	0.0645	0.0169	5.8000e-004	0.0175		63.8342	63.8342	3.1700e-003		63.9136
Total	**0.0532**	**0.0395**	**0.3144**	**6.4000e-004**	**0.0639**	**6.3000e-004**	**0.0645**	**0.0169**	**5.8000e-004**	**0.0175**		**63.8342**	**63.8342**	**3.1700e-003**		**63.9136**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.5303	0.0000	0.5303	0.0573	0.0000	0.0573			0.0000			0.0000
Off-Road	0.5348	6.1887	3.9239	9.7300e-003		0.2266	0.2266		0.2084	0.2084	0.0000	942.4317	942.4317	0.3048		950.0517
Total	**0.5348**	**6.1887**	**3.9239**	**9.7300e-003**	**0.5303**	**0.2266**	**0.7568**	**0.0573**	**0.2084**	**0.2657**	**0.0000**	**942.4317**	**942.4317**	**0.3048**		**950.0517**

3.3 Site Preparation - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0532	0.0395	0.3144	6.4000e-004	0.0639	6.3000e-004	0.0645	0.0169	5.8000e-004	0.0175		63.8342	63.8342	3.1700e-003		63.9136
Total	**0.0532**	**0.0395**	**0.3144**	**6.4000e-004**	**0.0639**	**6.3000e-004**	**0.0645**	**0.0169**	**5.8000e-004**	**0.0175**		**63.8342**	**63.8342**	**3.1700e-003**		**63.9136**

3.4 Grading - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					1.0179	0.0000	1.0179	0.4424	0.0000	0.4424			0.0000			0.0000
Off-Road	0.6156	5.4776	7.3949	0.0120		0.2504	0.2504		0.2392	0.2392		1,148.6874	1,148.6874	0.2080		1,153.8870
Total	**0.6156**	**5.4776**	**7.3949**	**0.0120**	**1.0179**	**0.2504**	**1.2683**	**0.4424**	**0.2392**	**0.6816**		**1,148.6874**	**1,148.6874**	**0.2080**		**1,153.8870**

3.4 Grading - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0976	0.0698	0.5525	1.2400e-003	0.1277	1.2000e-003	0.1289	0.0339	1.1000e-003	0.0350		122.8562	122.8562	5.3600e-003		122.9902
Total	**0.0976**	**0.0698**	**0.5525**	**1.2400e-003**	**0.1277**	**1.2000e-003**	**0.1289**	**0.0339**	**1.1000e-003**	**0.0350**		**122.8562**	**122.8562**	**5.3600e-003**		**122.9902**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					1.0179	0.0000	1.0179	0.4424	0.0000	0.4424			0.0000			0.0000
Off-Road	0.6156	5.4776	7.3949	0.0120		0.2504	0.2504		0.2392	0.2392	0.0000	1,148.6874	1,148.6874	0.2080		1,153.8870
Total	**0.6156**	**5.4776**	**7.3949**	**0.0120**	**1.0179**	**0.2504**	**1.2683**	**0.4424**	**0.2392**	**0.6816**	**0.0000**	**1,148.6874**	**1,148.6874**	**0.2080**		**1,153.8870**

3.4 Grading - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0976	0.0698	0.5525	1.2400e-003	0.1277	1.2000e-003	0.1289	0.0339	1.1000e-003	0.0350		122.8562	122.8562	5.3600e-003		122.9902
Total	**0.0976**	**0.0698**	**0.5525**	**1.2400e-003**	**0.1277**	**1.2000e-003**	**0.1289**	**0.0339**	**1.1000e-003**	**0.0350**		**122.8562**	**122.8562**	**5.3600e-003**		**122.9902**

3.5 Building Construction - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.5950	5.9739	7.0675	0.0114		0.2824	0.2824		0.2598	0.2598		1,104.9834	1,104.9834	0.3574		1,113.9177
Total	**0.5950**	**5.9739**	**7.0675**	**0.0114**		**0.2824**	**0.2824**		**0.2598**	**0.2598**		**1,104.9834**	**1,104.9834**	**0.3574**		**1,113.9177**

3.5 Building Construction - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	4.1800e-003	0.1036	0.0391	2.5000e-004	6.1200e-003	2.3000e-004	6.3500e-003	1.7600e-003	2.2000e-004	1.9800e-003		25.9964	25.9964	9.3000e-004		26.0195
Worker	9.7600e-003	6.9800e-003	0.0553	1.2000e-004	0.0128	1.2000e-004	0.0129	3.3900e-003	1.1000e-004	3.5000e-003		12.2856	12.2856	5.4000e-004		12.2990
Total	**0.0139**	**0.1106**	**0.0943**	**3.7000e-004**	**0.0189**	**3.5000e-004**	**0.0192**	**5.1500e-003**	**3.3000e-004**	**5.4800e-003**		**38.2820**	**38.2820**	**1.4700e-003**		**38.3186**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.5950	5.9739	7.0675	0.0114		0.2824	0.2824		0.2598	0.2598	0.0000	1,104.9834	1,104.9834	0.3574		1,113.9177
Total	**0.5950**	**5.9739**	**7.0675**	**0.0114**		**0.2824**	**0.2824**		**0.2598**	**0.2598**	**0.0000**	**1,104.9834**	**1,104.9834**	**0.3574**		**1,113.9177**

3.5 Building Construction - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	4.1800e-003	0.1036	0.0391	2.5000e-004	6.1200e-003	2.3000e-004	6.3500e-003	1.7600e-003	2.2000e-004	1.9800e-003		25.9964	25.9964	9.3000e-004		26.0195
Worker	9.7600e-003	6.9800e-003	0.0553	1.2000e-004	0.0128	1.2000e-004	0.0129	3.3900e-003	1.1000e-004	3.5000e-003		12.2856	12.2856	5.4000e-004		12.2990
Total	**0.0139**	**0.1106**	**0.0943**	**3.7000e-004**	**0.0189**	**3.5000e-004**	**0.0192**	**5.1500e-003**	**3.3000e-004**	**5.4800e-003**		**38.2820**	**38.2820**	**1.4700e-003**		**38.3186**

3.6 Paving - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.5904	5.2297	7.0314	0.0113		0.2429	0.2429		0.2269	0.2269		1,036.2393	1,036.2393	0.3019		1,043.7858
Paving	5.2400e-003					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.5956**	**5.2297**	**7.0314**	**0.0113**		**0.2429**	**0.2429**		**0.2269**	**0.2269**		**1,036.2393**	**1,036.2393**	**0.3019**		**1,043.7858**

3.6 Paving - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1757	0.1256	0.9944	2.2200e-003	0.2299	2.1600e-003	0.2321	0.0610	1.9900e-003	0.0630		221.1411	221.1411	9.6500e-003		221.3823
Total	**0.1757**	**0.1256**	**0.9944**	**2.2200e-003**	**0.2299**	**2.1600e-003**	**0.2321**	**0.0610**	**1.9900e-003**	**0.0630**		**221.1411**	**221.1411**	**9.6500e-003**		**221.3823**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.5904	5.2297	7.0314	0.0113		0.2429	0.2429		0.2269	0.2269	0.0000	1,036.2393	1,036.2393	0.3019		1,043.7858
Paving	5.2400e-003					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.5956**	**5.2297**	**7.0314**	**0.0113**		**0.2429**	**0.2429**		**0.2269**	**0.2269**	**0.0000**	**1,036.2393**	**1,036.2393**	**0.3019**		**1,043.7858**

3.6 Paving - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1757	0.1256	0.9944	2.2200e-003	0.2299	2.1600e-003	0.2321	0.0610	1.9900e-003	0.0630		221.1411	221.1411	9.6500e-003		221.3823
Total	**0.1757**	**0.1256**	**0.9944**	**2.2200e-003**	**0.2299**	**2.1600e-003**	**0.2321**	**0.0610**	**1.9900e-003**	**0.0630**		**221.1411**	**221.1411**	**9.6500e-003**		**221.3823**

3.7 Architectural Coating - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	13.1055					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1808	1.2188	1.8101	2.9700e-003		0.0609	0.0609		0.0609	0.0609		281.4481	281.4481	0.0159		281.8443
Total	**13.2862**	**1.2188**	**1.8101**	**2.9700e-003**		**0.0609**	**0.0609**		**0.0609**	**0.0609**		**281.4481**	**281.4481**	**0.0159**		**281.8443**

3.7 Architectural Coating - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	13.1055					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1808	1.2188	1.8101	2.9700e-003		0.0609	0.0609		0.0609	0.0609	0.0000	281.4481	281.4481	0.0159		281.8443
Total	**13.2862**	**1.2188**	**1.8101**	**2.9700e-003**		**0.0609**	**0.0609**		**0.0609**	**0.0609**	**0.0000**	**281.4481**	**281.4481**	**0.0159**		**281.8443**

3.7 Architectural Coating - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

3.8 Trenching - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.1170	10.1642	10.1652	0.0145		0.6063	0.6063		0.5605	0.5605		1,380.559 1	1,380.559 1	0.4202		1,391.063 2
Total	**1.1170**	**10.1642**	**10.1652**	**0.0145**		**0.6063**	**0.6063**		**0.5605**	**0.5605**		**1,380.559 1**	**1,380.559 1**	**0.4202**		**1,391.063 2**

3.8 Trenching - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1464	0.1047	0.8287	1.8500e-003	0.1916	1.8000e-003	0.1934	0.0508	1.6600e-003	0.0525		184.2842	184.2842	8.0400e-003		184.4853
Total	**0.1464**	**0.1047**	**0.8287**	**1.8500e-003**	**0.1916**	**1.8000e-003**	**0.1934**	**0.0508**	**1.6600e-003**	**0.0525**		**184.2842**	**184.2842**	**8.0400e-003**		**184.4853**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.1170	10.1642	10.1652	0.0145		0.6063	0.6063		0.5605	0.5605	0.0000	1,380.559 1	1,380.559 1	0.4202		1,391.063 2
Total	**1.1170**	**10.1642**	**10.1652**	**0.0145**		**0.6063**	**0.6063**		**0.5605**	**0.5605**	**0.0000**	**1,380.559 1**	**1,380.559 1**	**0.4202**		**1,391.063 2**

3.8 Trenching - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1464	0.1047	0.8287	1.8500e-003	0.1916	1.8000e-003	0.1934	0.0508	1.6600e-003	0.0525		184.2842	184.2842	8.0400e-003		184.4853
Total	**0.1464**	**0.1047**	**0.8287**	**1.8500e-003**	**0.1916**	**1.8000e-003**	**0.1934**	**0.0508**	**1.6600e-003**	**0.0525**		**184.2842**	**184.2842**	**8.0400e-003**		**184.4853**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0268	0.1074	0.3367	8.1000e-004	0.0698	9.5000e-004	0.0708	0.0187	8.9000e-004	0.0196		80.7682	80.7682	3.8900e-003		80.8654
Unmitigated	0.0268	0.1074	0.3367	8.1000e-004	0.0698	9.5000e-004	0.0708	0.0187	8.9000e-004	0.0196		80.7682	80.7682	3.8900e-003		80.8654

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Heavy Industry	3.23	3.23	3.23	12,460	12,460
General Office Building	7.39	1.65	0.70	15,501	15,501
Other Asphalt Surfaces	0.00	0.00	0.00		
Total	10.62	4.87	3.93	27,961	27,961

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
General Heavy Industry	14.70	6.60	6.60	59.00	28.00	13.00	92	5	3
General Office Building	14.70	6.60	6.60	33.00	48.00	19.00	77	19	4
Other Asphalt Surfaces	14.70	6.60	6.60	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
General Heavy Industry	0.538320	0.035605	0.207933	0.131393	0.038345	0.007151	0.015560	0.014962	0.002135	0.001840	0.004958	0.000990	0.000808
General Office Building	0.538320	0.035605	0.207933	0.131393	0.038345	0.007151	0.015560	0.014962	0.002135	0.001840	0.004958	0.000990	0.000808
Other Asphalt Surfaces	0.538320	0.035605	0.207933	0.131393	0.038345	0.007151	0.015560	0.014962	0.002135	0.001840	0.004958	0.000990	0.000808

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	6.1000e-004	5.5400e-003	4.6600e-003	3.0000e-005		4.2000e-004	4.2000e-004		4.2000e-004	4.2000e-004		6.6522	6.6522	1.3000e-004	1.2000e-004	6.6917
NaturalGas Unmitigated	6.1000e-004	5.5400e-003	4.6600e-003	3.0000e-005		4.2000e-004	4.2000e-004		4.2000e-004	4.2000e-004		6.6522	6.6522	1.3000e-004	1.2000e-004	6.6917

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
General Heavy Industry	20.6753	2.2000e-004	2.0300e-003	1.7000e-003	1.0000e-005		1.5000e-004	1.5000e-004		1.5000e-004	1.5000e-004		2.4324	2.4324	5.0000e-005	4.0000e-005	2.4469
General Office Building	35.8679	3.9000e-004	3.5200e-003	2.9500e-003	2.0000e-005		2.7000e-004	2.7000e-004		2.7000e-004	2.7000e-004		4.2198	4.2198	8.0000e-005	8.0000e-005	4.2448
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**6.1000e-004**	**5.5500e-003**	**4.6500e-003**	**3.0000e-005**		**4.2000e-004**	**4.2000e-004**		**4.2000e-004**	**4.2000e-004**		**6.6522**	**6.6522**	**1.3000e-004**	**1.2000e-004**	**6.6917**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
General Heavy Industry	0.0206753	2.2000e-004	2.0300e-003	1.7000e-003	1.0000e-005		1.5000e-004	1.5000e-004		1.5000e-004	1.5000e-004		2.4324	2.4324	5.0000e-005	4.0000e-005	2.4469
General Office Building	0.0358679	3.9000e-004	3.5200e-003	2.9500e-003	2.0000e-005		2.7000e-004	2.7000e-004		2.7000e-004	2.7000e-004		4.2198	4.2198	8.0000e-005	8.0000e-005	4.2448
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**6.1000e-004**	**5.5500e-003**	**4.6500e-003**	**3.0000e-005**		**4.2000e-004**	**4.2000e-004**		**4.2000e-004**	**4.2000e-004**		**6.6522**	**6.6522**	**1.3000e-004**	**1.2000e-004**	**6.6917**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0784	0.0000	3.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		6.7000e-004	6.7000e-004	0.0000		7.2000e-004
Unmitigated	0.0784	0.0000	3.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		6.7000e-004	6.7000e-004	0.0000		7.2000e-004

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0180					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0604					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	3.0000e-005	0.0000	3.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		6.7000e-004	6.7000e-004	0.0000		7.2000e-004
Total	**0.0784**	**0.0000**	**3.1000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**6.7000e-004**	**6.7000e-004**	**0.0000**		**7.2000e-004**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0180					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0604					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	3.0000e-005	0.0000	3.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		6.7000e-004	6.7000e-004	0.0000		7.2000e-004
Total	**0.0784**	**0.0000**	**3.1000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**6.7000e-004**	**6.7000e-004**	**0.0000**		**7.2000e-004**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
Emergency Generator	1	0	20	2015	0.73	Diesel

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

10.1 Stationary Sources

Unmitigated/Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Equipment Type	lb/day										lb/day					
Emergency Generator - Diesel (750 - 9999 HP)	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

11.0 Vegetation

Alturas Wastewater Treatment Plant Improvement Project

Modoc County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Heavy Industry	2.15	1000sqft	0.05	2,150.00	0
General Office Building	0.67	1000sqft	0.02	670.00	0
Other Asphalt Surfaces	0.25	1000sqft	0.01	250.00	0

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	2.5	**Precipitation Freq (Days)**	78
Climate Zone	14			**Operational Year**	2025
Utility Company	PacifiCorp				
CO2 Intensity (lb/MWhr)	1656.39	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Alturas Wastewater Treatment Plant Improvement Project - Modoc County, Summer

Project Characteristics -

Land Use -

Construction Phase - Construction schedule per project engineer.

Off-road Equipment - Trenching equipment per project engineer.

Off-road Equipment -

Grading - Acres of grading per project engineer. Site will be balanced (no import/export of material).

Demolition - Building square footage proposed for demolition per project engineer.

Stationary Sources - Emergency Generators and Fire Pumps - Generator type and use per project engineer.

Off-road Equipment -

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	100.00	90.00
tblConstructionPhase	NumDays	10.00	60.00
tblConstructionPhase	NumDays	2.00	60.00
tblConstructionPhase	NumDays	1.00	30.00
tblConstructionPhase	PhaseEndDate	12/20/2023	9/20/2024
tblConstructionPhase	PhaseEndDate	12/6/2023	11/1/2024
tblConstructionPhase	PhaseEndDate	7/14/2023	9/22/2023
tblConstructionPhase	PhaseEndDate	7/19/2023	6/21/2024
tblConstructionPhase	PhaseEndDate	12/13/2023	9/6/2024
tblConstructionPhase	PhaseEndDate	7/17/2023	9/25/2023
tblConstructionPhase	PhaseStartDate	12/14/2023	9/16/2024
tblConstructionPhase	PhaseStartDate	7/20/2023	7/1/2024
tblConstructionPhase	PhaseStartDate	7/18/2023	4/1/2024
tblConstructionPhase	PhaseStartDate	12/7/2023	9/2/2024
tblConstructionPhase	PhaseStartDate	7/15/2023	8/15/2023
tblGrading	AcresOfGrading	0.00	15.00

tblOffRoadEquipment	LoadFactor	0.50	0.50
tblOffRoadEquipment	LoadFactor	0.37	0.37
tblOffRoadEquipment	OffRoadEquipmentType		Trenchers
tblOffRoadEquipment	OffRoadEquipmentType		Tractors/Loaders/Backhoes
tblOffRoadEquipment	OffRoadEquipmentType		Dumpers/Tenders
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblStationaryGeneratorsPumpsEF	CH4_EF	0.07	0.07
tblStationaryGeneratorsPumpsEF	ROG_EF	2.2480e-003	2.2477e-003
tblStationaryGeneratorsPumpsUse	HorsePowerValue	0.00	2,015.00
tblStationaryGeneratorsPumpsUse	HoursPerYear	0.00	20.00
tblStationaryGeneratorsPumpsUse	NumberOfEquipment	0.00	1.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2023	1.3298	12.6507	12.3263	0.0255	1.2582	0.5126	1.7708	0.1942	0.4819	0.6760	0.0000	2,477.8667	2,477.8667	0.5271	0.0000	2,491.0437
2024	15.1326	21.6337	26.0842	0.0419	1.3372	1.1358	2.1969	0.5271	1.0511	1.3296	0.0000	3,989.0450	3,989.0450	1.0994	0.0000	4,016.5299
Maximum	**15.1326**	**21.6337**	**26.0842**	**0.0419**	**1.3372**	**1.1358**	**2.1969**	**0.5271**	**1.0511**	**1.3296**	**0.0000**	**3,989.0450**	**3,989.0450**	**1.0994**	**0.0000**	**4,016.5299**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2023	1.3298	12.6507	12.3263	0.0255	1.2582	0.5126	1.7708	0.1942	0.4819	0.6760	0.0000	2,477.8667	2,477.8667	0.5271	0.0000	2,491.0437
2024	15.1326	21.6337	26.0842	0.0419	1.3372	1.1358	2.1969	0.5271	1.0511	1.3296	0.0000	3,989.0450	3,989.0450	1.0994	0.0000	4,016.5299
Maximum	**15.1326**	**21.6337**	**26.0842**	**0.0419**	**1.3372**	**1.1358**	**2.1969**	**0.5271**	**1.0511**	**1.3296**	**0.0000**	**3,989.0450**	**3,989.0450**	**1.0994**	**0.0000**	**4,016.5299**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.0784	0.0000	3.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		6.7000e-004	6.7000e-004	0.0000		7.2000e-004
Energy	6.1000e-004	5.5400e-003	4.6600e-003	3.0000e-005		4.2000e-004	4.2000e-004		4.2000e-004	4.2000e-004		6.6522	6.6522	1.3000e-004	1.2000e-004	6.6917
Mobile	0.0279	0.0923	0.3006	8.4000e-004	0.0698	9.5000e-004	0.0707	0.0187	8.9000e-004	0.0196		84.3969	84.3969	3.8500e-003		84.4931
Stationary	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.1069**	**0.0978**	**0.3056**	**8.7000e-004**	**0.0698**	**1.3700e-003**	**0.0712**	**0.0187**	**1.3100e-003**	**0.0200**		**91.0497**	**91.0497**	**3.9800e-003**	**1.2000e-004**	**91.1855**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.0784	0.0000	3.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		6.7000e-004	6.7000e-004	0.0000		7.2000e-004
Energy	6.1000e-004	5.5400e-003	4.6600e-003	3.0000e-005		4.2000e-004	4.2000e-004		4.2000e-004	4.2000e-004		6.6522	6.6522	1.3000e-004	1.2000e-004	6.6917
Mobile	0.0279	0.0923	0.3006	8.4000e-004	0.0698	9.5000e-004	0.0707	0.0187	8.9000e-004	0.0196		84.3969	84.3969	3.8500e-003		84.4931
Stationary	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.1069**	**0.0978**	**0.3056**	**8.7000e-004**	**0.0698**	**1.3700e-003**	**0.0712**	**0.0187**	**1.3100e-003**	**0.0200**		**91.0497**	**91.0497**	**3.9800e-003**	**1.2000e-004**	**91.1855**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	7/3/2023	9/22/2023	5	60	
2	Site Preparation	Site Preparation	8/15/2023	9/25/2023	5	30	
3	Grading	Grading	4/1/2024	6/21/2024	5	60	
4	Building Construction	Building Construction	7/1/2024	11/1/2024	5	90	
5	Paving	Paving	9/2/2024	9/6/2024	5	5	
6	Architectural Coating	Architectural Coating	9/16/2024	9/20/2024	5	5	
7	Trenching	Trenching	6/3/2024	10/4/2024	5	90	

Acres of Grading (Site Preparation Phase): 15

Acres of Grading (Grading Phase): 15

Acres of Paving: 0.01

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 4,230; Non-Residential Outdoor: 1,410; Striped Parking Area: 15 (Architectural Coating – sqft)

<u>OffRoad Equipment</u>

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	1	6.00	78	0.48
Paving	Cement and Mortar Mixers	4	6.00	9	0.56
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Grading	Concrete/Industrial Saws	1	8.00	81	0.73
Building Construction	Cranes	1	4.00	231	0.29
Building Construction	Forklifts	2	6.00	89	0.20
Site Preparation	Graders	1	8.00	187	0.41
Paving	Pavers	1	7.00	130	0.42
Paving	Rollers	1	7.00	80	0.38
Demolition	Rubber Tired Dozers	1	1.00	247	0.40
Grading	Rubber Tired Dozers	1	1.00	247	0.40
Building Construction	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Demolition	Tractors/Loaders/Backhoes	2	6.00	97	0.37
Grading	Tractors/Loaders/Backhoes	2	6.00	97	0.37
Paving	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Trenching	Trenchers	2	8.00	78	0.50
Trenching	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Trenching	Dumpers/Tenders	2	8.00	16	0.38

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	4	10.00	0.00	136.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	2	5.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Grading	4	10.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	5	1.00	1.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Paving	7	18.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	0.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Trenching	6	15.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Demolition - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.4968	0.0000	0.4968	0.0752	0.0000	0.0752			0.0000			0.0000
Off-Road	0.6463	5.7787	7.3926	0.0120		0.2821	0.2821		0.2698	0.2698		1,148.4055	1,148.4055	0.2089		1,153.6290
Total	**0.6463**	**5.7787**	**7.3926**	**0.0120**	**0.4968**	**0.2821**	**0.7789**	**0.0752**	**0.2698**	**0.3450**		**1,148.4055**	**1,148.4055**	**0.2089**		**1,153.6290**

3.2 Demolition - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0148	0.6015	0.1227	1.7700e-003	0.0396	1.9700e-003	0.0416	0.0109	1.8900e-003	0.0128		185.1292	185.1292	3.5300e-003		185.2175
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0892	0.0545	0.5913	1.3500e-003	0.1277	1.2700e-003	0.1290	0.0339	1.1700e-003	0.0350		134.6002	134.6002	6.5400e-003		134.7637
Total	**0.1041**	**0.6560**	**0.7140**	**3.1200e-003**	**0.1674**	**3.2400e-003**	**0.1706**	**0.0447**	**3.0600e-003**	**0.0478**		**319.7294**	**319.7294**	**0.0101**		**319.9812**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.4968	0.0000	0.4968	0.0752	0.0000	0.0752			0.0000			0.0000
Off-Road	0.6463	5.7787	7.3926	0.0120		0.2821	0.2821		0.2698	0.2698	0.0000	1,148.4055	1,148.4055	0.2089		1,153.6290
Total	**0.6463**	**5.7787**	**7.3926**	**0.0120**	**0.4968**	**0.2821**	**0.7789**	**0.0752**	**0.2698**	**0.3450**	**0.0000**	**1,148.4055**	**1,148.4055**	**0.2089**		**1,153.6290**

3.2 Demolition - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0148	0.6015	0.1227	1.7700e-003	0.0396	1.9700e-003	0.0416	0.0109	1.8900e-003	0.0128		185.1292	185.1292	3.5300e-003		185.2175
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0892	0.0545	0.5913	1.3500e-003	0.1277	1.2700e-003	0.1290	0.0339	1.1700e-003	0.0350		134.6002	134.6002	6.5400e-003		134.7637
Total	**0.1041**	**0.6560**	**0.7140**	**3.1200e-003**	**0.1674**	**3.2400e-003**	**0.1706**	**0.0447**	**3.0600e-003**	**0.0478**		**319.7294**	**319.7294**	**0.0101**		**319.9812**

3.3 Site Preparation - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.5303	0.0000	0.5303	0.0573	0.0000	0.0573			0.0000			0.0000
Off-Road	0.5348	6.1887	3.9239	9.7300e-003		0.2266	0.2266		0.2084	0.2084		942.4317	942.4317	0.3048		950.0517
Total	**0.5348**	**6.1887**	**3.9239**	**9.7300e-003**	**0.5303**	**0.2266**	**0.7568**	**0.0573**	**0.2084**	**0.2657**		**942.4317**	**942.4317**	**0.3048**		**950.0517**

3.3 Site Preparation - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0446	0.0273	0.2957	6.8000e-004	0.0639	6.3000e-004	0.0645	0.0169	5.8000e-004	0.0175		67.3001	67.3001	3.2700e-003		67.3819
Total	**0.0446**	**0.0273**	**0.2957**	**6.8000e-004**	**0.0639**	**6.3000e-004**	**0.0645**	**0.0169**	**5.8000e-004**	**0.0175**		**67.3001**	**67.3001**	**3.2700e-003**		**67.3819**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.5303	0.0000	0.5303	0.0573	0.0000	0.0573			0.0000			0.0000
Off-Road	0.5348	6.1887	3.9239	9.7300e-003		0.2266	0.2266		0.2084	0.2084	0.0000	942.4317	942.4317	0.3048		950.0517
Total	**0.5348**	**6.1887**	**3.9239**	**9.7300e-003**	**0.5303**	**0.2266**	**0.7568**	**0.0573**	**0.2084**	**0.2657**	**0.0000**	**942.4317**	**942.4317**	**0.3048**		**950.0517**

3.3 Site Preparation - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0446	0.0273	0.2957	6.8000e-004	0.0639	6.3000e-004	0.0645	0.0169	5.8000e-004	0.0175		67.3001	67.3001	3.2700e-003		67.3819
Total	**0.0446**	**0.0273**	**0.2957**	**6.8000e-004**	**0.0639**	**6.3000e-004**	**0.0645**	**0.0169**	**5.8000e-004**	**0.0175**		**67.3001**	**67.3001**	**3.2700e-003**		**67.3819**

3.4 Grading - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					1.0179	0.0000	1.0179	0.4424	0.0000	0.4424			0.0000			0.0000
Off-Road	0.6156	5.4776	7.3949	0.0120		0.2504	0.2504		0.2392	0.2392		1,148.6874	1,148.6874	0.2080		1,153.8870
Total	**0.6156**	**5.4776**	**7.3949**	**0.0120**	**1.0179**	**0.2504**	**1.2683**	**0.4424**	**0.2392**	**0.6816**		**1,148.6874**	**1,148.6874**	**0.2080**		**1,153.8870**

3.4 Grading - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category						lb/day								lb/day		
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0816	0.0482	0.5263	1.3000e-003	0.1277	1.2000e-003	0.1289	0.0339	1.1000e-003	0.0350		129.5337	129.5337	5.6400e-003		129.6748
Total	**0.0816**	**0.0482**	**0.5263**	**1.3000e-003**	**0.1277**	**1.2000e-003**	**0.1289**	**0.0339**	**1.1000e-003**	**0.0350**		**129.5337**	**129.5337**	**5.6400e-003**		**129.6748**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category						lb/day								lb/day		
Fugitive Dust					1.0179	0.0000	1.0179	0.4424	0.0000	0.4424			0.0000			0.0000
Off-Road	0.6156	5.4776	7.3949	0.0120		0.2504	0.2504		0.2392	0.2392	0.0000	1,148.6874	1,148.6874	0.2080		1,153.8870
Total	**0.6156**	**5.4776**	**7.3949**	**0.0120**	**1.0179**	**0.2504**	**1.2683**	**0.4424**	**0.2392**	**0.6816**	**0.0000**	**1,148.6874**	**1,148.6874**	**0.2080**		**1,153.8870**

3.4 Grading - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0816	0.0482	0.5263	1.3000e-003	0.1277	1.2000e-003	0.1289	0.0339	1.1000e-003	0.0350		129.5337	129.5337	5.6400e-003		129.6748
Total	**0.0816**	**0.0482**	**0.5263**	**1.3000e-003**	**0.1277**	**1.2000e-003**	**0.1289**	**0.0339**	**1.1000e-003**	**0.0350**		**129.5337**	**129.5337**	**5.6400e-003**		**129.6748**

3.5 Building Construction - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.5950	5.9739	7.0675	0.0114		0.2824	0.2824		0.2598	0.2598		1,104.9834	1,104.9834	0.3574		1,113.9177
Total	**0.5950**	**5.9739**	**7.0675**	**0.0114**		**0.2824**	**0.2824**		**0.2598**	**0.2598**		**1,104.9834**	**1,104.9834**	**0.3574**		**1,113.9177**

3.5 Building Construction - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	3.7300e-003	0.1020	0.0306	2.6000e-004	6.1200e-003	2.0000e-004	6.3300e-003	1.7600e-003	1.9000e-004	1.9600e-003		26.8487	26.8487	8.1000e-004		26.8689
Worker	8.1600e-003	4.8200e-003	0.0526	1.3000e-004	0.0128	1.2000e-004	0.0129	3.3900e-003	1.1000e-004	3.5000e-003		12.9534	12.9534	5.6000e-004		12.9675
Total	**0.0119**	**0.1068**	**0.0832**	**3.9000e-004**	**0.0189**	**3.2000e-004**	**0.0192**	**5.1500e-003**	**3.0000e-004**	**5.4600e-003**		**39.8021**	**39.8021**	**1.3700e-003**		**39.8364**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.5950	5.9739	7.0675	0.0114		0.2824	0.2824		0.2598	0.2598	0.0000	1,104.9834	1,104.9834	0.3574		1,113.9177
Total	**0.5950**	**5.9739**	**7.0675**	**0.0114**		**0.2824**	**0.2824**		**0.2598**	**0.2598**	**0.0000**	**1,104.9834**	**1,104.9834**	**0.3574**		**1,113.9177**

3.5 Building Construction - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	3.7300e-003	0.1020	0.0306	2.6000e-004	6.1200e-003	2.0000e-004	6.3300e-003	1.7600e-003	1.9000e-004	1.9600e-003		26.8487	26.8487	8.1000e-004		26.8689
Worker	8.1600e-003	4.8200e-003	0.0526	1.3000e-004	0.0128	1.2000e-004	0.0129	3.3900e-003	1.1000e-004	3.5000e-003		12.9534	12.9534	5.6000e-004		12.9675
Total	**0.0119**	**0.1068**	**0.0832**	**3.9000e-004**	**0.0189**	**3.2000e-004**	**0.0192**	**5.1500e-003**	**3.0000e-004**	**5.4600e-003**		**39.8021**	**39.8021**	**1.3700e-003**		**39.8364**

3.6 Paving - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.5904	5.2297	7.0314	0.0113		0.2429	0.2429		0.2269	0.2269		1,036.2393	1,036.2393	0.3019		1,043.7858
Paving	5.2400e-003					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.5956**	**5.2297**	**7.0314**	**0.0113**		**0.2429**	**0.2429**		**0.2269**	**0.2269**		**1,036.2393**	**1,036.2393**	**0.3019**		**1,043.7858**

3.6 Paving - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1470	0.0868	0.9474	2.3400e-003	0.2299	2.1600e-003	0.2321	0.0610	1.9900e-003	0.0630		233.1607	233.1607	0.0102		233.4146
Total	**0.1470**	**0.0868**	**0.9474**	**2.3400e-003**	**0.2299**	**2.1600e-003**	**0.2321**	**0.0610**	**1.9900e-003**	**0.0630**		**233.1607**	**233.1607**	**0.0102**		**233.4146**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.5904	5.2297	7.0314	0.0113		0.2429	0.2429		0.2269	0.2269	0.0000	1,036.2393	1,036.2393	0.3019		1,043.7858
Paving	5.2400e-003					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.5956**	**5.2297**	**7.0314**	**0.0113**		**0.2429**	**0.2429**		**0.2269**	**0.2269**	**0.0000**	**1,036.2393**	**1,036.2393**	**0.3019**		**1,043.7858**

3.6 Paving - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1470	0.0868	0.9474	2.3400e-003	0.2299	2.1600e-003	0.2321	0.0610	1.9900e-003	0.0630		233.1607	233.1607	0.0102		233.4146
Total	**0.1470**	**0.0868**	**0.9474**	**2.3400e-003**	**0.2299**	**2.1600e-003**	**0.2321**	**0.0610**	**1.9900e-003**	**0.0630**		**233.1607**	**233.1607**	**0.0102**		**233.4146**

3.7 Architectural Coating - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	13.1055					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1808	1.2188	1.8101	2.9700e-003		0.0609	0.0609		0.0609	0.0609		281.4481	281.4481	0.0159		281.8443
Total	**13.2862**	**1.2188**	**1.8101**	**2.9700e-003**		**0.0609**	**0.0609**		**0.0609**	**0.0609**		**281.4481**	**281.4481**	**0.0159**		**281.8443**

3.7 Architectural Coating - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	13.1055					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1808	1.2188	1.8101	2.9700e-003		0.0609	0.0609		0.0609	0.0609	0.0000	281.4481	281.4481	0.0159		281.8443
Total	**13.2862**	**1.2188**	**1.8101**	**2.9700e-003**		**0.0609**	**0.0609**		**0.0609**	**0.0609**	**0.0000**	**281.4481**	**281.4481**	**0.0159**		**281.8443**

3.7 Architectural Coating - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

3.8 Trenching - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.1170	10.1642	10.1652	0.0145		0.6063	0.6063		0.5605	0.5605		1,380.559 1	1,380.559 1	0.4202		1,391.063 2
Total	**1.1170**	**10.1642**	**10.1652**	**0.0145**		**0.6063**	**0.6063**		**0.5605**	**0.5605**		**1,380.559 1**	**1,380.559 1**	**0.4202**		**1,391.063 2**

3.8 Trenching - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1225	0.0723	0.7895	1.9500e-003	0.1916	1.8000e-003	0.1934	0.0508	1.6600e-003	0.0525		194.3006	194.3006	8.4600e-003		194.5122
Total	**0.1225**	**0.0723**	**0.7895**	**1.9500e-003**	**0.1916**	**1.8000e-003**	**0.1934**	**0.0508**	**1.6600e-003**	**0.0525**		**194.3006**	**194.3006**	**8.4600e-003**		**194.5122**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.1170	10.1642	10.1652	0.0145		0.6063	0.6063		0.5605	0.5605	0.0000	1,380.559 1	1,380.559 1	0.4202		1,391.063 2
Total	**1.1170**	**10.1642**	**10.1652**	**0.0145**		**0.6063**	**0.6063**		**0.5605**	**0.5605**	**0.0000**	**1,380.559 1**	**1,380.559 1**	**0.4202**		**1,391.063 2**

3.8 Trenching - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1225	0.0723	0.7895	1.9500e-003	0.1916	1.8000e-003	0.1934	0.0508	1.6600e-003	0.0525		194.3006	194.3006	8.4600e-003		194.5122
Total	**0.1225**	**0.0723**	**0.7895**	**1.9500e-003**	**0.1916**	**1.8000e-003**	**0.1934**	**0.0508**	**1.6600e-003**	**0.0525**		**194.3006**	**194.3006**	**8.4600e-003**		**194.5122**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0279	0.0923	0.3006	8.4000e-004	0.0698	9.5000e-004	0.0707	0.0187	8.9000e-004	0.0196		84.3969	84.3969	3.8500e-003		84.4931
Unmitigated	0.0279	0.0923	0.3006	8.4000e-004	0.0698	9.5000e-004	0.0707	0.0187	8.9000e-004	0.0196		84.3969	84.3969	3.8500e-003		84.4931

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Heavy Industry	3.23	3.23	3.23	12,460	12,460
General Office Building	7.39	1.65	0.70	15,501	15,501
Other Asphalt Surfaces	0.00	0.00	0.00		
Total	10.62	4.87	3.93	27,961	27,961

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
General Heavy Industry	14.70	6.60	6.60	59.00	28.00	13.00	92	5	3
General Office Building	14.70	6.60	6.60	33.00	48.00	19.00	77	19	4
Other Asphalt Surfaces	14.70	6.60	6.60	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
General Heavy Industry	0.538320	0.035605	0.207933	0.131393	0.038345	0.007151	0.015560	0.014962	0.002135	0.001840	0.004958	0.000990	0.000808
General Office Building	0.538320	0.035605	0.207933	0.131393	0.038345	0.007151	0.015560	0.014962	0.002135	0.001840	0.004958	0.000990	0.000808
Other Asphalt Surfaces	0.538320	0.035605	0.207933	0.131393	0.038345	0.007151	0.015560	0.014962	0.002135	0.001840	0.004958	0.000990	0.000808

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	6.1000e-004	5.5400e-003	4.6600e-003	3.0000e-005		4.2000e-004	4.2000e-004		4.2000e-004	4.2000e-004		6.6522	6.6522	1.3000e-004	1.2000e-004	6.6917
NaturalGas Unmitigated	6.1000e-004	5.5400e-003	4.6600e-003	3.0000e-005		4.2000e-004	4.2000e-004		4.2000e-004	4.2000e-004		6.6522	6.6522	1.3000e-004	1.2000e-004	6.6917

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
General Heavy Industry	20.6753	2.2000e-004	2.0300e-003	1.7000e-003	1.0000e-005		1.5000e-004	1.5000e-004		1.5000e-004	1.5000e-004		2.4324	2.4324	5.0000e-005	4.0000e-005	2.4469
General Office Building	35.8679	3.9000e-004	3.5200e-003	2.9500e-003	2.0000e-005		2.7000e-004	2.7000e-004		2.7000e-004	2.7000e-004		4.2198	4.2198	8.0000e-005	8.0000e-005	4.2448
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**6.1000e-004**	**5.5500e-003**	**4.6500e-003**	**3.0000e-005**		**4.2000e-004**	**4.2000e-004**		**4.2000e-004**	**4.2000e-004**		**6.6522**	**6.6522**	**1.3000e-004**	**1.2000e-004**	**6.6917**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
General Heavy Industry	0.0206753	2.2000e-004	2.0300e-003	1.7000e-003	1.0000e-005		1.5000e-004	1.5000e-004		1.5000e-004	1.5000e-004		2.4324	2.4324	5.0000e-005	4.0000e-005	2.4469
General Office Building	0.0358679	3.9000e-004	3.5200e-003	2.9500e-003	2.0000e-005		2.7000e-004	2.7000e-004		2.7000e-004	2.7000e-004		4.2198	4.2198	8.0000e-005	8.0000e-005	4.2448
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**6.1000e-004**	**5.5500e-003**	**4.6500e-003**	**3.0000e-005**		**4.2000e-004**	**4.2000e-004**		**4.2000e-004**	**4.2000e-004**		**6.6522**	**6.6522**	**1.3000e-004**	**1.2000e-004**	**6.6917**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0784	0.0000	3.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		6.7000e-004	6.7000e-004	0.0000		7.2000e-004
Unmitigated	0.0784	0.0000	3.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		6.7000e-004	6.7000e-004	0.0000		7.2000e-004

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0180					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0604					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	3.0000e-005	0.0000	3.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		6.7000e-004	6.7000e-004	0.0000		7.2000e-004
Total	**0.0784**	**0.0000**	**3.1000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**6.7000e-004**	**6.7000e-004**	**0.0000**		**7.2000e-004**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0180					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0604					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	3.0000e-005	0.0000	3.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		6.7000e-004	6.7000e-004	0.0000		7.2000e-004
Total	**0.0784**	**0.0000**	**3.1000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**6.7000e-004**	**6.7000e-004**	**0.0000**		**7.2000e-004**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
Emergency Generator	1	0	20	2015	0.73	Diesel

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

10.1 Stationary Sources

Unmitigated/Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Equipment Type	lb/day										lb/day					
Emergency Generator - Diesel (750 - 9999 HP)	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

11.0 Vegetation

Alturas Wastewater Treatment Plant Improvement Project

Modoc County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Heavy Industry	2.15	1000sqft	0.05	2,150.00	0
General Office Building	0.67	1000sqft	0.02	670.00	0
Other Asphalt Surfaces	0.25	1000sqft	0.01	250.00	0

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	2.5	**Precipitation Freq (Days)**	78
Climate Zone	14			**Operational Year**	2025
Utility Company	PacifiCorp				
CO2 Intensity (lb/MWhr)	1656.39	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use -

Construction Phase - Construction schedule per project engineer.

Off-road Equipment - Trenching equipment per project engineer.

Off-road Equipment -

Grading - Acres of grading per project engineer. Site will be balanced (no import/export of material).

Demolition - Building square footage proposed for demolition per project engineer.

Stationary Sources - Emergency Generators and Fire Pumps - Generator type and use per project engineer.

Off-road Equipment -

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	100.00	90.00
tblConstructionPhase	NumDays	10.00	60.00
tblConstructionPhase	NumDays	2.00	60.00
tblConstructionPhase	NumDays	1.00	30.00
tblConstructionPhase	PhaseEndDate	12/20/2023	9/20/2024
tblConstructionPhase	PhaseEndDate	12/6/2023	11/1/2024
tblConstructionPhase	PhaseEndDate	7/14/2023	9/22/2023
tblConstructionPhase	PhaseEndDate	7/19/2023	6/21/2024
tblConstructionPhase	PhaseEndDate	12/13/2023	9/6/2024
tblConstructionPhase	PhaseEndDate	7/17/2023	9/25/2023
tblConstructionPhase	PhaseStartDate	12/14/2023	9/16/2024
tblConstructionPhase	PhaseStartDate	7/20/2023	7/1/2024
tblConstructionPhase	PhaseStartDate	7/18/2023	4/1/2024
tblConstructionPhase	PhaseStartDate	12/7/2023	9/2/2024
tblConstructionPhase	PhaseStartDate	7/15/2023	8/15/2023
tblGrading	AcresOfGrading	0.00	15.00

tblOffRoadEquipment	LoadFactor	0.50	0.50
tblOffRoadEquipment	LoadFactor	0.37	0.37
tblOffRoadEquipment	OffRoadEquipmentType		Trenchers
tblOffRoadEquipment	OffRoadEquipmentType		Tractors/Loaders/Backhoes
tblOffRoadEquipment	OffRoadEquipmentType		Dumpers/Tenders
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblStationaryGeneratorsPumpsEF	CH4_EF	0.07	0.07
tblStationaryGeneratorsPumpsEF	ROG_EF	2.2480e-003	2.2477e-003
tblStationaryGeneratorsPumpsUse	HorsePowerValue	0.00	2,015.00
tblStationaryGeneratorsPumpsUse	HoursPerYear	0.00	20.00
tblStationaryGeneratorsPumpsUse	NumberOfEquipment	0.00	1.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2023	0.0314	0.2869	0.3069	6.1000e-004	0.0286	0.0120	0.0405	4.6500e-003	0.0113	0.0160	0.0000	53.4760	53.4760	0.0102	0.0000	53.7298
2024	0.1397	0.9175	1.0772	1.7100e-003	0.0438	0.0484	0.0922	0.0168	0.0449	0.0617	0.0000	148.8274	148.8274	0.0387	0.0000	149.7945
Maximum	**0.1397**	**0.9175**	**1.0772**	**1.7100e-003**	**0.0438**	**0.0484**	**0.0922**	**0.0168**	**0.0449**	**0.0617**	**0.0000**	**148.8274**	**148.8274**	**0.0387**	**0.0000**	**149.7945**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2023	0.0314	0.2869	0.3069	6.1000e-004	0.0286	0.0120	0.0405	4.6500e-003	0.0113	0.0160	0.0000	53.4760	53.4760	0.0102	0.0000	53.7298
2024	0.1397	0.9175	1.0772	1.7100e-003	0.0438	0.0484	0.0922	0.0168	0.0449	0.0617	0.0000	148.8272	148.8272	0.0387	0.0000	149.7943
Maximum	**0.1397**	**0.9175**	**1.0772**	**1.7100e-003**	**0.0438**	**0.0484**	**0.0922**	**0.0168**	**0.0449**	**0.0617**	**0.0000**	**148.8272**	**148.8272**	**0.0387**	**0.0000**	**149.7943**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	**7-3-2023**	**10-2-2023**	0.3124	0.3124
3	**1-3-2024**	**4-2-2024**	0.0044	0.0044
4	**4-3-2024**	**7-2-2024**	0.3055	0.3055
5	**7-3-2024**	**9-30-2024**	0.6206	0.6206
		Highest	0.6206	0.6206

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0143	0.0000	3.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	5.0000e-005	5.0000e-005	0.0000	0.0000	6.0000e-005
Energy	1.1000e-004	1.0100e-003	8.5000e-004	1.0000e-005		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005	0.0000	13.5825	13.5825	2.4000e-004	7.0000e-005	13.6080
Mobile	4.0900e-003	0.0152	0.0483	1.3000e-004	0.0103	1.5000e-004	0.0105	2.7700e-003	1.4000e-004	2.9100e-003	0.0000	11.4600	11.4600	5.4000e-004	0.0000	11.4734
Stationary	0.0331	0.1479	0.0843	1.6000e-004		4.8600e-003	4.8600e-003		4.8600e-003	4.8600e-003	0.0000	15.3461	15.3461	2.1500e-003	0.0000	15.3999
Waste						0.0000	0.0000		0.0000	0.0000	0.6678	0.0000	0.6678	0.0395	0.0000	1.6546
Water						0.0000	0.0000		0.0000	0.0000	0.1955	2.6973	2.8928	0.0201	4.8000e-004	3.5403
Total	**0.0516**	**0.1641**	**0.1335**	**3.0000e-004**	**0.0103**	**5.0900e-003**	**0.0154**	**2.7700e-003**	**5.0800e-003**	**7.8500e-003**	**0.8634**	**43.0860**	**43.9493**	**0.0625**	**5.5000e-004**	**45.6761**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0143	0.0000	3.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	5.0000e-005	5.0000e-005	0.0000	0.0000	6.0000e-005
Energy	1.1000e-004	1.0100e-003	8.5000e-004	1.0000e-005		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005	0.0000	13.5825	13.5825	2.4000e-004	7.0000e-005	13.6080
Mobile	4.0900e-003	0.0152	0.0483	1.3000e-004	0.0103	1.5000e-004	0.0105	2.7700e-003	1.4000e-004	2.9100e-003	0.0000	11.4600	11.4600	5.4000e-004	0.0000	11.4734
Stationary	0.0331	0.1479	0.0843	1.6000e-004		4.8600e-003	4.8600e-003		4.8600e-003	4.8600e-003	0.0000	15.3461	15.3461	2.1500e-003	0.0000	15.3999
Waste						0.0000	0.0000		0.0000	0.0000	0.6678	0.0000	0.6678	0.0395	0.0000	1.6546
Water						0.0000	0.0000		0.0000	0.0000	0.1955	2.6973	2.8928	0.0201	4.8000e-004	3.5403
Total	**0.0516**	**0.1641**	**0.1335**	**3.0000e-004**	**0.0103**	**5.0900e-003**	**0.0154**	**2.7700e-003**	**5.0800e-003**	**7.8500e-003**	**0.8634**	**43.0860**	**43.9493**	**0.0625**	**5.5000e-004**	**45.6761**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	7/3/2023	9/22/2023	5	60	
2	Site Preparation	Site Preparation	8/15/2023	9/25/2023	5	30	
3	Grading	Grading	4/1/2024	6/21/2024	5	60	
4	Building Construction	Building Construction	7/1/2024	11/1/2024	5	90	
5	Paving	Paving	9/2/2024	9/6/2024	5	5	
6	Architectural Coating	Architectural Coating	9/16/2024	9/20/2024	5	5	
7	Trenching	Trenching	6/3/2024	10/4/2024	5	90	

Acres of Grading (Site Preparation Phase): 15

Acres of Grading (Grading Phase): 15

Acres of Paving: 0.01

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 4,230; Non-Residential Outdoor: 1,410; Striped Parking Area: 15 (Architectural Coating – sqft)

<u>OffRoad Equipment</u>

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	1	6.00	78	0.48
Paving	Cement and Mortar Mixers	4	6.00	9	0.56
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Grading	Concrete/Industrial Saws	1	8.00	81	0.73
Building Construction	Cranes	1	4.00	231	0.29
Building Construction	Forklifts	2	6.00	89	0.20
Site Preparation	Graders	1	8.00	187	0.41
Paving	Pavers	1	7.00	130	0.42
Paving	Rollers	1	7.00	80	0.38
Demolition	Rubber Tired Dozers	1	1.00	247	0.40
Grading	Rubber Tired Dozers	1	1.00	247	0.40
Building Construction	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Demolition	Tractors/Loaders/Backhoes	2	6.00	97	0.37
Grading	Tractors/Loaders/Backhoes	2	6.00	97	0.37
Paving	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Trenching	Trenchers	2	8.00	78	0.50
Trenching	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Trenching	Dumpers/Tenders	2	8.00	16	0.38

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	4	10.00	0.00	136.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	2	5.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Grading	4	10.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	5	1.00	1.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Paving	7	18.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	0.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Trenching	6	15.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Demolition - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0149	0.0000	0.0149	2.2600e-003	0.0000	2.2600e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0194	0.1734	0.2218	3.6000e-004		8.4600e-003	8.4600e-003		8.0900e-003	8.0900e-003	0.0000	31.2545	31.2545	5.6900e-003	0.0000	31.3966
Total	**0.0194**	**0.1734**	**0.2218**	**3.6000e-004**	**0.0149**	**8.4600e-003**	**0.0234**	**2.2600e-003**	**8.0900e-003**	**0.0104**	**0.0000**	**31.2545**	**31.2545**	**5.6900e-003**	**0.0000**	**31.3966**

3.2 Demolition - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	4.5000e-004	0.0182	3.8700e-003	5.0000e-005	1.1400e-003	6.0000e-005	1.2000e-003	3.1000e-004	6.0000e-005	3.7000e-004	0.0000	4.9963	4.9963	1.0000e-004	0.0000	4.9989
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.8500e-003	1.9700e-003	0.0179	4.0000e-005	3.6500e-003	4.0000e-005	3.6900e-003	9.7000e-004	4.0000e-005	1.0100e-003	0.0000	3.5206	3.5206	1.7000e-004	0.0000	3.5250
Total	**3.3000e-003**	**0.0202**	**0.0218**	**9.0000e-005**	**4.7900e-003**	**1.0000e-004**	**4.8900e-003**	**1.2800e-003**	**1.0000e-004**	**1.3800e-003**	**0.0000**	**8.5170**	**8.5170**	**2.7000e-004**	**0.0000**	**8.5238**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0149	0.0000	0.0149	2.2600e-003	0.0000	2.2600e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0194	0.1734	0.2218	3.6000e-004		8.4600e-003	8.4600e-003		8.0900e-003	8.0900e-003	0.0000	31.2544	31.2544	5.6900e-003	0.0000	31.3966
Total	**0.0194**	**0.1734**	**0.2218**	**3.6000e-004**	**0.0149**	**8.4600e-003**	**0.0234**	**2.2600e-003**	**8.0900e-003**	**0.0104**	**0.0000**	**31.2544**	**31.2544**	**5.6900e-003**	**0.0000**	**31.3966**

3.2 Demolition - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	4.5000e-004	0.0182	3.8700e-003	5.0000e-005	1.1400e-003	6.0000e-005	1.2000e-003	3.1000e-004	6.0000e-005	3.7000e-004	0.0000	4.9963	4.9963	1.0000e-004	0.0000	4.9989
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.8500e-003	1.9700e-003	0.0179	4.0000e-005	3.6500e-003	4.0000e-005	3.6900e-003	9.7000e-004	4.0000e-005	1.0100e-003	0.0000	3.5206	3.5206	1.7000e-004	0.0000	3.5250
Total	**3.3000e-003**	**0.0202**	**0.0218**	**9.0000e-005**	**4.7900e-003**	**1.0000e-004**	**4.8900e-003**	**1.2800e-003**	**1.0000e-004**	**1.3800e-003**	**0.0000**	**8.5170**	**8.5170**	**2.7000e-004**	**0.0000**	**8.5238**

3.3 Site Preparation - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					7.9500e-003	0.0000	7.9500e-003	8.6000e-004	0.0000	8.6000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	8.0200e-003	0.0928	0.0589	1.5000e-004		3.4000e-003	3.4000e-003		3.1300e-003	3.1300e-003	0.0000	12.8244	12.8244	4.1500e-003	0.0000	12.9281
Total	**8.0200e-003**	**0.0928**	**0.0589**	**1.5000e-004**	**7.9500e-003**	**3.4000e-003**	**0.0114**	**8.6000e-004**	**3.1300e-003**	**3.9900e-003**	**0.0000**	**12.8244**	**12.8244**	**4.1500e-003**	**0.0000**	**12.9281**

3.3 Site Preparation - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	7.1000e-004	4.9000e-004	4.4800e-003	1.0000e-005	9.1000e-004	1.0000e-005	9.2000e-004	2.4000e-004	1.0000e-005	2.5000e-004	0.0000	0.8802	0.8802	4.0000e-005	0.0000	0.8812
Total	**7.1000e-004**	**4.9000e-004**	**4.4800e-003**	**1.0000e-005**	**9.1000e-004**	**1.0000e-005**	**9.2000e-004**	**2.4000e-004**	**1.0000e-005**	**2.5000e-004**	**0.0000**	**0.8802**	**0.8802**	**4.0000e-005**	**0.0000**	**0.8812**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					7.9500e-003	0.0000	7.9500e-003	8.6000e-004	0.0000	8.6000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	8.0200e-003	0.0928	0.0589	1.5000e-004		3.4000e-003	3.4000e-003		3.1300e-003	3.1300e-003	0.0000	12.8244	12.8244	4.1500e-003	0.0000	12.9281
Total	**8.0200e-003**	**0.0928**	**0.0589**	**1.5000e-004**	**7.9500e-003**	**3.4000e-003**	**0.0114**	**8.6000e-004**	**3.1300e-003**	**3.9900e-003**	**0.0000**	**12.8244**	**12.8244**	**4.1500e-003**	**0.0000**	**12.9281**

3.3 Site Preparation - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	7.1000e-004	4.9000e-004	4.4800e-003	1.0000e-005	9.1000e-004	1.0000e-005	9.2000e-004	2.4000e-004	1.0000e-005	2.5000e-004	0.0000	0.8802	0.8802	4.0000e-005	0.0000	0.8812
Total	**7.1000e-004**	**4.9000e-004**	**4.4800e-003**	**1.0000e-005**	**9.1000e-004**	**1.0000e-005**	**9.2000e-004**	**2.4000e-004**	**1.0000e-005**	**2.5000e-004**	**0.0000**	**0.8802**	**0.8802**	**4.0000e-005**	**0.0000**	**0.8812**

3.4 Grading - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0305	0.0000	0.0305	0.0133	0.0000	0.0133	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0185	0.1643	0.2219	3.6000e-004		7.5100e-003	7.5100e-003		7.1800e-003	7.1800e-003	0.0000	31.2622	31.2622	5.6600e-003	0.0000	31.4037
Total	**0.0185**	**0.1643**	**0.2219**	**3.6000e-004**	**0.0305**	**7.5100e-003**	**0.0381**	**0.0133**	**7.1800e-003**	**0.0205**	**0.0000**	**31.2622**	**31.2622**	**5.6600e-003**	**0.0000**	**31.4037**

3.4 Grading - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.6100e-003	1.7400e-003	0.0158	4.0000e-005	3.6500e-003	4.0000e-005	3.6900e-003	9.7000e-004	3.0000e-005	1.0100e-003	0.0000	3.3880	3.3880	1.5000e-004	0.0000	3.3917
Total	**2.6100e-003**	**1.7400e-003**	**0.0158**	**4.0000e-005**	**3.6500e-003**	**4.0000e-005**	**3.6900e-003**	**9.7000e-004**	**3.0000e-005**	**1.0100e-003**	**0.0000**	**3.3880**	**3.3880**	**1.5000e-004**	**0.0000**	**3.3917**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0305	0.0000	0.0305	0.0133	0.0000	0.0133	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0185	0.1643	0.2219	3.6000e-004		7.5100e-003	7.5100e-003		7.1800e-003	7.1800e-003	0.0000	31.2621	31.2621	5.6600e-003	0.0000	31.4036
Total	**0.0185**	**0.1643**	**0.2219**	**3.6000e-004**	**0.0305**	**7.5100e-003**	**0.0381**	**0.0133**	**7.1800e-003**	**0.0205**	**0.0000**	**31.2621**	**31.2621**	**5.6600e-003**	**0.0000**	**31.4036**

3.4 Grading - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.6100e-003	1.7400e-003	0.0158	4.0000e-005	3.6500e-003	4.0000e-005	3.6900e-003	9.7000e-004	3.0000e-005	1.0100e-003	0.0000	3.3880	3.3880	1.5000e-004	0.0000	3.3917
Total	**2.6100e-003**	**1.7400e-003**	**0.0158**	**4.0000e-005**	**3.6500e-003**	**4.0000e-005**	**3.6900e-003**	**9.7000e-004**	**3.0000e-005**	**1.0100e-003**	**0.0000**	**3.3880**	**3.3880**	**1.5000e-004**	**0.0000**	**3.3917**

3.5 Building Construction - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0268	0.2688	0.3180	5.1000e-004		0.0127	0.0127		0.0117	0.0117	0.0000	45.1091	45.1091	0.0146	0.0000	45.4738
Total	**0.0268**	**0.2688**	**0.3180**	**5.1000e-004**		**0.0127**	**0.0127**		**0.0117**	**0.0117**	**0.0000**	**45.1091**	**45.1091**	**0.0146**	**0.0000**	**45.4738**

3.5 Building Construction - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.8000e-004	4.6100e-003	1.5600e-003	1.0000e-005	2.7000e-004	1.0000e-005	2.7000e-004	8.0000e-005	1.0000e-005	9.0000e-005	0.0000	1.0814	1.0814	4.0000e-005	0.0000	1.0823
Worker	3.9000e-004	2.6000e-004	2.3800e-003	1.0000e-005	5.5000e-004	1.0000e-005	5.5000e-004	1.5000e-004	0.0000	1.5000e-004	0.0000	0.5082	0.5082	2.0000e-005	0.0000	0.5088
Total	**5.7000e-004**	**4.8700e-003**	**3.9400e-003**	**2.0000e-005**	**8.2000e-004**	**2.0000e-005**	**8.2000e-004**	**2.3000e-004**	**1.0000e-005**	**2.4000e-004**	**0.0000**	**1.5896**	**1.5896**	**6.0000e-005**	**0.0000**	**1.5911**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0268	0.2688	0.3180	5.1000e-004		0.0127	0.0127		0.0117	0.0117	0.0000	45.1090	45.1090	0.0146	0.0000	45.4738
Total	**0.0268**	**0.2688**	**0.3180**	**5.1000e-004**		**0.0127**	**0.0127**		**0.0117**	**0.0117**	**0.0000**	**45.1090**	**45.1090**	**0.0146**	**0.0000**	**45.4738**

3.5 Building Construction - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.8000e-004	4.6100e-003	1.5600e-003	1.0000e-005	2.7000e-004	1.0000e-005	2.7000e-004	8.0000e-005	1.0000e-005	9.0000e-005	0.0000	1.0814	1.0814	4.0000e-005	0.0000	1.0823
Worker	3.9000e-004	2.6000e-004	2.3800e-003	1.0000e-005	5.5000e-004	1.0000e-005	5.5000e-004	1.5000e-004	0.0000	1.5000e-004	0.0000	0.5082	0.5082	2.0000e-005	0.0000	0.5088
Total	**5.7000e-004**	**4.8700e-003**	**3.9400e-003**	**2.0000e-005**	**8.2000e-004**	**2.0000e-005**	**8.2000e-004**	**2.3000e-004**	**1.0000e-005**	**2.4000e-004**	**0.0000**	**1.5896**	**1.5896**	**6.0000e-005**	**0.0000**	**1.5911**

3.6 Paving - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	1.4800e-003	0.0131	0.0176	3.0000e-005		6.1000e-004	6.1000e-004		5.7000e-004	5.7000e-004	0.0000	2.3502	2.3502	6.8000e-004	0.0000	2.3673
Paving	1.0000e-005					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**1.4900e-003**	**0.0131**	**0.0176**	**3.0000e-005**		**6.1000e-004**	**6.1000e-004**		**5.7000e-004**	**5.7000e-004**	**0.0000**	**2.3502**	**2.3502**	**6.8000e-004**	**0.0000**	**2.3673**

3.6 Paving - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.9000e-004	2.6000e-004	2.3800e-003	1.0000e-005	5.5000e-004	1.0000e-005	5.5000e-004	1.5000e-004	0.0000	1.5000e-004	0.0000	0.5082	0.5082	2.0000e-005	0.0000	0.5088
Total	**3.9000e-004**	**2.6000e-004**	**2.3800e-003**	**1.0000e-005**	**5.5000e-004**	**1.0000e-005**	**5.5000e-004**	**1.5000e-004**	**0.0000**	**1.5000e-004**	**0.0000**	**0.5082**	**0.5082**	**2.0000e-005**	**0.0000**	**0.5088**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	1.4800e-003	0.0131	0.0176	3.0000e-005		6.1000e-004	6.1000e-004		5.7000e-004	5.7000e-004	0.0000	2.3502	2.3502	6.8000e-004	0.0000	2.3673
Paving	1.0000e-005					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**1.4900e-003**	**0.0131**	**0.0176**	**3.0000e-005**		**6.1000e-004**	**6.1000e-004**		**5.7000e-004**	**5.7000e-004**	**0.0000**	**2.3502**	**2.3502**	**6.8000e-004**	**0.0000**	**2.3673**

3.6 Paving - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.9000e-004	2.6000e-004	2.3800e-003	1.0000e-005	5.5000e-004	1.0000e-005	5.5000e-004	1.5000e-004	0.0000	1.5000e-004	0.0000	0.5082	0.5082	2.0000e-005	0.0000	0.5088
Total	**3.9000e-004**	**2.6000e-004**	**2.3800e-003**	**1.0000e-005**	**5.5000e-004**	**1.0000e-005**	**5.5000e-004**	**1.5000e-004**	**0.0000**	**1.5000e-004**	**0.0000**	**0.5082**	**0.5082**	**2.0000e-005**	**0.0000**	**0.5088**

3.7 Architectural Coating - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.0328					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	4.5000e-004	3.0500e-003	4.5300e-003	1.0000e-005		1.5000e-004	1.5000e-004		1.5000e-004	1.5000e-004	0.0000	0.6383	0.6383	4.0000e-005	0.0000	0.6392
Total	**0.0332**	**3.0500e-003**	**4.5300e-003**	**1.0000e-005**		**1.5000e-004**	**1.5000e-004**		**1.5000e-004**	**1.5000e-004**	**0.0000**	**0.6383**	**0.6383**	**4.0000e-005**	**0.0000**	**0.6392**

3.7 Architectural Coating - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.0328					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	4.5000e-004	3.0500e-003	4.5300e-003	1.0000e-005		1.5000e-004	1.5000e-004		1.5000e-004	1.5000e-004	0.0000	0.6383	0.6383	4.0000e-005	0.0000	0.6392
Total	**0.0332**	**3.0500e-003**	**4.5300e-003**	**1.0000e-005**		**1.5000e-004**	**1.5000e-004**		**1.5000e-004**	**1.5000e-004**	**0.0000**	**0.6383**	**0.6383**	**4.0000e-005**	**0.0000**	**0.6392**

3.7 Architectural Coating - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.8 Trenching - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0503	0.4574	0.4574	6.5000e-004		0.0273	0.0273		0.0252	0.0252	0.0000	56.3590	56.3590	0.0172	0.0000	56.7878
Total	**0.0503**	**0.4574**	**0.4574**	**6.5000e-004**		**0.0273**	**0.0273**		**0.0252**	**0.0252**	**0.0000**	**56.3590**	**56.3590**	**0.0172**	**0.0000**	**56.7878**

3.8 Trenching - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.8700e-003	3.9100e-003	0.0356	8.0000e-005	8.2200e-003	8.0000e-005	8.3000e-003	2.1900e-003	7.0000e-005	2.2600e-003	0.0000	7.6229	7.6229	3.3000e-004	0.0000	7.6312
Total	**5.8700e-003**	**3.9100e-003**	**0.0356**	**8.0000e-005**	**8.2200e-003**	**8.0000e-005**	**8.3000e-003**	**2.1900e-003**	**7.0000e-005**	**2.2600e-003**	**0.0000**	**7.6229**	**7.6229**	**3.3000e-004**	**0.0000**	**7.6312**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0503	0.4574	0.4574	6.5000e-004		0.0273	0.0273		0.0252	0.0252	0.0000	56.3589	56.3589	0.0172	0.0000	56.7877
Total	**0.0503**	**0.4574**	**0.4574**	**6.5000e-004**		**0.0273**	**0.0273**		**0.0252**	**0.0252**	**0.0000**	**56.3589**	**56.3589**	**0.0172**	**0.0000**	**56.7877**

3.8 Trenching - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.8700e-003	3.9100e-003	0.0356	8.0000e-005	8.2200e-003	8.0000e-005	8.3000e-003	2.1900e-003	7.0000e-005	2.2600e-003	0.0000	7.6229	7.6229	3.3000e-004	0.0000	7.6312
Total	**5.8700e-003**	**3.9100e-003**	**0.0356**	**8.0000e-005**	**8.2200e-003**	**8.0000e-005**	**8.3000e-003**	**2.1900e-003**	**7.0000e-005**	**2.2600e-003**	**0.0000**	**7.6229**	**7.6229**	**3.3000e-004**	**0.0000**	**7.6312**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	tons/yr										MT/yr					
Mitigated	4.0900e-003	0.0152	0.0483	1.3000e-004	0.0103	1.5000e-004	0.0105	2.7700e-003	1.4000e-004	2.9100e-003	0.0000	11.4600	11.4600	5.4000e-004	0.0000	11.4734
Unmitigated	4.0900e-003	0.0152	0.0483	1.3000e-004	0.0103	1.5000e-004	0.0105	2.7700e-003	1.4000e-004	2.9100e-003	0.0000	11.4600	11.4600	5.4000e-004	0.0000	11.4734

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Heavy Industry	3.23	3.23	3.23	12,460	12,460
General Office Building	7.39	1.65	0.70	15,501	15,501
Other Asphalt Surfaces	0.00	0.00	0.00		
Total	10.62	4.87	3.93	27,961	27,961

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
General Heavy Industry	14.70	6.60	6.60	59.00	28.00	13.00	92	5	3
General Office Building	14.70	6.60	6.60	33.00	48.00	19.00	77	19	4
Other Asphalt Surfaces	14.70	6.60	6.60	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
General Heavy Industry	0.538320	0.035605	0.207933	0.131393	0.038345	0.007151	0.015560	0.014962	0.002135	0.001840	0.004958	0.000990	0.000808
General Office Building	0.538320	0.035605	0.207933	0.131393	0.038345	0.007151	0.015560	0.014962	0.002135	0.001840	0.004958	0.000990	0.000808
Other Asphalt Surfaces	0.538320	0.035605	0.207933	0.131393	0.038345	0.007151	0.015560	0.014962	0.002135	0.001840	0.004958	0.000990	0.000808

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	12.4812	12.4812	2.2000e-004	5.0000e-005	12.5001
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	12.4812	12.4812	2.2000e-004	5.0000e-005	12.5001
NaturalGas Mitigated	1.1000e-004	1.0100e-003	8.5000e-004	1.0000e-005		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005	0.0000	1.1013	1.1013	2.0000e-005	2.0000e-005	1.1079
NaturalGas Unmitigated	1.1000e-004	1.0100e-003	8.5000e-004	1.0000e-005		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005	0.0000	1.1013	1.1013	2.0000e-005	2.0000e-005	1.1079

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
General Heavy Industry	7546.5	4.0000e-005	3.7000e-004	3.1000e-004	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005	0.0000	0.4027	0.4027	1.0000e-005	1.0000e-005	0.4051
General Office Building	13091.8	7.0000e-005	6.4000e-004	5.4000e-004	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005	0.0000	0.6986	0.6986	1.0000e-005	1.0000e-005	0.7028
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**1.1000e-004**	**1.0100e-003**	**8.5000e-004**	**0.0000**		**8.0000e-005**	**8.0000e-005**		**8.0000e-005**	**8.0000e-005**	**0.0000**	**1.1013**	**1.1013**	**2.0000e-005**	**2.0000e-005**	**1.1079**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
General Heavy Industry	7546.5	4.0000e-005	3.7000e-004	3.1000e-004	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005	0.0000	0.4027	0.4027	1.0000e-005	1.0000e-005	0.4051
General Office Building	13091.8	7.0000e-005	6.4000e-004	5.4000e-004	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005	0.0000	0.6986	0.6986	1.0000e-005	1.0000e-005	0.7028
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**1.1000e-004**	**1.0100e-003**	**8.5000e-004**	**0.0000**		**8.0000e-005**	**8.0000e-005**		**8.0000e-005**	**8.0000e-005**	**0.0000**	**1.1013**	**1.1013**	**2.0000e-005**	**2.0000e-005**	**1.1079**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Heavy Industry	9202	6.9137	1.2000e-004	3.0000e-005	6.9242
General Office Building	7410.2	5.5675	1.0000e-004	2.0000e-005	5.5759
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**12.4812**	**2.2000e-004**	**5.0000e-005**	**12.5001**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Heavy Industry	9202	6.9137	1.2000e-004	3.0000e-005	6.9242
General Office Building	7410.2	5.5675	1.0000e-004	2.0000e-005	5.5759
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**12.4812**	**2.2000e-004**	**5.0000e-005**	**12.5001**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0143	0.0000	3.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	5.0000e-005	5.0000e-005	0.0000	0.0000	6.0000e-005
Unmitigated	0.0143	0.0000	3.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	5.0000e-005	5.0000e-005	0.0000	0.0000	6.0000e-005

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	3.2800e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0110					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	3.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	5.0000e-005	5.0000e-005	0.0000	0.0000	6.0000e-005
Total	**0.0143**	**0.0000**	**3.0000e-005**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**5.0000e-005**	**5.0000e-005**	**0.0000**	**0.0000**	**6.0000e-005**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	3.2800e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0110					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	3.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	5.0000e-005	5.0000e-005	0.0000	0.0000	6.0000e-005
Total	**0.0143**	**0.0000**	**3.0000e-005**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**5.0000e-005**	**5.0000e-005**	**0.0000**	**0.0000**	**6.0000e-005**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	2.8928	0.0201	4.8000e-004	3.5403
Unmitigated	2.8928	0.0201	4.8000e-004	3.5403

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Heavy Industry	0.497188 / 0	2.1790	0.0162	3.9000e-004	2.7011
General Office Building	0.119082 / 0.0729855	0.7138	3.8900e-003	9.0000e-005	0.8392
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**2.8928**	**0.0201**	**4.8000e-004**	**3.5403**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Heavy Industry	0.497188 / 0	2.1790	0.0162	3.9000e-004	2.7011
General Office Building	0.119082 / 0.0729855	0.7138	3.8900e-003	9.0000e-005	0.8392
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**2.8928**	**0.0201**	**4.8000e-004**	**3.5403**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	0.6678	0.0395	0.0000	1.6546
Unmitigated	0.6678	0.0395	0.0000	1.6546

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Heavy Industry	2.67	0.5420	0.0320	0.0000	1.3428
General Office Building	0.62	0.1259	7.4400e-003	0.0000	0.3118
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**0.6678**	**0.0395**	**0.0000**	**1.6546**

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Heavy Industry	2.67	0.5420	0.0320	0.0000	1.3428
General Office Building	0.62	0.1259	7.4400e-003	0.0000	0.3118
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**0.6678**	**0.0395**	**0.0000**	**1.6546**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
Emergency Generator	1	0	20	2015	0.73	Diesel

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

10.1 Stationary Sources

Unmitigated/Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Equipment Type	tons/yr										MT/yr					
Emergency Generator - Diesel (750 - 9999 HP)	0.0331	0.1479	0.0843	1.6000e-004		4.8600e-003	4.8600e-003		4.8600e-003	4.8600e-003	0.0000	15.3461	15.3461	2.1500e-003	0.0000	15.3999
Total	**0.0331**	**0.1479**	**0.0843**	**1.6000e-004**		**4.8600e-003**	**4.8600e-003**		**4.8600e-003**	**4.8600e-003**	**0.0000**	**15.3461**	**15.3461**	**2.1500e-003**	**0.0000**	**15.3999**

11.0 Vegetation

Initial Study
Proposed Mitigated Negative Declaration