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Initial Study and Mitigated Negative Declaration

Secondary Process Improvements Project

Prepared by:

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Acronyms

Acronym	Definition
ADPMF	Average Day Peak Month Flow
ADWF	average dry weather flow
AMP	archaeological monitoring plan
AMRR	Archaeological Monitoring Results Report
APE	Area of Potential Effects
BACT	Best Available Control Technologies
BART	Bay Area Rapid Transit
BMPs	Best management practices
BNSF	Burlington Northern and Santa Fe railroad
BAAQMD	Bay Area Air Quality Management District
CAAQS	California Ambient Air Quality Standards
CARE	Community Air Risk Evaluation
CCTA	Contra Costa Transportation Authority
CCWD	Contra Costa Water District
CNEL	Community Noise Equivalent Level
CRHR	California Register of Historic Resources
DAC	Disadvantaged Community
DOC	California Department of Conservation
DWR	California Department of Water Resources
CAL Fire	California Department of Forestry
CAA	Federal Clean Air Act
CBRA	Coastal Barriers Resources Act
CCWD	Contra Costa Water District
CEQA	California Environmental Quality Act
CEJST	Council on Environmental Quality developed the Climate and Economic Justice Screening Tool
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CTP	Countywide Transportation Plan
CZMA	Coastal Zone Management Act

Acronym	Definition
dBA	A-weighted decibel
District	Delta Diablo
DTSC	California Department of Toxic Substances Control
EIR	Environmental Impact Report
EOP	Emergency Operations Plan
EPA	US Environmental Protection Agency
FEMA	Federal Emergency Management Agency
FHSZ	Fire Hazard Severity Zone
FMMP	Farmland Mapping and Monitoring Program
FRAP	ire and Resource Assessment Program
FTA	Federal Transit Authority
hp	horsepower
HVAC	heating, ventilation, and air conditioning
IS	Initial Study
IS/MND	Initial Study/Mitigated Negative Declaration
kWh	kilowatt-hour
LRA	local responsibility areas
MCE	Marin Clean Energy
MGD	million gallons per day
MHI	Median household income
MLD	Most Likely Descendent
MMRP	Mitigation Monitoring and Reporting Program
MND	Mitigated Negative Declaration
MS4	municipal separate storm sewer system
MW	megawatt
NAAQS	National Ambient Air Quality Standards
NAHC	Native American Heritage Commission
ND	Negative Declaration
NEPA	National Environmental Policy Act
NFPA	National Fire Protection Association
NMFS	National Marine Fisheries Service

Acronym	Definition
NPDES	National Pollutant Discharge Elimination System
NRHP	National Register of Historic Places
OSHA	Occupational Safety and Health Administration
PEA	Programmatic Environmental Assessment
PG&E	Pacific Gas & Electric Company
PRMP	Paleontological Resources Management Plan
PRS	Paleontological Resources Specialist
PRC	Public Resources Code
RAS	return activated sludge
RCRA	Resource Conservation and Recovery Act
RWQCB	Regional Water Quality Control Board
SARA	Superfund Amendments and Reauthorization Act
SCH	State Clearinghouse
SFBAAB	San Francisco Bay Area Air Basin
SLF	Sacred Lands File
SRA	State responsibility areas
SVP	Society of Vertebrate Paleontology
SWPPP	Stormwater Pollution Prevention Plan
SWRCB	State Water Resources Control Board
TACs	Toxic air contaminants
TCRs	Tribal Cultural Resources
USFWS	U.S. Fish and Wildlife Service
VHFHSZ	very high fire hazard severity zones
VMT	Vehicle Miles Travelled
WIFIA	Water Infrastructure Finance and Innovation Act
WWTP	Wastewater Treatment Plant

1. INTRODUCTION

1.1 Purpose of this Document

Delta Diablo (District) has prepared this Initial Study (IS) to evaluate the potential environmental impacts related to implementation of the Secondary Process Improvements Project (the "proposed project", "project"), which consists of a new secondary clarifier, new aeration basins, new 42-inch air header, new return activated sludge pump station, improvements to the primary effluent pump station and blower building and ancillary facilities at its Wastewater Treatment Plant (WWTP). Ancillary facilities would include a secondary clarifier splitter box and various new pipelines to connect new and existing facilities.

The District is the lead agency under the California Environmental Quality Act (CEQA) for the proposed project. CEQA requires that the lead agency prepare an IS to determine whether an Environmental Impact Report (EIR), Negative Declaration (ND), or Mitigated Negative Declaration (MND) is needed. The District has prepared this IS to evaluate the potential environmental consequences associated with the project, and to disclose to the public and decision makers the potential environmental effects of the proposed project. Based on the analysis presented herein, an MND is the appropriate level of environmental documentation for the proposed project.

1.2 Document Background

In 1988, an Environmental Impact Report (EIR) was completed for the District's WWTP, which evaluated plant capacity expansion to 25.7 million gallons per day (MGD) average day peak month flow (ADPMF). This expansion was planned to be completed in two phases: Phase III would increase the WWTP capacity to 16.5 MGD ADPMF and Phase IV would increase it to 25.7 MGD ADPMF. Because the District has completed Phase III, the improvements for this project would be covered under Phase IV.

1.3 Scope of this Document

This IS/MND has been prepared in accordance with CEQA (as amended) (Public Resources Code Section 21000 et. seq.) and the State CEQA Guidelines (California Code of Regulations, Title 14, Chapter 3, Section 15000 et. seq.), as updated on December 28, 2018. CEQA Guidelines Section 15063 describes the requirements for an IS and Sections 15070–15075 describe the process for the preparation of an MND. Where appropriate, this document refers to either the CEQA Statute or State CEQA Guidelines (as amended in December 2018). This IS/MND contains all the contents required by CEQA, which includes a project description, a description of the environmental setting, potential environmental impacts, mitigation measures for any significant effects, consistency with plans and policies, and names of preparers.

This IS/MND evaluates the potential for environmental impacts to resource areas identified in Appendix G of the State CEQA Guidelines (as amended in December 2018). The environmental resource areas analyzed in this document include:

- Aesthetics
- Agriculture and Forestry Resources
- Air Quality
- Biological Resources
- Land Use and Planning
- Mineral Resources
- Noise
- Population and Housing

- Cultural Resources
- Energy
- Geology and Soils
- Greenhouse Gas Emissions
- Hazards and Hazardous Materials
- Hydrology and Water Quality
- Public Services
- Recreation
- Transportation
- Tribal Cultural Resources
- Utilities and Service Systems
- Wildfire
- Mandatory Findings of Significance

The proposed project may be funded in part by the U.S. Environmental Protection Agency (EPA) through the Water Infrastructure Finance and Innovation Act (WIFIA). If federal funds are used for the project, it would require the EPA to conduct environmental review pursuant to the National Environmental Policy Act (NEPA). This document has been prepared to be used by the EPA for its NEPA review process by including items from the EPA WIFIA Program Programmatic Environmental Assessment (PEA) Environmental Questionnaire that are in addition to the State CEQA Guidelines resource topics. To support NEPA review, this document includes an analysis of the project's consistency with:

- The Clean Air Act General Conformity Rule, 40 C.F.R. Part 51, Subpart W.
- Section 7 of the Endangered Species Act, 16 U.S.C. Ch. 35 §1531 et seq. (federally threatened or endangered species as identified by the U.S. Fish and Wildlife Service (USFWS) or National Marine Fisheries Service (NMFS))
- Section 106 of the National Historic Preservation Act, 36 CFR part 800 (federally listed and eligible historical properties, including prehistoric and historic sites, historic districts and traditional cultural properties)
- Executive Order 12898 - Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, 59 FR 7629

1.4 CEQA Process

In accordance with CEQA Guidelines Section 15073, this Draft IS/MND would be circulated for a 30-day public review period (August 21, 2024 – September 20, 2024) to local and state agencies, and to interested organizations and individuals who may wish to review and comment on the report. The District would circulate the Draft IS/MND to the State Clearinghouse for distribution to State agencies. In addition, the District would circulate a Notice of Intent to Adopt a Mitigated Negative Declaration to the Contra Costa County Clerk, responsible agencies, and interested entities. A copy of the Draft IS/MND is available for review at: https://www.deltadiablo.org/key-capital-projects

Written comments can be submitted to the Delta Diablo by 5:00 pm on September 20, 2024, and addressed to:

Sean Williams, Associate Engineer
seanw@deltadiablo.org

Following the 30-day public review period, the District would evaluate all comments received on the Draft IS/MND and evaluate any substantial evidence that the proposed project could have an impact on the environment into the Final IS/MND and prepare a Mitigation Monitoring and Reporting Program (MMRP).

The IS/MND and MMRP would be considered for adoption by the District Board of Directors in compliance with CEQA at a future publicly noticed hearing; Board meetings are typically held on the 2nd Wednesday of each month at 4:30 p.m. in the District Board Room at 2500 Pittsburg-Antioch Highway, Antioch, CA 94509. Consideration of adoption is currently planned to occur at the Special Board meeting on November 6, 2024.

1.5 Impact Terminology

The level of significance for each resource area uses CEQA terminology as specified below:

No Impact. No adverse environmental consequences have been identified for the resource or the consequences are negligible or undetectable.

Less than Significant Impact. Potential adverse environmental consequences have been identified. However, they are not adverse enough to meet the significance threshold criteria for that resource. No mitigation measures are required.

Less than Significant with Mitigation Incorporated. Adverse environmental consequences that have the potential to be significant but can be reduced to less than significant levels through the application of identified mitigation strategies that have not already been incorporated into the proposed project.

Potentially Significant. Adverse environmental consequences that have the potential to be significant according to the threshold criteria identified for the resource, even after mitigation strategies are applied and/or an adverse effect that could be significant and for which no mitigation has been identified. If any potentially significant impacts are identified, an EIR must be prepared to meet the requirements of CEQA.

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2. PROJECT DESCRIPTION

2.1 Project Overview

The Secondary Process Improvements Project ("project", "proposed project") would include a new secondary clarifier, new aeration basins, new 42-inch air header, new return activated sludge pump station, improvements to the primary effluent pump station and blower building, secondary clarifier splitter box, and pipelines. Please refer to *Section 2.5 Proposed Project Description* for a detailed description of the project components. This analysis assumes that all improvements would be constructed as a single project, however, the District may elect to strategically phase construction activities. A potential phasing plan is provided with this section.

2.2 Project Purpose

The project is being implemented to address aging infrastructure at the WWTP specific to the secondary treatment system. As part of the project, the existing and aging trickling tower filters would be decommissioned, and additional aeration basins would be constructed to provide reliable secondary treatment up to the District's permitted treatment capacity of 19.5 MGD average dry weather flow (ADWF). The District's projected influent flows are estimated to not exceed the permitted average dry weather flow value of 19.5 MGD but influent loads are projected to exceed the capacity of the existing secondary treatment system. Additional aeration basins and ancillary facilities (e.g., secondary clarifiers, blower building) are also needed to comply with recently adopted nutrient discharge regulations.

2.3 Project Location

The proposed project is located at the existing Delta Diablo WWTP in Antioch, Contra Costa County, California (see **Figure 2-1**). As shown in **Figure 2-2**, all facilities would be located within the existing WWTP.

2.4 Existing Facilities

The existing WWTP provides secondary treatment, disinfection, and dechlorination prior to discharging effluent to the New York Slough. The plant's treatment train consists of primary clarifiers followed by tower trickling filters and aeration basins for secondary treatment. From the aeration basins, the flow passes through secondary clarifiers followed by chlorine contact tanks, dechlorination, and discharge. A portion of the effluent is diverted to the Recycled Water Facility prior to chlorination at a varying rate depending on recycled water demands.

2.4.1 Environmental Setting

The existing WWTP is located in an industrial area. The project site is bounded by the Pittsburg-Antioch Highway to the south, the Burlington Northern and Santa Fe (BNSF) railroad tracks to the north, the Delta Energy Center to the west and Los Medanos Wasteway (a channelized manmade conveyance) to the east. Industrial facilities adjacent to the WWTP include the Corteva Agriscience – Pittsburg Operations, Calpine Delta Energy Center, and Generon facilities, which are located west and northwest of the WWTP. Wetlands are situated directly north and east of the WWTP. New York Slough, which is a section of the San Joaquin River, is approximately 0.5 mile north of the WWTP. A variety of light industrial businesses are located approximately 0.25 mile to the south, on the south side of the Pittsburg-Antioch Highway.

Figure 2-1: Regional Location

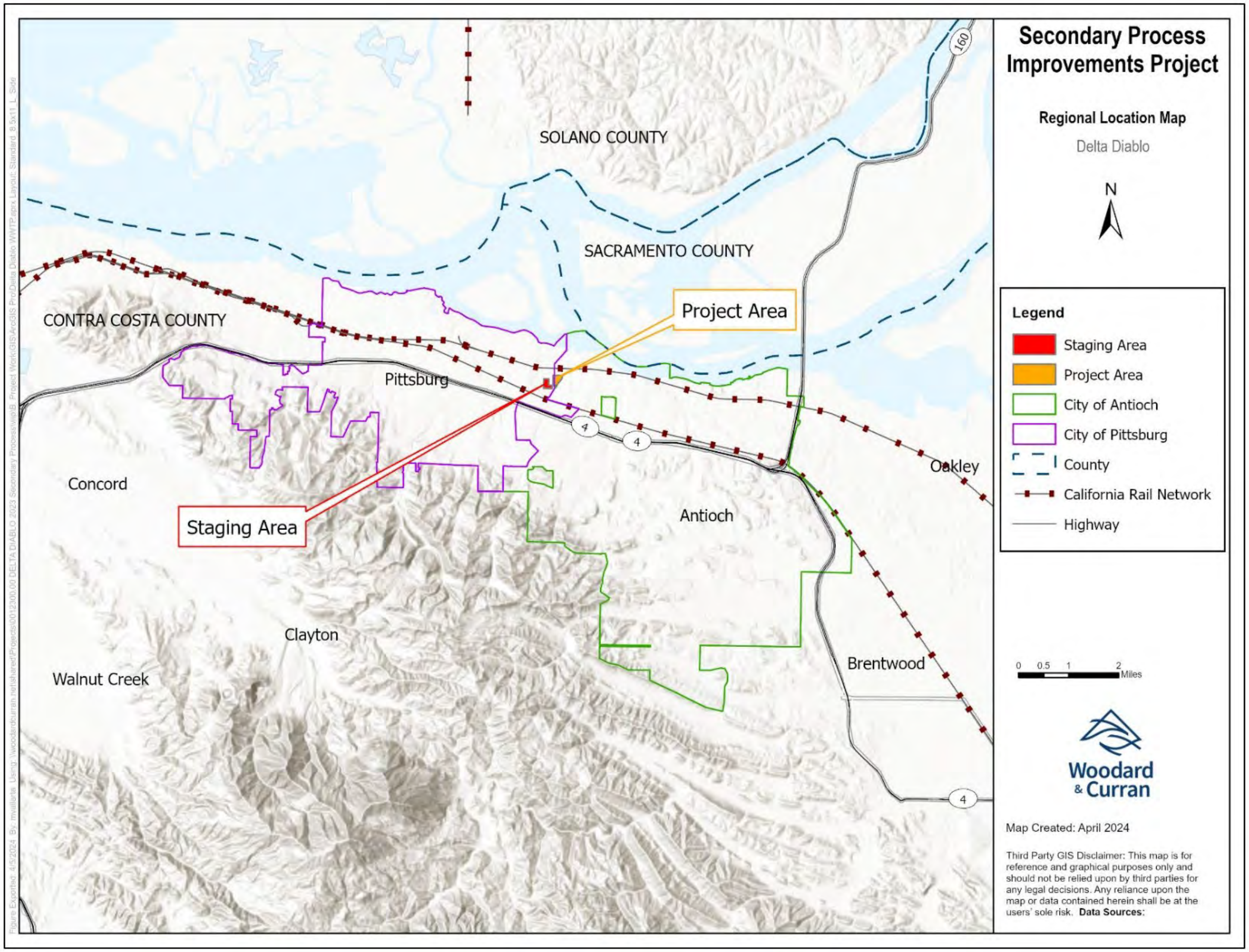
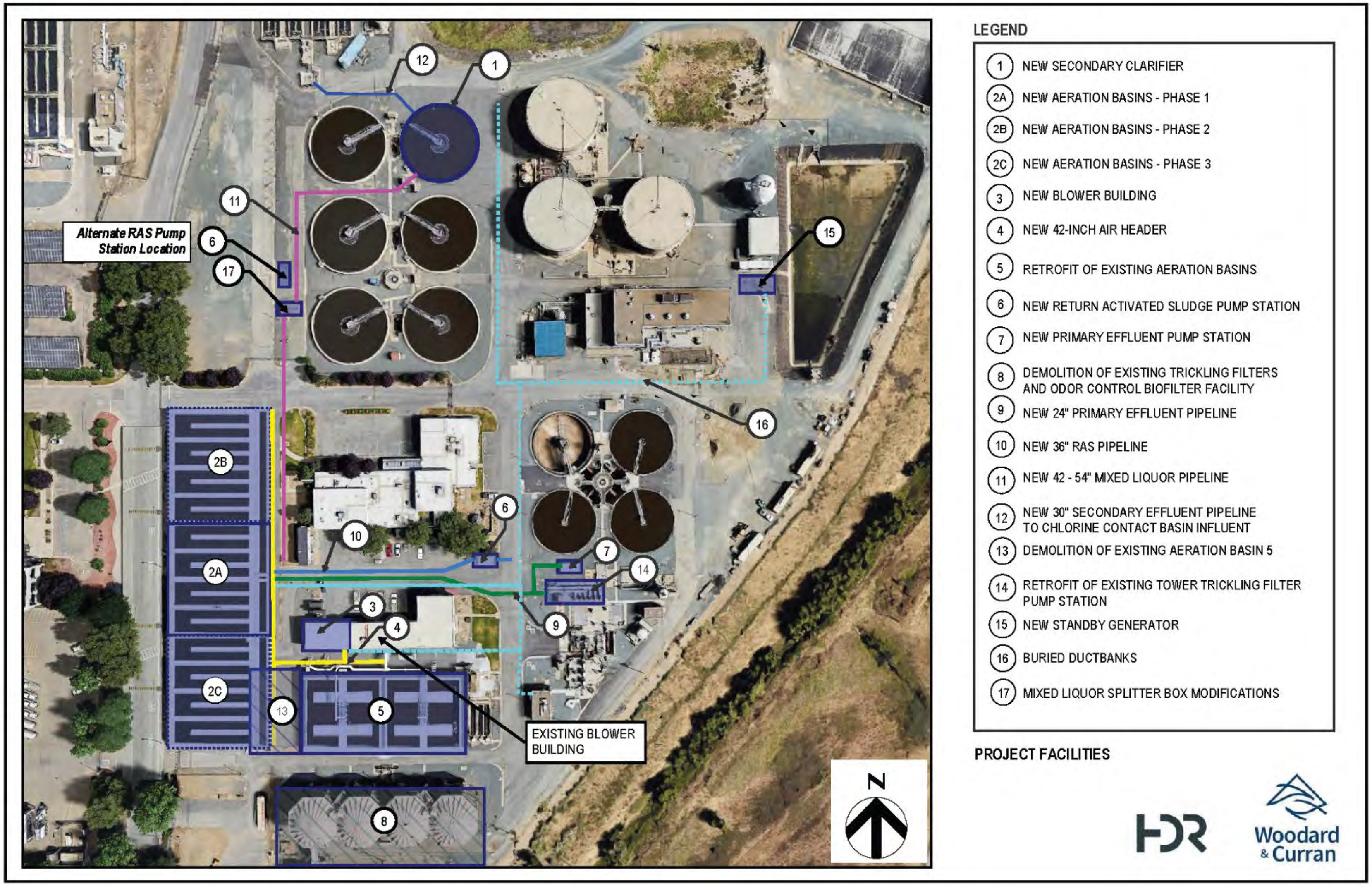


Figure 2-2: Project Overview

Figure 2-3: Project Layout



2.4.2 Existing Site Conditions

The project site is located in the City of Antioch and the City of Pittsburg. The site is accessed from Arcy Lane, which is located within the City of Pittsburg.

2.5 Proposed Project Description

The project consists of modification of existing facilities at the WWTP as well as addition of new structures and below-grade utilities (pipelines, electrical duct banks, etc.). The project may be constructed as a single project; however, depending on the construction costs and external funding sources, the project could be constructed in multiple phases. If the project is phased the following phases are anticipated:

- Phase 1: Construct two new aeration basins, one new secondary clarifier, a new blower building and aeration air piping, a new return activated sludge pump station, a new standby generator, retrofit of the existing trickling tower filter pump station, and construction of new yard piping and below-grade utilities. Retrofit of the existing aeration basins may be implemented during Phase 1.
- Phase 2: Construct up to two new aeration basins and a new primary effluent pump station. Demolition of Aeration Basin 5 would be performed under this phase.
- Phase 3: Demolition of the tower trickling filters and construction of up to two new aeration basins, if needed for nutrient removal.

For purposes of analysis, it is assumed that all facilities would be constructed at the same time as part of a single project. The evaluation of impacts thus considers the ultimate project footprint including all facilities and assumes that all construction occurs at the same time, which results in the greatest intensity of construction activity, equipment, and construction traffic occurring simultaneously.

2.5.1 New Secondary Clarifier

A new secondary clarifier would be constructed as part of Phase 1, adjacent to the existing secondary clarifiers at the north end of the site. The clarifier would consist of a 90-foot diameter circular concrete tank that is partially buried. To construct the tank, the earth would be excavated approximately 14 feet below existing grade with center section of the excavation being approximately 10 feet in diameter and 20 feet below grade. The excavation would be shored with dewatering in place to mitigate the high ground water levels. Dewatering water would be conveyed to the headworks or tower mixing chamber and discharged there such that no discharge to surface waters would occur during construction.

A new, parallel 42-inch to 54-inch-diameter pipeline would be constructed from the new aeration basins (described in the next section) to the existing Secondary Clarifier 5/6 Splitter Box. A new mixed liquor pipeline would also be constructed from the existing Secondary Clarifier 5/6 Splitter Box to the new secondary clarifier as shown in **Figure 2-3** to convey flows aeration basin effluent – known as mixed liquor – from the aeration basin to the secondary clarifier. A 20-inch-diameter return activated sludge pipe would be installed from the center of the secondary clarifier at the deepest point of the excavation. A 30-inch-diameter secondary effluent pipe would be installed from the secondary clarifier to the chlorine contact basin influent, as shown in **Figure 2-3**. See Section 2.5.11 on pipeline installation and open cut trenches.

The clarifier foundation is anticipated to match existing clarifier construction and would be a poured concrete slab at the base of the excavation. The walls of the clarifier would be poured concrete and would extend from the foundation up to approximately four feet above grade.

Following completion of construction of the tank structure, the clarifier equipment (mechanism and access bridge) would be installed inside the tank. The top of the clarifier structure would be open to the atmosphere. The earth surrounding the clarifier would be backfilled to match existing grade.

2.5.2 Six New Aeration Basins

Up to six new aeration basins may be constructed at the WWTP. All six aeration basins are not needed initially and therefore the aeration basins may be phased. If the aeration basins are phased, two new aeration basins would be constructed as Phase 1, two new aeration basins would be constructed as Phase 2, and up to two new aeration basins may be constructed as part of a third phase of the project.

The basins would be constructed on the west side of the project area. The basins would be partially buried rectangular structures that are approximately 110 feet by 75 feet and 30 feet deep. To construct the aeration basins, the area would require excavation to a depth of approximately 25 feet. The excavation would require shoring and dewatering. Dewatering water would be conveyed to the headworks or tower mixing chamber and discharged there such that no discharge to surface waters would occur during construction. The foundation for the basins would be constructed of concrete poured against a gravel layer at the base of the excavation. The walls of the aeration basins would be poured concrete that would extend from the foundation up to approximately six feet above grade. Each basin would also have intermediate concrete divider walls that divide each basin into sections. The top of the basins would consist of concrete walkways along the top of the walls and each basin would remain open to the atmosphere.

After construction of the structure, multiple pipelines and mixing equipment would be installed within the basins. An overhead air piping system would be installed along the basin walkways at the top of the structure.

The air piping system at the aeration basins would consist of a new 42-inch aeration pipe that is routed to connect the new aeration basins to the new blower building (refer to Section 2.5.3). The aeration pipe would be constructed and supported above grade so that pedestrians and vehicles can pass underneath. For construction of the pipe header, this would require either multiple isolated concrete footings at grade or drilled piers between the aeration basins and the new blower building. After construction of the concrete foundations, a steel support structure would be constructed vertically to support the overhead pipe at intermediate points. It is estimated that a total of six supports would be required for the piping between the new basins and new blower building.

2.5.3 New Blower Building

The new blower building would be constructed adjacent to the existing blower building and function as an extension of the existing building. The building would match existing construction and would be a two-story steel structure with steel joist roof, architectural metal siding, and a concrete slab foundation on grade. The building footprint would be approximately 35 feet by 50 feet and 20 feet tall. The existing grade would need to be leveled and excavated to a shallow depth of approximately four feet. The foundation would be poured concrete over a gravel base. The steel structure would be erected vertically, and the siding and roof installed to enclose the building. The new building would contain three new blowers and associated air piping, heating, ventilation, and air conditioning (HVAC) and ductwork, and electrical systems. The air piping would exit the new building above grade in a 42-inch air header to connect to the new aeration basins as described in Section 2.5.2.

2.5.4 Retrofit of Existing Aeration Basins

The retrofit of the existing aeration basins would consist of work inside the existing aeration basins. The retrofit would include installation of new mechanical equipment in four of the aeration basins and the installation of fiber reinforced plastic baffle walls inside the basin. Additionally, up to 100 cubic yards of concrete may be installed inside the interior of the basin as part of the retrofit. As noted in Section 2.5.9, the existing Aeration Basin 5 would be demolished as part of Phase 2.

2.5.5 New Return Activated Sludge Pump Station

A new return activated sludge (RAS) pump station would be constructed either southeast of the new secondary clarifier or west of the existing clarifiers. The pump station would be approximately 25 feet by 15 feet in plan and 20 feet deep. Excavation would be required to a depth of approximately 22 feet and would require shoring and dewatering of groundwater. Dewatering water would be conveyed to the headworks or tower mixing chamber and discharged there such that no discharge to surface waters would occur during construction. The foundation would be poured concrete on a gravel layer at the base of the excavation and concrete walls constructed up to grade. Buried pipes from the site would be installed through the pump station walls to be connected to the pumps at the floor of the pump station. The buried pipes would be constructed in accordance with Section 2.5.11. A concrete floor slab at grade would be constructed over the buried portion and would have openings for metal access hatches to allow access or removal of the pump equipment inside the structure. The earth would be backfilled surrounding the entire structure.

2.5.6 New Primary Effluent Pump Station

A new primary effluent pump station may be constructed near the existing primary clarifiers and would be similar in construction to the RAS pump station. The pump station would be approximately 25 feet by 15 feet in plan and 20 feet deep. Excavation would be required to a depth of approximately 22 feet and would require shoring and dewatering of groundwater. Dewatering water would be conveyed to the headworks or tower mixing chamber and discharged there such that no discharge to surface waters would occur during construction. The foundation would be poured concrete on a gravel layer at the base of the excavation and concrete walls constructed up to grade. Buried pipes from the site would be installed through the pump station walls to be connected to the pumps at the floor of the pump station. The buried pipes would be constructed in accordance with Section 2.5.11. A concrete floor slab at grade would be constructed over the buried portion and would have openings for metal access hatches to allow access and removal of the pump equipment inside the structure. The earth would be backfilled surrounding the entire structure.

2.5.7 Retrofit of Existing Tower Trickling Filter Pump Station

As part of Phase 1, new pumps would be installed at the existing tower trickling filter pump station. The existing pumps would be demolished and hauled off site for disposal. The new pumps would be installed within the existing below-grade structure. The tower trickling filter pump station is currently covered and would remain covered with the future upgrades.

2.5.8 Demolition of the Existing Trickling Filters and Odor Control Biofilter

The existing tower trickling filter structure and the odor control biofilter facility are located at the south end of the project site. Demolition of these facilities may be implemented with the project or may be performed as a Phase 3 project element. The four existing trickling filter structures are in poor condition structurally and are not compatible with future nutrient reduction requirements. The trickling filters are composed of four 50-foot-diameter, hexagon shaped tanks. The concrete foundation of the tanks extends approximately seven feet below-grade. Each tower trickling filter extends approximately 30 feet above-grade; the above-grade structure consists of a 7-foot-tall concrete structure from which approximately 23-foot-tall concrete support columns and steel framing that contains the tower trickling filter plastic media. Each tower trickling filter is enclosed with a fiberglass dome roof. Additionally, there is a concrete encased center pipe below all four filters and located approximately eight feet below grade that would be demolished and removed. The above-grade and below-grade tower trickling filter structure would be demolished and after demolition, the area would be backfilled, compacted, and ground surface restored and paved to match adjacent conditions. All material from demolition would be hauled off site to an approved waste facility.

The odor control biofilter area is the triangular shaped area south of the four trickling filters and may be demolished as part of the first phase of construction. The demolition would include removal of the fans, foul air piping, tanks, and concrete pads on grade as well as removal of the biofilter bed materials (consisting of geomembrane, gravel and soil), which extend approximately six feet below-grade. Demolition activities would result in removal of below-grade biofilter materials (up to six feet below grade). The open area would require backfill, compaction, and surface restoration. All material from demolition would be hauled off site to an approved waste facility.

2.5.9 Demolition of the Existing Aeration Basin 5

Aeration Basin 5 may be demolished as part of Phase 2. Aeration Basin 5 is a separate structure from Aeration Basins 1 through 4. Demolition would include removal of mechanical equipment, demolition of above-grade concrete, backfill and compaction. The demolition of the basin would only be performed if the area is needed for the new aeration basins. All material from demolition would be hauled off site to an approved waste facility. Refer to **Figure 2-2**, which includes the existing Aeration Basin 5 area.

2.5.10 Electrical Improvements

New motor control centers and a standby generator that would operate in parallel with the existing 1-megawatt (MW) generator would be constructed near the existing switchgear on the east side of the existing plant. The new switchgear would be installed inside existing or new buildings/rooms. The new standby generator would be outdoors with a noise enclosure and supported on a concrete foundation pad at grade. Construction would require minor excavation to approximately three feet below grade and concrete foundation would be poured over a gravel layer. Regrading and surface restoration would be required around the foundation pad.

Multiple buried electrical duct banks would be required to route conduit between the new and existing electrical equipment and the new facilities. The duct banks would be constructed similar to open trench construction per Section 2.5.11, except the open trench would be infilled with a slurry concrete around the conduit and covered with a minimum of two feet of soil backfill over the encased conduits.

2.5.11 Buried Pipelines and Ancillary Structures

The project would consist of various new buried pipelines to connect the new and existing structures. **Table 2-1** below summaries the buried pipelines that would be constructed.

Additionally, pipeline construction would include the removal of the abandoned pipelines that are below the footprint of the new primary effluent pump station. This would require excavation for trenches that are approximately 210 feet long by 2.5 feet wide and 2.5 feet deep. The trenches would then be backfilled and compacted.

Ancillary structures may be constructed as part of the project. Ancillary structures that are anticipated would include a new storage facility (approximately 600 square feet). Currently, an enclosed storage area is located in the existing blower building but may need to be relocated to facilitate construction of the new blower building.

Table 2-1: Buried Pipelines

Pipeline & Location	Pipe Diameter	Trench Length	Trench Width (minimum, maximum)	Trench Depth
Mixed Liquor from New Aeration Basins to Existing Secondary Clarifier 5/6 Splitter Box	42-in to 54-in	400-ft	5.5-ft, 6-ft	8-ft
Mixed Liquor from Existing Secondary Clarifier 5/6 Splitter Box to New Secondary Clarifier 6	42-in to 54-inch	300-ft	5.5-ft, 6-ft	8-ft
RAS from New RAS Pump Station to New Aeration Basin	36-in	360-ft	5-ft, 6-ft	8-ft
Primary effluent from New primary effluent Pump Station to New Aeration Basin	24-in	220-ft	4-ft, 6ft	7-ft
New Aeration Basin Drain (per basin)	12-in	180-ft	3-ft, 6ft	5-ft
Secondary Clarifier Influent Pipe	36-in	240-ft	4-ft, 6-ft	22-ft
Secondary Clarifier Effluent Pipe	30-in	125-ft	4-ft, 6-ft	10-ft
Secondary Clarifier return activated sludge Pipe	20-in	175-ft	4-ft, 6-ft	22-ft
Plant process water to new Aeration Basin	4-in	160-ft	2.3-ft, 6-ft	5-ft
Misc. Small Diameter Pipes	2-in	300-ft	2ft, 4-ft	4.5-ft

2.5.11.1 Open-Cut Trenching

Open cut is a traditional pipeline construction method that is most commonly used for pipeline installation and includes trench excavation, placement of new bedding, installation of the new pipeline, backfill and compaction, and surface restoration. This method would be used for installation of the proposed piping within the WWTP. The maximum trench width would be six feet, while the depth would range from two feet to 22 feet. The surfaces would be repaved where pipelines cross under site roadways and other areas planted and reseeded to restore landscaping.

2.5.12 Construction Equipment and Vehicles

Construction of the proposed project would require a typical construction equipment fleet. Construction would also require an average of 200,000 kilowatt-hours (kWh) per year of electricity for lighting, electric-powered construction equipment, and the temporary construction trailer. **Table 2-2** includes a summary of estimated on-site vehicle and equipment hours for duration of the project construction. **Table 2-3** provides an estimate of off-site vehicle traffic associated with construction workers and haul trucks used to deliver materials and off-haul any spoil and demolition debris.

The total estimated volume of material to be excavated or demolished and removed from the construction site for the entire project is 83,000 cubic yards. Excavated trench material is planned to be stockpiled on District owned property (refer to **Figure 2-2**). New fill material would be imported to the site as needed. Hauling for disposal of materials (demolition materials and/or soils that cannot be stockpiled) is assumed to require a 100-mile round trip. Approximately 45,000 cubic yards of material would be imported as new fill and fill below the structure foundations.

2.5.13 Construction Schedule

Construction activities, if performed as a single project, are anticipated to begin in approximately March 2026 and are assumed for the purposes of this analysis to last until March 2031. However, if the project were to be constructed in phases due to funding limitations, it is anticipated that construction would extend into 2035 with startup and commissioning activities occurring through 2036.

Most construction would occur during daytime hours (i.e., weekdays between 7 am and 6 pm), with the possibility that some construction may occur during weekends or holidays between 9 am and 5 pm in accordance with City of Antioch and City of Pittsburg noise performance standards. Occasional nighttime work would be needed when new facilities are tied into the existing system because tie-ins must be constructed during low flow period, which occur at night. All of the construction work can be performed while the existing WWTP remains active.

2.5.14 Staging Areas

The District would use vacant land, shown in **Figure 2-2**, along the west side of Arcy Lane near the entrance to the WWTP for stockpiling of materials, construction staging, and construction office trailers and parking.

Table 2-2: On-Site Construction Equipment and Vehicle Use

Vehicle	Hours
Light Duty Truck	37,124
Crew Truck	61,680
Backhoe/Loader	1,788
Backhoe/Hoe-Ram	1,683
Rubber Tired Loader	5,147
Large Excavator	5,121
4000-gallon Water Truck	3,233
Large Dozer	2,056
Semi End Dump Truck	5,897
Vibratory Compactor	2,006
120-ft Concrete Pump	919
Concrete Truck (Deliveries)	1,612
Telescoping Forklift	2,436
Scissors Lift	600
Boom Truck	5,500
30-ton RT Crane	12,000
80-ton Lattice Crane Crawler	10,300
Diesel Welder	3,076
Pipe Threader (electric)	414
Air Compressor	11,000
Blade Motorgrader	58
Paving Machine	32
Smooth Drum Roller	48
Wood Chipper, Large	500
Pumps	8,640

Table 2-3: Off-Site Vehicle Traffic During Construction

Project Activity	Duration (weeks)	Haul Trucks		Worker Vehicles		Total Vehicles	
		Inbound	Outbound	Inbound	Outbound	Inbound	Outbound
New Aeration Basins, Secondary Clarifier, Supporting Facilities [b]	211	8	8	28	28	36	36
Aeration Basins 4, 5, 6	132	5	5	23	23	28	28
Demolition [c]	52	3	3	4	4	7	7

a – Based on facilities being constructed as a single project
b – Facilities include three new aeration basins, new blower building, new secondary clarifier, yard piping, new standby generator, retrofit of existing aeration basins, retrofit of tower trickling filter pump station, new RAS pump station, new PE pump station.
c – Demolition activities include Aeration Basin 5 and tower trickling filter demolition

2.6 Operations

The treatment facility operates year-round. The new treatment system would not include new chemical facilities or truck access, but would require added electrical service. The project is expected to increase electricity use at the plant by 30 to 40 percent. Currently, the plant's peak power demand is 28,900 kWh per day and its average power demand is 19,300 kWh per day. The new treatment system would require added operations and maintenance from the District, but no additional vehicle traffic is anticipated with the new facilities. The electrical improvements would add a new standby generator that would operate in parallel with the existing 1 MW generator.

2.7 Environmental Commitments

The following measures are construction best management practices (BMPs) that would be implemented as part of the project:

- The design and construction of the facilities would be based on the geotechnical investigation report to minimize geological risk.
- Groundwater dewatering discharges would be disposed by discharge to the treatment plant headworks or tower mixing chamber.
- All construction work would require the contractor to implement a Health and Safety Plan.
- Construction would implement Bay Area Air Quality Management District (BAAQMD) basic dust control measures.
- Storm water discharges within the WWTP would be disposed of within the treatment plant.

For any work outside the existing treatment plant, including the potential staging area adjacent to the plant, specifications would require the contractor to prepare a Stormwater Pollution Prevention Plan (SWPPP). In accordance with the SWPPP, the contractor would implement BMPs during construction to control water quality of stormwater discharges off site, such as site management "housekeeping," erosion control, sediment control, tracking control and wind erosion control.

2.8 Required Permits and Approvals

Anticipated permits are identified in **Table 2-4.**

Table 2-4: Permits and Approvals

Agency	Permit	Resource Issue
Bay Area Air Quality Management District	Internal Combustion Engine Permit	Criteria Air Pollutants and Toxic Air Contaminants from emergency backup generator engine
	Authority to Construct and Permit to Operate for new processes	Criteria Air Pollutants
U.S. Fish and Wildlife Service	Consultation	Special-status Species
California Department of Fish and Wildlife	Consultation	Special-status Species
State Water Resources Control Board	Approved SWPPP	Water Quality

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3. ENVIRONMENTAL CHECKLIST FORM

1. **Project title:** Secondary Process Improvement Project

2. **Lead agency name and address:** Delta Diablo
   2500 Pittsburg-Antioch Highway
   Antioch, CA 94509

3. **Contact person and phone number:** Sean Williams, Associate Engineer
   925-756-1926

4. **Project location:** City of Antioch and City of Pittsburg,
   Contra Costa County, California

5. **Project sponsor's name and address:** Same as Lead Agency

6. **General plan designations:** Business Park, Industrial

7. **Zoning:** Light Industrial District, Industrial

8. **Description of project:** The project would improve the secondary treatment process by replacing aging infrastructure and addressing near-term secondary treatment process limitations. The proposed project would include a new secondary clarifier, a new aeration basin, a new 42-inch air header, new return activated sludge pump station, improvements to the primary influent pump station and blower building, a secondary clarifier splitter box, and pipelines.

9. **Surrounding land uses and setting:** The project would be constructed within the existing boundary of the District's WWTP. The Corteva Wetlands Preserve (formerly the Dow Wetland Preserve) is to the northeast of the project site and is designated as open space. New York Slough, which is a branch of the San Joaquin River estuary, is approximately 1 mile north of the project site. The closest recreational areas are the San Joaquin River, which is less than 0.5 mile from the project site and used for boating and fishing.

10. **Other public agencies whose approval is required (e.g., permits, financing approval, or participation agreement.)**
    - State Water Resources Control Board: Approved Stormwater Pollution Prevention Plan
    - Bay Area Air Quality Management District: Internal Combustion Engine Permit; Authority to Construct and Permit to Operate for new processes

11. Have California Native American tribes traditionally and culturally affiliated with the Project area requested consultation pursuant to Public Resources Code section 2180.3.1? If so, is there a plan for consultation that includes, for example, the determination of significance of impacts to tribal cultural resources, procedures regarding confidentiality, etc.?

The District consulted with Native American tribal representatives that previously requested consultation and tribal representatives provided by the Native American Heritage Commission (NAHC). The District sent letters to 24 of 25 contacts on the NAHC list of tribes who may have knowledge of cultural resources in the project area. The 25th contact from the NAHC list did not have an email or mailing address, therefore a voicemail was left requesting a mailing address. The District informed them of the Project and formally invited them to consultation. The District received a letter response from the Amah Mutsun Tribal Band of Mission San Juan Bautista and response emails from the Chicken Ranch Rancheria of Me-Wuk Indians, the Confederated Villages of Lisjan Nation and Wilton Rancheria. The Indian Canyon Band of Costanoan Ohlone People requested consultation. The District held a meeting with Kanyon Konsulting, LLC, which represents the Indian Canyon Band of Costanoan Ohlone People. During the meeting, Kanyon Konsulting requested cultural resources awareness training for the project and a copy of the published CEQA document. See Section 3.18 for a summary of how the project would address tribal cultural resources.

Environmental Factors Potentially Affected

The environmental factors checked below would be potentially affected by this Project, involving at least one impact that is a "Potentially Significant Impact" as indicated by the checklist on the following pages.

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

DETERMINATION: (To be completed by Lead Agency)

On the basis of this initial evaluation:

[ ] I find that the proposed Project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION 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 or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed Project, nothing further is required.

____________________	8/16/2024
Signature	Date
Vince De Lange	General Manager
Printed Name	Title

3.1 Aesthetics

	Potentially Significant Impact	*Less Than Significant with Mitigation Incorporated*	*Less than Significant Impact*	*No Impact*
Except as provided in Public Resources Code Section 21099, would the Project:				
a) Have a substantial adverse effect on a scenic vista?	[ ]	[ ]	[ ]	[X]
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	[ ]	[ ]	[ ]	[X]
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]
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	[ ]	[ ]	[X]	[ ]

Discussion

The proposed project area is located in Contra Costa County within the City of Antioch. The City of Antioch extends in a roughly square pattern from Pittsburg on the west to the Antioch Bridge on the east, and from the foothills of Mt. Diablo on the south to the San Joaquin River on the north. The City is bisected by State Route 4, an east-west oriented four-lane freeway. Major ridgelines associated with the foothills of Mount Diablo occur along the southwest boundary of the City of Antioch's Planning Area of the 2003 General Plan (City of Antioch 2003b). Views of Mount Diablo, the ridgelines, and the San Joaquin River are important scenic resources for the City of Antioch as these views contribute to a feeling of community identity and visual enjoyment (City of Antioch 2003b). The staging area for the proposed project is within the City of Pittsburg. The City of Pittsburg is currently updating its General Plan. The most identifying feature of the City of Pittsburg is its location between the rolling, grassy hills to the south and Suisun Bay/Sacramento River Delta to the north (City of Pittsburg 2001).

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

The proposed project is located within the existing WWTP in Contra Costa County. The project area is predominantly industrial. Surrounding the project site are several large industrial facilities. Commercial and light industrial business parks are situated near the project site, located to the south of the Pittsburg-Antioch Highway.

The project site and surrounding area are on relatively flat terrain. There are no designated scenic vistas in the project vicinity. The proposed project would be contained within the existing WWTP site. Construction, operation, and maintenance of the project therefore would not result in any impacts under this criterion.

Mitigation Measures

None required.

Significance Determination

No impact.

b) Substantially damage scenic resources, including, but not limited to trees, rock outcroppings, and historic buildings within a state scenic highway?

The proposed project would not be implemented within a state scenic highway corridor, would not damage any scenic resources, and would be consistent with the existing, industrial aesthetic of the area. No historic buildings, trees or other scenic resources would be removed for the project. There are two designated state scenic highways in Contra Costa County, neither of which is close to the project area. Route 24 from the Alameda County line to the Interstate 680 interchange, and Interstate 680 south of the interchange to the Alameda County line, are existing State designated scenic routes within the State Scenic Routes program. State Route 4 from Hercules to the intersection with Railroad Avenue is proposed for State designation, as is the proposed State Route 4 Bypass to the Delta (Contra Costa County 2005a; DOT 2024). These portions of State Route 4 are located more than 2 miles from the project site and the site is not visible at any point from either route. Therefore, no impact would occur under this criterion.

Mitigation Measures

None required.

Significance Determination

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?

The proposed project area is a generally flat, developed industrial site located in a predominantly industrial area. The City of Antioch General Plan designates the land to the east of the project site as Business Park (City of Antioch 2003a). The current City of Pittsburg General Plan designates the land surrounding the project to the west as Industrial (City of Pittsburg 2001). To the northeast of the project site is the Corteva

Wetlands Preserve (formerly the Dow Wetland Preserve), which is designated as Open Space by the City of Antioch. The Corteva Wetlands Preserve is 417 acres of undeveloped land between the Antioch Marina and Dow Chemical Plant in Pittsburg near the Delta (City of Antioch n.d.a). New York Slough, a branch of the San Joaquin River estuary, is approximately 1 mile north of the WWTP. The closest recreational area is the San Joaquin River, which is used for boating and fishing and is less than 0.5 miles from the project site.

The project entails construction, operation, and maintenance of modifications to an existing wastewater treatment facility site located in an industrial area that is considered to be of low visual character and quality. Construction-related impacts to visual character and quality of the project and surroundings would occur as a result of the presence of exposed soil, construction-related vehicles, heavy equipment and building materials on the project site. This would represent a minor and short-term visual change from existing conditions. As construction would be completed in approximately five years, such impacts would be limited in duration and would not present a substantial change from typical activities that currently occur at the WWTP project site. Construction would, therefore, not impact existing visual character and quality of the site and its surroundings.

Once constructed, the project components would not result in any noticeable visual change in the context of the overall industrial nature of the site and its surrounding, even though they would be visible from roads surrounding the project site, because they would not be readily distinguishable from components of the existing industrial facility. Views of the WWTP would not be altered by the presence of new project components and views could potentially be improved by the demolition of the tower trickling filters. Therefore, the project would not degrade the existing visual character or quality of the area, which would continue to be industrial in nature. Therefore, there would be no impact under this criterion.

Mitigation Measures

None required.

Significance Determination

No impact.

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

The proposed project area is located in an industrial area that includes existing sources of light and glare, such as street lighting and nighttime lighting from nearby facilities. Existing sources of light and glare at the WWTP include operational, security, and safety lighting. Construction of the project would generally occur during daylight hours and nighttime construction lighting would be unlikely to be needed. If used, this would be operated for limited time periods and would be turned off when not needed. Construction would temporarily create a minor new source of light and glare from construction equipment. However, impacts would be temporary, and equipment would be removed once site restoration is complete. During operation and maintenance, the project would not require any substantial new lighting at the WWTP over and above that currently used and would not cause any new sources of glare. The impact with regard to creating a new source of substantial light or glare would be less than significant.

Mitigation Measures

None required.

Significance Determination

Less than significant.

3.2 Agriculture and Forestry Resources

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

Discussion

The California Department of Conservation, Farmland Mapping and Monitoring Program (FMMP) classifies agricultural land according to soil quality and irrigation status. Based on data from the FMMP (DOC n.d.a), land classifications within the project area in the City of Antioch and City of Pittsburg consist of Urban and Built-Up Land and Other Land (see **Figure 3-1**). There is no forest land in the project area.

a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?

The project area would be located within Urban and Built-Up Land, while the staging area would be located within Other Land, as classified by the California Department of Conservation. No project construction areas or staging areas are within farmland and thus there would be no impact.

Mitigation Measures

None required.

Significance Determination

No impact.

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

The project site would not be located on land zoned for agricultural use (City of Antioch 2003a) or protected by a Williamson Act Contract as indicated by the California Williamson Act Enrollment 2023 data (CDOC 2024). Per the City of Antioch Zoning, the project area is zoned Light Industrial District. Additionally, the staging area would not be located on land zoned for agricultural use or protected by the Williamson Act Contract. Per the City of Pittsburg Zoning, the staging area is zoned for General Industrial. Therefore, no impact would occur as a result of the project.

Mitigation Measures

None required.

Significance Determination

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 Public Resources Code Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104(g))?

Neither the project area nor the staging area is within land zoned or designated for forest land or timberland within the City of Antioch or the City of Pittsburg (City of Antioch n.d.b.; City of Pittsburg n.d.). Therefore, the project would have no impact.

Mitigation Measures

None required.

Significance Determination

No impact.

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

There is no designated forest land or timberland within the City of Antioch or City of Pittsburg. There are no forestry or timberland resources in the project area nor the staging area. Therefore, the project would have no impact related to the loss of forest land or timberland.

Mitigation Measures

None required.

Significance Determination

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?

The project would improve the secondary treatment process of the WWTP and would not involve other changes in the existing environment, and thus would not result in conversion of agricultural land to non-agricultural use. The project would not result in conversion of farmland or forest land to non-agricultural or non-forest use.

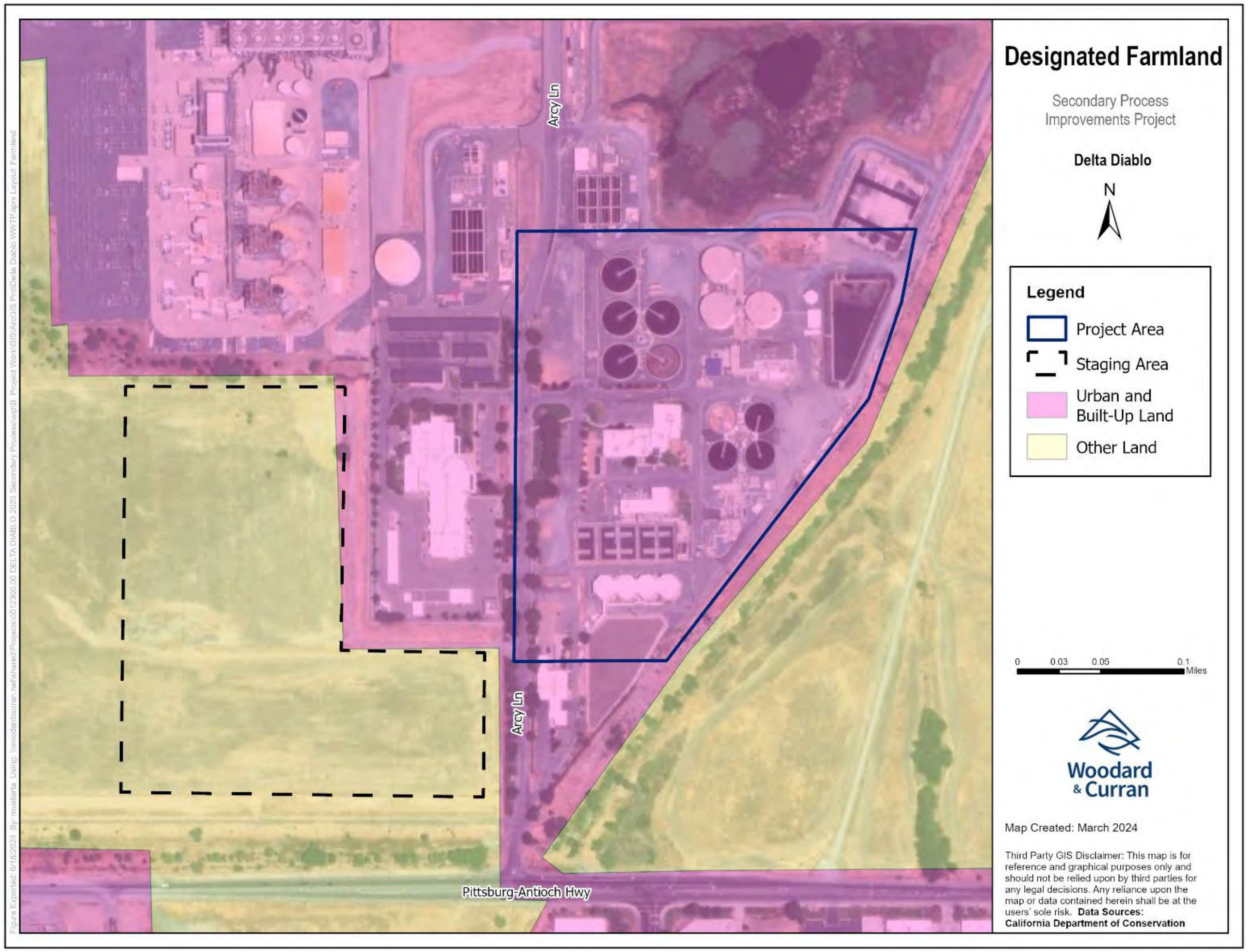
Mitigation Measures

None required.

Significance Determination

No impact.

Figure 3-1: Designated Farmland



3.3 Air Quality

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

Discussion

The EPA is responsible for enforcing the Federal Clean Air Act (CAA) of 1970 and its 1977 and 1990 Amendments. The CAA establishes federal air quality standards, known as the National Ambient Air Quality Standards (NAAQS) and specifies future dates for achieving compliance. The NAAQS provide public health protection, including protecting the health of sensitive populations such as asthmatics, children, and the elderly. The U.S. EPA sets criteria for six air pollutants, referred to as criteria air pollutants, which are ozone (O_3), carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), particulate matter (PM_{10} and $PM_{2.5}$), and lead (Pb).

If the air quality in a geographic area is equal to or better than the national standard, the EPA will designate the region as an "attainment area." An area where air quality does not meet the standards is designated by the EPA as a "non-attainment area." An area that was previously designated "non-attainment" but has since achieved the standard is called a "maintenance area." Each state is required to prepare a State Implementation Plan (SIP) that outlines measures that regions within the state will implement to attain the applicable air quality standard in non-attainment areas for applicable criteria air pollutants, and to maintain compliance with the applicable air quality standard in maintenance areas.

The California Air Resources Board (CARB) manages air quality, regulates mobile emission sources, and oversees the activities of regional Air Quality Management Districts and county Air Pollution Control

Districts. Additionally, CARB establishes state standards for vehicle emissions, and the California Ambient Air Quality Standards (CAAQS). In addition to the six federal criteria air pollutants, California has added three criteria pollutants: hydrogen sulfide (H_2S), visibility reducing particles, and vinyl chloride. The 1988 California Clean Air Act (CCAA) requires all areas of the state to achieve and maintain the CAAQS by the earliest practicable date. Similar to the NAAQS, the CAAQS are required to be set by CARB to protect the health of the most sensitive groups. In addition, California regulates about 200 different chemicals, referred to as toxic air contaminants (TACs).

The proposed project area lies within the San Francisco Bay Area Air Basin (SFBAAB). The Bay Area Air Quality Management District (BAAQMD) is the local agency responsible for developing and implementing the Clean Air Plan (CAP) for attainment and maintenance of the ambient air quality standards for SFBAAB. The BAAQMD regulates most air pollutant sources, except for motor vehicles, marine vessels, aircraft, and construction equipment. State and local government projects are subject to BAAQMD requirements if the sources are regulated by the BAAQMD.

Depending on whether the NAAQS or CAAQS are met or exceeded, the SFBAAB is classified as being in "attainment" or "nonattainment." Attainment status means that measured pollutant concentrations did not exceed the ambient air quality standards and BAAQMD generally must develop a maintenance plan to ensure attainment is maintained. A non-attainment status means that measured pollutant concentrations have exceeded the ambient air quality standards and BAAQMD must develop a plan to reach attainment status. As shown in **Table 3-1**, the SFBAAB is designated as non-attainment for both the one-hour and eight-hour state ozone standards, which are 0.09 parts per million (ppm) and 0.070 ppm, respectively. The SFBAAB is also in non-attainment for the PM_{10} and $PM_{2.5}$ state standards, which are an annual arithmetic mean of less than 20 µg/m^3 for PM_{10} and less than 12 µg/m^3 for $PM_{2.5}$ and a 24-hour average of 50 µg/m^3 for PM_{10}. In addition, the SFBAAB is designated as non-attainment for the federal 24-hour $PM_{2.5}$ standard of 50 µg/m^3 and the federal 8-hour ozone standard of 0.070 ppm, and is required to prepare a SIP for $PM_{2.5}$ and ozone. All other national and state ambient air quality standards within the SFBAAB are in attainment.

Table 3-1: Criteria Pollutant Attainment Status – SFBAAB

Criteria Pollutant	State CAAQS	Federal (NAAQS)
O_3 – 1-hour standard	Non-attainment	Not applicable (n/a)
O_3 – 8-hour standard	Non-attainment	Non-attainment (marginal)
PM_{10} 24-hour	Non-attainment	Unclassifiable
PM_{10} annual	Non-attainment	n/a
$PM_{2.5}$ 24-hour	n/a	Non-attainment (moderate)
$PM_{2.5}$ annual	Non-attainment	Unclassifiable/ Attainment
CO (both 1- and 8-hour)	Attainment	Attainment
NO_2 (both 1-hour and annual)	Attainment	Attainment
SO_2	Attainment	Designation unavailable
Pb (both 30-day and 3-month)	Designation unavailable	Attainment
Visibility Reducing Particles	Unclassified	n/a
Hydrogen Sulfide (H_2S)	Unclassified	n/a
Vinyl Chloride	No information available	n/a

Source: BAAQMD 2023, EPA 2024.

The BAAQMD prepared the 2017 Bay Area Clean Air Plan as an update to BAAQMD's state O_3 plan, the 2010 Clean Air Plan. The 2017 Clean Air Plan focuses on two goals, which are to protect air quality and health at the regional level and to protect the climate. The subgoals of the first goal are to attain all state and national air quality standards, and to eliminate disparities among Bay Area communities in cancer health risk from TACs. The subgoal of the second goal is to reduce Bay Area greenhouse gas (GHG) emissions 40 percent below 1990 levels by 2030 and 80 percent below 1990 levels by 2050. The 2017 Clean Air Plan includes an integrated set of 85 control measures to reduce O3 precursors, ROG and NO_X, reduce transport of O_3 and its precursors to neighboring air basins, protect public health by reducing emissions of PM and TACs, and reduce GHG emissions across economic sectors. Some measures focus on reducing a single type of air pollutant; however, many of the measures reduce multiple pollutants and protect both public health and the climate. To implement the control strategy, BAAQMD draws upon its existing mechanisms, such as rulemaking enforcement and permitting, and development and promotion of best practices.

The BAAQMD CEQA Air Quality Guidelines were established in May 2012 and updated in May 2017 to evaluate air quality emissions of CO, ozone precursors (ROG and NO_X) and particulate matter, PM_{10} and $PM_{2.5}$, from construction and operation of projects within the SFBAAB.[1] These thresholds are designed such that a project consistent with the thresholds would not have an individually or cumulatively significant impact on the SFBAAB air quality. With the release of the 2017 Bay Area Clean Air Plan, updated thresholds and guidelines may be developed to evaluate air quality emissions from construction and operation of projects in the SFBAAB. The BAAQMD air quality thresholds are listed in **Table 3-2**.

Table 3-2: BAAQMD Air Quality Significance Thresholds

Pollutant	Average Daily Emissions - Construction Thresholds (pounds/day)	Average Daily Emissions – Operation Thresholds (pounds/day)
NO_x	54	54
ROG	54	54
PM_{10}	82 (exhaust only)	82
$PM_{2.5}$	54 (exhaust only)	54
Local CO	none	9.0 ppm (8-hour average), 20.0 ppm (1-hour average)
Toxic Air Contaminants	• Increased Cancer Risk of > 5* in 1 million • Increased non-cancer risk of > 1.0 Hazard Index (Chronic or Acute) • Ambient $PM_{2.5}$ increase of > 0.3 μg/m^3 annual average Zone of influence: 1,000-foot radius from property line of source	
Odor	5 confirmed complaints per year averaged over three years	

*The proposed project site is within an "impacted area" per BAAQMD's Community Air Risk Evaluation (CARE) program and within an "overburdened community," as defined by BAAQMD Regulation 2-1-243, where a lower cancer risk threshold applies.
Source: BAAQMD 2017a

[1] BAAQMD also issued an update to the CEQA Air Quality Guidelines in April 2022 that focused on new climate impact thresholds and guidance on evaluating the climate impacts of land use projects and plans.

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

The BAAQMD Guidelines (BAAQMD 2017a) recommend that a project's consistency with the current air quality plan be evaluated with respect to the following questions:

a. Does the project support the primary goals of the current air quality plan?

b. Does the project include applicable control measures from the current air quality plan?

c. Does the project disrupt or hinder implementation of any air quality plan control measures?

If all the questions can be answered in the affirmative, as supported by substantial evidence, then the project is consistent with air quality plans prepared for the SFBAAB.

The current air quality plan is the BAAQMD 2017 Bay Area Clean Air Plan (BAAQMD 2017b). BAAQMD recommends that a project be evaluated to determine whether it supports the 2017 Bay Area Clean Air Plan goals by comparing project emissions to the BAAQMD thresholds of significance. If emissions would not exceed the thresholds of significance after incorporation of all feasible mitigation measures, then the project would be considered consistent with the 2017 Bay Area Clean Air Plan. Construction and operational emissions from the project are presented below, under question "b," compared to the BAAQMD thresholds of significance. As shown in **Table 3-3** and **Table 3-4**, proposed project emissions would be below the BAAQMD significance thresholds.

The 2017 Bay Area Clean Air Plan contains 85 control measures to reduce air pollution in the SFBAAB. Projects that incorporate all feasible control measures are considered consistent with the 2017 Bay Area Clean Air Plan. Use of medium- and heavy-duty vehicles for the project would comply with applicable diesel emission standards for on-road and off-road engines, consistent with the 2017 Bay Area Clean Air Plan's measures requiring the use of cleaner diesel-fueled engines.

The project would comply with BAAQMD Regulation 6, Rules 1 and 6, which control fugitive emissions of particulate matter by requiring that measures such as watering of exposed soils, watering unpaved construction roads, limiting vehicle speeds on unpaved areas, and sweeping paved roads be implemented during construction. Thus, construction of the project would be consistent with all applicable control strategies in the 2017 Bay Area Clean Air Plan. Because construction of the project would be consistent with all three criteria identified by the BAAQMD to evaluate consistency with the 2017 Bay Area Clean Air Plan, impacts with respect to conflicting with or obstructing implementation of the 2017 Bay Area Clean Air Plan would be less than significant.

Mitigation Measures

None required.

Significance Determination

Less than significant.

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?

The proposed project would result in emissions of criteria pollutants from short-term construction activities. Construction emissions were estimated using the California Emissions Estimator Model (CalEEMod)

2022.1.1.22, which is used throughout California to quantify criteria pollutants and greenhouse gas emissions (GHGs).

The CalEEMod emissions scenarios were based on project-specific information found in Section 2, Project Description. In instances where project-specific information was not available (e.g., construction equipment horsepower (hp), length of worker trips, soil moisture content), the analysis relied on CalEEMod default values for construction activities. As explained in Section 2.5.13 Construction Schedule, project construction is anticipated to begin in approximately March 2026 and is expected to last until March 2031. The construction schedule conservatively assumes the project is constructed as a single project. This assumption is conservative because emissions would be compressed into a shorter time period than if construction is phased; phased construction would result in lower daily emissions. The model also assumes compliance with BAAQMD Regulation 6, Rules 1 and 6, which control fugitive emissions of particulate matter, by requiring measures such as watering of exposed soils, watering unpaved construction roads, limiting vehicle speeds on unpaved areas, and sweeping paved roads be implemented during construction.

Construction Emissions

The criteria air pollutant emissions from construction of the proposed project were estimated using CalEEMod version 2022.1.1.22. The tables below present the daily emissions for each of the modeled criteria air pollutants for which the SFBAAB has not attained national and/or State criteria. **Table 3-3** presents average daily emissions and shows that the project's construction emissions would not exceed regional thresholds.

Table 3-3: Proposed Project Average Daily Construction Emissions Compared to Regional Thresholds (pounds/day)

Construction Year	NO_x	ROG	$PM_{2.5}$ Exhaust	PM_{10} Exhaust
2026	32.8	3.56	1.25	1.36
2027	37.7	4.14	1.39	1.51
2028	40.9	4.58	1.46	1.59
2029	39.6	4.55	1.39	1.51
2030	21.8	2.45	0.73	0.79
2031	3.31	0.37	0.11	0.12
BAAQMD Regional Thresholds	*54*	*54*	*54*	*82*
Threshold exceeded?	**No**	**No**	**No**	**No**

The project would not result in an exceedance of national or State ambient air quality standards and impacts would be less than significant.

Operations

The proposed project would require added operations and maintenance activities by the District, but the additional activities would be accomplished with the existing level of worker vehicle trips and would not result in a net increase in vehicle tailpipes air pollutant emissions. The proposed new treatment system would require added electrical usage from Marin Clean Energy (MCE). The project is expected to increase average daily electricity demand at the plant from approximately 19,300 kWh per day to 26,055 kWh per day. Long-term emissions of criteria air pollutants from the proposed project would result from indirect emissions from electricity consumption. However, only direct emissions of criteria pollutants from energy sources that combust on-site, such as diesel and natural gas, are attributed to the proposed project. Criteria pollutant emissions from power plants that generate electricity are associated with the power plants themselves, which are stationary sources permitted by air districts and/or the EPA, and are subject to local, state and federal control measures. Thus, emissions of criteria pollutants from electricity consumption are not attributed to individual projects. Criteria pollutants associated with the proposed project electricity facilities would be from permitted stationary sources that would undergo separate permitting procedures; those emissions are thus not included in the proposed project's total emissions.

The changes in treatment processes proposed by the project would result in changes in criteria air pollutant emissions. The proposed project would modify existing facilities at the WWTP as well as add new structures and below-grade utilities. The electrical improvements would add a new up to 1.5-MW standby generator that would operate in parallel with the existing 1 MW generator. Operational emissions from stationary sources and the change in wastewater throughput were calculated using published emission factors from the requirements of Tier 4 engines, BAAQMD and the Joint Emission Inventory Program database (Yorke 2024). Operational emissions were estimated by comparing recent historic actual emissions to the proposed project new maximum potential to emit. For this approach, the operations after the proposed facility changes (i.e., increased wastewater treatment throughput of 19.5 MGD and the new emergency generator) were compared to baseline condition (i.e., current operations of the WWTP based on average wastewater flow from the last 5 years of 13.4 MGD). It was assumed the emergency generator would operate 50 hours per year and that it would meet the emission standards of a Tier 4 engine as would be required to comply with BAAQMD permitting requirements (i.e., best available control technologies or BACT). The estimated criteria air pollutant emissions from increased wastewater throughput assume there would be no increase to the digester gas throughput limits on the flare, boiler, or CHP engines, which are in place already or covered under a separate CEQA document and/or permit application. The proposed physical changes to the aeration basins and secondary clarifiers do not affect the emission calculations; changes in emissions are only attributable to the increased wastewater throughput and emergency generator.

Operational emissions of criteria pollutants associated with the proposed project are included in **Table 3-4**. No BAAQMD thresholds would be exceeded by operation of the proposed project.

Table 3-4: Proposed Project Average Daily Increase in Emissions Compared to Regional Thresholds (pounds/day)

Emissions Source	(NO_x)	(VOC)	PM_{10}	$PM_{2.5}$
Stationary sources and change in treatment process	0.3	9.9	0.01	0.01
Additional Vehicle Miles Traveled	negligible	negligible	negligible	negligible
BAAQMD Threshold	*54*	*54*	*82*	*54*
Threshold Exceeded?	***No***	***No***	***No***	***No***

Mitigation Measures

None required.

Significance Determination

Less than significant.

c) Expose sensitive receptors to substantial pollutant concentrations?

The Bay Area Air Quality Management District (BAAQMD 2017a) defines sensitive receptors as, "facilities or land uses that include members of the population that are particularly sensitive to the effects of air pollutants, such as children, the elderly, and people with illnesses. Examples include schools, hospitals, and residential areas." As explained in Section 2.4.1 Environmental Setting, the project site is bounded by the Pittsburg-Antioch Highway to the south, the BNSF railroad tracks to the north, the Delta Energy Center to the west and Los Medanos Wasteway (a channelized manmade conveyance) to the east. Within one-quarter mile of the project area, there are no sensitive receptors.

Furthermore, all emissions would be below the regional thresholds (see **Table 3-3** and **Table 3-4**). The CAAQS and NAAQS provide public health protection, including protecting the health of sensitive populations such as asthmatics, children, and the elderly. A project that is consistent with the latest adopted clean air plan and does not exceed the BAAQMD significance thresholds can be assumed to not have a substantial adverse impact on public health. The project would conform with BAAQMD Regulation 6, Rules 1 and 6, which control fugitive emissions of particulate matter, by requiring measures such as watering of exposed soils, watering unpaved construction roads, limiting vehicle speeds on unpaved areas, and sweeping paved roads be implemented during construction. The proposed project would not result in an increase in operational emissions that could lead to CO hotspots. According to the BAAQMD CEQA Guidelines (BAAQMD 2017a), CO hotspots tend to occur at intersections with greater than 44,000 vehicles per hour. The project would not introduce new long-term operational vehicle trips and there are no congested intersections in the vicinity.

According to the BAAQMD CEQA Guidelines (BAAQMD 2017a), common sources of toxic air contaminants (TACs) and $PM_{2.5}$ include gasoline stations, dry cleaners, diesel backup generators, freeways, and construction sites. The project would add an additional diesel emergency generator and it would increase the wastewater throughput at the WWTP. Both changes have the potential to result in emissions of TACs and $PM_{2.5}$ in the long term. Emissions of TACs and $PM_{2.5}$ were calculated for the project (Yorke 2024) using BAAQMD's permitting handbook for 80th percentile toxic emissions from WWTPs. The complete list of the proposed project's estimated emissions, as well as details on modeling assumptions, can be found in **Appendix B**.

The concentration of $PM_{2.5}$ that could potentially result from the proposed diesel generator was estimated using the BAAQMD Risk and Hazard Emissions Screening Calculator. Modeling assumed a distance of 55 meters between the new generator and the nearest facility fence line, the property boundary of the Delta Energy Center to the east. The proposed project would result in a particulate matter concentration of 0.011 $\mu g/m^3$, which is below the BAAQMD threshold of significance (see **Table 3-2**) of 0.3 $\mu g/m^3$. Therefore, sensitive receptors would not be subjected to substantial particulate matter concentrations and impacts would be less than significant.

Health risks associated with the proposed project's estimated emissions of TACs and $PM_{2.5}$ were estimated using the Tier 1/ Tier 2 Screening Risk Assessment tool, developed by South Coast Air Quality Management District. The tool allows for health risk modeling that incorporates unique characteristics of a site that can influence how much of an impact TAC and $PM_{2.5}$ emissions have on health. The modeling incorporated receptor type and time spent in proximity to the emissions source, how dispersed the emission would be over the WWTP site, the duration of emissions from the proposed project, and the height of emissions release. Specifically, the modeling characterized the proposed project emissions as a volume source over the largest possible area of 30,000 square feet to account for the large footprint of the WWTP site, a distance of 60 meters to the nearest commercial receptor and 800 meters to the nearest residential receptor, and an around-the-clock operating schedule. Full details on health risk modeling can be found in **Appendix B**.

According to the health risk screening, the residential cancer risk would be 0.92 in 1 million and the commercial cancer risk would be 2.66 in 1 million. The highest acute or chronic hazard index is 0.0653. These results are lower than the BAAQMD thresholds of significance presented in **Table 3-2** of 5 in 1 million cancer risk and non-cancer hazard index risk of 1.0 (acute or chronic). Therefore, sensitive receptors would not be subjected to substantial pollutant concentrations and impacts would be less than significant.

Mitigation Measures

None required.

Significance Determination

Less than significant.

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

Examples of facilities commonly known to generate objectionable odors include wastewater treatment plants, sanitary landfills, composting/green waste facilities, recycling facilities, petroleum refineries, chemical manufacturing plants, painting/coating operations, rendering plants, and food packaging facilities (CARB 2005). The proposed project would involve emissions of sulfur compounds from use of oil and diesel fuel during construction, which would potentially result in unpleasant odors. Construction would be temporary and odorous emissions from construction equipment tend to dissipate quickly within short distances from construction sites.

Once the proposed project is operational, the activated sludge process would have additional aeration capacity to provide sufficient air to maintain dissolved oxygen levels high enough for the process and for mitigation of odors. The plant would continue to add chemicals upstream of the secondary system to control odors. Impacts would be less than significant.

Mitigation Measures

None required.

Significance Determination

Less than significant.

3.4 Biological Resources

	Potentially Significant Impact	*Less Than Significant with Mitigation Incorporated*	*Less than Significant Impact*	*No Impact*
Would the Project:				
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	[ ]	[X]	[ ]	[ ]
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, and regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	[ ]	[ ]	[X]	[ ]
c) Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	[ ]	[X]	[ ]	[ ]
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	[ ]	[X]	[ ]	[ ]
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	[ ]	[ ]	[X]	[ ]

f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	[ ]	[ ]	[ ]	[X]

Discussion

The potential presence of sensitive biological resources in the study area was determined through a review of existing information and field surveys. A biological resources report was prepared for the project (ICF 2024a) (see **Appendix C**) and includes the following information.

- A list of resources that were reviewed to identify special-status species and other sensitive biological resources with potential to occur in the study area.
- Methods and results of field surveys.
- Descriptions of the land cover types in the study area (**Figure 3-2**).
- Special-status plant and wildlife species tables, which identify species with potential to occur in or adjacent to the study area and their potential for occurrence in the study area.
- Discussion and information about the suitability of the project area to support special-special-status plant and wildlife species with moderate or high potential to occur in the study area.
- An analysis of the potential effects of the project on aquatic resources, special-status plants, special-status wildlife, and non-special-status nesting migratory birds.

Figure 3-2: Biological Resources Study Area and Land Cover

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

The study area consists of the project area and the area approximately 250 feet north of the proposed staging area (**Figure 3-2**). As described in the biological resources report, the non-native annual grassland and potential seasonal wetland land cover in the study area have a moderate potential to support two special-status plants: big tarplant (*Blepharizonia plumosa*) and stinkbells (*Fritillaria agrestis*). In addition, the study area has a moderate to high potential to support eight special-status wildlife species: monarch butterfly (*Danaus plexippus*); California tiger salamander (*Ambystoma californiense*); California red-legged frog (*Rana draytonii*), western pond turtle (*Actinemys marmorata*), giant gartersnake (*Thamnophis gigas*), western burrowing owl (*Athene cunicularia hypugaea*), northern harrier (*Circus cyaneus*), and white-tailed kite (*Elanus leucurus*). An additional species, Modesto song sparrow (*Melospiza melodia*), has a moderate potential to occur immediately adjacent to the study area and could be affected by project activities.

Non-native annual grassland provides potential habitat for big tarplant and stinkbells. Proposed activities in the staging area (e.g. stockpiling of materials, construction staging, and construction office trailers and parking) could damage or remove individuals of these special-status plants. Additionally, runoff of gasoline, oil, or other contaminants could damage habitat or kill individual plants. This impact on special-status plants would be potentially significant.

Non-native annual grassland within the proposed staging area provides suitable foraging and potential breeding habitat for monarch butterfly. Proposed activities in the staging area (e.g. stockpiling of materials, construction staging, and construction office trailers and parking) could cause injury or mortality of adults or crush milkweed plants with monarch butterfly larvae. Additionally, gasoline, oil, or other contaminant spills could damage habitat and injure or kill individuals. This impact on monarch butterfly would be potentially significant.

While there is no aquatic habitat for California tiger salamander, California red-legged frog, western pond turtle, or giant gartersnake in the project area, aquatic habitat is located adjacent to the project area in the emergency retention basin in the northern portion of the WWTP and in wetlands located 0.71-mile northwest of the staging area. In addition, Kirker Creek, located south of the project area, and Contra Costa Canal (also called Kirker Creek on the National Hydrography Dataset (NHD) map), located east of the project area, provide suitable aquatic habitat for California red-legged frog, western pond turtle, and giant gartersnake. Proposed activities in the northernmost and easternmost portions of the project area adjacent to the emergency retention basin and Kirker Creek could injure or kill individuals of these species if they were to enter the project area and be struck by moving vehicles or equipment. Additionally, individuals could become entrapped and entombed in open trenches that are covered or filled. Because the ground in the WWTP is compacted dirt or gravel, or paved, these species are not expected to estivate or nest in the northern and eastern portions of the project area. Non-native grassland in the staging area is upland habitat for California tiger salamander, California red-legged frog, western pond turtle, and giant gartersnake. The staging area could be used by California red-legged frog to forage; by California tiger salamander, California red-legged frog, and giant gartersnake for refuge or estivation (in burrows or under natural or human-made materials); and by western pond turtle to nest. Proposed activities in the staging area could cause injury or mortality of individuals, or western pond turtle eggs could be crushed. Additionally, gasoline, oil, or other contaminant spills could injure or kill individuals and eggs or damage habitat. These impacts on California tiger salamander, California red-legged frog, western pond turtle, or giant gartersnake would be potentially significant.

While western burrowing owl has a moderate potential to forage in the project area, it not anticipated to nest or winter in the project area due to the absence of appropriately sized mammal burrows created by California ground squirrel (*Otospermophilus beecheyi*). Noise or other activities in the staging area could disturb western burrowing owls that are foraging in or near the staging area but no impacts on breeding or overwintering owls are anticipated. White-tailed kite could nest in trees in the project area along Arcy Lane in the WWTP, in the lone tree in the staging area outside the WWTP, and in trees near the project area including those north of the staging area and along Kirker Creek south and east of the project area. Northern harrier could nest in the non-native annual grassland within the staging area. Nesting habitat for northern harrier and song sparrow ("Modesto" Population) is also located near the project area in the emergency retention basin in the north portion of the WWTP and along Kirker Creek south and east of the project area; there is no nesting habitat for song sparrow in the project area. Destruction or disturbance of active nests could result in the direct or indirect loss of nestlings or eggs. Noise and visual disturbance from construction near active nests in trees could result in nest abandonment, disruption of feeding patterns, or forced fledging of young. Impacts on nesting white-tailed kite, northern harrier, or Modesto song sparrow would be potentially significant.

Mitigation Measures:

Implementation of Mitigation Measure BIO-1: Conduct Pre-Construction Surveys for Special-Status Plants and Milkweed, Mitigation Measure BIO-2: Establish Activity Exclusion Zones Around Special-Status Plants and Milkweed in Temporary Impact Areas, and Mitigation Measure BIO-3, Conduct Worker Environmental Awareness Training and Implement General Requirements, would ensure that project activities would not affect special-status plants.

Implementation of Mitigation Measure BIO-1: Conduct Pre-Construction Surveys for Special-Status Plants and Milkweed, Mitigation Measure BIO-2: Establish Activity Exclusion Zones Around Special-Status Plants and Milkweed in Temporary Impact Areas, and Mitigation Measure BIO-3: Conduct Worker Environmental Awareness Training and Implement General Requirements would ensure that project activities would minimize or avoid potential effects on monarch butterfly.

Implementation of Mitigation Measure BIO-3: Conduct Worker Environmental Awareness Training and Implement General Requirements; Mitigation Measure BIO-4: Install and Monitor Wildlife Exclusion Fencing; Mitigation Measure BIO-5: Conduct a Preconstruction Survey for California Tiger Salamander, California Red-Legged Frog, Western Pond Turtle, and Giant Gartersnake; and Mitigation Measure BIO-6: Monitor Construction Activities at the Staging Area during the Rainy Season would ensure that project activities would minimize or avoid potential effects on California tiger salamander, California red-legged frog, western pond turtle, and giant gartersnake.

Implementation of Mitigation Measure BIO-3: Conduct Worker Environmental Awareness Training and Implement General Requirements and Mitigation Measure BIO-7: Conduct Preconstruction Nesting Bird Surveys and Implement Protective Buffers around Active Nests would ensure that project activities minimize or avoid potential effects on nesting white-tailed kite, northern harrier, or Modesto song sparrow.

Mitigation Measure BIO-1: Conduct Pre-Construction Surveys for Special-Status Plants and Milkweed

Prior to the start of construction, the District will retain a qualified botanist to conduct special-status plant surveys in the staging area during the appropriate identification period for big tarplant

(August or September) and stinkbells (April or May). During these surveys, the botanist will also look for and map any locations of milkweed. A memorandum of the survey results will include the location and description of the survey area and the location and description of any occupied habitat for special-status plant species. If special-status plants are present, the memo will also identify locations where effective avoidance measures could be implemented, as further described in Mitigation Measure BIO-2. In areas where no special-status plant species are present, no further mitigation will be required.

Mitigation Measure BIO-2: Establish Activity Exclusion Zones Around Special-Status Plants and Milkweed in Temporary Impact Areas

Where surveys conducted according to Mitigation Measure BIO-1 determine that a special-status plant species or milkweed is present in or adjacent to an area where temporary ground-disturbing activities would take place, the District will avoid project impacts on the special-status species and milkweed through the establishment of activity exclusion zones, in which no ground-disturbing activities will take place, including construction staging or other temporary work areas. Activity exclusion zones for special-status plant species will be a minimum of 50 feet established around each occupied habitat site, the boundaries of which will be clearly marked with construction exclusion fencing or its equivalent. The establishment of activity exclusion zones will not be required if no construction-related disturbances occur within 250 feet of the occupied habitat. The size of activity exclusion zones may be reduced below 50 feet through consultation with a qualified biologist and with concurrence from CDFW or, for any federally listed species, from USFWS based on site-specific conditions. Activity exclusion zones for milkweed will be a minimum of 20 feet around individual or groups of milkweed plants, the boundaries of which will be clearly marked with construction exclusion fencing or other high visibility materials.

Mitigation Measure BIO-3: Conduct Worker Environmental Awareness Training and Implement General Requirements

Prior to the start of construction, the District will retain a qualified biologist to conduct an employee education program for all contractors, their employees, and agency personnel involved in the proposed project. The program will include the following: a brief description of the natural history of the special-status species with potential to occur in the construction area (as covered in the other mitigation measures) and their habitats with the potential to be affected by the proposed project, the general measures that are being implemented to conserve these species as they relate to the proposed project, the penalties for non-compliance, and the boundaries of the project area within which the proposed project must be accomplished. A pamphlet or fact sheet conveying this information will be prepared and distributed. Requirements that will be followed by construction personnel are listed below.

- Project-related vehicles will observe a 15-mile-per-hour speed limit on unpaved roads within the limits of construction.
- Project-related vehicles and construction equipment will restrict off-road travel to the designated construction areas.
- The contractor will provide closed garbage containers for the disposal of all food-related trash items (e.g., wrappers, cans, bottles, food scraps). All garbage will be collected daily from the

action area and placed in a closed container that will be emptied weekly at an approved offsite location. Construction personnel will not feed or otherwise attract fish or wildlife.

- No pets will be allowed in the project area.
- No firearms will be allowed in the project area.
- If vehicle or equipment maintenance is necessary, it will be performed on paved or graveled area at least 100-feet from any waterway or wetlands.
- Plastic mono-filament netting (erosion control matting) or similar material containing netting will not be used at the project. Acceptable substitutes include coconut coir matting or tackified hydroseeding compounds.
- Pipes, culverts, and similar materials greater than 4 inches in diameter will be stored to prevent special-status wildlife species from using these as temporary refuges, and these materials will be inspected each morning for the presence of animals prior to being moved. An example of an appropriate storage method is to elevate materials at least 4 inches above the ground surface.
- To prevent the accidental entrapment of special-status wildlife during construction, all excavated holes or trenches deeper than 6 inches will be covered at the end of each workday with plywood or similar materials. Ramps will be placed in trenches or larger excavations that cannot easily be covered to allow trapped animals an escape method. Trenches and holes will be thoroughly inspected for animals prior to filling.
- Trenches will be backfilled as soon as possible. Open trenches will be searched each day prior to construction to ensure no listed species are trapped.
- Any worker who inadvertently injures or kills a special-status species or finds one dead, injured, or entrapped will immediately report the incident to the construction manager. The construction manager will immediately notify the District, who will provide verbal notification to the California Department of Fish and Wildlife (CDFW) and/or the U.S. Fish and Wildlife Service (USFWS) within 1 working day of the incident. the District will follow up with written notification within 5 working days of the incident. All observations of special-status species will be recorded on CNDDB field sheets and sent to CDFW by the District.

Mitigation Measure BIO-4: Install and Monitor Wildlife Exclusion Fencing

Wildlife exclusion fencing (such as ERTEC E-Fence) will be installed prior to work in the northern-most work area between the emergency retention basin and the new secondary clarifier and related secondary effluent pipeline in the WWTP, in the eastern-most work area between the demolition of existing trickling filters and odor control biofilter facility work area and Kirker Creek in the WWTP, and around the staging area outside the WWTP. The fence around the staging areas will have one-way escape funnels installed. A biological monitor will make weekly visits to the project area to inspect the fencing and ensure that it is intact, and not sagging or damaged. The biological monitor will report any needed repairs to the construction foreman and will remain on site until the repair is made. Fence inspections and repairs will be documented in a monitoring log, which will be available to CDFW and USFWS upon request.

Mitigation Measure BIO-5: Conduct a Preconstruction Survey for California Tiger Salamander, California Red-Legged Frog, Western Pond Turtle, and Giant Gartersnake

To avoid and minimize injury and mortality of California tiger salamander, California red-legged frog, western pond turtle, and giant gartersnake, the District will retain a qualified wildlife biologist to conduct preconstruction clearance survey no more than 24 hours before ground disturbance at the staging area and along the perimeter of the developed portion of the project area. If work does not begin within 24 hours, the survey will be repeated. Methods and results of the surveys will be documented in a letter report and provided to CDFW and USFWS within 1 week of completing the survey. If any of the target species is found, work will not commence until the District contacts USFWS and CDFW to determine appropriate actions.

Mitigation Measure BIO-6: Monitor Construction Activities at the Staging Area during the Rainy Season

If use of the staging area extends beyond October 1, the District will retain a qualified wildlife biologist to monitor use of the staging area during the first rain event of the season and thereafter until construction is complete. If a California tiger salamander or California red-legged frog is found, work will immediately stop, and the District will contact USFWS and CDFW to determine appropriate actions.

Mitigation Measure BIO-7: Conduct Preconstruction Nesting Bird Surveys and Implement Protective Buffers around Active Nests

To ensure that nesting western burrowing owl, northern harrier, white-tailed kite, Modesto song sparrow, and other migratory birds and their nests are protected during construction, the District will implement the following measures.

- To the extent feasible, conduct initial activities (vegetation removal, tree trimming or removal, ground disturbance, grading, and other construction activities) outside the nesting season (February 15–September 15).
- If initial activities are scheduled to occur during the bird nesting season, a qualified wildlife biologist (i.e., a biologist with experience locating and identifying bird nests and nesting behaviors) will conduct a nesting bird preconstruction survey no more than 7 days prior to the start of construction in all areas that may support nesting birds. If work does not begin within 10 days of the survey or construction activities stop for 10 days or more during the nesting season, the areas will be resurveyed for active nests. The biologist will also survey natural areas within a 250-foot radius for raptors and a 50-foot radius for passerines.
- If active nests are found during the preconstruction nesting bird survey, the qualified biologist will determine if the planned construction activities could affect active nests and the District will implement one or more of the following additional measures:
  - If the qualified biologist determines that construction is not likely to affect an active nest, construction may proceed without restriction; however, a qualified biologist will regularly monitor the nest at a frequency determined appropriate for the surrounding construction activity to confirm there is no adverse effect. Monitoring frequency will be determined on a nest-by-nest basis, considering the particular construction activity, duration, proximity to the nest, and physical barriers that may screen activity from the nest.

- If the qualified biologist determines that construction may affect a nest directly or cause abandonment the nest, the qualified biologist will establish a no-disturbance buffer around the nest, and all project work will halt within the buffer to avoid disturbance or destruction until a qualified biologist determines that the nest is no longer active. Typically, buffer distances are a minimum of 50 feet for passerines and 250 feet for raptors; however, the buffers may be decreased if an obstruction, such as a building, is within the line of sight between the nest and construction.
- Modifying nest buffer distances, allowing certain construction activities within the buffer, and/or modifying construction methods in proximity to active nests will be approved by the qualified biologist and in compliance with the California Fish and Game Code and other applicable laws.
- Any work that must occur within established no-disturbance buffers around active nests will be monitored by a qualified biologist. If adverse effects in response to project work within the buffer are observed and could lead to nest failure, work within the no-disturbance buffer will immediately stop and the no disturbance buffer will be reinstated until the young have fledged. The biologist will continue to monitor the nest until it is determined that the birds have resumed normal behaviors.
- Any birds that begin nesting within the project area and survey buffers during construction activities are assumed to be habituated to construction-related or similar noise and disturbance levels. Work may proceed around these active nests. The qualified biologist will periodically monitor nest activity and may implement a no-disturbance buffer around a nest in the work area to ensure that the nest is not destroyed.

Significance Determination

Less than significant with mitigation.

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

No riparian habitat or other sensitive natural community is present in the project area. The closest sensitive natural community (i.e., riparian habitat) is Kirker Creek located south of the staging area and Contra Costa Canal (also shown as Kirker Creek on NHD maps) east of the WWTP. Kirker Creek is approximately 70 feet south of the southern boundary of the staging area outside the WWTP. Inside the WWTP, the closest work area to the Kirker Creek is associated with the demolition of the existing trickling filters and odor control biofilter facility; the eastern most boundary of this work area is located approximately 70 feet northwest of Kirker Creek. Although the project would not result in any direct effect on riparian habitat, indirect impacts such as the runoff of sediment, gasoline, oil, or other contaminants could affect riparian habitat. Implementation of BMPs in these areas in accordance with the project SWPPP would reduce impacts to riparian habitat to a less-than-significant level. Because there would be no direct impacts on riparian habitat and riparian habitat would be protected through compliance with local and state regulations including implementing BMPs, the project's impact on riparian habitat would be less than significant.

Mitigation Measures

None required.

Significance Determination

Less than significant.

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?

Proposed construction activities could impact potential seasonal wetlands located outside the WWTP north of the staging area, the emergency retention basin in the north part of the WWTP, and off-site aquatic resources including the Corteva Wetlands Preserve, Kirker Creek located south of the project area, Contra Costa Canal (also shown as Kirker Creek on NHD maps) on the east side of the project area, and Dowest Slough on the west side of the project area.

Proposed activities in the staging area (e.g. stockpiling of materials, construction staging, and construction office trailers and parking) would occur 200 feet south of the potential seasonal wetlands, thereby avoiding direct effects on potential seasonal wetlands along a dirt access road at the northern edge of the study area (**Figure 3-2**). The northern boundary of the staging area would be 200 feet south of the dirt access road so as to avoid potential seasonal wetlands.

Indirect impacts on off-site aquatic resources could occur in the emergency retention basin, which is approximately 50 feet north of a new secondary clarifier and related pipeline in the north part of the WWTP. Kirker Creek is approximately 70 feet south of the southern boundary of the staging area and a tributary of Dowest Slough is approximately 200 feet west of the staging area. Inside the WWTP, the closest work area to an aquatic resource is associated with the demolition of the existing trickling filters and odor control biofilter facility; the easternmost boundary of this work area is located approximately 70 feet northwest of Contra Costa Canal (also shown as Kirker Creek on NHD maps). The Corteva Wetlands Preserve is approximately 0.5-mile northeast of the staging area. Indirect construction impacts on the emergency retention basin, Kirker Creek, Dowest Slough, Contra Costa Canal, and the Corteva Wetlands Preserve could result from influx of water and sediment during construction, loss of recharge area, changes in local drainages patterns, and runoff of sediment, gasoline, oil, or other contaminants. This impact would be potentially significant.

Mitigation Measures

With implementation of Mitigation Measure BIO-8, Avoid and Minimize Disturbance to Potential Seasonal Wetlands, direct impacts on seasonal wetlands north of the staging area would be avoided. Implementation of BMPs in the staging area in accordance with the project SWPPP would reduce indirect impacts on potential wetlands north of the proposed staging area and off-site streams and wetlands to a less-than-significant level.

Mitigation Measure BIO-8: Avoid and Minimize Disturbance to Potential Seasonal Wetlands

To prevent indirect impacts on potential seasonal wetlands north of the staging area, the northern boundary of the staging area will be marked by a construction exclusion fence designed in accordance with mitigation measures for protection of special-status species. Fencing will remain in place for the duration of the use of the staging area and removed when all activity in the staging area is complete.

Significance Determination

Less than significant with mitigation.

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?

No fish habitat (e.g., rivers, creeks, estuaries, ponds) is present in the project area, therefore the project would not affect fish movement or spawning/nursery sites.

CDFW and the California Department of Transportation commissioned the California Essential Habitat Connectivity Project because a functional network of connected wildlands is essential to the continued support of California's diverse natural communities in the face of human development and climate change (Spencer et al. 2010:1). The Essential Connectivity Map shows the relatively natural habitat blocks that support native biodiversity (natural landscape blocks) and areas essential for ecological connectivity between them (essential connectivity areas) (Spencer et al. 2010:xii). Mapped natural landscape blocks are large areas of mostly intact and well-conserved natural areas, and essential connectivity areas are connections between these blocks that have been identified as high priority for maintaining and enhancing ecological connectivity (Spencer et al. 2010:xi). According to information in CDFW's online Habitat Connectivity Viewer, the project area is not located within any natural landscape blocks or essential connectivity areas (California Department of Fish and Wildlife 2024). CDFW's Areas of Conservation Emphasis layer for terrestrial connectivity in the online Habitat Connectivity Viewer shows the project area within the area categorized as "limited connectivity opportunity" (California Department of Fish and Wildlife 2024). "

East-west movement of terrestrial wildlife between the proposed staging area, the open space to the west and the Corteva Wetland Preserve to the east is impeded by three chain link fences, Arcy Lane (a paved road), the WWTP's Delta Household Hazardous Waste Collection Facility, and additional roadways and graveled areas surrounding the WWTP. While the staging area is being used, terrestrial wildlife would be able to move between the open space to the west and the Corteva Wetland Preserve by traveling along the south portion of the staging area and Kirker Creek.

Project activities within the WWTP would occur within a developed area that limits terrestrial wildlife movement through it. Temporary fencing, noise, and increased activity in the staging area could cause terrestrial wildlife to avoid the staging area or alter their movements to get around the staging area. This could result in additional travel and increased energy expenditure. Given that the staging area is relatively small, this impact is expected to be minor, especially for medium and large terrestrial wildlife. The project does not include additional permanent fencing within or outside the WWTP and would not create new permanent barriers to wildlife movement. The project would not substantially interfere with the movement of native resident wildlife movement and the potential impact on native resident wildlife movement would be less than significant.

As discussed above for Impact 3.4a, non-native annual grassland in the proposed staging area is a potential nursery site for monarch butterfly (if milkweed is present for larval development) and western pond turtle (potential nesting habitat). Similarly, impacts on nursery sites for monarch butterfly and western pond turtle would be potentially significant.

As discussed above for Impact 3.4a, the project area provides potential nesting habitat (nursery sites) for special-status birds. The project area also provides potential nesting habitat for non-special status birds that are protected under the federal Migratory Bird Treaty Act (16 U.S.C. Section 703, et seq.) and Sections

3503, 3503.5, and 3513 of the California Fish and Game Code. Potential nesting habitat in the project area includes structures and existing ornamental vegetation (including trees) within the WWTP and non-native annual grassland with a tree and scattered coyote brush (*Baccharis pilularis*) in the proposed staging area. If project activities are initiated during the nesting season (February 15 to September 15), nesting activities or active nests could be disturbed. Destruction or disturbance of active nests could result in the direct or indirect loss of nestlings or eggs. Noise and visual disturbance from construction near active nests in trees could result in nest abandonment, disruption of feeding patterns, or forced fledging of young. This impact would be potentially significant.

Mitigation Measures

Implementation of **Mitigation Measure BIO-1**: Conduct Pre-Construction Surveys for Special-Status Plants and Milkweed; **Mitigation Measure BIO-2**: Establish Activity Exclusion Zones Around Special-Status Plants and Milkweed in Temporary Impact Areas; **Mitigation Measure BIO-3**: Conduct Worker Environmental Awareness Training and Implement General Requirements; **Mitigation Measure BIO-4**: Install and Monitor Wildlife Exclusion Fencing; and **Mitigation Measure BIO-5**: Conduct a Preconstruction Survey for California Tiger Salamander, California Red-Legged Frog, Western Pond Turtle, and Giant Gartersnake would ensure that project activities would minimize or avoid potential effects on nursery sites for monarch butterfly and western pond turtle.

Implementation of **Mitigation Measure BIO-7**, Conduct Preconstruction Nesting Bird Surveys and Implement Protective Buffers around Active Nests would ensure that project activities would minimize or avoid potential effects on nesting white-tailed kite, northern harrier, or Modesto song sparrow.

See Mitigation Measures **BIO-1**, **BIO-2**, **BIO-3**, **BIO-4**, **BIO-5**, and **BIO-7**.

Significance Determination

Less than significant with mitigation.

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

Trees may be removed in the project area including those where new aeration basins and new mixed liquor pipeline are proposed in the WWTP. Local policies and ordinances for protecting biological resources include Article XIX. Tree Preservation and Protection in the City of Pittsburg Municipal Code Section and Article 12: Tree Preservation and Regulation in the City of Antioch Municipal Code Section.

The City of Pittsburg Municipal Code Section 18.84.835 defines a “protected tree” as:

- a California native tree, as identified in the Calflora online database of wild California plants, that measures at least 50 inches in circumference (15.6 inches diameter) at four and one-half feet above grade, regardless of location or health; or
- a tree of a species other than a California native that measures at least 50 inches in circumference at four and one-half feet above grade and is either on an undeveloped property, located on public property or within the right-of-way, or located on private property and is found to provide benefits to the subject property as well as neighboring properties, subject to determination by the city planner; or
- a tree required to be planted, relocated, or preserved as a condition of approval of a tree removal permit or other discretionary permit, and/or as environmental mitigation for a discretionary permit.

The District would be required to obtain permits before removing protected trees (Sections 18.84.845-18.84.852) and to compensate for the loss of protected trees (Section 18.84.855) as described in the City of Pittsburg Municipal Code.

The City of Antioch Municipal Code Section 9-5.203 defines a "protected tree" as:

- Any tree required to be preserved as a condition of an approval from a "regular development application", and/or any tree that is shown to be preserved on an approved development plan as submitted by the applicant and subsequently approved by the city.
- All established indigenous trees. Established trees are any trees that are at least 10 inches in diameter, as measured four- and one-half feet above natural or finished grade. Established trees include mature and landmark trees as defined below. Indigenous trees are any naturally growing tree of the following species: blue oak (*Quercus douglasii*), valley oak (*Quercus lobata*), coast live oak (*Quercus agerifolia*), canyon live oak (*Quercus chrysolepis*), interior live oak (*Quercus wislizenii*), California buckeye (*Aesculus californica*), and California bay (*Umbellularia californica*).
- All street trees. Street trees are any tree planted within either the public right-of-way and/or tree planting easement, where applicable.
- All mature and landmark trees. Mature trees are any trees that are at least 26 inches in diameter, as measured four and one-half feet above natural grade. Landmark trees are any trees that are at least 48 inches in diameter and/or in excess of 40 feet in height.

The District would be required to obtain permits before removing protected trees (Section 9-5.1203) and to compensate for the loss of protected trees (Sections 9-5.1205) as described in the City of Antioch Municipal Code.

As the project would comply with the City of Pittsburg and Antioch Municipal Codes if conducting tree removal, the project would not conflict with any local policies or ordinances that protect biological resources, therefore impacts would be less than significant.

Mitigation Measures

None required.

Significance Determination

Less than significant.

f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?

The project area is not part of an area covered by an adopted or proposed habitat conservation plan (HCP) or natural community conservation plan (NCCP) or any other local, regional, or state HCP. Area covered by the East Contra Costa County HCP/NCCP is located west, south, and east of the project area but does not include the project area. Therefore, the proposed project would not conflict with the provisions of an adopted HCP, NCCP, or other approved local, regional, or state HCP, and no impact would occur.

Mitigation Measures

None required.

Significance Determination

Less than significant.

3.5 Cultural Resources

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

Discussion

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

A cultural and historical resources record search was conducted for the project site and a 0.25-mile radius on January 25, 2024, at the Northwest Information Center (NWIC) of the California Historical Resources Information System (CHRIS) to identify previous cultural resources and built environment studies and records (NWIC File #23-1022). The results of the records search are included in a separate technical report prepared for the project (ICF 2024b). A review of archival maps and aerial photographs was also completed.

Thirty previous cultural resources studies occurred within the project site or within a 0.25-mile radius of the project site. The records search identified seven previously recorded built-environment resources within a 0.25-mile radius of the project site. Seven previously recorded historical-aged built-environment resources are within 0.25 mile of the project site and would not be adversely affected by the proposed project. The records search did not identify any historical resources on the project site. The approximate historical location of the de Anza trail, which is a National Historical Trail, is in an area off of the project site to the north and would not be affected by the proposed project.

In addition, a site visit was performed by ICF archaeologists Shelby Caulder and Leann Taagepera on February 16, 2024, during which an intensive archaeological survey of unpaved and/or undeveloped portions of the project site was completed. No structures were found to exist on the site besides those of the treatment plant.

No historical resources have been recorded or identified on the project site. Therefore, the project would not result in an adverse change in the significance of a historical resource.

Mitigation Measures:

None required.

Significance Determination

No impact.

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

A cultural resources record search was conducted for the project site and a 0.25-mile radius on January 25, 2024, at the NWIC to identify previous cultural resources studies and previously recorded archaeological resources (NWIC File #23-1022). The results of the records search are included in a separate technical report prepared for the project (ICF 2024b).

The records search identified 30 previous cultural resources studies that occurred within the project site or within a 0.25-mile radius of the project site. The records search did not identify any previously recorded archaeological resources within the project site or within 0.25 miles of the project site.

On February 16, 2024, ICF archaeologists Shelby Caulder and Leann Taagepera performed an intensive pedestrian survey of unpaved and/or undeveloped portions of the project site. The pedestrian survey consisted of inspecting the ground surface for indicators of surface and subsurface archaeological deposits such as precontact midden soils, lithic artifacts, shell, modified bone, and/or historic-era items such as ceramics, glass, or foundations. No archaeological resources were observed during the survey, which is discussed in greater detail in the technical report (ICF 2024b).

A geoarchaeological sensitivity analysis was also conducted to determine the potential for the project site to contain buried pre-contact-period archaeological resources. For the purposes of this analysis, the phrase archaeological sensitivity is used to characterize a given area's likelihood to contain buried archaeological resources. For example, if an area is defined as having a high degree of buried archaeological sensitivity, it is considered an area with high likelihood for containing archaeological resources. Surface soils within the project site date to the Pre-Holocene Epoch (greater than 11,800 years), indicating that the project site and Project Study Area have low sensitivity for buried archaeological sites (Meyer and Rosenthal 2007).

Based on the archaeological investigation and analysis, there is low potential to disturb archaeological resources within the project site. Although no archaeological resources were present within the project site, there is always a possibility of unearthing unanticipated archaeological resources during ground-disturbing activities. If archaeological resources are encountered during project-related ground disturbance, a substantial adverse change in the significance of an archaeological resource could occur from its demolition, destruction, relocation, or alteration, and the significance of the resource could be materially impaired (CEQA Guidelines Section 15064.5[b][1]). The project could disturb unidentified subsurface materials that have the potential to contain precontact archaeological resources, resulting in potentially significant impacts.

Mitigation Measure

Implementation of mitigation measures **Mitigation Measure CULT-1** and **Mitigation Measure CULT-2** would reduce the potentially significant impact on archaeological resources to a less than significant level by ensuring that project activities would not result in the inadvertent destruction of an archaeological resource.

Mitigation Measure CULT-1: Conduct Cultural Resource Awareness Training Prior to Project-Related Ground Disturbance.

Prior to the start of ground-disturbing activities, a cultural resource awareness training overseen by an archaeologist who meets the Secretary of the Interior's Professional Qualification Standards in archaeology, shall be required for all construction personnel participating in ground-disturbing construction to alert them to the archaeological sensitivity of the area and provide protocols to follow in the event of a discovery of archaeological materials. The professionally qualified archaeologist shall develop and distribute, for job-site posting, a document ("ALERT SHEET") that summarizes the potential finds that could be exposed, the protocols to be followed, and the points of contact to alert in the event of a discovery. The ALERT SHEET and protocols shall be presented as part of the training. The contractor shall be responsible for ensuring that all workers requiring training are in attendance. Training shall be scheduled at the discretion of the construction contractor in consultation with the District. Worker training shall be required for all contractors and sub-contractors and documented for each phase that requires new construction staff for ground-disturbing activities.

Mitigation Measure CULT-2: Stop Work if Archaeological Material or Features Are Encountered during Ground-Disturbing Activities

In the event that unanticipated cultural resources are encountered during project construction, all construction activity will immediately stop within 100 feet (30 meters) of the discovery, the location of the discovery will be marked for avoidance, and efforts will be made to prevent inadvertent destruction of the find until a professionally qualified archaeologist can evaluate the cultural resource. Following notification, the archaeologist shall make a preliminary assessment of the discovery to determine whether the find is an isolated artifact or recent deposit. If the find is determined to be either isolated or recent, construction should be allowed to resume. If the discovery contains Native American archaeological resources, the designated representatives shall be contacted and informed of the discovery. The archaeological resource discovery, including human remains, should not be disturbed (e.g., photographed, videoed, moved) until fully assessed by a professionally qualified archaeologist. Once the archaeologist has determined that the archaeological deposit has been sufficiently documented, recovered/removed if necessary, and concluded that further construction activities would not affect additional cultural deposits in the immediate area, the District may allow construction activity to resume in the area.

Should the discovery be determined to be potentially significant, and cannot be avoided, the following procedures can be implemented to protect these resources.

- **Archaeological Monitoring:** If unanticipated cultural resources are present, the professionally qualified archaeologist may determine that archaeological monitoring is necessary. In this case, an Archaeological Monitoring Plan (AMP) shall be developed by a qualified archaeologist in consultation with local Tribes and shall include protocol that outlines archaeological monitoring best practices and anticipated resource types. An archaeologist should be on site according to the

AMP to monitor further construction-related ground disturbing activities and inspect back dirt piles for evidence of pre-European contact, historical, or other culturally sensitive materials. Archaeological monitors shall collect photographs, maintain notes (including documentation of stratigraphy and culturally sterile soils) and complete daily monitoring logs. The daily monitoring logs shall record project locations and times, stratigraphic information, and findings. An Archaeological Monitoring Results Report (AMRR) shall be prepared at the conclusion of ground-disturbing activities. The AMRR would include an introduction, regulatory context, monitoring methods, and findings. Daily monitoring logs, photographs, and figures would be provided as appendices to the report.

- **Testing and Data Recovery Plan**: If a site is discovered that is recommended to be eligible for listing on the NRHP or CRHR, additional mitigation (e.g., further testing for evaluation or data recovery) may be necessary. The Archaeological Testing Plan shall be implemented to determine the extent of the unanticipated archaeological resources. An Archaeological Testing Plan should be prepared by a professionally qualified archaeologist and include the following items:
    - Background and anticipated resource types,
    - Research questions that can be addressed by the collection of data from the defined resource types
    - Field methods and procedures
    - Cataloging and laboratory analysis
    - Findings and interpretation

Significance Determination

Less than significant with mitigation.

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

A review of archival maps and aerial photographs did not identify any dedicated cemeteries within the project site or surrounding vicinity. As a result of the records search, no previous studies or records identified human remains within the project site or within 0.25 miles of the project site. Based on the archaeological investigation and analysis, there is a low potential for the disturbance of archaeological cultural resources or human remains as a result of the project. In the event that human remains are identified during project activities, these remains would be required to be treated in accordance with Section 7050.5 of the California Health and Safety Code and Section 5097.98 of the Public Resources Code, as appropriate. Section 7050.5 of the California Health and Safety Code states that, in the event of discovery or recognition of any human remains in any location other than a dedicated cemetery, there shall be no further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent remains until the coroner of the county in which the remains are discovered has determined whether or not the remains are subject to the coroner's authority. The medical examiner shall have two working days to inspect the remains after receiving notification. During that time, all remains, associated soils, and artifacts shall remain in situ and be protected from public viewing. If determined to be, or likely to be, Native American, the District shall comply with state laws regarding the disposition of Native American burials, which fall within the jurisdiction of Native American Heritage Commission (NAHC) (Public Resources Code [PRC] Section 5097).

If the human remains are of Native American origin, the coroner must notify the NAHC within 24 hours of this identification. The NAHC will identify a Native American Most Likely Descendent (MLD) to inspect the site and provide recommendations for the proper treatment of the remains and associated grave goods. Work shall be suspended within a 100-foot radius of the human remains until the MLD's recommendations are implemented.

The professionally qualified archaeologist would work with the MLD with regard to the treatment of the remains and all associated funerary objects and ensure that any identified human remains are secured while they are left in place and treatment decisions are in progress. Information concerning the discovery shall not be disclosed pursuant to the specific exemption set forth in California Government Code Section 6254.5(e). Compliance with the California Health and Safety Code would ensure that impacts to human remains would be less than significant by ensuring that project activities would not result in the inadvertent destruction of human remains.

Mitigation Measures

None required.

Significance Determination

Less than significant.

3.6 Energy

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

Discussion

Energy resources include diesel fuel, gasoline, natural gas, electricity, and other fuels. Electricity production requires the consumption or conversion of resources, including water, wind, oil, gas, coal, solar, geothermal, or nuclear resources, into energy. Energy production and energy use both result in the depletion of nonrenewable resources (e.g., oil, natural gas, coal) and emission of pollutants. Energy consumption is typically measured using the British Thermal Unit (Btu), which is the amount of energy required to raise the temperature of one pound of water by one-degree Fahrenheit. Electrical power is measured in watts; one kilowatt hour (kWh) is a measure of electricity equivalent to 3,412 Btu.

According to the California Energy Commission (CEC 2023), California's total system energy use in 2022 was 287,219 gigawatt-hours (GWh). Total renewable energy (i.e., solar, wind, nuclear, hydroelectric, geothermal, and biomass) made up 54.23 percent, whereas non-renewables (i.e., natural gas, coal, and other) comprised 45.77 percent. In 2022, Contra Costa County consumed a total of 8,338 GWh of electricity (CEC 2022).

According to CEC surveys on retail sales of gasoline, diesel, and other transportation fuels (CEC 2023b), gasoline is the most used fuel in California's transportation sector. Statewide in 2022, there were 13,640 million gallons of gasoline sold, 3,067 million gallons of diesel sold, and 91.45 million gallons of E85 sold as transportation fuel.

Electrical service for the wastewater treatment plant is provided by MCE, a locally controlled, not-for-profit public agency that provides fossil-free power. MCE provides energy from 100 percent renewable sources, including solar, wind, biogas, geothermal, and small hydroelectric.

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

Construction of the proposed project would involve construction-related fossil fuel consumption from operation of diesel-powered construction equipment, and fossil fuel consumption from material hauling, delivery, and worker vehicle trips. The anticipated construction equipment fleet for the proposed project includes typical construction equipment such as a backhoe/loader, excavator, water truck, dump truck, compactor, forklift, crane, welder, paving machine and roller. The construction equipment fleet assumed for the proposed project is summarized in **Table 2-2.** The proposed project would require typical construction procedures and would not require unusual or excessive construction equipment or practices that would result in wasteful, inefficient, or unnecessary consumption of energy compared to projects of similar type and size. In addition, the construction fleet contracted for the proposed project would be required to comply with the CARB In-Use Off-Road Diesel-Fueled Fleets Regulations, which would limit vehicle idling time to five minutes, restrict adding vehicles to construction fleets with older-tier engines, and establish a schedule for retiring older, less fuel-efficient engines from the construction fleet (CARB 2022). CARB recently approved amendments to the In-Use Off-Road Diesel-Fueled Fleets Regulation, which went into effect on October 1, 2023. The amended regulation has more aggressive timelines for phasing out older engines, more restrictions on adding older engines to fleets, mandates on using renewable diesel, and flexibility options for compliance for fleets that adopt zero-emission technology.

Once construction is complete, the proposed new treatment system would require added electrical demand. The project is expected to increase electricity use at the plant by 30 to 40 percent. Currently, the plant's average power demand is 19,300 kWh per day, thus the plant's average power demand with the new treatment system would be approximately 26,055 kWh per day. The proposed project would require added operations and maintenance from the District, but these activities would be accomplished with existing worker vehicle trips, without the need for consumption of additional vehicle fuel. The electrical improvements would add a new standby generator that would operate in parallel with the existing 1 MW generator. The plant's additional power would slightly increase the demand for electricity from MCE. However, the proposed project would be necessary to address aging infrastructure at the WWTP specific to the secondary system and the District would use energy in a non-wasteful, efficient manner to keep utility costs as low as possible. Therefore, construction and operation of the proposed project would not result in wasteful, inefficient, or unnecessary consumption of energy and impacts would be less than significant.

Mitigation Measures

None required.

Significance Determination

Less than significant.

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

As explained under "a" above, the project would not involve wasteful or inefficient energy consumption during construction or operation. The proposed project would result in a necessary and non-wasteful increase in energy use. The project's operational electricity would be sourced from MCE, which generates its electricity from 100 percent renewable energy sources. Because the project would not result in a net increase in operational vehicle trips and would not change land use patterns, it would not conflict with statewide plans related to energy use. The proposed project would not conflict with or obstruct a State or local plan for renewable energy or energy efficiency. Impacts would be less than significant, and no mitigation would be required.

Mitigation Measures

None required.

Significance Determination

Less than significant.

3.7 Geology and Soils

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

systems where sewers are not available for the disposal of waste water?				
f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	[ ]	[X]	[ ]	[ ]

Discussion

The project area is located within the City of Antioch and City of Pittsburg, in the San Francisco Bay area, which generally experiences a high level of seismic activity due to its tectonic setting. Construction would take place within the City of Antioch and City of Pittsburg, with a staging area adjacent within the City of Pittsburg that is adjacent to the existing WWTP (see **Figure 2-2**).

In the project area, the potential for liquefaction ranges from low to very high (City of Antioch 2003b). Area underlain by Rincon clay loam has a low potential for liquefaction, while area underlain by Delhi sand has a moderate potential for liquefaction (City of Antioch 2003b). The area directly adjacent to the San Joaquin River has a high to very high potential for liquefaction (City of Antioch 2003b). Upland areas have a very low potential for liquefaction (City of Antioch 2003a).

The project site is underlain by older Quaternary alluvium and marine deposits (Pleistocene), which include older alluvium, lake, playa, and terrace deposits (USGS n.d.). According to the National Resources Conservation Service's Web Soil Survey, soils underlying the project area and staging consist predominantly of Rincon clay loam. The Rincon series consists of deep, well drained soils that formed in alluvium from sedimentary rocks (USDA 2017).

a.i) Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving: Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 41.

Surface rupture occurs when the ground surface is broken due to fault movement during earthquakes, which generally occurs in the vicinity of an active fault trace. The Alquist-Priolo Earthquake Fault Zoning Act prohibits the development of structures for human occupancy across active fault traces. Under this act, the California Geological Survey has established zones on either side of the active fault that delimits areas susceptible to surface rupture.

According to the California Department of Conservation's California Earthquake Hazards Zone Application, the proposed project site is not located within an Alquist-Priolo Earthquake Fault and no active faults directly traverse the site (CDOC n.d.b). The nearest potentially active faults mapped in accordance with the Alquist-Priolo Earthquake Fault Zoning Act is the Green Valley Fault Zone, which is approximately 11.75 miles from the project site, and the Concord Fault Zone, which is approximately 11.21 miles from the project site. Due to the distance to the fault zones, there is no potential for surface fault rupture in the project area.

a.ii) Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving: Strong seismic ground shaking?

The project site is located within a seismically active region of northern California near faults capable of generating earthquakes with strong ground shaking. The intensity of ground shaking would depend upon the magnitude of the earthquake, distance to the epicenter, and the geology of the area between the epicenter and the project site.

As mentioned above, the closest active fault zones to the project site are the Green Valley Fault Zone and the Concord Fault Zone. According to the United States Geological Survey (USGS), the Green Valley Fault is a direct continuation of the Concord Fault north of the Carquinez Straight (USGS n.d.b.). The 2003 Working Group for California Earthquake Probability assigned a 4 percent probability that the Concord-Green Valley Fault System would produce a magnitude 6.7 or larger earthquake in the next 30 years (USGS 2003).

While the project site could experience strong ground shaking, all buildings in California are subject to the standards in the California Building Standards Code. The California Building Standards Code requires engineers to develop seismic design criteria that reflect the nature and magnitude of maximum ground motions that can be reasonably expected. These seismic design criteria allow engineers to apply appropriate building codes and design structures and their foundations to withstand the effects of earthquakes. Application of standard engineering practices and the California Building Standards Code substantially reduces the possibility of considerable damage to the project from strong seismic ground shaking. Any damage to buildings, foundations, or utility lines that might occur, even with the application of appropriate building codes, would be assessed and repaired, and would not expose people or structures to risk of loss, injury or death. Impacts would be less than significant.

a.iii) Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving?

Liquefaction is the rapid transformation of saturated, loose, fine-grained sediment to a fluid-like state because of earthquake ground shaking. According to the CDOC's California Earthquake Hazards Zone Application, the project site is within the Antioch North Liquefaction Zone (CDOC n.d). Per **Mitigation Measure GEO-1**, a geotechnical report would be prepared to ensure that the project can adequately withstand liquefaction and settlement. The geotechnical report would include preparation of design level geotechnical analysis and recommendations to mitigate liquefaction potential. With implementation of **Mitigation Measure GEO-1**, potential impacts relating to seismic-ground failure would be reduced to less than significant levels.

a.iv) Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving: Landslides?

Seismically induced landslides and slope failures are common occurrences during or soon after large earthquakes. Landslides can occur when strong ground movement such as an earthquake shakes loose soil and causes land and debris to lose stability and slide. Contra Costa County, where the project is located, is susceptible to landslides (Contra Costa 2005b.) According to the CDOC's California Earthquake Hazards Zone Application mapping tool, the proposed project area is not within a landslide zone. Therefore, there would be no impact.

Mitigation Measures

The following mitigation measure shall be incorporated into the secondary process improvements to reduce impacts associated with directly or indirectly causing potential substantial adverse effects involving seismic ground shaking, ground failure, and landslides. The proposed project's impacts would be less than significant with mitigation incorporated.

Mitigation Measure GEO-1: Geotechnical Report

The District shall prepare a preconstruction design-level geotechnical report that includes geotechnical related recommendations for design of the project and all applicable geologic report standards, reconnaissance and subsurface exploration data, laboratory results, and conclusions and recommendations, including but not limited to requirements for:

- Site preparation, excavation, fill placement and compaction, temporary and permanent cut and fill slope inclinations (including whether slopes steeper than 3:1 can be used at the site), slope stability, slope erosion mitigation, and landslide movement mitigation;
- Utility trench backfill, including check dams and trench drainage, if appropriate; and
- Geologic/geotechnical construction monitoring, testing, and certification.

The geotechnical report shall include measures, as necessary, to reduce the potential for static and earthquake-induced slope movements that may adversely impact the project. Engineering analyses shall estimate the factors of safety against slope movements in the development area.

Significance Determination

Less than significant with mitigation incorporated.

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

The project is proposed for construction within an existing developed site that is predominantly covered with impervious surfaces, including paving, roads, and walkways and plant infrastructure. Construction of the project components would require soil-disturbing activities such as excavation, which would expose soil and could potentially result in soil erosion or the loss of topsoil if not properly controlled. In order to minimize erosion impacts from construction activity, the District would implement BMPs as required under the National Pollutant Discharge System (NPDES) General Construction Permit, which involves implementing a SWPPP. The SWPPP would include an erosion and sediment control plan to reduce offsite releases of sediment and prevent accelerated or excessive erosion of exposed soil using BMPs. Because BMPs have been recognized as methods to effectively prevent or minimize the potential release of sediment and contaminants into surface waters and groundwater, the potential for soil erosion impacts during project construction would be less than significant.

Mitigation Measures

None required.

Significance Determination

Less than significant.

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

Site soil characteristics and stability issues are discussed in *a)iii* and *a)iv* above. Because the topography of the site is flat, significant slope failures or landslides are unlikely. The project site is underlain primarily by Rincon clay loam (9 to 15 percent), Rincon clay loam (2 to 9 percent), Sycamore silty clay loam (0 to 2 percent), and Capay clay (1 to 15 percent) (NRCS 2024). The project would be constructed in accordance with the requirements of the California Building Standards Code, which includes specifications for site preparations such as compaction requirements for foundations. Therefore, potential impacts associated with unstable soils are considered unlikely. Impacts under this criterion would be less than significant.

Mitigation Measures

None required.

Significance Determination

Less than significant.

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

Expansive soils have the ability to significantly change their volume, shrink, and swell, due to their soil moisture content. Expansive soils can crack rigid structures and potentially create pipeline rupture. Typically, expansive soils are very fine grained with a high to very high percentage (60 percent or more) of clay. The project site is primarily Rincon clay loam (9 to 15 percent), Rincon clay loam (2 to 9 percent), Sycamore silty loam (0 to 2 percent), and Capay clay (1 to 15 percent) (NRCS 2024). Project construction would be required to adhere to the requirements of the California Building Standards Code, which includes specifications for site preparations such as compaction requirements for foundations. Additionally, a geotechnical review required as part of **Mitigation Measure GEO-1** would determine whether expansive soils would impact any of the project components. Therefore, impacts under this criterion would be less than significant with mitigation incorporated.

Mitigation Measures

Mitigation Measure GEO-1

Significance Determination

Less than significant with mitigation incorporated.

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

The proposed project would not include any elements that would require a septic tank or alternative waste water disposal system. Therefore, there would be no impact.

Mitigation Measures

None required.

Significance Determination

No impact.

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

The project site is underlain by alluvial fan deposits of late Pleistocene age. The site is in an industrial area and the surface sediments are extensively disturbed due to past construction and ongoing maintenance, likely to a depth of at least three to five feet. The underlying native alluvial fan deposits are made up of moderately to poorly sorted sand, gravel, silt, and clay. The depth of these deposits is unknown, but they are in turn underlain by older alluvial fan deposits of early to late Pleistocene age (California Geological Survey 2009).

Professional standards of practice adopted by the Society of Vertebrate Paleontology (SVP) provide guidance for control and mitigation of adverse impacts on paleontological resources. According to SVP, a rock unit is considered to have a high potential (sensitivity) to contain fossils if it is a unit "from which vertebrate or significant invertebrate, plant, or trace fossils have been recovered" (Society of Vertebrate Paleontology 2010). California's Pleistocene sedimentary units—especially those that, like alluvial deposits, record deposition in continental settings—are typically considered to have a high sensitivity for paleontological resources because of the large number of recorded fossil finds in such units throughout the state. Consistent with this general pattern, the University of California Berkeley Museum of Paleontology (2024) database contains numerous records of vertebrate fossils from sediments of Pleistocene age in Contra Costa County. Based on the general sensitivity of the Pleistocene strata in California and the number of recorded vertebrate finds in Pleistocene units in Contra Costa County, the alluvial fan deposits underlying the project site are considered highly sensitive for paleontological resources.

There are no unique geologic features in or near the project site. However, project earthmoving construction activities that would be deeper than five feet below ground surface would likely encounter undisturbed alluvial fan deposits, which are highly sensitive for paleontological resources and could, therefore, damage or destroy paleontological resources. These activities include excavation for the aeration basins, open-cut trenching for pipelines, and other excavation greater than five feet deep. As a result, impacts during construction would be potentially significant.

Operations would not involve ground-disturbing activities and would therefore not result in impacts on paleontological resources. There would be no impact during operation.

Mitigation Measures

Construction impacts on paleontological resources would be potentially significant, but implementation of Mitigation Measure PALEO-1 would reduce this impact to less than significant by requiring that a PRS be retained to prepare a PRMP and conduct monitoring and follow set protocols in the case of discovery of any fossils. This mitigation measure would avoid impacts on paleontological resources by ensuring that fossils in the construction areas would be preserved.

Mitigation Measure PALEO-1: Paleontological Resource Protection

Prior to the start of ground-disturbing activities, a paleontological resource awareness training overseen by a Paleontological Resource Specialist who meets the minimum or equivalent qualifications for a qualified professional paleontologist, shall be required for all construction personnel participating in ground-disturbing construction to alert them to the paleontological sensitivity of the area and provide protocols to follow in the event of a discovery of paleontological materials. If paleontological resources are encountered during project-related excavations, construction shall be halted or diverted to allow a qualified paleontological resources specialist (PRS) an opportunity to assess the resource and determine measures needed to preserve or record any site determined to be potentially significant. The PRS will meet the minimum or equivalent qualifications for a qualified professional paleontologist, as described in the SVP guidelines (2010). The assessment of the resource and measures shall be developed in accordance with professional guidelines, consistent with those issued by SVP (2010), and designed to avoid impacts on paleontological resources through salvage and curation. The PRS will also prepare a Paleontological Resources Report describing the treatment of any paleontological resources unearthed during construction.

Significance Determination:

Less than significant with mitigation.

3.8 Greenhouse Gas Emissions

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

Discussion

Greenhouse gases (GHGs) are pollutants that are known to increase the greenhouse effect in the earth's atmosphere thereby adding to global climate change impacts. Several pollutants have been identified as GHGs. The State of California definition of a GHG in the Health and Safety Code, Section 38505(g) includes CO_2, methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride. Water vapor is also a GHG, but it is short lived, and concentrations are largely determined by natural processes such as evaporation. Other GHGs such as fluorinated gases are created and emitted through anthropogenic (i.e., human made) sources. The most common anthropogenic sourced GHGs are CO_2, CH_4, and N_2O.

The Global Warming Potential (GWP) is a measurement used to measure how much energy the emissions of one ton of gas will absorb over a given period of time, relative to the emissions of one ton of CO_2. CO_2e

is the amount of GHG emitted multiplied by its GWP. CO_2 has a 100-year GWP of one; CH_4 has a GWP of 25; and N_2O has a GWP of 298.

Senate Bill (SB) 32, passed in 2016, required that the CARB should, in its next update to the Assembly Bill (AB) 32 Scoping Plan, ensure that statewide GHG emissions are reduced to at least 40 percent below 1990 statewide GHG emissions levels no later than December 31, 2030." AB 1279 directs that statewide anthropogenic GHG emissions be reduced by 85 percent below 1990 levels by 2045 and that the State achieve net zero carbon emissions as soon as possible, but no later than 2045.

CARB adopted the AB 32 Scoping Plan in December 2008, a Scoping Plan Update in December 2017, and another Scoping Plan Update in December 2022. The 2022 Scoping Plan identifies a path to keep California on track to meet its SB 32 GHG reduction target of 40 percent below 1990 levels by 2030. The scoping plan contains strategies California will implement to reduce anthropogenic GHG 85 percent below 1990 levels by 2045. It also outlines how carbon neutrality can be achieved by expanding carbon capture and storage through mechanical approaches and through the state's natural and working lands. The 2022 Climate Change Scoping Plan recommends local governments and lead agencies develop GHG reduction goals that can help implement overall state priorities. The Scoping Plan recognizes that some local agencies are well positioned to help meet the goal of statewide carbon neutrality, such as those agencies with more land capacity to remove and store carbon, while other agencies "will be host to GHG-emitting facilities that serve necessary functions and will take time to transition to clean technology (e.g., municipal wastewater treatment plants, landfills, and energy generation and transmission facilities)." The Scoping Plan envisions phasing down existing fossil fuel sources while building new energy production and distribution infrastructure and repurposing existing facilities. The Scoping Plan suggests anaerobic digestion and co-digestion at wastewater treatment plants as a strategy for achieving GHG reduction goals.

The BAAQMD has jurisdiction over the City of Antioch and the project area. Under CEQA, BAAQMD is a commenting responsible agency on projects that affect air quality within its jurisdiction. In addition, BAAQMD publishes non-binding guidelines to assist lead agencies in evaluating air quality and GHG impacts from CEQA projects. The BAAQMD CEQA Guidelines were published in 2012 and revised in 2017 (BAAQMD 2017a). BAAQMD adopted new Climate Impact Thresholds in 2022 for evaluating typical land use projects, such as residential and commercial developments.

The Contra Costa County Climate Action Plan (County Costa County 2015) identifies the County's approach to reducing GHG throughout the unincorporated County area. The Climate Action Plan contains an inventory and forecast of County GHG emissions, and strategies to reduce GHG by improving energy efficiency, developing renewable energy, reducing vehicle miles traveled, increasing multi-modal travel options, expanding green infrastructure, reducing waste, and improving the efficiency of government operations. Some County GHG reduction strategies relate to direct and indirect GHG emissions from wastewater treatment processes, such as reducing the amount of wastewater treatment sludge (biosolids) that is disposed of in landfills. Contra Costa County is updating its Climate Action Plan in 2024.

The City of Antioch developed a Climate Action and Resilience Plan (CARP) in 2020 (City of Antioch 2020). The CARP prioritizes adaptation, focusing on actions that can address joint issues of adapting to climate change while reducing emissions. The CARP aligns with Contra Costa County's climate goals and the City of Antioch works with Contra Costa County to ensure that the concerns and perspectives of Antioch communities are incorporated and addressed. The Antioch CARP GHG inventory does not include GHG emissions from the water and wastewater sector, though it acknowledges that they make up less than one percent of the entire inventory. The City of Antioch is updating the CARP in 2024.

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

The project would create GHG emissions during construction. Project construction is anticipated to last approximately five years. Construction impacts would include vehicle and equipment emissions associated with demolition, pipeline trenching and installation, construction of new facilities, and resurfacing.

Modeling of GHG from construction was completed in CalEEMod version 2022.1.1.22. Details on construction, including timing and equipment, can be found in *Section 2.5 Proposed Project Description* GHG emissions would result from vehicle use, including construction equipment, haul trips, and worker trips. Other project details necessary for GHG emissions modeling were obtained from CalEEMod and the design engineer estimates (e.g., equipment horsepower, load factors, fleet mix, and vehicle emissions factors).

The results of the inventory for GHG emissions, as shown in the CalEEMod output tables in **Appendix A**, are presented in **Table 3-5**. Note that BAAQMD's CEQA Guidelines (BAAQMD 2022) do not include quantitative significance thresholds for construction-related GHG emissions because, according to BAAQMD, emissions from construction are temporary and variable and represent a small portion of a project's lifetime GHG emissions. However, BAAQMD recommends that construction related GHG emissions be quantified and disclosed, and that projects incorporate all feasible best management practices to minimize GHG emissions and emissions of other air quality pollutants.

Table 3-5: Proposed Project Construction GHG Emissions per Year ($MTCO_2e$/year)

Construction Year	GHG emissions ($MTCO_2e$)
2026	1,181
2027	1,412
2028	1,578
2029	1,602
2030	891
2031	154
Total $MTCO_2e$ (all years)	**6,818**
Annualized construction emissions over 50-year project life	**136**

Based on the results of CalEEMod modeling, construction of the proposed project would emit a total of 6,818 $MTCO_2e$. In addition, in accordance with BAAQMD CEQA Guidelines (BAAQMD 2022), the proposed project would incorporate all feasible best management practices for reducing GHG emissions to reduce emissions from construction-related activities, as summarized in the table below, by implementing GHG-1.

Construction related GHG impacts have been disclosed and best management practices for GHG emissions reductions during construction would be implemented. Therefore, construction GHG impacts would be less than significant with mitigation GHG-1.

Table 3-6: Best Management Practices for Construction-Related GHG Emissions

BAAQMD BMP for Construction GHG	Proposed Project Action
Use zero-emission and hybrid-powered equipment to the greatest extent possible, particularly if emissions are occurring near sensitive receptors or located within a BAAQMD-designated Community Air Risk Evaluation (CARE) area or Assembly Bill 617 community.	No sensitive receptors near project; not applicable.
Require all diesel-fueled off-road construction equipment be equipped with EPA Tier 4 Final compliant engines or better as a condition of contract.	Mitigation Measure GHG-1
Require all on-road heavy-duty trucks to be zero emissions or meet the most stringent emissions standard, such as model year (MY) 2024 to 2026, as a condition of contract.	Mitigation Measure GHG-1
Minimize idling time either by shutting equipment off when not in use or reducing the time of idling to no more than 2 minutes (A 5-minute limit is required by the state airborne toxics control measure [Title 13, Sections 2449(d)(3) and 2485 of the California Code of Regulations]). Provide clear signage that posts this requirement for workers at the entrances to the site and develop an enforceable mechanism to monitor idling time to ensure compliance with this measure.	The project would adhere to existing energy efficiency requirements during construction.
Prohibit off-road diesel-powered equipment from being in the "on" position for more than 10 hours per day.	The project would adhere to existing energy efficiency requirements during construction.
Use California Air Resources Board–approved renewable diesel fuel in off-road construction equipment and on-road trucks.	Mitigation Measure GHG-1
Use U.S. Environmental Protection Agency SmartWay certified trucks for deliveries and equipment transport.	Mitigation Measure GHG-1
Wood products used should be certified through a sustainable forestry program.	No significant wood products; not applicable.
Require all construction equipment be maintained and properly tuned in accordance with manufacturer's specifications. Equipment should be checked by a certified mechanic and determined to be running in proper condition prior to operation.	The project would adhere to existing energy efficiency requirements during construction.
Where grid power is available, prohibit portable diesel engines and provide electrical hook ups for electric construction tools, such as saws, drills and compressors, and using electric tools whenever feasible.	Not applicable.
Where grid power is not available, use alternative fuels, such as propane or solar electrical power, for generators at construction sites.	Not applicable.
Encourage and provide carpools, shuttle vans, transit passes, and/or secure bicycle parking to construction workers and offer meal options onsite or shuttles to nearby meal destinations for construction employees.	Mitigation Measure GHG-1
Reduce electricity use in the construction office by using LED bulbs, powering off computers every day, and replacing heating and cooling units with more efficient ones.	Mitigation Measure GHG-1
Minimize energy used during site preparation by deconstructing existing structures to the greatest extent feasible.	Not feasible.
Recycle or salvage nonhazardous construction and demolition debris, with a goal of recycling at least 15% more by weight than the diversion requirement in Title 24.	Not feasible.
Use locally sourced or recycled materials for construction materials (goal of at least 20% based on costs for building materials and based on volume for roadway, parking lot, sidewalk and curb materials).	Not feasible.
Use low-carbon concrete, minimize the amount of concrete used and produce concrete on-site if it is more efficient and lower emitting than transporting ready-mix.	Not feasible.

BAAQMD BMP for Construction GHG	Proposed Project Action
Develop a plan to efficiently use water for adequate dust control because substantial amounts of energy can be consumed during the pumping of water.	Mitigation Measure GHG-1
Include all requirements in applicable bid documents, purchase orders, and contracts, with successful contractors demonstrating the ability to supply the compliant on- or off-road construction equipment for use prior to any ground-disturbing and construction activities.	Mitigation Measure GHG-1
Source: BAAQMD 2022, Table 6-1	

After construction is complete, the proposed project would add 6,766 kWh average daily demand for electricity from MCE. Because electricity from MCE, is from 100 percent renewable sources, the proposed project's net additional electricity demand would not result in increased GHG emissions. The proposed project would require added operations and maintenance from the District, but these activities would be accomplished with existing worker vehicle trips. The electrical improvements would add a new standby generator that would operate in parallel with the existing 1 MW generator. Assuming the new generator is used the same amount as the existing emergency backup generator – approximately 50 hours per year – the net additional diesel fuel consumption would result in 26 $MTCO_2e$ of GHG emissions per year.

The methodology used to evaluate operational GHG emissions is based on the BAAQMD's CEQA Air Quality Guidelines (BAAQMD 2017a). In the following table, the project's direct and indirect operational emissions are compared to the GHG threshold of significance for nonstationary sources of 1,100 metric tons of CO_2e per year (BAAQMD 2017a). The GHG emissions from the project's new permitted stationary source, the proposed backup emergency generator, is presented separately. According to the BAAQMD's CEQA Air Quality Guidelines (BAAQMD 2017a), permitted stationary sources are subject to a different threshold than land use developments. If annual projected emissions of operational-related GHGs were to exceed this threshold, the project would result in a level of GHG emissions that would have a significant impact on the environment.

Changes in operational emissions associated with modifying treatment process may result in an increase in GHG emissions from N_2O. However, these emissions are considered "biogenic." Biogenic CO_2 emissions result from materials that are derived from living cells, as opposed to CO_2 emissions derived from fossil fuels, limestone and other materials that have been transformed by geological processes. Biogenic CO_2 contains carbon that is present in organic materials that include, but are not limited to, wood, paper, vegetable oils, animal fat, and food, animal and yard waste. According to BAAQMD's CEQA Air Quality Guidelines (BAAQMD 2017a), biogenic CO_2 emissions should not be included in the quantification of GHG emissions for a project. As such, this document presents the known information about biogenic CO_2 for information purposes only.

Table 3-7: Proposed Project Operational GHG Emissions by Source ($MTCO_2e$/year)

Source	GHG Emissions	Total GHG	BAAQMD Threshold of Significance
Indirect GHG from additional electricity	not applicable	0 $MTCO_2e$	1,100 $MTCO_2e$
Direct GHG from on-site combustion	negligible		
Direct GHG from additional Vehicle Miles Traveled	negligible		
Direct GHG from new permitted stationary sources, generator	26 $MTCO_2e$	26 $MTCO_2e$	10,000 $MTCO_2e$

As shown in the table above, operation of the project would generate a net increase in operational GHG emissions below the threshold and impacts would be less than significant. Although GHG emissions are below quantitative thresholds, emissions would be considered significant if all feasible best management practices to minimize GHG emissions and emissions were not incorporated. Mitigation Measure GHG-1 would be implemented to ensure that GHG emissions are minimized to the extent possible.

Mitigation Measures

The following mitigation measure shall be incorporated into the project to reduce potentially significant levels of GHG emissions during construction. The proposed project's GHG impacts would be less than significant with mitigation incorporated.

Mitigation Measure GHG-1: Construction Best Management Practices for GHG Reductions

The District shall include the following best management practices for GHG emissions reductions during construction in applicable bid documents, purchase orders, and contracts. The construction contractor shall demonstrate the ability to supply the compliant on- or off-road construction equipment for use prior to any ground-disturbing and construction activities.

- Require all diesel-fueled off-road construction equipment either use California Air Resources Board–approved renewable diesel fuel, or be equipped with EPA Tier 4 Final compliant engines or better as a condition of contract.
- Require all on-road heavy-duty hauling trucks to be one of the following as a condition of contract: zero emissions, or meet the most stringent emissions standard, such as model year (MY) 2024 to 2026, or use California Air Resources Board–approved renewable diesel fuel.
- Require all deliveries and equipment transport trips use U.S. Environmental Protection Agency SmartWay certified trucks.
- Encourage and provide carpools, shuttle vans, transit passes, and/or secure bicycle parking to construction workers and offer meal options onsite or shuttles to nearby meal destinations for construction employees.
- Require using LED bulbs, powering off computers every day, and replacing heating and cooling units with more efficient ones to reduce electricity use in the construction office.
- Develop a plan to efficiently use water for adequate dust control because substantial amounts of energy can be consumed during the pumping of water.

Significance Determination

Less than significant with mitigation.

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

As discussed in criterion "a" above, GHG emissions would not exceed the applicable BAAQMD CEQA threshold of significance. The project would also implement measures to conserve energy, such as limiting vehicle idling time and maintaining equipment in good operational condition, which would also reduce GHG emissions. Therefore, the project would not conflict with any applicable plan, policy, or regulation adopted for the purpose of reducing emissions of GHGs and impacts would be less than significant.

Mitigation Measures

None required.

Significance Determination

Less than significant.

3.9 Hazards and Hazardous Materials

	Potentially Significant Impact	*Less Than Significant with Mitigation Incorporated*	*Less than Significant Impact*	*No Impact*
Would the Project:				
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	[ ]	[ ]	[X]	[ ]
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	[ ]	[ ]	[X]	[ ]
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	[ ]	[ ]	[ ]	[X]

d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	[ ]	[ ]	[ ]	[X]
e) For a Project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the Project result in a safety hazard or excessive noise for people residing or working in the Project area?	[ ]	[ ]	[ ]	[X]
f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	[ ]	[ ]	[X]	[ ]
g) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?	[ ]	[ ]	[ ]	[X]

Discussion

The term "hazardous materials" includes a full spectrum of substances from pre-product materials to waste. Pre-product materials are considered to have value, and are used in, or represent the purpose of the manufacturing process. These materials (solvents, paints, acids, and other chemicals) are subject to proper transportation, storage, and use procedures. "Hazardous waste" refers to the valueless byproducts of manufacturing processes and other used materials. Hazardous waste requires proper disposal.

Various federal, state, and local government agencies are responsible for administering regulations governing the use, management, handling, transportation and disposal of hazardous materials and waste. Federal regulations governing hazardous materials and waste include the Resource Conservation and Recovery Act of 1976 (RCRA); the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA); and the Superfund Amendments and Reauthorization Act of 1986 (SARA).

The California Department of Toxic Substances Control (DTSC) regulates hazardous materials and waste in California. The DTSC maintains a hazardous waste and substances site list known as the "Cortese List," which provides information about the location of hazardous materials sites. The State Water Resources Control Board (SWRCB) also maintains the GeoTracker database, which tracks and archives compliance data related to authorized and unauthorized discharges.

The District's water resource recovery services consist of secondary treatment of wastewater, recycled water production and distribution, pollution prevention, energy recovery, beneficial reuse of biosolids, street sweeping, and household hazardous waste collection. The District's current operational activities involve hazardous chemicals such as sulfuric acid, ferrous chloride, sodium hypochlorite, and sodium hydroxide (caustic) are trucked into the WWTP and used for ammonia removal. These chemicals are stored on site in double-contained tanks, or single-walled tanks with secondary containment. The biogas handling system at the WWTP consists of compatible materials and explosion-proof equipment per National Fire Protection Association (NFPA) requirements to ensure safety.

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

Construction of the proposed project would entail the temporary transport, use, or disposal of hazardous materials such as gasoline, diesel fuel, automotive fluids, solvents, and lubricants. The risks associated with the transport, use, and storage of these materials during construction are anticipated to be relatively small. However, there is potential for an accidental release of hazardous materials during construction, which could result in exposure of workers and the public to health hazards.

Project operation would not include new chemical facilities, and maintenance would use negligible amounts of hazardous materials such as fuels and lubricants, which are already being used on site. Any such materials would be properly stored and disposed of in accordance with applicable regulations, and in accordance with existing practices at the WWTP.

To minimize the risks of exposure to hazardous materials from construction and routine maintenance activities, federal, state and local regulations have been put into place to regulate hazardous material use, storage, transportation, and handling. The District would be required to be in compliance with all applicable federal, state, and local regulations pertaining to hazardous materials (Federal Code Title 40 and 49; Occupational Safety and Health Administration (OSHA) 29 CFR 1910; California code section 5001, 5401, 5701, and 25507; California Health and Safety Code Division 20, Chapter 6.5, Article 6.5, Article 6.6, and Article 13; and Riverside County ordinance 651.5). Conformance with existing regulations would require implementation of a SWPPP to address the discharge of contaminants (including construction-related hazardous materials) through appropriate BMPs. While specific BMPs would be determined during the SWPPP process based on site-specific characteristics (such as equipment types), they would include standard industry measures and guidelines contained in the National Pollutant Discharge Elimination System (NPDES) Construction General Permit text. Conformance with federal hazardous materials transportation law (49 U.S.C. 5101 et seq.) and California Health and Safety Code Division 20, Chapter 6.5, Article 6.5 would require precautionary measures be taken during the routine transport of hazardous materials, such as testing and preparation of a transportation safety plan. According to California Health and Safety Code Division 20, Chapter 6.5, Article 13, used oil that may be produced from construction or operation of the project would be recycled. Hazardous waste and electronic waste would not be placed in a landfill, but rather would be transported to a hazardous waste disposal facility (e.g., electronic-waste recycling). All material from demolition would be hauled off site to an approved waste facility. With compliance with existing regulations, impacts would be less than significant.

Mitigation Measures

None required.

Significance Determination

Less than significant

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?

Project construction would involve use and handling of limited quantities of potentially hazardous materials such as gasoline, diesel fuel, lubricating oil, adhesives, paints and solvents for vehicles and other construction equipment. Above-ground storage tanks, drums, or other containers would be used for storage of hazardous materials needed during construction. These activities could result in an accidental release of these materials into the environment.

Project construction would be undertaken with the implementation of BMPs that would reduce the risks associated with hazardous materials release. Typical BMPs would include spill prevention and control measures, adherence to manufacturer's recommendations on use storage, and disposal of chemical products; avoidance of overtopping construction equipment fuel tanks; proper containment during routine equipment maintenance and proper disposal of discarded containers of fuel and other hazardous materials. In addition, the WWTP has existing procedures to avoid accidental release of hazardous materials, such as the use of spill containment systems, which will be in effect during project construction and operation and would therefore limit the possibility and impacts associated with an accidental spill.

Project operation would not require long-term use of substantial quantities of hazardous materials. Minor quantities of gasoline, diesel fuel, lubricating oil, adhesives, paints, and solvents for vehicles would be periodically used for project operation and maintenance activities. These would be used in compliance with existing WWTP operational procedures and applicable requirements. With adherence to these measures, and the implementation of BMPs included in the SWPPP, potential impacts associated an accidental release of hazardous materials would be less than significant.

Mitigation Measures

None required.

Significance Determination

Less than significant

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

The project is not located within one-quarter mile of an existing or proposed school. The closest schools are Martin Luther King Jr. Junior High School in Pittsburg, located about 1.25 miles from the edge of the staging area and Fremont Elementary School located at 1413 F Street in Antioch, which is approximately 2 miles from the project site. Therefore, there would be no impacts.

Mitigation Measures

None required.

Significance Determination

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?

The project site is not included on any of the environmental databases maintained by the SWRCB GeoTracker or by the DTSC pursuant to Government Code Section 65962.5 nor are there any active sites within 0.5 mile. The nearest active site is located one mile to the west of the project site at 1401 Loveridge Road in Pittsburg. Therefore, the project would not cause a significant hazard to the public or the environment related to a known release of hazardous materials and no impact would occur.

Mitigation Measures

None required.

Significance Determination

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?

The proposed project is not located within the boundaries of an airport land use plan or located in close proximity to a public airport. The closest airport is Buchanan Field Airport, which is about 12 miles from the project site. Therefore, no impacts associated with airport-related hazards are expected.

Mitigation Measures

None required.

Significance Determination

No impact.

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

The project is located within Contra Costa County. Contra Costa County developed the Contra Costa Operational Area Emergency Operations Plan (EOP) to address the response to emergency incidents associated with emergencies affecting Contra Costa (Contra Costa County 2011). The project would be constructed, operated, and maintained within an existing industrial facility. Because all construction and operational activities would be within the existing WWTP, the project would not interfere with the implementation of the EOP. Potential traffic impacts on emergency access during construction are discussed in *Section 3.17, Transportation*. Therefore, impacts would be less than significant.

Mitigation Measures

None required.

Significance Determination

Less than significant.

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

According to the California Department of Forestry (CAL Fire), Fire Hazard Severity Zone (FHSZ) mapping, the project site is not within an area designated as very high or high fire hazard zones (CAL Fire 2009). Therefore, there would be impacts.

Mitigation Measures

None required.

Significance Determination

No impact.

3.10 Hydrology and Water Quality

	Potentially Significant Impact	*Less Than Significant with Mitigation Incorporated*	*Less than Significant Impact*	*No Impact*
Would the Project:				
a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?	[ ]	[ ]	[X]	[ ]
b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the Project may impede sustainable groundwater management of the basin?	[ ]	[ ]	[X]	[ ]
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:				
i) result in substantial erosion or siltation on- or off-site;	[ ]	[ ]	[ ]	[X]

ii) substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site;	[ ]	[ ]	[X]	[ ]
iii) create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or	[ ]	[ ]	[X]	[ ]
iv) impede or redirect flood flows?	[ ]	[ ]	[X]	[ ]
d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to Project inundation?	[ ]	[ ]	[ ]	[X]
e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	[ ]	[ ]	[X]	[ ]

Discussion

Surface Water

The project construction area lies within the Central Valley Regional Water Quality Control Board's (RWQCB's) jurisdiction and surface water drainage flows northward into the Sacramento San Joaquin Delta. The Central Valley RWQCB prepares and maintains the Water Quality Control Plan (Basin Plan) for the Sacramento River Basin and the San Joaquin River Basin. The Basin Plan sets water quality standards in the Sacramento River Basin and the San Joaquin River Basin by establishing beneficial uses for specific water bodies and designating numerical and narrative water quality objectives. The RWQCB is responsible for implementing Section 401 of the Clean Water Act through the issuance of a Clean Water Certification when development includes potential impacts to jurisdictional areas such as creeks, wetlands, or other Waters of the State. The discharge from the WWTP is within the jurisdiction of the San Francisco Bay RWQCB.

Section 402 of the Clean Water Act regulates the discharge of pollutants to waters of the United States. Locally, this is implemented through the NPDES General Permit. Requirements apply to the project's construction activities (e.g. grading, grubbing, and other site disturbance). Construction activities disturbing one or more acres are subject to NPDES construction permitting requirements, including the preparation of a SWPPP.

The Federal Emergency Management Agency's (FEMA's) flood hazard mapping program provides guidance in planning for flooding events and regulating development within identified flood hazard areas. FEMA's National Flood Insurance Program is intended to encourage State and local governments to adopt responsible floodplain management programs and flood measures. As part of the program, the FEMA defines floodplain and floodway boundaries that are shown on the Flood Insurance Rate Maps (FIRMs). As shown on the FIRM panels 06013C0139G and 06013C0138G (FEMA 2015a; FEMA 2015b), portions of the project area are in a Special Flood Hazard Area.

Groundwater

The project area overlies the East Contra Costa Subbasin within the larger San Joaquin Valley Groundwater Basin as identified by the California Department of Water Resources (DWR) Bulletin 118 published in 2018. The State of California adopted the Sustainable Groundwater Management Act (SGMA) in 2014, which called for the creation of local Groundwater Sustainability Agencies (GSAs) to develop and implement Groundwater Sustainability Plans (GSPs) for the long-term management of groundwater basins. The East Contra Costa Subbasin GSA developed the East Contra Costa Subbasin GSP. The East Contra Costa Subbasin GSO was submitted to DWR and approved on July 27, 2023 (DWR 2023).

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

Excavation, grading, and construction activities associated with the project could violate water quality standards by exposing and disturbing soils, potentially resulting in increased erosion and siltation. In addition, hazardous materials associated with construction equipment could adversely impact surface and groundwater quality if spilled or stored improperly. If precautions are not taken to contain contaminants, construction could produce contaminated stormwater runoff (nonpoint source pollution), a major contributor to the degradation of surface water quality.

The proposed project would disturb an area greater than one acre in size and would therefore be required to obtain coverage under the NPDES Stormwater Construction General Permit during construction. The Construction General Permit requires the preparation and implementation of a SWPPP. The SWPPP includes specifications for Best Management Practices (BMPs) implemented during project construction to control sedimentation or pollution concentration in stormwater runoff, and defines conditions for complying with the SWRCB NPDES permit requirements. Dewatering may be required, and water would be conveyed to the headworks or tower mixing chamber of the WWTP and discharged there such that no discharge to surface waters would occur during construction. Compliance with these permits, including implementation of BMPs would ensure the project would not violate water quality standards or waste discharge requirements, nor significantly degrade surface water quality. Impacts on water quality would be less than significant.

Mitigation Measures

None required.

Significance Determination

Less than significant.

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

The project would not require any groundwater withdrawals for water supply. However, it is recognized that limited dewatering operations may be required during construction. These operations are anticipated to be minimal and would not deplete groundwater supplies or interfere with groundwater recharge. Dewatering discharges would be conveyed to the headworks and would not affect surface water quality. Because these operations would be minimal, and dewatering discharges would be conveyed to the WWTP headworks or tower mixing chamber, the potential groundwater impact is considered less than significant.

Mitigation Measures

None required.

Significance Determination

Less than significant.

c.i) Substantially alter the existing drainage pattern of the site area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would: result in substantial erosion or siltation on- or off-site?

Project construction may result in disturbance or exposure of soil that could be subject to erosion and sedimentation during a rain event. However, implementation of SWPPP and BMPs as required by the NPDES Construction General Permit would limit erosion and sedimentation. The project components would be constructed within previously developed areas, where runoff is controlled and treated before discharge. Therefore, drainage patterns would not be altered as a result of operation or maintenance. Impacts would be less than significant.

Mitigation Measures

None required.

Significance Determination

Less than significant.

c.ii) Substantially alter the existing drainage pattern of the site 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: substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?

Project components would all be constructed within previously developed areas, where runoff is controlled, and drainage would be restored to pre-project conditions. Thus, drainage patterns would not be altered as a result of project construction, operation, or maintenance and there would be no increased potential for flooding. The project would not result in new impervious surfaces that could affect runoff or the potential for flooding. Operation and maintenance of the project would not affect drainage patterns. Therefore, the project would have a less than significant impact.

Mitigation Measures

None required.

Significance Determination

Less than significant.

c.iii) Substantially alter the existing drainage pattern of the site 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: create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?

As noted under item c.ii) project components would be constructed within developed areas of the WWTP, and drainage patterns would not be altered. Project construction may result in disturbance or exposure of soil that could be subject to stormwater runoff during a rain event. However, implementation of SWPPP and BMPs as required by the NPDES Construction General Permit would limit polluted runoff. Therefore, runoff drainage patterns and quantities would not be altered as a result of the project and there would be no potential for exceedance of the capacity of existing drainage systems.

Mitigation Measures

None required.

Significance Determination

Less than significant.

c.iv) Substantially alter the existing drainage pattern of the site 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: impede or redirect flood flows?

The project would be constructed within an existing built facility. The project would not result in new impervious surfaces that could impede or redirect flood flows. The proposed project components would not impede or redirect flows in the event of flooding. Therefore, there would be no impact.

Mitigation Measures

None required.

Significance Determination

Less than significant.

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

A tsunami is a large ocean wave, caused by earthquakes or major ground movement, and a seiche is a large wave generated in an enclosed body of water, which is also caused by an earthquake. According to the California Geological Survey Tsunami Hazard Area mapping tool (CDOC n.d), the project area is not within a tsunami hazard area. Therefore, there would be no impact.

Mitigation Measures

None required.

Significance Determination

No impact.

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

As noted previously, Basin Plans sets water quality objectives for the project area. Water quality thresholds identified in Basin Plans are intended to reduce pollutant discharge and ensure that water bodies are of sufficient quality to meet their designated beneficial uses. The project would not conflict with the water quality standards outlined in either the San Francisco Bay Basin Central Valley Basin or worsen water quality conditions in any 303(d)-listed water body. As discussed above, pollutant discharge during construction would be avoided via compliance with the Construction General Permit and SWPPP and NPDES permits. Once operational, the project would increase secondary treatment capacity and continue to meet water quality control plan objectives. Therefore, the project would not conflict with Basin Plans.

As mentioned above, the project does not involve the extraction of groundwater nor result in any increases in impervious surfaces that could affect groundwater recharge, and thus the project would not impact groundwater sustainability. Therefore, the project would not conflict with applicable water quality control plans or groundwater management plans, and impacts would be less than significant.

Mitigation Measures

None required.

Significance Determination

Less than significant.

3.11 Land Use and Planning

	Potentially Significant Impact	*Less Than Significant with Mitigation Incorporated*	*Less than Significant Impact*	*No Impact*
Would the Project:				
a) Physically divide an established community?	[ ]	[ ]	[ ]	[X]
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

The WWTP site is located within the City of Antioch and City of Pittsburg along their border and the site would be accessed from Arcy Lane, which is in the City of Pittsburg. The proposed project staging area and site for the aeration basins are located within the City of Pittsburg. Land uses in the City of Antioch are guided by the City of Antioch General Plan and Zoning Code, which establish Antioch's land use classification and development intensity for the planning area (City of Antioch 2003a). Per the City of Antioch General Plan land use designation, the proposed project area is designated as Business Park and adjacent areas are designated as Vacant (City of Antioch 2003a). Per the City's zoning map (City of Antioch n.d), the project area is zoned for Industrial uses.

Land use in the City of Pittsburg is guided by the City of Pittsburg 2020 General Plan which provides the land use classification system, forecasts development of various land uses through 2020, and provides policies to guide land use decisions (City of Pittsburg 2001). The City of Pittsburg is updating its General Plan though the year 2040 and released a draft for public comment from December 9, 2023 to February 9, 2024. Per the 2020 General Plan, the proposed project staging area and the parcel where the aeration basins would be located are designated as Industrial (City of Pittsburg 2001). The draft General Plan 2040 also designates the staging area as Industrial (City of Pittsburg 2023a). Per the City of Pittsburg's zoning, the staging area is zoned as Industrial (City of Pittsburg n.d.).

a) Physically divide an established community?

The WWTP is an existing facility and the proposed project would be constructed and operated within the existing boundary of the WWTP. The temporary construction staging areas would be located on vacant land that was recently acquired by the District along the west side of the Pittsburg-Antioch Highway near the entrance to the WWTP. The project would not physically divide established communities in either the City of Antioch or the City of Pittsburg. Therefore, there would be no impact.

Mitigation Measures

None required.

Significance Determination

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?

The proposed project would improve the secondary treatment process and address near-term secondary treatment process limitations. The secondary treatment process improvements would help meet the projected growth in the District's service area through 2040 or longer. Construction of the proposed project would occur within the existing boundary of the WWTP, and staging areas would be within adjacent vacant lands near the entrance to the WWTP. Construction and operation of the project would not require or result in changes to land use or zoning designations and would not conflict with any policies of the City of Antioch or City of Pittsburg. There would be no impact.

Mitigation Measures

None required.

Significance Determination

No impact.

3.12 Mineral Resources

	Potentially Significant Impact	*Less Than Significant with Mitigation Incorporated*	*Less than Significant Impact*	*No Impact*
Would the Project:				
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	[ ]	[ ]	[ ]	[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]

<u>*Discussion*</u>

The Surface Mining and Reclamation Act of 1975 (SMARA) mandates a process for classification and designation of lands containing potentially important mineral deposits. Classification is carried out by the California Geological Survey (CGS) State Geologist and designation is a function of the CGS State Mining and Geology Board. Lands are given a priority listing through classification into Mineral Resource Zones (MRZs). These MRZs are based on geological appraisals, which include the use of literature, geological maps, and publications and data from the CDOC Division of Mines and Geology, US Geological Survey, the former US Bureau of Mines, and the US Bureau of Land Management. Classification also includes site investigations that determine the chemical and physical components of the area. An area can be classified as:

- MRZ-1: Areas where available geologic information indicates that little likelihood exists for the presence of significant mineral resources.
- MRZ-2: Areas where adequate information indicates that significant mineral deposits are present, or where it is judged that a high likelihood for their presence exists.
- MRZ-3: Areas containing mineral occurrences of undetermined mineral resource significance.
- MRZ-4: Areas where available information is inadequate for assignment to any other MRZ category.

The proposed project area is classified as an MRZ-1 (CDOC 1982).

According to the Antioch General Plan (City of Antioch 2003a), coal mining has historically occurred in the southwestern portion of the City and these mines were closed in the mid 1900s. There are currently no significant mineral deposits or active mining operations within the City's planning area (City of Antioch 2003b).

According to the City of Pittsburg 2020 General Plan, there are no significant mineral deposits or active mining operations in the City's Planning Area (City of Pittsburg 2001). Additionally, according to the 2040

Pittsburg General Plan EIR (City of Pittsburg 2023b), the majority of the northern portion of the City's Planning Area, where the project's staging area is located, is designated as MRZ-1.

a-b) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state? Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?

The project would be located within the boundary of the existing WWTP. It would not be located in areas identified as containing state, regional, or locally imported mineral resources. Additionally, the proposed project area and the staging area would not involve mining or the production of mineral resources. No impact on the availability of a known mineral resource or the availability of a locally-important resource recovery site would occur as a result of construction or operation of the proposed project.

Mitigation Measures

None required.

Significance Determination

No impact.

3.13 Noise

	Potentially Significant Impact	*Less Than Significant with Mitigation Incorporated*	*Less than Significant Impact*	*No Impact*
Would the Project result in:				
a) Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the Project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	[ ]	[ ]	[X]	[ ]
b) Generation of excessive groundborne vibration or groundborne noise levels?	[ ]	[ ]	[X]	[ ]

c) For a Project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the Project expose people residing or working in the Project area to excessive noise levels?	[ ]	[ ]	[ ]	[X]

<u>*Discussion*</u>

The City of Antioch noise ordinance (Section 5-17.04 Heavy Construction Equipment Noise and Section 5-17.05 Construction Activity Noise) establishes restrictions on the operation of heavy equipment and construction activity. The City's restriction on construction activities applies to construction noise that can be heard beyond the perimeter of the parcel where such work is being performed. The City may grant a waiver to the restrictions for a specific project for a specific period of time. Restrictions apply in general during the follow hours. :

- On weekdays prior to 7:00 am and after 6:00 pm
- On weekdays within 300 feet of occupied dwelling space, prior to 8:00 am and after 5:00 pm
- On weekends and holidays, prior to 9:00 am and after 5:00 pm, irrespective of the distance from the occupied dwellings.

The City of Pittsburg noise ordinance (Section 9.44.010 Noise Prohibitions) prohibits the operation of heavy construction equipment (e.g., pile driver, steam shovel, pneumatic hammer, derrick, steam or electric hoist or other appliance), the use of which causes noise that disturbs others and is attended by loud or unusual noise between 10:00 pm and 7:00 am, except in case of emergency.

Groundborne vibration may occur when heavy equipment or vehicles create vibrations in the ground, which can then propagate through the ground to buildings, creating a low-frequency noise. Groundborne vibrations can be a source of annoyance to humans due to a "rumbling" effect, and such vibrations may also cause damage to buildings.

a) Generation of 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?

There are no residential or other sensitive noise receptors within or adjacent to the project area. The closest noise receptors to the project area are residences on the southern side of State Route 4, which are located 0.5 mile to the south, and Turner Elementary School, which is located more than 0.75 mile to the southwest. Construction activities involving heavy equipment that generates loud or unusual noise (such as pile drivers, steam shovels or pneumatic hammers) are not proposed to occur on weekdays prior to 7:00 am or after 6:00 pm, or on holidays prior to 9:00 am and after 5:00 pm. However at various points during construction there would be a need to tie in new facilities to the existing system and this activity would need to occur at night when wastewater flows are low. Nighttime work could occur on up to 40 nights during the construction period. Nighttime work to construct tie-ins would entail use of pumps, backhoes, cranes and hand tools, and would generate noise similar to the equipment that operates at the wastewater treatment plant 24 hours a day. Noise associated with the tie-in work is not expected to be audible beyond the boundaries of the treatment plant. Therefore, project-related construction activities would not exceed standards established in the City of Antioch General Plan or noise ordinances, or the City of Pittsburg noise ordinance, and there would be no associated impact.

Regarding long-term operations, the existing WWTP is operational, and the project would improve the secondary treatment process by replacing aging infrastructure. It is anticipated that the upgraded secondary treatment process would not exceed current noise levels generated by the existing secondary treatment infrastructure. Therefore, project operations would result in a permanent increase in ambient noise levels.

Mitigation Measures

None required.

Significance Determination

Less than significant.

b) Generation of excessive groundborne vibration or groundborne noise levels?

Heavy duty equipment used during construction of the project could generate perceptible vibration within or adjacent to the project area. Project construction would not include any blasting techniques or pile driving that would cause excessive vibration. The impacts from construction related vibration would be short-term and would be confined to only the immediate area. There would be no perceptible vibration at the nearest receptors, located approximately 0.5 miles from the project area. Project operation would not involve any new sources of vibration. Impacts would be less than significant.

Mitigation Measure

None required.

Significance Determination

Less than significant.

c) For a Project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the Project expose people residing or working in the Project area to excessive noise levels?

The project is not located within an airport land use plan nor is it within two miles of a public airport or public use airport.

Mitigation Measures

None required.

Significance Determination

No impact.

3.14 Population and Housing

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
Would the Project:				
a) Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	[ ]	[ ]	[ ]	[X]
b) Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?	[ ]	[ ]	[ ]	[X]

Discussion

The District provides wastewater conveyance and treatment services for approximately 215,000 customers in the cities of Antioch and Pittsburg, and the unincorporated community of Bay Point.

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)?

The proposed project would not directly induce unplanned population growth because no new housing or permanent employment are proposed. The project involves replacing the aging infrastructure in the existing WWTP and addressing near-term secondary treatment process limitations. The project would serve existing and projected wastewater treatment demands. The proposed project is consistent with the projected growth that would occur with or without the project. Additional operations and maintenance activities would be needed; however, no new staff would be required to serve the project. Therefore, the proposed project would not directly or indirectly induce unplanned population growth.

Mitigation Measures

None required.

Significance Determination

No impact.

b) Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?

Construction of the proposed project would occur within the boundary of the existing WWTP and a vacant adjacent lot and does not involve displacement of existing people or housing. The project would not require or induce construction of new or replacement housing. Therefore, there would be no impact.

Mitigation Measures

None required.

Significance Determination

No impact.

3.15 Public Services

	Potentially Significant Impact	*Less Than Significant with Mitigation Incorporated*	*Less than Significant Impact*	*No Impact*
Would the Project:				
a) 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 following public services:	[ ]	[ ]	[ ]	[X]
i) Fire protection?	[ ]	[ ]	[ ]	[X]
ii) Police protection?	[ ]	[ ]	[ ]	[X]
iii) Schools?	[ ]	[ ]	[ ]	[X]
iv) Parks?	[ ]	[ ]	[ ]	[X]
v) Other public facilities?	[ ]	[ ]	[ ]	[X]

<u>*Discussion*</u>

Fire Protection

The Contra Costa Fire Protection District provides fire and emergency services to the City of Antioch and City of Pittsburg. The project area is within two miles of Station 81, located at 315 W 10thStreet, Station 83, located at 2717 Gentrytown Drive, and Station 85 located at 2331 Loveridge Road.

Police Protection

The Antioch Police Department provides crime prevention and law enforcement services within the respective city boundaries. The Antioch Police Facility, located at 300 L Street, is approximately 1.7 miles from the project site. The Pittsburg Police Department is responsible for providing law enforcement services within the City of Pittsburg's jurisdiction. The Pittsburg Police Department, located at 65 Civic Avenue, is approximately 3.4 miles from the project site.

Schools

Children who reside in the City of Antioch attend schools within the Antioch Unified School District. The Antioch Unified School District operates 16 elementary schools, four middle schools, and seven high schools within the City of Antioch. The City of Pittsburg is also served by Antioch Unified School District and by Pittsburg Unified School District and Mount Diablo Unified School District. Pittsburg Unified School District operates eight middle schools, three middle schools, and two high schools. The proposed project area is not within the vicinity of a school.

Parks

The City of Antioch Public Works Department works with the Recreation department to maintain parks within its city limits. The City of Pittsburg's Parks and Recreational Department manages the maintenance of parks within its jurisdiction. The closest park to the proposed project site is approximately one mile away: Fairview Park, located at 1301 Crestview Drive in the City of Antioch.

Other Public Facilities

The Contra Costa County Library manages two libraries in the City of Antioch: Antioch Library, located at 501 W. 18th Street, and Prewett Library, located at 4703 Lone Tree Way, and one library in the City of Pittsburg: located at 80 Power Avenue. The Antioch Library is approximately 2.5 miles from the project site, the Prewett Library is approximately 7 miles from the project site, and the Pittsburg Library is approximately 3.4 miles from the project site.

There are two main hospitals located within the City Antioch. The Sutter Delta Medical Center (located at 3901 Lone Tree Way) is approximately 4.3 miles from the project site, while Kaiser Permanente Antioch Medical Center (located at 4501 Sand Creek Rd) is approximately 8 miles from the project site. The main hospital in the City of Pittsburg is Pittsburg Health Center (located at 2311 Loveridge Road) is approximately 2.2. miles from the project site.

a.i-v) 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 following public services:

Fire protection?

The proposed project would not require construction of new facilities or physically alter existing fire protection facilities, nor would it substantially change response times or service ratios for fire protection services and facilities. Fire protection requirements during construction of the proposed project would be short-term and the demands would be fulfilled by the existing local work force. Existing fire protection services provided by the Contra Costa Fire Protection District would be sufficient. In addition, construction and operation of the project would not directly or indirectly induce unplanned population growth that would require construction of new fire stations or expansion of fire protection facilities. Therefore, no impact would occur.

Police protection?

The proposed project would not require construction of new facilities or physically alter existing police protection facilities, nor would it substantially change response times or service rations for police services and stations. In the event of an emergency, existing police services provided by the Antioch Police Department would be sufficient. Additionally, construction and operation of the proposed project would not directly or indirectly induce unplanned population growth that would require construction of a new or physically altered police station to maintain acceptable service rations, response times, or other performance objectives. Therefore, there would be no impact.

Schools?

The proposed project would not change existing demand for schools because the project would serve existing and planned communities. Construction of the proposed project does not include housing and operation would not result in new employment or population growth that would result in an influx of students. No new school facilities would need to be built to maintain class size ratios or other performance objectives. Therefore, no impact would occur.

Parks?

The proposed project would not change existing demands on City parks or recreational facilities because the project does not propose new housing units, nor would it indirectly induce population or employment within the area. Construction and operation of the project would not necessitate expansion of existing parks or construction of new parks or recreational facilities to maintain the City's existing park standard. Therefore, no impact would occur.

Other public facilities?

The proposed project would not change existing demand on other public facilities because the project does not propose new housing units, nor would it directly or indirectly induce population or employment within the area. Construction and operation of the project would not necessitate expansion or construction of new public facilities such as libraries or hospitals. Therefore, no impact on other public facilities would occur.

Mitigation Measures

None required.

Significance Determination

No impact.

3.16 Recreation

	Potentially Significant Impact	*Less Than Significant with Mitigation Incorporated*	*Less than Significant Impact*	*No Impact*
Would the Project:				
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]
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

There are no existing parks or recreational facilities within the project area as construction would occur within the boundary of the existing WWTP.

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?

The proposed project would not noticeably increase the number of employees at the project site or have any effect on the use of existing neighborhood or regional parks or recreational facilities. As a result, the project would not increase the use of existing neighborhood or regional parks or other recreational facilities such that substantial physical deterioration of the facilities would occur or be accelerated. There would be no impact under this criterion.

Mitigation Measures

None required.

Significance Determination

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?

The project does not propose or require the construction of new facilities or expansion of existing recreation facilities and so would not result in construction that could cause adverse impacts. No impact would occur under this criterion.

Mitigation Measures

None required.

Significance Determination

No impact.

3.17 Transportation

	Potentially Significant Impact	*Less Than Significant with Mitigation Incorporated*	*Less than Significant Impact*	*No Impact*
Would the Project:				
a) Conflict with a program plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?	[ ]	[ ]	[X]	[ ]
b) Conflict or be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b)?	[ ]	[ ]	[X]	[ ]
c) Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	[ ]	[ ]	[X]	[ ]
d) Result in inadequate emergency access?	[ ]	[ ]	[X]	[ ]

Discussion

The project area is located at the existing WWTP located at 2500 Pittsburg-Antioch Highway within the City of Antioch. Access to the proposed project area is provided by Arcy Lane, which is located within the City of Pittsburg. The site access intersection at Arcy Lane and Pittsburg- Antioch Highway is unsignalized (stop-sign control on the Arcy Lane approach) but has a separate left-turn lane and a right-turn lane on eastbound and westbound Pittsburg-Antioch Highway. The Tri-Delta Transit District operates bus service near the project area (Tri Delta 2023). Route 388 (Pittsburg-Bay Point BART/Kaiser Antioch Medical Center) runs on Pittsburg-Antioch Highway on weekends only (Tri Delta 2023).

a) Conflict with a program plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?

Construction activities that would generate off-site traffic would include the delivery of construction vehicles and equipment to the project site, the daily arrival and departure of construction workers, and the hauling of materials to and from the project site throughout the construction period. The daily estimated haul traffic would vary depending on the construction. However, *Section 2.5.12* includes a summary of estimated vehicle and equipment hours for the duration of the project. These truck trips would occur during the 8 – to 10-hour workday (between 7 am and 5 pm). In addition to truck trips, there would be up to approximately 30 construction workers commuting to and from the work site per day.

Although project construction would increase daily trips to the project site, these impacts would be short-term and would not result in any long-term degradation in operating conditions on local roadways. The impact of project-generated construction truck traffic would be spread over the course of the workday; construction workers would arrive at the start of the work day and leave at the end of the work day.

Depending on specific arrival and departure times, construction vehicles could have to queue to enter the WWTP site, which could result in temporary congestion on Pittsburg-Antioch Highway. However, the workers and trucks are expected to travel to the project site from each direction, and the length of the left- and right-turn lanes on the Pittsburg-Antioch Highway would accommodate the inbound vehicles without significantly impeding through traffic on the road.

In addition to increased traffic volumes, the other primary impact of construction-related traffic would be a temporary and intermittent impact because of the slower movements and larger turning radii of construction trucks compared to passenger vehicles. Drivers could experience delays if they were traveling behind a heavy truck. However, for the reasons described above, and turn lanes on the Pittsburg-Antioch Highway and the limited duration of construction, the project would not conflict with an applicable plan, ordinance or policy for the performance of the circulation system. Following the completion of construction, additional operations and maintenance activities are expected to be accomplished within existing levels of worker trips and would not add more congestion to local roadways that would conflict with regional transportation objectives. As such, project impacts would be less than significant.

Mitigation Measures

None required.

Significance Determination

Less than significant.

b) Conflict or be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b)?

CEQA Guidelines Section 15064.3(b) outlines criteria for analyzing transportation impacts in terms of vehicle miles travelled (VMT) for land use projects and transportation projects. In December 2018, the Governor's

Office of Planning and Research (OPR) provided an updated technical advisory to help evaluate transportation impacts under CEQA. In particular, the technical advisory screening threshold for small projects states that projects generating or attracting fewer than 110 one-way automobile trips per day may generally be assumed to cause a less than significant transportation impact (OPR 2018).

Construction of the proposed project would involve temporary trips associated with workers, delivery of construction supplies and equipment, and hauling materials to and from the project site. These trips would be temporary, occurring during the five-year construction period. No more than 40 vehicle trips per day would occur at the project site, which is below the technical advisory's screening threshold for a significant impact. The number of peak trips occurring any one day would be less than the number identified in the technical advisory's guidance. Further, the proposed project would not require additional operations and maintenance activities beyond what already occurs at the project site. There would be no increase in operational VMT associated with the project. Therefore, the impact would be less than significant.

Mitigation Measures

None required.

Significance Determination

Less than significant.

c) Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?

Neither construction nor operation would alter the physical configuration of the existing roadway network serving the area, and the project would not introduce unsafe design features. The project also would not introduce uses or types of vehicles that would be incompatible with existing uses already served by the road system that serves the project site. Project-generated increases in traffic would be temporary and intermittent during project construction, and would be less than significant under project operations. Therefore, the project impact related to traffic safety hazards would be less than significant.

Mitigation Measures

None required.

Significance Determination

Less than significant.

d) Result in inadequate emergency access?

Increased project-related traffic would not cause a significant increase in congestion. The project would not change the configuration of the local road network and would not require the temporary closure of public roads during construction. Therefore, the project would have a less than significant impact under this criterion.

Mitigation Measures

None.

Significance Determination

Less than significant.

3.18 Tribal Cultural Resources

	Potentially Significant Impact	*Less Than Significant with Mitigation Incorporated*	*Less than Significant Impact*	*No Impact*
Would the Project:				
a) Cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:				
i) 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]	[ ]	[ ]
ii) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resources Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.	[ ]	[X]	[ ]	[ ]

Discussion

PRC Section 21080.3.1 requires that local agencies formally consult with recognized California Native American tribes during the CEQA process to discuss potential impacts to Tribal Cultural Resources (TCRs). Prior to the release of an MND, the agency must initiate consultation with Tribes that are traditionally and culturally affiliated with the geographic area of a proposed project if (1) the Tribe requested of the agency, in writing, to be informed through formal notification of proposed projects in the geographic area that is traditionally and culturally affiliated with the tribe; and (2) the Tribe responds, in writing, within 30 days of receipt of the formal notification of a proposed project and requests consultation with the agency (PRC Section 21080.3.1(b)).

On January 22, 2024, ICF on behalf of the District (Lead Agency), submitted a request to the NAHC to review its Sacred Lands File (SLF) for the project site. The NAHC is the official State repository of Native American sacred site location records in California. ICF received a response on February 8, 2024, from the NAHC, stating that, "A record search of the Native American Heritage Commission (NAHC) Sacred Lands File (SLF) was completed for the information you have submitted for the above referenced project. The results were negative." A list of 25 Tribal contacts was provided with the NAHC response.

On April 10, 2024, the District sent out letters to each of the 25 contacts from the list provided by the NAHC and to Native American contacts that had previously requested to be contacted by the District for potential consultation informing them of the project and formally inviting them to consultation pursuant to PRC Section 21080.3.1 (i.e., AB52). Letters containing details about the project and a location map was sent to the 25 representatives from the following eleven Tribal groups:

- Amah Mutsun Tribal Band of Mission San Juan Bautista
- Chicken Ranch Rancheria of Me-Wuk Indians
- Confederated Villages of Lisjan Nation
- Guidiville Rancheria of California
- Indian Canyon Mutsun Band of Costanoan
- Muwekma Ohlone Indian Tribe of the SF Bay Area
- Nashville Enterprise Miwok-Maidu-Nishinam Tribe
- Northern Valley Yokut / Ohlone Tribe
- The Ohlone Indian Tribe
- Tule River Indian Tribe
- Wilton Rancheria

On April 11, 2024, the District received a letter of response from the Amah Mutsun Tribal Band of Mission San Juan Bautista. The Tribe recommended conducting a SLF search, CHRIS search and contacting the NAHC to determine the sensitivity of the project area. In the event that the project received any positive cultural or historical sensitivity within one mile of the project, the Tribe recommended the following:

- All crews, individuals and personnel who will be moving any earth be Cultural Sensitivity Trained.
- A qualified California trained archaeological monitor is present during any earth movement.
- A qualified Native American monitor is present during any earth movement.

The Tribe also offered to provide, "service for any Native American Cultural Resource Monitoring, Consulting and/ or Sensitivity Training," required.

On April 11, 2024, the District received an AB 52 response email from Corrina Gould, member of the Confederate Villages of Lisjan Nation requesting a copy of the final CHRIS and EIR for the project, the SLF from the NAHC and any additional archaeological reports. The District confirmed with Ms. Gould that it was acceptable to provide the requested documents, including the published CEQA IS/MND at time of publishing.

On April 12, 2024, the District received an AB 52 response email from Dahlton Brown and Samantha Cypret, both members of the Wilton Rancheria. Dahlton said he will no longer be serving as the Chief Administrative Officer of Wilton Rancheria and provided a list of Wilton Rancheria Officials to contact. Samantha Cypret responded that she is forwarding the AB 52 letter to their Cultural Preservation Department for review.

On April 19, 2024, the District received an AB 52 response from Kanyon Sayers-Roods, on behalf of the Indian Canyon Mutsun Band of Costanoan Ohlone People. Kanyon stated that the Project is near or overlaps the "management boundary of a potentially eligible cultural site." The Tribe recommends the following:

- Native American Monitor and Archaeologist always be present on-site during ground disturbing activities
- Cultural Sensitivity Training prior start of the project
- Receive a specialized consultation provided by Kanyon Konsulting, LLC as the project commences

On July 23, 2024, the District held a meeting with a representative of Kanyon Konsulting, LLC. During the meeting, Kanyon Konsulting requested cultural resources awareness training be provided prior to the start of construction activities and a copy of the published CEQA document be sent.

On April 26, 2024, the District received an AB 52 response email from Joanna Portillo-Hsu, member of the Chicken Ranch Rancheria of Me-Wuk Indians, stating that they have no additional comments regarding the project.

a.i) Cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is: 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).

a.ii) Cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is: A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resources Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.

a.i and **a.ii:** The results of the Northwest Information Center records search, literature review, and field survey conducted in 2024, as described in Section 3.5, Cultural Resources, indicate 30 previous cultural resources studies, and seven previously recorded built environment resources occurred within the project site or within a 0.25-mile radius of the project site. This includes TCRs listed or eligible for listing in the CRHR or a local register of historical resources. In addition, no TCRs were identified during the 2024 consultation outreach by the District. However, archaeological deposits that qualify as TCRs could be encountered during project excavation. Such resources would be eligible for listing in the CRHR or a local register of historical resources, or the lead agency, in its discretion and supported by substantial evidence, could determine the resources to be significant pursuant to the criteria set forth in subdivision (c) of PRC Section 5024.1. Should deposits be encountered during project excavation, this could result in an adverse change to a TCR. Thus, potentially significant impacts related to tribal cultural resources could result from construction of the project.

Based on the archaeological investigation and analysis, there is a low potential for the disturbance of archaeological cultural resources or human remains as a result of the project. In the event that human remains are identified during project activities, these remains would be required to be treated in accordance with Section 7050.5 of the California Health and Safety Code and Section 5097.98 of the Public Resources Code, as appropriate. Section 7050.5 of the California Health and Safety Code states that, in the event of discovery or recognition of any human remains in any location other than a dedicated cemetery, there shall be no further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent remains until the coroner of the county in which the remains are discovered has determined whether or not the remains are subject to the coroner's authority. If the human remains are of Native American origin, the coroner must notify the NAHC within 24 hours of this identification. The NAHC will identify a Native American MLD to inspect the site and provide recommendations for the proper treatment of the remains and associated grave goods.

Mitigation Measures

Implementation of mitigation measures **Mitigation Measure CULT-1**, **Mitigation Measure CULT-2**, and compliance with the California Health and Safety Code (Section 3.5 *Cultural Resources*), would reduce the potentially significant impact on a TCR and/or human remains to a less than significant level by ensuring that project activities would not result in the inadvertent destruction of a TCR and/or human remains. See **Mitigation Measure CULT-1** and **Mitigation Measure CULT-2** in **Section 3.5**.

Significance Determination:

Less than significant with mitigation.

3.19 Utilities and Service Systems

	Potentially Significant Impact	*Less Than Significant with Mitigation Incorporated*	*Less than Significant Impact*	*No Impact*
Would the Project:				
a) Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?	[ ]	[ ]	[X]	[ ]
b) Have sufficient water supplies available to serve the Project and reasonably foreseeable future development during normal, dry and multiple dry years?	[ ]	[ ]	[ ]	[X]
c) Result in a determination by the wastewater treatment provider which serves or may serve the Project that it has adequate capacity to serve the Project's projected demand in addition to the provider's existing commitments?	[ ]	[ ]	[ ]	[X]
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]	[ ]
e) Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?	[ ]	[ ]	[X]	[ ]

<u>*Discussion*</u>

Water Supply

The WWTP is located in the City of Antioch, on the border with the City of Pittsburg. The City of Antioch receives water from two sources. The CCWD supplies the City of Antioch with raw water obtained from the Sacramento-San Joaquin Delta and delivers it to Antioch via the Contra Costa Canal. The City of Antioch's supply from CCWD varies based on year type. In normal years, CCWD agrees to supply 100 percent of the

City of Antioch's demand. The City of Antioch also diverts water directly from the San Joaquin River. Both sources of water are stored in the Municipal Reservoir.

Wastewater Treatment and Recycled Water

The District provides wastewater conveyance and treatment services for approximately 215,000 customers in the cities of Antioch and Pittsburg, and the unincorporated community of Bay Point. The District treats approximately 13 million gallons of wastewater each day and producing approximately 6 million gallons of recycled water each day. The District disposes of the remaining wastewater effluent through an outfall into the Delta at New York Slough.

Stormwater

Stormwater collection in the City of Antioch is overseen by the Contra Costa County Flood Control and Water Conservation District (City of Antioch 2003b). The City of Antioch has over 110 miles of trunk lines to collect stormwater, which are independent from the wastewater collection system (City of Antioch 2003b). These trunk lines discharge to the channels owned and maintained by the City of Antioch and the Contra Costa Flood Control and Water Conservation District (City of Antioch 2003b).

Solid Waste

Waste pickup within the City of Antioch is provided by Republic Services (City of Antioch n.d.). Solid waste is transferred to the Keller Canyon Landfill in Pittsburg (City of Antioch 2003b).

Utilities

Pacific Gas and Electric (PG&E) and Marin Clean Energy (MCE) supplies electricity and natural gas services to the City of Antioch (City of Antioch 2003b). Pacific Bell is the provider of residential and commercial telephone service in the City of Antioch (City of Antioch 2003b).

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?

The project would be constructed, and its operations conducted entirely within the existing WWTP, which is already served by the existing water and wastewater collection and treatment systems. The project would improve the existing secondary treatment by replacing aging infrastructure and addressing near-term secondary treatment process limitations. The project does not propose any new storm water drainage facilities and would not result in the construction of new or expanded storm water drainage facilities. While the project would require additional electrical service, no new electrical facilities would be constructed. Therefore, impacts would be less than significant.

Mitigation Measures

None required.

Significance Determination

Less than significant.

***b) Have sufficient water supplies available to serve the Project and reasonably foreseeable future development during normal, dry and multiple dry years*?**

The project involves improving the WWTP's secondary treatment capacity by replacing aging infrastructure and addressing near-term secondary treatment process limitations. Construction of the proposed project would require minimal water supply for purposes such as dust control and concrete mixing. Existing sources would be sufficient and no new or expanded supply would be required for construction. Operation of the project would not induce unplanned population growth that would require or result in the construction of new water treatment facilities of expansion of existing facilities. The project would ensure sufficient secondary treatment capacity for projected growth in the District's service area through 2040 or longer. Therefore, no impact related to sufficient water supplies would occur.

Mitigation Measures

None required.

Significance Determination

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?

The proposed project would improve the secondary treatment process to ensure sufficient secondary treatment capacity. As discussed in Section 3.14 Population and Housing, the proposed project would serve existing and planned development that would occur with or without the proposed project. The project would not induce unplanned population growth. The new treatment system would require added operations and maintenance from the District, but it would not lead to unplanned employment growth. Thus, the project would not require or result in the construction of new or expanded wastewater collection infrastructure or treatment services.

Mitigation Measures

None required.

Significance Determination

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?

Construction and implementation of the proposed project is not anticipated to generate a significant amount of solid waste. To the extent possible, excavated soil would be reused on site. The construction contractor(s) would be required to dispose of excavated soil and solid waste generated during project-related construction in accordance with existing solid waste reduction statutes (AB 939 and AB 341) and regulations. Waste material would likely be hauled to Keller Canyon Landfill in the City of Pittsburg. The Keller Canyon Landfill facility maximum permit capacity is 75,018,280 cubic yards and the landfill has a remaining capacity of 63,408,410 cubic yards (CalRecycle n.d). Given the remaining capacity of the Keller

Canyon Landfill facility, it is anticipated that that the landfill would have sufficient capacity to accommodate the project's solid waste disposal needs. Once constructed, the operation and maintenance of the project would generate minimal solid waste. Therefore, impacts would be less than significant.

Mitigation Measures

None required.

Significance Determination

Less than significant.

e) Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?

The WWTP is currently complying with federal, state, and local requirements related to management of solid waste. Solid waste generation would be limited to construction-related activities and would not affect available solid waste disposal in the region. Operation of the project would allow the WWTP to improve its secondary treatment process, and the District would continue to comply with federal, state, and local requirements related to solid waste. Therefore, there would be no impacts.

Mitigation Measures

None required.

Significance Determination

Less than significant.

3.20 Wildfire

	Potentially Significant Impact	*Less Than Significant with Mitigation Incorporated*	*Less than Significant Impact*	*No Impact*
If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the Project:				
a) Substantially impair an adopted emergency response plan or emergency evacuation plan?	[ ]	[ ]	[ ]	[X]

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]
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]
d) Expose people or structures to significant risks, including downslopes or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?	[ ]	[ ]	[ ]	[X]

<u>*Discussion*</u>

The CAL Fire Fire and Resource Assessment Program (FRAP) assess the amount and extent of California's forest and rangelands, analyzes their conditions, and identifies alternative management and policy guidelines. Through the FRAP, CAL Fire produces maps designating very high fire hazard severity zones (VHFHSZ) within state responsibility areas (SRAs) and local responsibility areas (LRAs). The proposed project site area is designated as a non-VHFHSZ in the City of Antioch LRA (CAL Fire 2009).

a) Substantially impair an adopted emergency response plan or emergency evacuation plan?

b) Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?

c) Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?

d) Expose people or structures to significant risks, including downslopes or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?

The project area is not located in or near a state responsibility area and is not within a very high or high fire hazard severity zones (CAL Fire 2009). There would be no impact.

<u>*Mitigation Measures*</u>

None required.

Significance Determination

No impact.

3.21 Mandatory Findings of Significance

	Potentially Significant Impact	*Less Than Significant with Mitigation Incorporated*	*Less than Significant Impact*	*No Impact*
Does the Project:				
a) Have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	[ ]	[X]	[ ]	[ ]
b) Have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a Project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?	[ ]	[ ]	[X]	[ ]
c) Have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	[ ]	[X]	[ ]	[ ]

Discussion

a) Have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?

With the implementation of mitigation measures, the proposed project would have a less than significant impact on the environment. Potential construction impacts on the big tarplant, stinkbells, monarch butterfly, California tiger salamander, California red-legged frog, western pond turtle, giant gartersnake, western burrowing owl, northern harrier, white-tailed kite, and Modesto song sparrow would be reduced to a less than significant level through the implementation of **Mitigation Measures BIO-1** through **BIO-7**. No cultural or archaeological resources were identified within the project area that would be directly impacted by the project activities or within 0.25 miles of the project site. With the implementation of Mitigation Measures **CULT-1** and **CULT-2**, potentially significant impacts on cultural resources would be reduced to less than significant levels. The project site overlies Holocene deposits of late Pleistocene age. There are no unique geologic features in or near the project site. However, earthmoving construction activities that would be deeper than five feet below ground could encounter sensitive paleontological resources, which could damage or destroy paleontological resources. Implementation of **Mitigation Measure PALEO-1** would reduce this impact to less than significant by requiring protection of any resources encountered during construction.

Mitigation Measures

See Mitigation Measure BIO-1, Mitigation Measure BIO-2, Mitigation Measure BIO-3, Mitigation Measure BIO-4, Mitigation Measure BIO-5, Mitigation Measure BIO-6, Mitigation Measure BIO-7, and Mitigation Measure PALEO-1.

Significance Determination

Less than significant with mitigation incorporated.

b) Have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a Project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?

A review of the past, present and reasonably foreseeable projects in the immediate area surrounding the project site indicated that, other than short-term minor roadway improvements and maintenance projects, which could be undertaken during same time as the project construction period, the projects that could have effects that could combine with those from the project would be Cogeneration System Improvements and Treatment Plant Switchgear Replacement. The Cogeneration System Improvements will include the replacement of the existing cogeneration engine and gas conditioning equipment as well as upgrades to the electrical and control infrastructure. The existing Treatment Plant switchgear is nearing the end of its useful life and requires replacement. The Treatment Plant Switchgear Replacement is currently under construction.

Construction of the projects at the WWTP would occur at different times and sites far enough removed from each other that construction related cumulative effects such as fugitive dust and construction noise would be less than significant. Development would adhere to applicable rules and regulations related to dust suppression, stormwater control, handling/storage of hazardous materials, and regulations related to protections for plants/animals/waters of the State and United States. Cumulative impacts in these areas are considered less than significant. With respect to traffic, concurrent construction of the project and the Treatment Plant Switchgear Replacement and the Cogeneration System Improvements would not result in cumulative impacts. Construction and operation of the project combined with the Treatment Plant Switchgear Replacement and Cogeneration System Improvements would not alter the physical configuration of the existing roadway network. Increased traffic during construction would be temporary and intermittent and would be less than significant under operations. Therefore, cumulative impacts would be less than significant.

Mitigation Measures

None required.

Significance Determination

Less than significant.

c) Have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?

The project would not result either directly or indirectly in environmental effects that would cause substantial adverse effects on human beings. As analyzed in Section 3.3 Air Quality, construction and operation of the project has the potential to result in emissions of criteria air pollutants and air toxics. However, all emissions would be below applicable numerical thresholds and health risk indices. As analyzed in Section 3.8 Greenhouse Gas Emissions, the project would generate GHG emissions during project construction. With implementation of **Mitigation Measure GHG-1**, the District will include best management practices for GHG emissions reductions during construction in applicable bid documents, purchase orders and contracts. **Mitigation Measure GHG-1** would reduce potentially significant levels of GHG emissions during construction to less than significant.

As analyzed in Section 3.9 Hazards and Hazardous Materials, the project would result in less than significant impacts to the public relating to the routine transport, use, or disposal of hazardous materials and relating to reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment. As analyzed in Section 3.13 Noise, the project would not result in any significant adverse impacts associated with excessive noise or vibration noise levels within the project vicinity. The project would result in no impact relating to transportation as analyzed in Section 3.17 Transportation.

Mitigation Measures

See Mitigation Measure GHG-1

Significance Determination

Less than significant with mitigation incorporated.

4. FEDERAL CROSS-CUTTING ENVIRONMENTAL REGULATION EVALUATION

The project may be funded in part by the Water Infrastructure Finance and Innovation Act (WIFIA), which is administered by the US Environmental Protection Agency. Therefore, to assist in compliance with the federal environmental requirements for the funding program, this section includes analyses pertinent to several federal cross-cutting regulations. This section describes the status of compliance with relevant federal laws, executive orders, and policies, and the consultation that has occurred or will occur. Topics are based on the WIFIA Programmatic Environmental Assessment (PEA) Environmental Questionnaire.

Farmland Protection Policy Act

The Farmland Protection Policy Act (FPPA) requires a federal agency to consider the effects of its actions and programs on the nation's farmlands. The FPPA is intended to minimize the impact of federal programs with respect to the conversion of farmland to nonagricultural uses. It assures that, to the extent possible, federal programs are administered to be compatible with state, local, and private programs and policies to protect farmland. The project area would be located entirely within industrial areas and would not occur within any designated important farmlands. The project would thus be in compliance with this Act.

Clean Air Act

U.S. Congress adopted general conformity requirements as part of the Clean Air Act (CAA) Amendments in 1990 and the USEPA implemented those requirements in 1993 (Sec. 176 of the CAA [42 U.S.C. § 7506)]and 40 CFR Part 93, Subpart B). General conformity requires that all federal actions "conform" with the SIP as approved or promulgated by USEPA. The purpose of the general conformity program is to ensure that actions taken by the federal government do not undermine state or local efforts to achieve and maintain the national ambient air quality standards. Before a federal action is taken, it must be evaluated for conformity with the SIP. All "reasonably foreseeable" emissions predicted to result from the action are taken into consideration. These include direct and indirect emissions and must be identified as to location and quantity. If it is found that the action would create emissions above de minimis threshold levels specified in USEPA regulations (40 CFR § 93.153(b)), or if the activity is considered "regionally significant" because its emissions exceed 10 percent of an area's total emissions, the action cannot proceed unless mitigation measures are specified that would bring the proposed action into conformance. The attainment status for the Bay Area is summarized in **Table 3-1**. As shown in **Table 4-1** and **Table 4-2**, the project's potential operational and construction emissions are below minimum thresholds and are well below 10 percent of the area's inventory specified for each criteria pollutant designated non-attainment or maintenance for the Bay Area. As such, the lead agency is in compliance with this Act.

Table 4-1: Annual Operational Emissions Compared to General Conformity de Minimis Thresholds (tons/year)

Emissions Source	(NO_x)	(VOC)	$PM_{2.5}$
Stationary sources and change in treatment process	0.1	1.8	<0.1
Additional Vehicle Miles Traveled	negligible	negligible	negligible
De Minimis Thresholds	*100*	*100*	*100*
Threshold Exceeded?	***No***	***No***	***No***

Table 4-2: Annual Construction Emissions Compared to General Conformity de Minimis Thresholds (tons/year)

Construction Year	Ozone (NO_x) Nonattainment - Marginal	Ozone (VOC) Nonattainment - Marginal	$PM_{2.5}$ Nonattainment - Moderate
2026	5.99	0.65	0.81
2027	6.87	0.75	0.96
2028	7.46	0.84	0.98
2029	7.22	0.83	0.96
2030	3.97	0.45	0.26
2031	0.6	0.07	0.02
De Minimis Thresholds	*100*	*100*	*100*
Threshold exceeded?	**No**	**No**	**No**

Federal Endangered Species Act

Section 7 of the Federal Endangered Species Act (FESA) requires federal agencies, in consultation with the Secretary of the Interior, to ensure that their actions do not jeopardize the continued existence of endangered or threatened species, or result in the destruction or adverse modification of the critical habitat of these species. Under Section 7, a project that could result in incidental take of a listed threatened or endangered species must consult with the United States Fish and Wildlife Service (USFWS) to obtain a Biological Opinion (BO). If the BO finds that the project could jeopardize the existence of a listed species ("jeopardy opinion"), the agency cannot authorize the project until it is modified to obtain a "nonjeopardy" opinion. As described in Section 3.4, Biological Resources, a Biological Resources Report was prepared for the project (ICFI 2024). Six federally listed plant species were identified as having the potential to occur in the vicinity of the project area. However, non-native annual grassland and potential seasonal wetlands in the project area would not support the three species that only occur in salt marsh or dune areas, and the remaining three species do not occur naturally within 10 miles or more of the site and are not expected to be present on site. The project area has a moderate to high potential to support five wildlife species that are either federally listed as threatened, proposed for listing as threatened or federal candidates for listing. Of the five wildlife species, three species are federally listed as threatened. Section 3.4 identifies mitigation measures to reduce potentially significant impacts on these species to less than significant levels, and thus, the District would be in compliance with the Federal Endangered Species Act.

Federal Migratory Bird Treaty Act of 1918, Bald and Golden Eagle Protection Act, and Executive Order 13186

The Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act prohibit take of migratory birds (or any part, nest, or eggs of any such bird) and the take and commerce of eagles. Executive Order (EO) 13186 requires that any project with federal involvement address impacts of federal actions on migratory birds. There is no habitat for bald eagles or golden eagles in the vicinity of the project. Non-special status migratory birds have the potential to nest in the project area and trees and shrubs in the project area provide suitable nesting habitat for birds. To ensure compliance with this Act, the District will implement Mitigation Measure BIO-7, which requires that initial activities be conducted outside of the nesting season when feasible. If initial activities are scheduled during nesting season, a qualified wildlife biologist will conduct a nesting bird preconstruction survey no more than 7 days prior to the start of construction in all areas that may support nesting birds. If nesting birds are discovered, the District will implement measures as described in Mitigation Measure BIO-7. Therefore, the District would be in compliance with this Act.

Executive Order 13112 - Invasive Species

The Invasive Species Act called upon executive departments and agencies to prevent the introduction and spread of invasive species and to support efforts to eradicate and control invasive species that have already been established. The Biological Resources Report stated that there is a presence of non-native annual grassland in the staging area, but did not identify any invasive species on site. The District would be in compliance with EO 13112 as the project would not introduce any new invasive species.

National Historic Preservation Act

The purpose of this act is to protect, preserve, rehabilitate, or restore significant historical, archeological, and cultural resources. Section 106 requires Federal agencies to take into account effects on historic properties. Once an undertaking has been established, the Section 106 review involves a step-by-step procedure described in detail in the implementing regulations (36 CFR Part 800). As described in Section 3.5, Cultural Resources, a cultural resource inventory of the proposed project and staging areas was conducted (ICF 2024b). The Cultural Resources Technical Memorandum (ICF 2024b) was completed to identify archaeological resources that may meet the CEQA definition of a historical resource or unique archaeological resource and be affected by development on the project site and provide recommendations based on the findings. No historical resources have been recorded or identified on the project site. The cultural resources technical memorandum will be submitted to EPA for consultation with SHPO.

Executive Order 11988 – Floodplain Modification, Development Within, or Redirection.

EO 11988 requires federal agencies to recognize the values of floodplains and to consider the public benefits from restoring and preserving floodplains. Section 3.10, Hydrology and Water Quality, discusses proposed facilities relative to the 100-year flood zones. The proposed project and staging areas would be within Special Flood Hazard Areas, but not within 100-year flood plains. However, their placement would occur within existing developed areas and would not exacerbate flooding or create additional risks to the environment or the public. Section 3.7, Biological Resources, describes impacts on wetlands. As discussed, no work would occur within wetlands. Mitigation Measure BIO-8, would prevent potential indirect impacts on seasonal wetlands north of the staging area. As such, the District would be in compliance with these EOs.

Alteration of wild and scenic rivers as defined by the Wild and Scenic River Act 16 U.S.C. 1271 et seq.

There are no designated Wild and Scenic Rivers within the proposed project and staging areas, nor would any designated rivers be affected by the project (National Wild and Scenic Rivers System n.d). Therefore, the proposed project would not result in any impacts related to the Wild and Scenic Rivers Act.

Conflicts with the Rivers and Harbors Act, 33 U.S.C. 403

The proposed project and staging areas do not include a water body that is considered a Traditionally Navigable Water by the USACE and construction of the proposed project would not require a Section 10 permit (Office of Coastal Management 2024a). Therefore, the project would have no impact and the lead agency would be in compliance with the Rivers and Harbors Act.

Conflicts with the Coastal Barrier Resources Act, 16 U.S.C. 3501 et seq

The purpose of the Costal Barrier Resources Act (CBRA) is to minimize the loss of human life, wasteful expenditure of federal revenues, and the damage to fish, wildlife, and other resources associated with coastal barriers. There are no mapped coastal barrier resources systems within the state of California (US Fish and Wildlife n.d). Therefore, the proposed project would not conflict with the CBRA.

Conflicts with the enforceable policies of a state's federally approved coastal management program (the Coastal Zone Management Act, 16 U.S.C. 1451 et seq.)

The Coastal Zone Management Act (CZMA) provides for the management of the United States' coastal resources. Neither the proposed project area nor the staging area is within a CZMA boundary (Office for Coastal Management 2024b). Therefore, the project would not conflict with the CZMA.

Safe Drinking Water Act, Sole Source Aquifer Program

Within US EPA's Region 9, which includes California, there are nine sole source aquifers. None of these sole source aquifers are located within the proposed project area or the staging area (EPA n.d). Therefore, the Sole Source Aquifer Program does not apply to the proposed project, and the lead agency would be in compliance with Section 1424(e) of the Safe Drinking Water Act.

Executive Order 12898 - Disproportionate Effect on Minority and Low-income Populations

Executive Order (EO) 12898 directs federal agencies to identify and address disproportionately high and adverse human health or environmental effects on low-income and minority populations.

The DWR has developed the Disadvantaged Community (DAC) Mapping Tool to identify DACs in California. DWR defines a DAC as a community with an annual median household income (MHI) that is less than 80% of the statewide annual MHI. The statewide MHI for the Census ACS 2016-2020 dataset is $78,672, which means any communities with an annual MHI less than $62,938 is considered a DAC. Based on the DWR DAC Mapping Tool, the proposed project area and the staging area are considered a DAC (DWR n.d.). Additionally, the Council on Environmental Quality developed the Climate and Economic Justice Screening Tool (CEJST) which identifies DACs that are experiencing burdens in climate change, energy, health, housing, legacy pollution, transportation, water and wastewater, and workforce development. Based on the CEJST, both the project area and the staging area are considered DACs (CEQ n.d).

The proposed project would not have disproportionately high and adverse human health or environmental effects on DACs. The project would help meet the District's projected wastewater demands through improving the secondary treatment process, which would give all communities, including DACs, access to proper wastewater treatment to ensure that sewage and wastewater are effectively treated, and thus, reduce the risk of waterborne diseases.

5. REPORT PREPARATION

5.1 Report Authors

This report was prepared by Delta Diablo, Woodard & Curran, and teaming partners. Staff from these agencies and companies that were involved include:

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5.2 References

Bay Area Air Quality Management District (BAAQMD). 2017a. California Environmental Quality Act Air Quality Guidelines. May.

Bay Area Air Quality Management District (BAAQMD). 2017b. Final 2017 Clean Air Plan. Spare the Air, Cool the Climate: A Blueprint for Clean Air and Climate Protection in the Bay Area. April 19. Available online at: https://www.baaqmd.gov/plans-and-climate/air-quality-plans/current-plans.

Bay Area Air Quality Management District (BAAQMD). 2022. California Environmental Quality Act Thresholds and Guidelines Update. April.

Bay Area Air Quality Management District (BAAQMD). 2024. Air Quality Standards and Attainment Status. Available online at: https://www.baaqmd.gov/about-air-quality/research-and-data/air-quality-standards-and-attainment-status.

California Air Resources Board (CARB). 2005. "Air Quality and Land Use Handbook: A Community Health Perspective." April. Available online at: https://ww2.arb.ca.gov/our-work/programs/resource-center/strategy-development/land-use-resources.

California Air Resources Board (CARB). 2022. Regulation For In-Use Off-Road Diesel-Fueled Fleets. Available online at: https://ww2.arb.ca.gov/our-work/programs/use-road-diesel-fueled-fleets-regulation 2

California Air Resources Board. 2022. Final 2022 Scoping Plan Update and Appendices. Available online at: https://ww2.arb.ca.gov/our-work/programs/ab-32-climate-change-scoping-plan/2022-scoping-plan-documents.

California Air Resources Board. 2024. California Ambient Air Quality Standards. Available online at: https://ww2.arb.ca.gov/resources/california-ambient-air-quality-standards.

California Department of Conservation. 1982. Mineral Land Classification Map.

California Department of Conservation (DOC). No date (n.d.)a. Farmland Mapping & Monitoring Program. Data available at: https://gis.conservation.ca.gov/portal/home/group.html?id=b1494c705cb34d01acf78f4927a75b8f#overview

California Department of Conservation. n.d.b. California Earthquake Hazards Zone Application. Available online at: https://maps.conservation.ca.gov/cgs/EQZApp/app/

California Department of Conservation. 2024. California Williamson Act Enrollment 2023. Available online at: https://gis.conservation.ca.gov/portal/home/item.html?id=c608c0e32810424f8f4f9d39570cc45b

California Department of Forestry and Fire Protection. 2009. Contra Costa County Very High Fire Hazard Severity Zones in LRA. Available at: https://34c031f8-c9fd-4018-8c5a-4159cdff6b0d-cdn-endpoint.azureedge.net/-/media/osfm-website/what-we-do/community-wildfire-preparedness-and-mitigation/fire-hazard-severity-zones/fire-hazard-severity-zones-map/upload-5/fhszl_map7.pdf

California Department of Resources Recycling and Recovery. N.d. Keller Canyon Landfill. Available at: https://www2.calrecycle.ca.gov/SolidWaste/SiteActivity/Details/4407?siteID=228

California Department of Transportation. 2024. Scenic Highways. Available online at: https://dot.ca.gov/programs/design/lap-landscape-architecture-and-community-livability/lap-liv-i-scenic-highways

California Department of Water Resources. 2020. San Joquin – East Contra Costa Subbasin – 2022 Groundwater Sustainability Plan – Letter of Determination.

California Department of Water Resources. N.d. DAC Mapping Tool. Available online at: https://gis.water.ca.gov/app/dacs/

California Energy Commission. 2022. Electricity Consumption by County. Available online at: http://www.ecdms.energy.ca.gov/elecbycounty.aspx.

California Energy Commission. 2023. 2022 Total System Electric Generation. Available online at: https://www.energy.ca.gov/data-reports/energy-almanac/california-electricity-data/2022-total-system-electric-generation.

California Energy Commission. 2023b. California Retail Fuel Outlet Annual Reporting (CEC-A15) Results. Available online at: https://www.energy.ca.gov/data-reports/energy-almanac/transportation-energy/california-retail-fuel-outlet-annual-reporting.

California Geological Survey. 2009. Preliminary Geologic Map of the Lodi 30'x 60' Quadrangle, California. Preliminary. Sacramento, CA. Available online at: https://www.conservation.ca.gov/cgs/rgm/preliminary. Accessed March 5, 2024.

City of Antioch. n.d.a. Corteva Wetlands (formerly Dow Wetland Preserve). Available online at: https://www.antiochca.gov/pscr/environmental-resources/wildlife-preservation/corteva-wetlands-preserve/

City of Antioch. n.d.b. Zoning Map. Available online at: https://www.antiochca.gov/economic-development/zoning-land-use/

City of Antioch. 2003a. General Plan, prepared by LSA Associates, Inc.

City of Antioch. 2003b. Draft General Plan Update Environmental Impact Report, prepared by LSA Associates, Inc.

City of Antioch. 2015. General. Housing Element Update. Available online at: https://www.antiochca.gov/fc/community-development/planning/2015-2023-housing-element.pdf

City of Antioch. 2020. Climate Action and Resilience Plan. May 6.

City of Antioch. 2021. Urban Water Management Plan.

City of Pittsburg. n.d. City of Pittsburg Interactive Zoning Map. Available online at: https://cityofpittsburg.maps.arcgis.com/apps/webappviewer/index.html?id=54f347e4fe8b405ab2b93b922bcce89c

City of Pittsburg. 2001. 2020 General Plan.

City of Pittsburg. 2023a. Draft 2040 General Plan, prepared by De Novo Planning Group.

City of Pittsburg. 2023b. Draft Environmental Impact Report, Pittsburg 2040 General Plan Update, prepared by De Novo Planning Group.

City of Pittsburg. 2023c. Pittsburg Municipal Code Chapter 9.44 Noise Section 9.44.010 Prohibitions. September 18. Available at: https://www.pittsburgca.gov/how-do-i/get-building-permit-zoning-info/pittsburg-municipal-code

Contra Costa County. 2005a. General Plan. Transportation and Circulation Element. Available online at: https://www.contracosta.ca.gov/4732/General-Plan

Contra Costa County. 2005b. General Plan. Safety Element. Available online: https://www.contracosta.ca.gov/4732/General-Plan

Contra Costa County. 2011. Contra Costa Operational Area Emergency Operations Plan. Available at: https://www.contracosta.ca.gov/DocumentCenter/View/7352/Emergency-Operations-Plan-2010-11?bidId=

Contra Costa County. 2015. Climate Action Plan. December 15.

Contra Costa Transportation Authority. 2023. Draft East County Action Plan. Available online at: https://ccta.net/wp-content/uploads/2023/03/Draft-East-County-Action-Plan_03-13-23.pdf

Council on Environmental Quality. Climate and Economic Justice Screening Tool Available online at: https://screeningtool.geoplatform.gov/en/#3/33.47/-97.5

Delta Diablo Sanitation District. 1988. Wastewater Treatment Capacity Expansion Environmental Impact Report, prepared by James M. Montgomery Consulting Engineers.

Delta Diablo Sanitation District. No date. Key Capital Projects. Available online at: https://www.deltadiablo.org/key-capital-projects.

Federal Emergency Management Agency. Nd. National Flood Hazard Layer Viewer. Available at: https://hazards-fema.maps.arcgis.com/apps/webappviewer/index.html?id=8b0adb51996444d4879338b5529aa9cd

Federal Emergency Management Agency. 2015a. Flood Insurance Rate Map. Map Number: 06013C0138G.

Federal Emergency Management Agency. 2015b. Flood Insurance Rate Map. Map Number 06013C0139G.

Federal Transit Administration (FTA). 2018. Transit Noise and Vibration Impact Assessment Manual. September. Available at: https://www.transit.dot.gov/sites/fta.dot.gov/files/docs/research-innovation/118131/transit-noise-and-vibration-impact-assessment-manual-fta-report-no-0123_0.pdf.

Governor's Office of Planning and Research. 2018. Technical Advisory on Evaluating Transportation Impacts in CEQA. Available online at: https://opr.ca.gov/docs/20180416-743_Technical_Advisory_4.16.18.pdf

ICF. 2024a. Secondary Process Improvements Project – Biological Resources Technical Memorandum (Delta Diablo Project Number 22126). May 2024.

ICF. 2024b. Secondary Process Improvements Project – Cultural Resources Technical Memorandum (Delta Diablo Project Number 22126). April 23.

Office for Coastal Management. 2024a. Rivers Harbors Act. Data available at: https://www.fisheries.noaa.gov/inport/item/59646#:~:text=The%20Rivers%20and%20Harbors%20Act,and%20other%20construction%20and%20excavation.

Office for Coastal Management 2024b. Coastal Zone Management Act Boundary. Data available at: https://www.fisheries.noaa.gov/inport/item/53132

National Resources Conservation Service. 2024. Websoil Survey. Data available at: https://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx

National Wild and Scenic Rivers System. 2024. California. Available online at: https://www.rivers.gov/california

Society of Vertebrate Paleontology. 2010. Standard Procedures for the Assessment and Mitigation of Adverse Impacts to Paleontological Resources. Last revised: unknown. Available online at: https://vertpaleo.org/wp-content/uploads/2021/01/SVP_Impact_Mitigation_Guidelines-1.pdf. Accessed March 6, 2024.

Tri Delta Transit. 2023. System Map. Available at: https://trideltatransit.com/local_bus.aspx

United States Census Bureau. QuickFacts. Available at: https://www.census.gov/quickfacts/fact/table/antiochcitycalifornia,US/PST045223

United States Department of Agriculture. 2017. Rincon Series. Available online at: https://soilseries.sc.egov.usda.gov/OSD_Docs/R/RINCON.html

United States Environmental Protection Agency. 2023. General Conformity De Minimis Tables. June 29. Available online at: https://www.epa.gov/general-conformity/de-minimis-tables.

United States Environmental Protection Agency. 2024a. NAAQS Table. February 7. Available online at: https://www.epa.gov/criteria-air-pollutants/naaqs-table.

United States Environmental Protection Agency. 2024b. Green Book: Current Nonattainment Counties for All Criteria Pollutants. April 30. Available online at: https://www3.epa.gov/airquality/greenbook/ancl.html.

U.S. Environmental Protection Agency. N.d. Sole Source Aquifers. Available online at: https://epa.maps.arcgis.com/apps/webappviewer/index.html?id=9ebb047ba3ec41ada1877155fe31356b

United States Fish and Wildlife Service. n.d. Coastal Barrier Resources System Mapper. Available online at: https://fwsprimary.wim.usgs.gov/CBRSMapper-v2/#layersPanel

United States Geological Survey. 2003. Earthquake Probabilities in the San Francisco Bay Region: 2002-2031. Available at: https://pubs.usgs.gov/of/2003/of03-214/OFR-03-214_FullText.pdf

United States Geological Survey. n.da. California Geologic Map. Data available at: https://mrdata.usgs.gov/geology/state/

United States Geological Survey. n.db. M 6.3 Scenario Earthquake – Green Valley. Available at: https://earthquake.usgs.gov/scenarios/eventpage/bssc2014greenvalley2011cfmel_m6p3_se/region-info

University of California Museum of Paleontology. 2024. UCMP Specimen Search, Contra Costa County. Available online at: http://ucmpdb.berkeley.edu/. Accessed March 6, 2024.

Yorke Engineering. 2024. Delta Diablo Project Emissions. May 20.

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APPENDIX A: CALEEMOD AIR QUALITY AND GHG OUTPUT

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1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	Secondary Process Improvements
Construction Start Date	3/3/2026
Operational Year	2031
Lead Agency	Delta Diablo
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	3.6
Precipitation (days)	0.8
Location	38.01546260759437, -121.8422559499277
County	Contra Costa
City	Antioch
Air District	Bay Area AQMD
Air Basin	San Francisco Bay Area
TAZ	1352
EDFZ	1
Electric Utility	Pacific Gas & Electric Company
Gas Utility	Pacific Gas & Electric
App Version	2022.1.1.22

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area	Special Lar	Population	Description
Refrigerated Warehouse-No Rail	130	1000sqft	2.99	60000	0			
Other Asphalt Surfaces	14.7	1000sqft	0.34	0	0			

1.3. User-Selected Emission Reduction Measures by Emissions Sector

Sector	#	Measure Title
Construction	C-1-A	Use Electric or Hybrid Powered Equipment
Construction	C-2*	Limit Heavy-Duty Diesel Vehicle Idling
Construction	C-5	Use Advanced Engine Tiers

* Qualitative or supporting measure. Emission reductions not included in the mitigated emissions results.

2. Emissions Summary

2.1. Construction Emissions Compared Against Thresholds

Un/Mit.	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R	CO_2e
Daily, Summer (Max)																		
Unmit.	7.82	6.53	58.2	71.2	0.12	2.28	11.1	13.3	2.1	5.43	7.51		13410	13410	0.56	0.22	2.84	13492
Mit.	1.64	1.53	11.5	73.8	0.12	0.29	11.1	11.4	0.29	5.43	5.72		13399	13399	0.56	0.22	2.84	13482
% Reduced	79	76.5	80.2	−3.69		87.3		14.7	86.4		23.8		0.08	0.08				0.08
Daily, Winter (Max)																		
Unmit.	7.81	6.52	58.3	70.9	0.12	2.28	11.1	13.3	2.1	5.43	7.51		13373	13373	0.56	0.24	0.07	13458
Mit.	1.63	1.52	11.6	73.6	0.12	0.29	11.1	11.4	0.29	5.43	5.72		13363	13363	0.56	0.23	0.07	13447
% Reduced	79.1	76.6	80.1	−3.71		87.3		14.7	86.4		23.8		0.08	0.08				0.08
Average Daily (Max)																		
Unmit.	5.48	4.58	40.9	50.3	0.09	1.59	7.91	9.5	1.46	3.89	5.35		9613	9613	0.41	0.17	0.83	9674
Mit.	1.16	1.08	8.22	52.4	0.09	0.21	7.91	8.11	0.2	3.89	4.09		9606	9606	0.41	0.17	0.83	9667
% Reduced	78.9	76.3	79.9	−4.28		87		14.6	86.1		23.6		0.08	0.08				0.08

Annual (Max)																		
Unmit.	1	0.84	7.46	9.18	0.02	0.29	1.44	1.73	0.27	0.71	0.98		1592	1592	0.07	0.03	0.14	1602
Mit.	0.21	0.2	1.5	9.57	0.02	0.04	1.44	1.48	0.04	0.71	0.75		1590	1590	0.07	0.03	0.14	1600
% Reduced	78.9	76.3	79.9	−4.28		87		14.6	86.1		23.6		0.08	0.08	0.07	0.04		0.08
Exceeds (Daily Max)																		
Threshold		54	54			82			54									
Unmit.		No	Yes			No			No									
Mit.		No	No			No			No									
Exceeds (Average Daily)																		
Threshold		54	54			82			54									
Unmit.		No	No			No			No									
Mit.		No	No			No			No									

2.2. Construction Emissions by Year, Unmitigated

Year	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R	CO_2e
Daily - Summer (Max)																		
2026	7.19	6.01	55.1	61.1	0.1	2.28	10.9	13.2	2.1	5.4	7.5		11810	11810	0.51	0.22	2.84	11891
2027	6.95	5.8	52.7	60.3	0.1	2.12	10.9	13	1.95	5.4	7.35		11777	11777	0.5	0.22	2.56	11857
2028	7.82	6.53	58.2	71.2	0.12	2.25	11.1	13.3	2.07	5.43	7.51		13410	13410	0.56	0.22	2.75	13492
2029	7.63	6.38	55.4	70.7	0.12	2.12	11.1	13.2	1.95	5.43	7.38		13373	13373	0.56	0.22	2.47	13454
2030	3.5	2.9	25.9	30.2	0.06	0.93	0.65	1.58	0.86	0.15	1.01		6241	6241	0.28	0.2	2.19	6310
Daily - Winter (Max)																		
2026	7.18	5.99	55.2	60.9	0.1	2.28	10.9	13.2	2.1	5.4	7.5		11784	11784	0.51	0.22	0.07	11863
2027	6.94	5.79	52.8	60.1	0.1	2.12	10.9	13	1.95	5.4	7.35		11752	11752	0.5	0.22	0.07	11829
2028	7.81	6.52	58.3	70.9	0.12	2.25	11.1	13.3	2.07	5.43	7.51		13373	13373	0.56	0.24	0.07	13458
2029	7.61	6.37	55.4	70.4	0.12	2.12	11.1	13.2	1.95	5.43	7.38		13338	13338	0.56	0.23	0.06	13421
2030	7.43	6.22	53.9	70.8	0.12	2.05	11.1	13.1	1.88	5.43	7.32		13338	13338	0.56	0.23	0.06	13419
2031	3.41	2.82	25.2	29.7	0.06	0.9	0.65	1.55	0.83	0.15	0.99		6509	6509	0.33	0.21	0.05	6581
Average Daily																		
2026	4.27	3.56	32.8	36.2	0.06	1.36	6.5	7.86	1.25	3.21	4.46		7087	7087	0.31	0.13	0.73	7135
2027	4.96	4.14	37.7	42.9	0.07	1.51	7.81	9.32	1.39	3.86	5.25		8470	8470	0.37	0.16	0.79	8527
2028	5.48	4.58	40.9	49.5	0.08	1.59	7.91	9.5	1.46	3.89	5.35		9470	9470	0.41	0.17	0.83	9531
2029	5.44	4.55	39.6	50.3	0.09	1.51	7.91	9.42	1.39	3.88	5.27		9613	9613	0.41	0.17	0.76	9674
2030	2.95	2.45	21.8	26.2	0.05	0.79	1.67	2.46	0.73	0.72	1.45		5332	5332	0.24	0.15	0.67	5382
2031	0.45	0.37	3.31	4.07	0.01	0.12	0.08	0.2	0.11	0.02	0.13		921	921	0.05	0.03	0.11	931
Annual																		
2026	0.78	0.65	5.99	6.61	0.01	0.25	1.19	1.43	0.23	0.59	0.81		1173	1173	0.05	0.02	0.12	1181
2027	0.91	0.75	6.87	7.83	0.01	0.28	1.43	1.7	0.25	0.7	0.96		1402	1402	0.06	0.03	0.13	1412
2028	1	0.84	7.46	9.04	0.02	0.29	1.44	1.73	0.27	0.71	0.98		1568	1568	0.07	0.03	0.14	1578
2029	0.99	0.83	7.22	9.18	0.02	0.28	1.44	1.72	0.25	0.71	0.96		1592	1592	0.07	0.03	0.13	1602
2030	0.54	0.45	3.97	4.78	0.01	0.15	0.3	0.45	0.13	0.13	0.26		883	883	0.04	0.02	0.11	891
2031	0.08	0.07	0.6	0.74	< 0.005	0.02	0.02	0.04	0.02	< 0.005	0.02		153	153	0.01	< 0.005	0.02	154

2.3. Construction Emissions by Year, Mitigated

Year	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R	CO_2e
Daily - Summer (Max)																		
2026	1.34	1.26	8.59	62.8	0.1	0.24	10.9	11.2	0.24	5.4	5.64		11799	11799	0.51	0.22	2.84	11881
2027	1.33	1.25	8.54	62.7	0.1	0.24	10.9	11.2	0.24	5.4	5.64		11766	11766	0.5	0.22	2.56	11846
2028	1.64	1.53	11.5	73.8	0.12	0.29	11.1	11.4	0.29	5.43	5.72		13399	13399	0.56	0.22	2.75	13482

	2029	1.63	1.53	11.5	73.7	0.12	0.29	11.1	11.4	0.28	5.43	5.72		13363	13363	0.56	0.22	2.47	13444
	2030	0.77	0.69	8.6	30.1	0.06	0.13	0.65	0.78	0.13	0.15	0.28		6241	6241	0.28	0.2	2.19	6310
Daily - Winter (Max)																			
	2026	1.34	1.24	8.66	62.6	0.1	0.24	10.9	11.2	0.24	5.4	5.64		11774	11774	0.51	0.22	0.07	11853
	2027	1.33	1.24	8.61	62.5	0.1	0.24	10.9	11.2	0.24	5.4	5.64		11741	11741	0.5	0.22	0.07	11819
	2028	1.63	1.52	11.6	73.6	0.12	0.29	11.1	11.4	0.29	5.43	5.72		13363	13363	0.56	0.23	0.07	13447
	2029	1.61	1.52	11.5	73.5	0.12	0.29	11.1	11.4	0.28	5.43	5.72		13327	13327	0.56	0.23	0.06	13410
	2030	1.6	1.51	11.5	73.4	0.12	0.29	11.1	11.4	0.28	5.43	5.72		13327	13327	0.56	0.23	0.06	13409
	2031	0.76	0.68	8.62	29.9	0.06	0.13	0.65	0.78	0.13	0.15	0.28		6509	6509	0.33	0.21	0.05	6581
Average Daily																			
	2026	0.79	0.74	5.14	37.2	0.06	0.14	6.5	6.65	0.14	3.21	3.35		7080	7080	0.31	0.13	0.73	7129
	2027	0.95	0.88	6.13	44.6	0.07	0.17	7.81	7.98	0.17	3.86	4.03		8463	8463	0.37	0.16	0.79	8520
	2028	1.13	1.06	7.93	51.4	0.08	0.2	7.91	8.11	0.2	3.89	4.09		9462	9462	0.41	0.17	0.83	9523
	2029	1.16	1.08	8.22	52.4	0.09	0.21	7.91	8.11	0.2	3.88	4.08		9606	9606	0.41	0.17	0.76	9667
	2030	0.64	0.58	6.5	26.4	0.05	0.11	1.67	1.78	0.11	0.72	0.83		5331	5331	0.24	0.15	0.67	5381
	2031	0.11	0.1	1.18	4.12	0.01	0.02	0.08	0.1	0.02	0.02	0.04		921	921	0.05	0.03	0.11	931
Annual																			
	2026	0.15	0.13	0.94	6.79	0.01	0.03	1.19	1.21	0.03	0.59	0.61		1172	1172	0.05	0.02	0.12	1180
	2027	0.17	0.16	1.12	8.15	0.01	0.03	1.43	1.46	0.03	0.7	0.74		1401	1401	0.06	0.03	0.13	1411
	2028	0.21	0.19	1.45	9.37	0.02	0.04	1.44	1.48	0.04	0.71	0.75		1567	1567	0.07	0.03	0.14	1577
	2029	0.21	0.2	1.5	9.57	0.02	0.04	1.44	1.48	0.04	0.71	0.75		1590	1590	0.07	0.03	0.13	1600
	2030	0.12	0.11	1.19	4.82	0.01	0.02	0.3	0.32	0.02	0.13	0.15		883	883	0.04	0.02	0.11	891
	2031	0.02	0.02	0.21	0.75	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01		153	153	0.01	< 0.005	0.02	154

2.4. Operations Emissions Compared Against Thresholds

Un/Mit.	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R	CO_2e
Daily, Summer (Max)																		
Unmit.	19.3	18.9	78.7	44.9	0.09	2.59	< 0.005	2.59	2.59	< 0.005	2.59	0	9016	9016	0.36	0.07	0	9046
Daily, Winter (Max)																		
Unmit.	19.3	18.9	78.7	44.9	0.09	2.59	< 0.005	2.59	2.59	< 0.005	2.59	0	9016	9016	0.36	0.07	0	9046
Average Daily (Max)																		
Unmit.	0.33	1.59	1.35	0.77	< 0.005	0.05	< 0.005	0.05	0.05	< 0.005	0.05	0	164	164	0.01	< 0.005	0	164
Annual (Max)																		
Unmit.	0.06	0.29	0.25	0.14	< 0.005	0.01	< 0.005	0.01	0.01	< 0.005	0.01	0	27.1	27.1	< 0.005	< 0.005	0	27.2
Exceeds (Daily Max)																		
Threshold		54	54			82			54									
Unmit.		No	Yes			No			No									
Exceeds (Average Daily)																		
Threshold		54	54			82			54									
Unmit.		No	No			No			No									

2.5. Operations Emissions by Sector, Unmitigated

Sector	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R	CO_2e
Daily, Summer (Max)																		
Mobile	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Area		1.29																
Energy	0	0	0	0	0	0		0	0		0		3.91	3.91	< 0.005	< 0.005		3.95
Water												0	0	0	0	0		0
Waste												0	0	0	0	0		0

Stationary	19.3	17.6	78.7	44.9	0.08	2.59	0	2.59	2.59	0	2.59	0	9006	9006	0.36	0.07	0	9036
Vegetation		< 0.005	< 0.005		< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005		5.68	5.68				5.68
Total	19.3	18.9	78.7	44.9	0.09	2.59	< 0.005	2.59	2.59	< 0.005	2.59	0	9016	9016	0.36	0.07	0	9046
Daily, Winter (Max)																		
Mobile	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Area		1.29																
Energy	0	0	0	0	0	0		0	0		0		3.91	3.91	< 0.005	< 0.005		3.95
Water												0	0	0	0	0		0
Waste												0	0	0	0	0		0
Stationary	19.3	17.6	78.7	44.9	0.08	2.59	0	2.59	2.59	0	2.59	0	9006	9006	0.36	0.07	0	9036
Vegetation		< 0.005	< 0.005		< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005		5.68	5.68				5.68
Total	19.3	18.9	78.7	44.9	0.09	2.59	< 0.005	2.59	2.59	< 0.005	2.59	0	9016	9016	0.36	0.07	0	9046
Average Daily																		
Mobile	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Area		1.29																
Energy	0	0	0	0	0	0		0	0		0		3.91	3.91	< 0.005	< 0.005		3.95
Water												0	0	0	0	0		0
Waste												0	0	0	0	0		0
Stationary	0.33	0.3	1.35	0.77	< 0.005	0.04	0	0.04	0.04	0	0.04	0	154	154	0.01	< 0.005	0	155
Vegetation		< 0.005	< 0.005		< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005		5.68	5.68				5.68
Total	0.33	1.59	1.35	0.77	< 0.005	0.05	< 0.005	0.05	0.05	< 0.005	0.05	0	164	164	0.01	< 0.005	0	164
Annual																		
Mobile	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Area		0.23																
Energy	0	0	0	0	0	0		0	0		0		0.65	0.65	< 0.005	< 0.005		0.65
Water												0	0	0	0	0		0
Waste												0	0	0	0	0		0
Stationary	0.06	0.06	0.25	0.14	< 0.005	0.01	0	0.01	0.01	0	0.01	0	25.5	25.5	< 0.005	< 0.005	0	25.6
Vegetation		< 0.005	< 0.005		< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005		0.94	0.94				0.94
Total	0.06	0.29	0.25	0.14	< 0.005	0.01	< 0.005	0.01	0.01	< 0.005	0.01	0	27.1	27.1	< 0.005	< 0.005	0	27.2

2.6. Operations Emissions by Sector, Mitigated

Sector	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R	CO_2e
Daily, Summer (Max)																		
Mobile	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Area		1.29																
Energy	0	0	0	0	0	0		0	0		0		3.91	3.91	< 0.005	< 0.005		3.95
Water												0	0	0	0	0		0
Waste												0	0	0	0	0		0
Stationary	19.3	17.6	78.7	44.9	0.08	2.59	0	2.59	2.59	0	2.59	0	9006	9006	0.36	0.07	0	9036
Vegetation		< 0.005	< 0.005		< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005		5.68	5.68				5.68
Total	19.3	18.9	78.7	44.9	0.09	2.59	< 0.005	2.59	2.59	< 0.005	2.59	0	9016	9016	0.36	0.07	0	9046
Daily, Winter (Max)																		
Mobile	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Area		1.29																
Energy	0	0	0	0	0	0		0	0		0		3.91	3.91	< 0.005	< 0.005		3.95
Water												0	0	0	0	0		0
Waste												0	0	0	0	0		0
Stationary	19.3	17.6	78.7	44.9	0.08	2.59	0	2.59	2.59	0	2.59	0	9006	9006	0.36	0.07	0	9036

Vegetation		< 0.005	< 0.005		< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005		5.68	5.68				5.68
Total	19.3	18.9	78.7	44.9	0.09	2.59	< 0.005	2.59	2.59	< 0.005	2.59	0	9016	9016	0.36	0.07	0	9046
Average Daily																		
Mobile	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Area		1.29																
Energy	0	0	0	0	0	0		0	0		0		3.91	3.91	< 0.005	< 0.005		3.95
Water												0	0	0	0	0		0
Waste												0	0	0	0	0		0
Stationary	0.33	0.3	1.35	0.77	< 0.005	0.04	0	0.04	0.04	0	0.04	0	154	154	0.01	< 0.005	0	155
Vegetation		< 0.005	< 0.005		< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005		5.68	5.68				5.68
Total	0.33	1.59	1.35	0.77	< 0.005	0.05	< 0.005	0.05	0.05	< 0.005	0.05	0	164	164	0.01	< 0.005	0	164
Annual																		
Mobile	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Area		0.23																
Energy	0	0	0	0	0	0		0	0		0		0.65	0.65	< 0.005	< 0.005		0.65
Water												0	0	0	0	0		0
Waste												0	0	0	0	0		0
Stationary	0.06	0.06	0.25	0.14	< 0.005	0.01	0	0.01	0.01	0	0.01	0	25.5	25.5	< 0.005	< 0.005	0	25.6
Vegetation		< 0.005	< 0.005		< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005		0.94	0.94				0.94
Total	0.06	0.29	0.25	0.14	< 0.005	0.01	< 0.005	0.01	0.01	< 0.005	0.01	0	27.1	27.1	< 0.005	< 0.005	0	27.2

3. Construction Emissions Details

3.1. Demolition (2030) - Unmitigated

Location	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R	CO_2e
Onsite																		
Daily, Summer (Max)																		
Off-Road Equipment	2.48	2.09	18.1	18.7	0.03	0.72		0.72	0.66		0.66		3426	3426	0.14	0.03		3438
Demolition							0.13	0.13		0.02	0.02							
Onsite truck	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Daily, Winter (Max)																		
Off-Road Equipment	2.48	2.09	18.1	18.7	0.03	0.72		0.72	0.66		0.66		3426	3426	0.14	0.03		3438
Demolition							0.13	0.13		0.02	0.02							
Onsite truck	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Average Daily																		
Off-Road Equipment	1.49	1.25	10.9	11.2	0.02	0.43		0.43	0.4		0.4		2052	2052	0.08	0.02		2059
Demolition							0.08	0.08		0.01	0.01							
Onsite truck	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Annual																		
Off-Road Equipment	0.27	0.23	1.98	2.04	< 0.005	0.08		0.08	0.07		0.07		340	340	0.01	< 0.005		341
Demolition							0.01	0.01		< 0.005	< 0.005							
Onsite truck	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Offsite																		
Daily, Summer (Max)																		
Worker	0.03	0.03	0.02	0.31	0	0	0.08	0.08	0	0.02	0.02		80.4	80.4	< 0.005	< 0.005	0.21	80.9
Vendor	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Hauling	0.08	0.01	1.05	0.48	0.01	0.01	0.3	0.32	0.01	0.08	0.1		1006	1006	0.07	0.16	1.64	1057
Daily, Winter (Max)																		
Worker	0.03	0.03	0.02	0.26	0	0	0.08	0.08	0	0.02	0.02		73.6	73.6	< 0.005	< 0.005	0.01	74.6
Vendor	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0

Hauling	0.08	0.01	1.11	0.49	0.01	0.01	0.3	0.32	0.01	0.08	0.1		1006	1006	0.07	0.16	0.04	1055
Average Daily																		
Worker	0.02	0.02	0.01	0.15	0	0	0.05	0.05	0	0.01	0.01		44.6	44.6	< 0.005	< 0.005	0.05	44.8
Vendor	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Hauling	0.05	0.01	0.66	0.29	< 0.005	0.01	0.18	0.19	0.01	0.05	0.06		603	603	0.04	0.09	0.42	632
Annual																		
Worker	< 0.005	< 0.005	< 0.005	0.03	0	0	0.01	0.01	0	< 0.005	< 0.005		7.38	7.38	< 0.005	< 0.005	0.01	7.41
Vendor	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Hauling	0.01	< 0.005	0.12	0.05	< 0.005	< 0.005	0.03	0.03	< 0.005	0.01	0.01		99.8	99.8	0.01	0.02	0.07	105

3.2. Demolition (2030) - Mitigated

Location	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R	CO_2e
Onsite																		
Daily, Summer (Max)																		
Off-Road Equipment	0.36	0.36	4.51	18.2	0.03	0.06		0.06	0.06		0.06		3426	3426	0.14	0.03		3438
Demolition							0.13	0.13		0.02	0.02							
Onsite truck	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Daily, Winter (Max)																		
Off-Road Equipment	0.36	0.36	4.51	18.2	0.03	0.06		0.06	0.06		0.06		3426	3426	0.14	0.03		3438
Demolition							0.13	0.13		0.02	0.02							
Onsite truck	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Average Daily																		
Off-Road Equipment	0.22	0.22	2.7	10.9	0.02	0.04		0.04	0.04		0.04		2052	2052	0.08	0.02		2059
Demolition							0.08	0.08		0.01	0.01							
Onsite truck	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Annual																		
Off-Road Equipment	0.04	0.04	0.49	1.99	< 0.005	0.01		0.01	0.01		0.01		340	340	0.01	< 0.005		341
Demolition							0.01	0.01		< 0.005	< 0.005							
Onsite truck	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Offsite																		
Daily, Summer (Max)																		
Worker	0.03	0.03	0.02	0.31	0	0	0.08	0.08	0	0.02	0.02		80.4	80.4	< 0.005	< 0.005	0.21	80.9
Vendor	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Hauling	0.08	0.01	1.05	0.48	0.01	0.01	0.3	0.32	0.01	0.08	0.1		1006	1006	0.07	0.16	1.64	1057
Daily, Winter (Max)																		
Worker	0.03	0.03	0.02	0.26	0	0	0.08	0.08	0	0.02	0.02		73.6	73.6	< 0.005	< 0.005	0.01	74.6
Vendor	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Hauling	0.08	0.01	1.11	0.49	0.01	0.01	0.3	0.32	0.01	0.08	0.1		1006	1006	0.07	0.16	0.04	1055
Average Daily																		
Worker	0.02	0.02	0.01	0.15	0	0	0.05	0.05	0	0.01	0.01		44.6	44.6	< 0.005	< 0.005	0.05	44.8
Vendor	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Hauling	0.05	0.01	0.66	0.29	< 0.005	0.01	0.18	0.19	0.01	0.05	0.06		603	603	0.04	0.09	0.42	632
Annual																		
Worker	< 0.005	< 0.005	< 0.005	0.03	0	0	0.01	0.01	0	< 0.005	< 0.005		7.38	7.38	< 0.005	< 0.005	0.01	7.41
Vendor	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Hauling	0.01	< 0.005	0.12	0.05	< 0.005	< 0.005	0.03	0.03	< 0.005	0.01	0.01		99.8	99.8	0.01	0.02	0.07	105

3.3. Demolition (2031) - Unmitigated

Location	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R	CO_2e

Onsite																		
Daily, Summer (Max)																		
Daily, Winter (Max)																		
Off-Road Equipment	2.43	2.04	17.5	18.3	0.03	0.7		0.7	0.64		0.64		3426	3426	0.14	0.03		3438
Demolition							0.13	0.13		0.02	0.02							
Onsite truck	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Average Daily																		
Off-Road Equipment	0.29	0.24	2.06	2.15	< 0.005	0.08		0.08	0.08		0.08		402	402	0.02	< 0.005		404
Demolition							0.02	0.02		< 0.005	< 0.005							
Onsite truck	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Annual																		
Off-Road Equipment	0.05	0.04	0.38	0.39	< 0.005	0.01		0.01	0.01		0.01		66.6	66.6	< 0.005	< 0.005		66.8
Demolition							< 0.005	< 0.005		< 0.005	< 0.005							
Onsite truck	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Offsite																		
Daily, Summer (Max)																		
Daily, Winter (Max)																		
Worker	0.03	0.02	0.02	0.25	0	0	0.08	0.08	0	0.02	0.02		72.6	72.6	< 0.005	< 0.005	< 0.005	73.6
Vendor	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Hauling	0.07	0.01	1.07	0.46	0.01	0.01	0.3	0.32	0.01	0.08	0.1		977	977	0.06	0.16	0.04	1025
Average Daily																		
Worker	< 0.005	< 0.005	< 0.005	0.03	0	0	0.01	0.01	0	< 0.005	< 0.005		8.62	8.62	< 0.005	< 0.005	0.01	8.65
Vendor	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Hauling	0.01	< 0.005	0.12	0.05	< 0.005	< 0.005	0.04	0.04	< 0.005	0.01	0.01		115	115	0.01	0.02	0.07	120
Annual																		
Worker	< 0.005	< 0.005	< 0.005	0.01	0	0	< 0.005	< 0.005	0	< 0.005	< 0.005		1.43	1.43	< 0.005	< 0.005	< 0.005	1.43
Vendor	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Hauling	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005		19	19	< 0.005	< 0.005	0.01	19.9

3.4. Demolition (2031) - Mitigated

Location	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R	CO_2e
Onsite																		
Daily, Summer (Max)																		
Daily, Winter (Max)																		
Off-Road Equipment	0.36	0.36	4.51	18.2	0.03	0.06		0.06	0.06		0.06		3426	3426	0.14	0.03		3438
Demolition							0.13	0.13		0.02	0.02							
Onsite truck	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Average Daily																		
Off-Road Equipment	0.04	0.04	0.53	2.13	< 0.005	0.01		0.01	0.01		0.01		402	402	0.02	< 0.005		404
Demolition							0.02	0.02		< 0.005	< 0.005							
Onsite truck	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Annual																		
Off-Road Equipment	0.01	0.01	0.1	0.39	< 0.005	< 0.005		< 0.005	< 0.005		< 0.005		66.6	66.6	< 0.005	< 0.005		66.8
Demolition							< 0.005	< 0.005		< 0.005	< 0.005							
Onsite truck	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Offsite																		
Daily, Summer (Max)																		
Daily, Winter (Max)																		
Worker	0.03	0.02	0.02	0.25	0	0	0.08	0.08	0	0.02	0.02		72.6	72.6	< 0.005	< 0.005	< 0.005	73.6

Vendor	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Hauling	0.07	0.01	1.07	0.46	0.01	0.01	0.3	0.32	0.01	0.08	0.1		977	977	0.06	0.16	0.04	1025
Average Daily																		
Worker	< 0.005	< 0.005	< 0.005	0.03	0	0	0.01	0.01	0	< 0.005	< 0.005		8.62	8.62	< 0.005	< 0.005	0.01	8.65
Vendor	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Hauling	0.01	< 0.005	0.12	0.05	< 0.005	< 0.005	0.04	0.04	< 0.005	0.01	0.01		115	115	0.01	0.02	0.07	120
Annual																		
Worker	< 0.005	< 0.005	< 0.005	0.01	0	0	< 0.005	< 0.005	0	< 0.005	< 0.005		1.43	1.43	< 0.005	< 0.005	< 0.005	1.43
Vendor	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Hauling	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005		19	19	< 0.005	< 0.005	0.01	19.9

3.5. Site Preparation (2026) - Unmitigated

Location	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R	CO_2e
Onsite																		
Daily, Summer (Max)																		
Off-Road Equipment	3.74	3.14	29.2	28.8	0.05	1.24		1.24	1.14		1.14		5298	5298	0.21	0.04		5316
Dust From Material Movement							7.67	7.67		3.94	3.94							
Onsite truck	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Daily, Winter (Max)																		
Off-Road Equipment	3.74	3.14	29.2	28.8	0.05	1.24		1.24	1.14		1.14		5298	5298	0.21	0.04		5316
Dust From Material Movement							7.67	7.67		3.94	3.94							
Onsite truck	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Average Daily																		
Off-Road Equipment	2.23	1.87	17.3	17.1	0.03	0.74		0.74	0.68		0.68		3152	3152	0.13	0.03		3163
Dust From Material Movement							4.56	4.56		2.34	2.34							
Onsite truck	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Annual																		
Off-Road Equipment	0.41	0.34	3.17	3.13	0.01	0.13		0.13	0.12		0.12		522	522	0.02	< 0.005		524
Dust From Material Movement							0.83	0.83		0.43	0.43							
Onsite truck	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Offsite																		
Daily, Summer (Max)																		
Worker	0.04	0.04	0.02	0.41	0	0	0.09	0.09	0	0.02	0.02		90.8	90.8	< 0.005	< 0.005	0.33	92.2
Vendor	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Hauling	0.02	0.01	0.25	0.14	< 0.005	< 0.005	0.04	0.04	< 0.005	0.01	0.01		145	145	0.01	0.02	0.28	152
Daily, Winter (Max)																		
Worker	0.04	0.03	0.03	0.35	0	0	0.09	0.09	0	0.02	0.02		83	83	< 0.005	< 0.005	0.01	84.2
Vendor	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Hauling	0.02	0.01	0.26	0.14	< 0.005	< 0.005	0.04	0.04	< 0.005	0.01	0.01		145	145	0.01	0.02	0.01	152
Average Daily																		
Worker	0.02	0.02	0.02	0.2	0	0	0.05	0.05	0	0.01	0.01		49.9	49.9	< 0.005	< 0.005	0.09	50.7
Vendor	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Hauling	0.01	< 0.005	0.15	0.08	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01		86.1	86.1	0.01	0.01	0.07	90.6
Annual																		
Worker	< 0.005	< 0.005	< 0.005	0.04	0	0	0.01	0.01	0	< 0.005	< 0.005		8.27	8.27	< 0.005	< 0.005	0.01	8.39
Vendor	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Hauling	< 0.005	< 0.005	0.03	0.02	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005		14.3	14.3	< 0.005	< 0.005	0.01	15

3.6. Site Preparation (2026) - Mitigated

Location	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R	CO_2e
Onsite																		
Daily, Summer (Max)																		
Off-Road Equipment	0.5	0.5	2.59	28.3	0.05	0.1		0.1	0.1		0.1		5298	5298	0.21	0.04		5316
Dust From Material Movement							7.67	7.67		3.94	3.94							
Onsite truck	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Daily, Winter (Max)																		
Off-Road Equipment	0.5	0.5	2.59	28.3	0.05	0.1		0.1	0.1		0.1		5298	5298	0.21	0.04		5316
Dust From Material Movement							7.67	7.67		3.94	3.94							
Onsite truck	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Average Daily																		
Off-Road Equipment	0.3	0.3	1.54	16.8	0.03	0.06		0.06	0.06		0.06		3152	3152	0.13	0.03		3163
Dust From Material Movement							4.56	4.56		2.34	2.34							
Onsite truck	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Annual																		
Off-Road Equipment	0.05	0.05	0.28	3.07	0.01	0.01		0.01	0.01		0.01		522	522	0.02	< 0.005		524
Dust From Material Movement							0.83	0.83		0.43	0.43							
Onsite truck	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Offsite																		
Daily, Summer (Max)																		
Worker	0.04	0.04	0.02	0.41	0	0	0.09	0.09	0	0.02	0.02		90.8	90.8	< 0.005	< 0.005	0.33	92.2
Vendor	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Hauling	0.02	0.01	0.25	0.14	< 0.005	< 0.005	0.04	0.04	< 0.005	0.01	0.01		145	145	0.01	0.02	0.28	152
Daily, Winter (Max)																		
Worker	0.04	0.03	0.03	0.35	0	0	0.09	0.09	0	0.02	0.02		83	83	< 0.005	< 0.005	0.01	84.2
Vendor	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Hauling	0.02	0.01	0.26	0.14	< 0.005	< 0.005	0.04	0.04	< 0.005	0.01	0.01		145	145	0.01	0.02	0.01	152
Average Daily																		
Worker	0.02	0.02	0.02	0.2	0	0	0.05	0.05	0	0.01	0.01		49.9	49.9	< 0.005	< 0.005	0.09	50.7
Vendor	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Hauling	0.01	< 0.005	0.15	0.08	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01		86.1	86.1	0.01	0.01	0.07	90.6
Annual																		
Worker	< 0.005	< 0.005	< 0.005	0.04	0	0	0.01	0.01	0	< 0.005	< 0.005		8.27	8.27	< 0.005	< 0.005	0.01	8.39
Vendor	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Hauling	< 0.005	< 0.005	0.03	0.02	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005		14.3	14.3	< 0.005	< 0.005	0.01	15

3.7. Site Preparation (2027) - Unmitigated

Location	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R	CO_2e
Onsite																		
Daily, Summer (Max)																		
Off-Road Equipment	3.63	3.05	28	28.3	0.05	1.17		1.17	1.08		1.08		5298	5298	0.21	0.04		5316
Dust From Material Movement							7.67	7.67		3.94	3.94							
Onsite truck	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Daily, Winter (Max)																		
Off-Road Equipment	3.63	3.05	28	28.3	0.05	1.17		1.17	1.08		1.08		5298	5298	0.21	0.04		5316
Dust From Material Movement							7.67	7.67		3.94	3.94							
Onsite truck	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Average Daily																		
Off-Road Equipment	2.59	2.18	20	20.2	0.03	0.84		0.84	0.77		0.77		3784	3784	0.15	0.03		3797

Dust From Material Movement							5.48	5.48		2.81	2.81							
Onsite truck	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Annual																		
Off-Road Equipment	0.47	0.4	3.65	3.69	0.01	0.15		0.15	0.14		0.14		627	627	0.03	0.01		629
Dust From Material Movement							1	1		0.51	0.51							
Onsite truck	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Offsite																		
Daily, Summer (Max)																		
Worker	0.04	0.03	0.02	0.39	0	0	0.09	0.09	0	0.02	0.02		89.1	89.1	< 0.005	< 0.005	0.3	90.4
Vendor	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Hauling	0.02	0.01	0.24	0.14	< 0.005	< 0.005	0.04	0.04	< 0.005	0.01	0.01		142	142	0.01	0.02	0.26	149
Daily, Winter (Max)																		
Worker	0.03	0.03	0.03	0.33	0	0	0.09	0.09	0	0.02	0.02		81.5	81.5	< 0.005	< 0.005	0.01	82.6
Vendor	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Hauling	0.02	0.01	0.26	0.14	< 0.005	< 0.005	0.04	0.04	< 0.005	0.01	0.01		142	142	0.01	0.02	0.01	149
Average Daily																		
Worker	0.02	0.02	0.02	0.23	0	0	0.06	0.06	0	0.01	0.01		58.8	58.8	< 0.005	< 0.005	0.09	59.7
Vendor	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Hauling	0.01	< 0.005	0.18	0.1	< 0.005	< 0.005	0.03	0.03	< 0.005	0.01	0.01		101	101	0.01	0.02	0.08	106
Annual																		
Worker	< 0.005	< 0.005	< 0.005	0.04	0	0	0.01	0.01	0	< 0.005	< 0.005		9.74	9.74	< 0.005	< 0.005	0.02	9.88
Vendor	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Hauling	< 0.005	< 0.005	0.03	0.02	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005		16.7	16.7	< 0.005	< 0.005	0.01	17.6

3.8. Site Preparation (2027) - Mitigated

Location	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R	CO_2e
Onsite																		
Daily, Summer (Max)																		
Off-Road Equipment	0.5	0.5	2.59	28.3	0.05	0.1		0.1	0.1		0.1		5298	5298	0.21	0.04		5316
Dust From Material Movement							7.67	7.67		3.94	3.94							
Onsite truck	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Daily, Winter (Max)																		
Off-Road Equipment	0.5	0.5	2.59	28.3	0.05	0.1		0.1	0.1		0.1		5298	5298	0.21	0.04		5316
Dust From Material Movement							7.67	7.67		3.94	3.94							
Onsite truck	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Average Daily																		
Off-Road Equipment	0.36	0.36	1.85	20.2	0.03	0.07		0.07	0.07		0.07		3784	3784	0.15	0.03		3797
Dust From Material Movement							5.48	5.48		2.81	2.81							
Onsite truck	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Annual																		
Off-Road Equipment	0.06	0.06	0.34	3.69	0.01	0.01		0.01	0.01		0.01		627	627	0.03	0.01		629
Dust From Material Movement							1	1		0.51	0.51							
Onsite truck	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Offsite																		
Daily, Summer (Max)																		
Worker	0.04	0.03	0.02	0.39	0	0	0.09	0.09	0	0.02	0.02		89.1	89.1	< 0.005	< 0.005	0.3	90.4
Vendor	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Hauling	0.02	0.01	0.24	0.14	< 0.005	< 0.005	0.04	0.04	< 0.005	0.01	0.01		142	142	0.01	0.02	0.26	149
Daily, Winter (Max)																		

Worker	0.03	0.03	0.03	0.33	0	0	0.09	0.09	0	0.02	0.02		81.5	81.5	< 0.005	< 0.005	0.01	82.6
Vendor	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Hauling	0.02	0.01	0.26	0.14	< 0.005	< 0.005	0.04	0.04	< 0.005	0.01	0.01		142	142	0.01	0.02	0.01	149
Average Daily																		
Worker	0.02	0.02	0.02	0.23	0	0	0.06	0.06	0	0.01	0.01		58.8	58.8	< 0.005	< 0.005	0.09	59.7
Vendor	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Hauling	0.01	< 0.005	0.18	0.1	< 0.005	< 0.005	0.03	0.03	< 0.005	0.01	0.01		101	101	0.01	0.02	0.08	106
Annual																		
Worker	< 0.005	< 0.005	< 0.005	0.04	0	0	0.01	0.01	0	< 0.005	< 0.005		9.74	9.74	< 0.005	< 0.005	0.02	9.88
Vendor	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Hauling	< 0.005	< 0.005	0.03	0.02	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005		16.7	16.7	< 0.005	< 0.005	0.01	17.6

3.9. Site Preparation (2028) - Unmitigated

Location	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R	CO_2e
Onsite																		
Daily, Summer (Max)																		
Off-Road Equipment	3.61	3.04	27.5	28.4	0.05	1.14		1.14	1.05		1.05		5300	5300	0.21	0.04		5318
Dust From Material Movement							7.67	7.67		3.94	3.94							
Onsite truck	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Daily, Winter (Max)																		
Off-Road Equipment	3.61	3.04	27.5	28.4	0.05	1.14		1.14	1.05		1.05		5300	5300	0.21	0.04		5318
Dust From Material Movement							7.67	7.67		3.94	3.94							
Onsite truck	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Average Daily																		
Off-Road Equipment	2.59	2.17	19.7	20.3	0.04	0.82		0.82	0.75		0.75		3796	3796	0.15	0.03		3809
Dust From Material Movement							5.49	5.49		2.82	2.82							
Onsite truck	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Annual																		
Off-Road Equipment	0.47	0.4	3.59	3.71	0.01	0.15		0.15	0.14		0.14		628	628	0.03	0.01		631
Dust From Material Movement							1	1		0.52	0.52							
Onsite truck	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Offsite																		
Daily, Summer (Max)																		
Worker	0.03	0.03	0.02	0.36	0	0	0.09	0.09	0	0.02	0.02		87.4	87.4	< 0.005	< 0.005	0.27	88
Vendor	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Hauling	0.02	0.01	0.24	0.14	< 0.005	< 0.005	0.04	0.04	< 0.005	0.01	0.01		138	138	0.01	0.02	0.24	145
Daily, Winter (Max)																		
Worker	0.03	0.03	0.03	0.31	0	0	0.09	0.09	0	0.02	0.02		80	80	< 0.005	< 0.005	0.01	81.2
Vendor	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Hauling	0.02	0.01	0.25	0.14	< 0.005	< 0.005	0.04	0.04	< 0.005	0.01	0.01		138	138	0.01	0.02	0.01	145
Average Daily																		
Worker	0.02	0.02	0.02	0.21	0	0	0.06	0.06	0	0.01	0.01		57.9	57.9	< 0.005	< 0.005	0.08	58.8
Vendor	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Hauling	0.01	< 0.005	0.17	0.1	< 0.005	< 0.005	0.03	0.03	< 0.005	0.01	0.01		98.9	98.9	0.01	0.02	0.07	104
Annual																		
Worker	< 0.005	< 0.005	< 0.005	0.04	0	0	0.01	0.01	0	< 0.005	< 0.005		9.59	9.59	< 0.005	< 0.005	0.01	9.73
Vendor	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Hauling	< 0.005	< 0.005	0.03	0.02	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005		16.4	16.4	< 0.005	< 0.005	0.01	17.2

3.10. Site Preparation (2028) - Mitigated

Location	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R	CO_2e
Onsite																		
Daily, Summer (Max)																		
Off-Road Equipment	0.5	0.5	2.59	28.3	0.05	0.1		0.1	0.1		0.1		5300	5300	0.21	0.04		5318
Dust From Material Movement							7.67	7.67		3.94	3.94							
Onsite truck	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Daily, Winter (Max)																		
Off-Road Equipment	0.5	0.5	2.59	28.3	0.05	0.1		0.1	0.1		0.1		5300	5300	0.21	0.04		5318
Dust From Material Movement							7.67	7.67		3.94	3.94							
Onsite truck	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Average Daily																		
Off-Road Equipment	0.36	0.36	1.85	20.3	0.04	0.07		0.07	0.07		0.07		3796	3796	0.15	0.03		3809
Dust From Material Movement							5.49	5.49		2.82	2.82							
Onsite truck	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Annual																		
Off-Road Equipment	0.07	0.07	0.34	3.7	0.01	0.01		0.01	0.01		0.01		628	628	0.03	0.01		631
Dust From Material Movement							1	1		0.52	0.52							
Onsite truck	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Offsite																		
Daily, Summer (Max)																		
Worker	0.03	0.03	0.02	0.36	0	0	0.09	0.09	0	0.02	0.02		87.4	87.4	< 0.005	< 0.005	0.27	88
Vendor	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Hauling	0.02	0.01	0.24	0.14	< 0.005	< 0.005	0.04	0.04	< 0.005	0.01	0.01		138	138	0.01	0.02	0.24	145
Daily, Winter (Max)																		
Worker	0.03	0.03	0.03	0.31	0	0	0.09	0.09	0	0.02	0.02		80	80	< 0.005	< 0.005	0.01	81.2
Vendor	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Hauling	0.02	0.01	0.25	0.14	< 0.005	< 0.005	0.04	0.04	< 0.005	0.01	0.01		138	138	0.01	0.02	0.01	145
Average Daily																		
Worker	0.02	0.02	0.02	0.21	0	0	0.06	0.06	0	0.01	0.01		57.9	57.9	< 0.005	< 0.005	0.08	58.8
Vendor	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Hauling	0.01	< 0.005	0.17	0.1	< 0.005	< 0.005	0.03	0.03	< 0.005	0.01	0.01		98.9	98.9	0.01	0.02	0.07	104
Annual																		
Worker	< 0.005	< 0.005	< 0.005	0.04	0	0	0.01	0.01	0	< 0.005	< 0.005		9.59	9.59	< 0.005	< 0.005	0.01	9.73
Vendor	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Hauling	< 0.005	< 0.005	0.03	0.02	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005		16.4	16.4	< 0.005	< 0.005	0.01	17.2

3.11. Site Preparation (2029) - Unmitigated

Location	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R	CO_2e
Onsite																		
Daily, Summer (Max)																		
Off-Road Equipment	3.53	2.97	25.9	28.1	0.05	1.09		1.09	1		1		5296	5296	0.21	0.04		5314
Dust From Material Movement							7.67	7.67		3.94	3.94							
Onsite truck	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Daily, Winter (Max)																		
Off-Road Equipment	3.53	2.97	25.9	28.1	0.05	1.09		1.09	1		1		5296	5296	0.21	0.04		5314
Dust From Material Movement							7.67	7.67		3.94	3.94							
Onsite truck	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Average Daily																		

Off-Road Equipment	2.52	2.12	18.5	20.1	0.03	0.78		0.78	0.71		0.71		3783	3783	0.15	0.03		3796
Dust From Material Movement							5.48	5.48		2.81	2.81							
Onsite truck	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Annual																		
Off-Road Equipment	0.46	0.39	3.38	3.66	0.01	0.14		0.14	0.13		0.13		626	626	0.03	0.01		628
Dust From Material Movement							1	1		0.51	0.51							
Onsite truck	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Offsite																		
Daily, Summer (Max)																		
Worker	0.03	0.03	0.02	0.34	0	0	0.09	0.09	0	0.02	0.02		85.9	85.9	< 0.005	< 0.005	0.24	86.4
Vendor	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Hauling	0.02	0.01	0.23	0.14	< 0.005	< 0.005	0.04	0.04	< 0.005	0.01	0.01		134	134	0.01	0.02	0.22	141
Daily, Winter (Max)																		
Worker	0.03	0.03	0.02	0.29	0	0	0.09	0.09	0	0.02	0.02		78.6	78.6	< 0.005	< 0.005	0.01	79.8
Vendor	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Hauling	0.02	0.01	0.24	0.14	< 0.005	< 0.005	0.04	0.04	< 0.005	0.01	0.01		135	135	0.01	0.02	0.01	141
Average Daily																		
Worker	0.02	0.02	0.01	0.2	0	0	0.06	0.06	0	0.01	0.01		56.8	56.8	< 0.005	< 0.005	0.08	57.6
Vendor	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Hauling	0.01	< 0.005	0.17	0.1	< 0.005	< 0.005	0.03	0.03	< 0.005	0.01	0.01		96.1	96.1	0.01	0.02	0.07	101
Annual																		
Worker	< 0.005	< 0.005	< 0.005	0.04	0	0	0.01	0.01	0	< 0.005	< 0.005		9.4	9.4	< 0.005	< 0.005	0.01	9.54
Vendor	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Hauling	< 0.005	< 0.005	0.03	0.02	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005		15.9	15.9	< 0.005	< 0.005	0.01	16.7

3.12. Site Preparation (2029) - Mitigated

Location	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R	CO_2e
Onsite																		
Daily, Summer (Max)																		
Off-Road Equipment	0.5	0.5	2.59	28.3	0.05	0.1		0.1	0.1		0.1		5296	5296	0.21	0.04		5314
Dust From Material Movement							7.67	7.67		3.94	3.94							
Onsite truck	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Daily, Winter (Max)																		
Off-Road Equipment	0.5	0.5	2.59	28.3	0.05	0.1		0.1	0.1		0.1		5296	5296	0.21	0.04		5314
Dust From Material Movement							7.67	7.67		3.94	3.94							
Onsite truck	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Average Daily																		
Off-Road Equipment	0.36	0.36	1.85	20.2	0.03	0.07		0.07	0.07		0.07		3783	3783	0.15	0.03		3796
Dust From Material Movement							5.48	5.48		2.81	2.81							
Onsite truck	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Annual																		
Off-Road Equipment	0.06	0.06	0.34	3.69	0.01	0.01		0.01	0.01		0.01		626	626	0.03	0.01		628
Dust From Material Movement							1	1		0.51	0.51							
Onsite truck	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Offsite																		
Daily, Summer (Max)																		
Worker	0.03	0.03	0.02	0.34	0	0	0.09	0.09	0	0.02	0.02		85.9	85.9	< 0.005	< 0.005	0.24	86.4
Vendor	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Hauling	0.02	0.01	0.23	0.14	< 0.005	< 0.005	0.04	0.04	< 0.005	0.01	0.01		134	134	0.01	0.02	0.22	141

Daily, Winter (Max)																		
Worker	0.03	0.03	0.02	0.29	0	0	0.09	0.09	0	0.02	0.02		78.6	78.6	< 0.005	< 0.005	0.01	79.8
Vendor	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Hauling	0.02	0.01	0.24	0.14	< 0.005	< 0.005	0.04	0.04	< 0.005	0.01	0.01		135	135	0.01	0.02	0.01	141
Average Daily																		
Worker	0.02	0.02	0.01	0.2	0	0	0.06	0.06	0	0.01	0.01		56.8	56.8	< 0.005	< 0.005	0.08	57.6
Vendor	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Hauling	0.01	< 0.005	0.17	0.1	< 0.005	< 0.005	0.03	0.03	< 0.005	0.01	0.01		96.1	96.1	0.01	0.02	0.07	101
Annual																		
Worker	< 0.005	< 0.005	< 0.005	0.04	0	0	0.01	0.01	0	< 0.005	< 0.005		9.4	9.4	< 0.005	< 0.005	0.01	9.54
Vendor	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Hauling	< 0.005	< 0.005	0.03	0.02	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005		15.9	15.9	< 0.005	< 0.005	0.01	16.7

3.13. Site Preparation (2030) - Unmitigated

Location	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R	CO_2e
Onsite																		
Daily, Summer (Max)																		
Daily, Winter (Max)																		
Off-Road Equipment	3.47	2.92	25.2	28.4	0.05	1.07		1.07	0.98		0.98		5296	5296	0.21	0.04		5314
Dust From Material Movement							7.67	7.67		3.94	3.94							
Onsite truck	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Average Daily																		
Off-Road Equipment	0.4	0.34	2.91	3.28	0.01	0.12		0.12	0.11		0.11		611	611	0.02	< 0.005		614
Dust From Material Movement							0.89	0.89		0.45	0.45							
Onsite truck	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Annual																		
Off-Road Equipment	0.07	0.06	0.53	0.6	< 0.005	0.02		0.02	0.02		0.02		101	101	< 0.005	< 0.005		102
Dust From Material Movement							0.16	0.16		0.08	0.08							
Onsite truck	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Offsite																		
Daily, Summer (Max)																		
Daily, Winter (Max)																		
Worker	0.03	0.03	0.02	0.27	0	0	0.09	0.09	0	0.02	0.02		77.3	77.3	< 0.005	< 0.005	0.01	78.4
Vendor	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Hauling	0.02	0.01	0.24	0.14	< 0.005	< 0.005	0.04	0.04	< 0.005	0.01	0.01		131	131	0.01	0.02	0.01	137
Average Daily																		
Worker	< 0.005	< 0.005	< 0.005	0.03	0	0	0.01	0.01	0	< 0.005	< 0.005		9.02	9.02	< 0.005	< 0.005	0.01	9.06
Vendor	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Hauling	< 0.005	< 0.005	0.03	0.02	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005		15.1	15.1	< 0.005	< 0.005	0.01	15.9
Annual																		
Worker	< 0.005	< 0.005	< 0.005	0.01	0	0	< 0.005	< 0.005	0	< 0.005	< 0.005		1.49	1.49	< 0.005	< 0.005	< 0.005	1.5
Vendor	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005		2.5	2.5	< 0.005	< 0.005	< 0.005	2.63

3.14. Site Preparation (2030) - Mitigated

Location	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R	CO_2e
Onsite																		
Daily, Summer (Max)																		
Daily, Winter (Max)																		

Off-Road Equipment	0.5	0.5	2.59	28.3	0.05	0.1		0.1	0.1		0.1		5296	5296	0.21	0.04		5314
Dust From Material Movement							7.67	7.67		3.94	3.94							
Onsite truck	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Average Daily																		
Off-Road Equipment	0.06	0.06	0.3	3.27	0.01	0.01		0.01	0.01		0.01		611	611	0.02	< 0.005		614
Dust From Material Movement							0.89	0.89		0.45	0.45							
Onsite truck	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Annual																		
Off-Road Equipment	0.01	0.01	0.05	0.6	< 0.005	< 0.005		< 0.005	< 0.005		< 0.005		101	101	< 0.005	< 0.005		102
Dust From Material Movement							0.16	0.16		0.08	0.08							
Onsite truck	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Offsite																		
Daily, Summer (Max)																		
Daily, Winter (Max)																		
Worker	0.03	0.03	0.02	0.27	0	0	0.09	0.09	0	0.02	0.02		77.3	77.3	< 0.005	< 0.005	0.01	78.4
Vendor	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Hauling	0.02	0.01	0.24	0.14	< 0.005	< 0.005	0.04	0.04	< 0.005	0.01	0.01		131	131	0.01	0.02	0.01	137
Average Daily																		
Worker	< 0.005	< 0.005	< 0.005	0.03	0	0	0.01	0.01	0	< 0.005	< 0.005		9.02	9.02	< 0.005	< 0.005	0.01	9.06
Vendor	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Hauling	< 0.005	< 0.005	0.03	0.02	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005		15.1	15.1	< 0.005	< 0.005	0.01	15.9
Annual																		
Worker	< 0.005	< 0.005	< 0.005	0.01	0	0	< 0.005	< 0.005	0	< 0.005	< 0.005		1.49	1.49	< 0.005	< 0.005	< 0.005	1.5
Vendor	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005		2.5	2.5	< 0.005	< 0.005	< 0.005	2.63

3.15. Grading (2026) - Unmitigated

Location	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R	CO_2e
Onsite																		
Daily, Summer (Max)																		
Off-Road Equipment	1.96	1.65	15	17.4	0.03	0.65		0.65	0.59		0.59		2960	2960	0.12	0.02		2970
Dust From Material Movement							2.76	2.76		1.34	1.34							
Onsite truck	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Daily, Winter (Max)																		
Off-Road Equipment	1.96	1.65	15	17.4	0.03	0.65		0.65	0.59		0.59		2960	2960	0.12	0.02		2970
Dust From Material Movement							2.76	2.76		1.34	1.34							
Onsite truck	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Average Daily																		
Off-Road Equipment	1.17	0.98	8.91	10.4	0.02	0.38		0.38	0.35		0.35		1761	1761	0.07	0.01		1767
Dust From Material Movement							1.64	1.64		0.79	0.79							
Onsite truck	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Annual																		
Off-Road Equipment	0.21	0.18	1.63	1.89	< 0.005	0.07		0.07	0.06		0.06		292	292	0.01	< 0.005		293
Dust From Material Movement							0.3	0.3		0.15	0.15							
Onsite truck	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Offsite																		
Daily, Summer (Max)																		
Worker	0.03	0.03	0.02	0.35	0	0	0.07	0.07	0	0.02	0.02		77.8	77.8	< 0.005	< 0.005	0.29	79
Vendor	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0

Hauling	0.04	0.01	0.47	0.23	< 0.005	0.01	0.1	0.11	< 0.005	0.03	0.03		378	378	0.03	0.06	0.79	398
Daily, Winter (Max)																		
Worker	0.03	0.03	0.03	0.3	0	0	0.07	0.07	0	0.02	0.02		71.2	71.2	< 0.005	< 0.005	0.01	72.2
Vendor	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Hauling	0.04	0.01	0.5	0.23	< 0.005	0.01	0.1	0.11	< 0.005	0.03	0.03		379	379	0.03	0.06	0.02	397
Average Daily																		
Worker	0.02	0.02	0.01	0.17	0	0	0.04	0.04	0	0.01	0.01		42.8	42.8	< 0.005	< 0.005	0.07	43.5
Vendor	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Hauling	0.02	< 0.005	0.29	0.14	< 0.005	< 0.005	0.06	0.06	< 0.005	0.02	0.02		225	225	0.02	0.04	0.2	237
Annual																		
Worker	< 0.005	< 0.005	< 0.005	0.03	0	0	0.01	0.01	0	< 0.005	< 0.005		7.09	7.09	< 0.005	< 0.005	0.01	7.19
Vendor	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Hauling	< 0.005	< 0.005	0.05	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005		37.3	37.3	< 0.005	0.01	0.03	39.2

3.16. Grading (2026) - Mitigated

Location	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R	CO_2e
Onsite																		
Daily, Summer (Max)																		
Off-Road Equipment	0.29	0.29	2.04	17.8	0.03	0.06		0.06	0.06		0.06		2960	2960	0.12	0.02		2970
Dust From Material Movement							2.76	2.76		1.34	1.34							
Onsite truck	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Daily, Winter (Max)																		
Off-Road Equipment	0.29	0.29	2.04	17.8	0.03	0.06		0.06	0.06		0.06		2960	2960	0.12	0.02		2970
Dust From Material Movement							2.76	2.76		1.34	1.34							
Onsite truck	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Average Daily																		
Off-Road Equipment	0.17	0.17	1.22	10.6	0.02	0.03		0.03	0.03		0.03		1761	1761	0.07	0.01		1767
Dust From Material Movement							1.64	1.64		0.79	0.79							
Onsite truck	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Annual																		
Off-Road Equipment	0.03	0.03	0.22	1.93	< 0.005	0.01		0.01	0.01		0.01		292	292	0.01	< 0.005		293
Dust From Material Movement							0.3	0.3		0.15	0.15							
Onsite truck	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Offsite																		
Daily, Summer (Max)																		
Worker	0.03	0.03	0.02	0.35	0	0	0.07	0.07	0	0.02	0.02		77.8	77.8	< 0.005	< 0.005	0.29	79
Vendor	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Hauling	0.04	0.01	0.47	0.23	< 0.005	0.01	0.1	0.11	< 0.005	0.03	0.03		378	378	0.03	0.06	0.79	398
Daily, Winter (Max)																		
Worker	0.03	0.03	0.03	0.3	0	0	0.07	0.07	0	0.02	0.02		71.2	71.2	< 0.005	< 0.005	0.01	72.2
Vendor	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Hauling	0.04	0.01	0.5	0.23	< 0.005	0.01	0.1	0.11	< 0.005	0.03	0.03		379	379	0.03	0.06	0.02	397
Average Daily																		
Worker	0.02	0.02	0.01	0.17	0	0	0.04	0.04	0	0.01	0.01		42.8	42.8	< 0.005	< 0.005	0.07	43.5
Vendor	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Hauling	0.02	< 0.005	0.29	0.14	< 0.005	< 0.005	0.06	0.06	< 0.005	0.02	0.02		225	225	0.02	0.04	0.2	237
Annual																		
Worker	< 0.005	< 0.005	< 0.005	0.03	0	0	0.01	0.01	0	< 0.005	< 0.005		7.09	7.09	< 0.005	< 0.005	0.01	7.19
Vendor	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0

Hauling	< 0.005	< 0.005	0.05	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005		37.3	37.3	< 0.005	0.01	0.03	39.2

3.17. Grading (2027) - Unmitigated

Location	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R	CO_2e
Onsite																		
Daily, Summer (Max)																		
Off-Road Equipment	1.89	1.59	14.2	17.3	0.03	0.6		0.6	0.55		0.55		2960	2960	0.12	0.02		2970
Dust From Material Movement							2.76	2.76		1.34	1.34							
Onsite truck	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Daily, Winter (Max)																		
Off-Road Equipment	1.89	1.59	14.2	17.3	0.03	0.6		0.6	0.55		0.55		2960	2960	0.12	0.02		2970
Dust From Material Movement							2.76	2.76		1.34	1.34							
Onsite truck	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Average Daily																		
Off-Road Equipment	1.35	1.13	10.2	12.3	0.02	0.43		0.43	0.39		0.39		2114	2114	0.09	0.02		2122
Dust From Material Movement							1.97	1.97		0.95	0.95							
Onsite truck	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Annual																		
Off-Road Equipment	0.25	0.21	1.86	2.25	< 0.005	0.08		0.08	0.07		0.07		350	350	0.01	< 0.005		351
Dust From Material Movement							0.36	0.36		0.17	0.17							
Onsite truck	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Offsite																		
Daily, Summer (Max)																		
Worker	0.03	0.03	0.02	0.33	0	0	0.07	0.07	0	0.02	0.02		76.3	76.3	< 0.005	< 0.005	0.26	77.5
Vendor	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Hauling	0.04	0.01	0.46	0.22	< 0.005	< 0.005	0.1	0.1	< 0.005	0.03	0.03		370	370	0.03	0.06	0.72	389
Daily, Winter (Max)																		
Worker	0.03	0.03	0.02	0.28	0	0	0.07	0.07	0	0.02	0.02		69.8	69.8	< 0.005	< 0.005	0.01	70.8
Vendor	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Hauling	0.04	0.01	0.48	0.23	< 0.005	< 0.005	0.1	0.1	< 0.005	0.03	0.03		370	370	0.03	0.06	0.02	388
Average Daily																		
Worker	0.02	0.02	0.02	0.19	0	0	0.05	0.05	0	0.01	0.01		50.4	50.4	< 0.005	< 0.005	0.08	51.2
Vendor	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Hauling	0.03	0.01	0.34	0.16	< 0.005	< 0.005	0.07	0.07	< 0.005	0.02	0.02		264	264	0.02	0.04	0.22	277
Annual																		
Worker	< 0.005	< 0.005	< 0.005	0.04	0	0	0.01	0.01	0	< 0.005	< 0.005		8.35	8.35	< 0.005	< 0.005	0.01	8.47
Vendor	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Hauling	< 0.005	< 0.005	0.06	0.03	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005		43.8	43.8	< 0.005	0.01	0.04	45.9

3.18. Grading (2027) - Mitigated

Location	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R	CO_2e
Onsite																		
Daily, Summer (Max)																		
Off-Road Equipment	0.29	0.29	2.04	17.8	0.03	0.06		0.06	0.06		0.06		2960	2960	0.12	0.02		2970
Dust From Material Movement							2.76	2.76		1.34	1.34							
Onsite truck	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Daily, Winter (Max)																		
Off-Road Equipment	0.29	0.29	2.04	17.8	0.03	0.06		0.06	0.06		0.06		2960	2960	0.12	0.02		2970
Dust From Material Movement							2.76	2.76		1.34	1.34							

Onsite truck	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Average Daily																		
Off-Road Equipment	0.2	0.2	1.46	12.7	0.02	0.04		0.04	0.04		0.04		2114	2114	0.09	0.02		2122
Dust From Material Movement							1.97	1.97		0.95	0.95							
Onsite truck	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Annual																		
Off-Road Equipment	0.04	0.04	0.27	2.32	< 0.005	0.01		0.01	0.01		0.01		350	350	0.01	< 0.005		351
Dust From Material Movement							0.36	0.36		0.17	0.17							
Onsite truck	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Offsite																		
Daily, Summer (Max)																		
Worker	0.03	0.03	0.02	0.33	0	0	0.07	0.07	0	0.02	0.02		76.3	76.3	< 0.005	< 0.005	0.26	77.5
Vendor	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Hauling	0.04	0.01	0.46	0.22	< 0.005	< 0.005	0.1	0.1	< 0.005	0.03	0.03		370	370	0.03	0.06	0.72	389
Daily, Winter (Max)																		
Worker	0.03	0.03	0.02	0.28	0	0	0.07	0.07	0	0.02	0.02		69.8	69.8	< 0.005	< 0.005	0.01	70.8
Vendor	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Hauling	0.04	0.01	0.48	0.23	< 0.005	< 0.005	0.1	0.1	< 0.005	0.03	0.03		370	370	0.03	0.06	0.02	388
Average Daily																		
Worker	0.02	0.02	0.02	0.19	0	0	0.05	0.05	0	0.01	0.01		50.4	50.4	< 0.005	< 0.005	0.08	51.2
Vendor	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Hauling	0.03	0.01	0.34	0.16	< 0.005	< 0.005	0.07	0.07	< 0.005	0.02	0.02		264	264	0.02	0.04	0.22	277
Annual																		
Worker	< 0.005	< 0.005	< 0.005	0.04	0	0	0.01	0.01	0	< 0.005	< 0.005		8.35	8.35	< 0.005	< 0.005	0.01	8.47
Vendor	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Hauling	< 0.005	< 0.005	0.06	0.03	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005		43.8	43.8	< 0.005	0.01	0.04	45.9

3.19. Grading (2028) - Unmitigated

Location	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R	CO_2e
Onsite																		
Daily, Summer (Max)																		
Off-Road Equipment	1.86	1.56	13.8	17.3	0.03	0.57		0.57	0.52		0.52		2961	2961	0.12	0.02		2971
Dust From Material Movement							2.76	2.76		1.34	1.34							
Onsite truck	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Daily, Winter (Max)																		
Off-Road Equipment	1.86	1.56	13.8	17.3	0.03	0.57		0.57	0.52		0.52		2961	2961	0.12	0.02		2971
Dust From Material Movement							2.76	2.76		1.34	1.34							
Onsite truck	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Average Daily																		
Off-Road Equipment	1.33	1.12	9.88	12.4	0.02	0.41		0.41	0.37		0.37		2121	2121	0.09	0.02		2128
Dust From Material Movement							1.98	1.98		0.96	0.96							
Onsite truck	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Annual																		
Off-Road Equipment	0.24	0.2	1.8	2.26	< 0.005	0.07		0.07	0.07		0.07		351	351	0.01	< 0.005		352
Dust From Material Movement							0.36	0.36		0.17	0.17							
Onsite truck	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Offsite																		
Daily, Summer (Max)																		
Worker	0.03	0.03	0.02	0.31	0	0	0.07	0.07	0	0.02	0.02		74.9	74.9	< 0.005	< 0.005	0.23	75.4

Vendor	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Hauling	0.04	0.01	0.44	0.22	< 0.005	< 0.005	0.1	0.1	< 0.005	0.03	0.03		360	360	0.03	0.06	0.66	379
Daily, Winter (Max)																		
Worker	0.03	0.03	0.02	0.26	0	0	0.07	0.07	0	0.02	0.02		68.6	68.6	< 0.005	< 0.005	0.01	69.6
Vendor	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Hauling	0.04	0.01	0.46	0.22	< 0.005	< 0.005	0.1	0.1	< 0.005	0.03	0.03		361	361	0.03	0.06	0.02	379
Average Daily																		
Worker	0.02	0.02	0.01	0.18	0	0	0.05	0.05	0	0.01	0.01		49.7	49.7	< 0.005	< 0.005	0.07	50.4
Vendor	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Hauling	0.03	0.01	0.32	0.16	< 0.005	< 0.005	0.07	0.07	< 0.005	0.02	0.02		258	258	0.02	0.04	0.2	271
Annual																		
Worker	< 0.005	< 0.005	< 0.005	0.03	0	0	0.01	0.01	0	< 0.005	< 0.005		8.22	8.22	< 0.005	< 0.005	0.01	8.34
Vendor	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Hauling	< 0.005	< 0.005	0.06	0.03	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005		42.7	42.7	< 0.005	0.01	0.03	44.9

3.20. Grading (2028) - Mitigated

Location	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R	CO_2e
Onsite																		
Daily, Summer (Max)																		
Off-Road Equipment	0.29	0.29	2.04	17.8	0.03	0.06		0.06	0.06		0.06		2961	2961	0.12	0.02		2971
Dust From Material Movement							2.76	2.76		1.34	1.34							
Onsite truck	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Daily, Winter (Max)																		
Off-Road Equipment	0.29	0.29	2.04	17.8	0.03	0.06		0.06	0.06		0.06		2961	2961	0.12	0.02		2971
Dust From Material Movement							2.76	2.76		1.34	1.34							
Onsite truck	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Average Daily																		
Off-Road Equipment	0.21	0.21	1.46	12.7	0.02	0.04		0.04	0.04		0.04		2121	2121	0.09	0.02		2128
Dust From Material Movement							1.98	1.98		0.96	0.96							
Onsite truck	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Annual																		
Off-Road Equipment	0.04	0.04	0.27	2.32	< 0.005	0.01		0.01	0.01		0.01		351	351	0.01	< 0.005		352
Dust From Material Movement							0.36	0.36		0.17	0.17							
Onsite truck	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Offsite																		
Daily, Summer (Max)																		
Worker	0.03	0.03	0.02	0.31	0	0	0.07	0.07	0	0.02	0.02		74.9	74.9	< 0.005	< 0.005	0.23	75.4
Vendor	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Hauling	0.04	0.01	0.44	0.22	< 0.005	< 0.005	0.1	0.1	< 0.005	0.03	0.03		360	360	0.03	0.06	0.66	379
Daily, Winter (Max)																		
Worker	0.03	0.03	0.02	0.26	0	0	0.07	0.07	0	0.02	0.02		68.6	68.6	< 0.005	< 0.005	0.01	69.6
Vendor	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Hauling	0.04	0.01	0.46	0.22	< 0.005	< 0.005	0.1	0.1	< 0.005	0.03	0.03		361	361	0.03	0.06	0.02	379
Average Daily																		
Worker	0.02	0.02	0.01	0.18	0	0	0.05	0.05	0	0.01	0.01		49.7	49.7	< 0.005	< 0.005	0.07	50.4
Vendor	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Hauling	0.03	0.01	0.32	0.16	< 0.005	< 0.005	0.07	0.07	< 0.005	0.02	0.02		258	258	0.02	0.04	0.2	271
Annual																		
Worker	< 0.005	< 0.005	< 0.005	0.03	0	0	0.01	0.01	0	< 0.005	< 0.005		8.22	8.22	< 0.005	< 0.005	0.01	8.34

Vendor	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Hauling	< 0.005	< 0.005	0.06	0.03	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005		42.7	42.7	< 0.005	0.01	0.03	44.9

3.21. Grading (2029) - Unmitigated

Location	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R	CO_2e
Onsite																		
Daily, Summer (Max)																		
Off-Road Equipment	1.8	1.52	13	17.2	0.03	0.53		0.53	0.49		0.49		2959	2959	0.12	0.02		2969
Dust From Material Movement							2.76	2.76		1.34	1.34							
Onsite truck	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Daily, Winter (Max)																		
Off-Road Equipment	1.8	1.52	13	17.2	0.03	0.53		0.53	0.49		0.49		2959	2959	0.12	0.02		2969
Dust From Material Movement							2.76	2.76		1.34	1.34							
Onsite truck	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Average Daily																		
Off-Road Equipment	1.29	1.08	9.31	12.3	0.02	0.38		0.38	0.35		0.35		2114	2114	0.09	0.02		2121
Dust From Material Movement							1.97	1.97		0.95	0.95							
Onsite truck	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Annual																		
Off-Road Equipment	0.24	0.2	1.7	2.25	< 0.005	0.07		0.07	0.06		0.06		350	350	0.01	< 0.005		351
Dust From Material Movement							0.36	0.36		0.17	0.17							
Onsite truck	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Offsite																		
Daily, Summer (Max)																		
Worker	0.03	0.03	0.02	0.29	0	0	0.07	0.07	0	0.02	0.02		73.6	73.6	< 0.005	< 0.005	0.21	74.1
Vendor	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Hauling	0.03	0.01	0.42	0.21	< 0.005	< 0.005	0.1	0.1	< 0.005	0.03	0.03		351	351	0.02	0.06	0.6	369
Daily, Winter (Max)																		
Worker	0.02	0.02	0.02	0.25	0	0	0.07	0.07	0	0.02	0.02		67.4	67.4	< 0.005	< 0.005	0.01	68.4
Vendor	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Hauling	0.03	0.01	0.45	0.21	< 0.005	< 0.005	0.1	0.1	< 0.005	0.03	0.03		351	351	0.02	0.06	0.02	368
Average Daily																		
Worker	0.02	0.02	0.01	0.17	0	0	0.05	0.05	0	0.01	0.01		48.7	48.7	< 0.005	< 0.005	0.06	49.4
Vendor	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Hauling	0.02	0.01	0.31	0.15	< 0.005	< 0.005	0.07	0.07	< 0.005	0.02	0.02		251	251	0.02	0.04	0.19	263
Annual																		
Worker	< 0.005	< 0.005	< 0.005	0.03	0	0	0.01	0.01	0	< 0.005	< 0.005		8.06	8.06	< 0.005	< 0.005	0.01	8.17
Vendor	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Hauling	< 0.005	< 0.005	0.06	0.03	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005		41.5	41.5	< 0.005	0.01	0.03	43.6

3.22. Grading (2029) - Mitigated

Location	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R	CO_2e
Onsite																		
Daily, Summer (Max)																		
Off-Road Equipment	0.29	0.29	2.04	17.8	0.03	0.06		0.06	0.06		0.06		2959	2959	0.12	0.02		2969
Dust From Material Movement							2.76	2.76		1.34	1.34							
Onsite truck	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Daily, Winter (Max)																		
Off-Road Equipment	0.29	0.29	2.04	17.8	0.03	0.06		0.06	0.06		0.06		2959	2959	0.12	0.02		2969

Dust From Material Movement							2.76	2.76		1.34	1.34							
Onsite truck	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Average Daily																		
Off-Road Equipment	0.2	0.2	1.46	12.7	0.02	0.04		0.04	0.04		0.04		2114	2114	0.09	0.02		2121
Dust From Material Movement							1.97	1.97		0.95	0.95							
Onsite truck	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Annual																		
Off-Road Equipment	0.04	0.04	0.27	2.32	< 0.005	0.01		0.01	0.01		0.01		350	350	0.01	< 0.005		351
Dust From Material Movement							0.36	0.36		0.17	0.17							
Onsite truck	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Offsite																		
Daily, Summer (Max)																		
Worker	0.03	0.03	0.02	0.29	0	0	0.07	0.07	0	0.02	0.02		73.6	73.6	< 0.005	< 0.005	0.21	74.1
Vendor	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Hauling	0.03	0.01	0.42	0.21	< 0.005	< 0.005	0.1	0.1	< 0.005	0.03	0.03		351	351	0.02	0.06	0.6	369
Daily, Winter (Max)																		
Worker	0.02	0.02	0.02	0.25	0	0	0.07	0.07	0	0.02	0.02		67.4	67.4	< 0.005	< 0.005	0.01	68.4
Vendor	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Hauling	0.03	0.01	0.45	0.21	< 0.005	< 0.005	0.1	0.1	< 0.005	0.03	0.03		351	351	0.02	0.06	0.02	368
Average Daily																		
Worker	0.02	0.02	0.01	0.17	0	0	0.05	0.05	0	0.01	0.01		48.7	48.7	< 0.005	< 0.005	0.06	49.4
Vendor	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Hauling	0.02	0.01	0.31	0.15	< 0.005	< 0.005	0.07	0.07	< 0.005	0.02	0.02		251	251	0.02	0.04	0.19	263
Annual																		
Worker	< 0.005	< 0.005	< 0.005	0.03	0	0	0.01	0.01	0	< 0.005	< 0.005		8.06	8.06	< 0.005	< 0.005	0.01	8.17
Vendor	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Hauling	< 0.005	< 0.005	0.06	0.03	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005		41.5	41.5	< 0.005	0.01	0.03	43.6

3.23. Grading (2030) - Unmitigated

Location	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R	CO_2e
Onsite																		
Daily, Summer (Max)																		
Daily, Winter (Max)																		
Off-Road Equipment	1.76	1.48	12.6	17.3	0.03	0.51		0.51	0.47		0.47		2959	2959	0.12	0.02		2969
Dust From Material Movement							2.76	2.76		1.34	1.34							
Onsite truck	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Average Daily																		
Off-Road Equipment	0.2	0.17	1.46	2	< 0.005	0.06		0.06	0.05		0.05		342	342	0.01	< 0.005		343
Dust From Material Movement							0.32	0.32		0.15	0.15							
Onsite truck	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Annual																		
Off-Road Equipment	0.04	0.03	0.27	0.37	< 0.005	0.01		0.01	0.01		0.01		56.6	56.6	< 0.005	< 0.005		56.8
Dust From Material Movement							0.06	0.06		0.03	0.03							
Onsite truck	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Offsite																		
Daily, Summer (Max)																		
Daily, Winter (Max)																		
Worker	0.02	0.02	0.02	0.23	0	0	0.07	0.07	0	0.02	0.02		66.3	66.3	< 0.005	< 0.005	< 0.005	67.2
Vendor	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0

Hauling	0.03	0.01	0.43	0.21	< 0.005	< 0.005	0.1	0.1	< 0.005	0.03	0.03		341	341	0.02	0.05	0.01	357
Average Daily																		
Worker	< 0.005	< 0.005	< 0.005	0.03	0	0	0.01	0.01	0	< 0.005	< 0.005		7.73	7.73	< 0.005	< 0.005	0.01	7.77
Vendor	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Hauling	< 0.005	< 0.005	0.05	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005		39.3	39.3	< 0.005	0.01	0.03	41.3
Annual																		
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0	0	< 0.005	< 0.005	0	< 0.005	< 0.005		1.28	1.28	< 0.005	< 0.005	< 0.005	1.29
Vendor	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Hauling	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005		6.51	6.51	< 0.005	< 0.005	< 0.005	6.84

3.24. Grading (2030) - Mitigated

Location	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R	CO_2e
Onsite																		
Daily, Summer (Max)																		
Daily, Winter (Max)																		
Off-Road Equipment	0.29	0.29	2.04	17.8	0.03	0.06		0.06	0.06		0.06		2959	2959	0.12	0.02		2969
Dust From Material Movement							2.76	2.76		1.34	1.34							
Onsite truck	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Average Daily																		
Off-Road Equipment	0.03	0.03	0.24	2.05	< 0.005	0.01		0.01	0.01		0.01		342	342	0.01	< 0.005		343
Dust From Material Movement							0.32	0.32		0.15	0.15							
Onsite truck	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Annual																		
Off-Road Equipment	0.01	0.01	0.04	0.37	< 0.005	< 0.005		< 0.005	< 0.005		< 0.005		56.6	56.6	< 0.005	< 0.005		56.8
Dust From Material Movement							0.06	0.06		0.03	0.03							
Onsite truck	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Offsite																		
Daily, Summer (Max)																		
Daily, Winter (Max)																		
Worker	0.02	0.02	0.02	0.23	0	0	0.07	0.07	0	0.02	0.02		66.3	66.3	< 0.005	< 0.005	< 0.005	67.2
Vendor	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Hauling	0.03	0.01	0.43	0.21	< 0.005	< 0.005	0.1	0.1	< 0.005	0.03	0.03		341	341	0.02	0.05	0.01	357
Average Daily																		
Worker	< 0.005	< 0.005	< 0.005	0.03	0	0	0.01	0.01	0	< 0.005	< 0.005		7.73	7.73	< 0.005	< 0.005	0.01	7.77
Vendor	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Hauling	< 0.005	< 0.005	0.05	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005		39.3	39.3	< 0.005	0.01	0.03	41.3
Annual																		
Worker	< 0.005	< 0.005	< 0.005	< 0.005	0	0	< 0.005	< 0.005	0	< 0.005	< 0.005		1.28	1.28	< 0.005	< 0.005	< 0.005	1.29
Vendor	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Hauling	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005		6.51	6.51	< 0.005	< 0.005	< 0.005	6.84

3.25. Building Construction (2026) - Unmitigated

Location	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R	CO_2e
Onsite																		
Daily, Summer (Max)																		
Off-Road Equipment	1.28	1.07	9.85	13	0.02	0.38		0.38	0.35		0.35		2397	2397	0.1	0.02		2405
Onsite truck	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Daily, Winter (Max)																		
Off-Road Equipment	1.28	1.07	9.85	13	0.02	0.38		0.38	0.35		0.35		2397	2397	0.1	0.02		2405

Onsite truck	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Average Daily																		
Off-Road Equipment	0.76	0.64	5.86	7.71	0.01	0.23		0.23	0.21		0.21		1426	1426	0.06	0.01		1431
Onsite truck	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Annual																		
Off-Road Equipment	0.14	0.12	1.07	1.41	< 0.005	0.04		0.04	0.04		0.04		236	236	0.01	< 0.005		237
Onsite truck	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Offsite																		
Daily, Summer (Max)																		
Worker	0.06	0.06	0.04	0.64	0	0	0.13	0.13	0	0.03	0.03		140	140	< 0.005	0.01	0.52	142
Vendor	0.02	0.01	0.33	0.16	< 0.005	< 0.005	0.07	0.07	< 0.005	0.02	0.02		261	261	0.01	0.04	0.63	273
Hauling	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Daily, Winter (Max)																		
Worker	0.05	0.05	0.05	0.53	0	0	0.13	0.13	0	0.03	0.03		128	128	< 0.005	0.01	0.01	130
Vendor	0.02	0.01	0.35	0.17	< 0.005	< 0.005	0.07	0.07	< 0.005	0.02	0.02		261	261	0.01	0.04	0.02	273
Hauling	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Average Daily																		
Worker	0.03	0.03	0.02	0.31	0	0	0.08	0.08	0	0.02	0.02		77	77	< 0.005	< 0.005	0.13	78.2
Vendor	0.01	< 0.005	0.21	0.1	< 0.005	< 0.005	0.04	0.04	< 0.005	0.01	0.01		155	155	0.01	0.02	0.16	162
Hauling	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Annual																		
Worker	0.01	0.01	< 0.005	0.06	0	0	0.01	0.01	0	< 0.005	< 0.005		12.8	12.8	< 0.005	< 0.005	0.02	12.9
Vendor	< 0.005	< 0.005	0.04	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005		25.7	25.7	< 0.005	< 0.005	0.03	26.9
Hauling	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0

3.26. Building Construction (2026) - Mitigated

Location	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R	CO_2e
Onsite																		
Daily, Summer (Max)																		
Off-Road Equipment	0.35	0.33	2.82	14.8	0.02	0.07		0.07	0.07		0.07		2387	2387	0.1	0.02		2395
Onsite truck	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Daily, Winter (Max)																		
Off-Road Equipment	0.35	0.33	2.82	14.8	0.02	0.07		0.07	0.07		0.07		2387	2387	0.1	0.02		2395
Onsite truck	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Average Daily																		
Off-Road Equipment	0.21	0.2	1.68	8.82	0.01	0.04		0.04	0.04		0.04		1420	1420	0.06	0.01		1425
Onsite truck	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Annual																		
Off-Road Equipment	0.04	0.04	0.31	1.61	< 0.005	0.01		0.01	0.01		0.01		235	235	0.01	< 0.005		236
Onsite truck	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Offsite																		
Daily, Summer (Max)																		
Worker	0.06	0.06	0.04	0.64	0	0	0.13	0.13	0	0.03	0.03		140	140	< 0.005	0.01	0.52	142
Vendor	0.02	0.01	0.33	0.16	< 0.005	< 0.005	0.07	0.07	< 0.005	0.02	0.02		261	261	0.01	0.04	0.63	273
Hauling	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Daily, Winter (Max)																		
Worker	0.05	0.05	0.05	0.53	0	0	0.13	0.13	0	0.03	0.03		128	128	< 0.005	0.01	0.01	130
Vendor	0.02	0.01	0.35	0.17	< 0.005	< 0.005	0.07	0.07	< 0.005	0.02	0.02		261	261	0.01	0.04	0.02	273
Hauling	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0

Average Daily																		
Worker	0.03	0.03	0.02	0.31	0	0	0.08	0.08	0	0.02	0.02		77	77	< 0.005	< 0.005	0.13	78.2
Vendor	0.01	< 0.005	0.21	0.1	< 0.005	< 0.005	0.04	0.04	< 0.005	0.01	0.01		155	155	0.01	0.02	0.16	162
Hauling	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Annual																		
Worker	0.01	0.01	< 0.005	0.06	0	0	0.01	0.01	0	< 0.005	< 0.005		12.8	12.8	< 0.005	< 0.005	0.02	12.9
Vendor	< 0.005	< 0.005	0.04	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005		25.7	25.7	< 0.005	< 0.005	0.03	26.9
Hauling	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0

3.27. Building Construction (2027) - Unmitigated

Location	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R	CO_2e
Onsite																		
Daily, Summer (Max)																		
Off-Road Equipment	1.23	1.03	9.39	12.9	0.02	0.34		0.34	0.31		0.31		2397	2397	0.1	0.02		2405
Onsite truck	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Daily, Winter (Max)																		
Off-Road Equipment	1.23	1.03	9.39	12.9	0.02	0.34		0.34	0.31		0.31		2397	2397	0.1	0.02		2405
Onsite truck	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Average Daily																		
Off-Road Equipment	0.88	0.74	6.71	9.24	0.02	0.24		0.24	0.22		0.22		1712	1712	0.07	0.01		1718
Onsite truck	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Annual																		
Off-Road Equipment	0.16	0.13	1.22	1.69	< 0.005	0.04		0.04	0.04		0.04		283	283	0.01	< 0.005		284
Onsite truck	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Offsite																		
Daily, Summer (Max)																		
Worker	0.05	0.05	0.03	0.6	0	0	0.13	0.13	0	0.03	0.03		137	137	< 0.005	0.01	0.47	139
Vendor	0.02	0.01	0.32	0.15	< 0.005	< 0.005	0.07	0.07	< 0.005	0.02	0.02		255	255	0.01	0.04	0.55	268
Hauling	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Daily, Winter (Max)																		
Worker	0.05	0.05	0.04	0.5	0	0	0.13	0.13	0	0.03	0.03		126	126	< 0.005	0.01	0.01	127
Vendor	0.02	0.01	0.34	0.16	< 0.005	< 0.005	0.07	0.07	< 0.005	0.02	0.02		256	256	0.01	0.04	0.01	267
Hauling	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Average Daily																		
Worker	0.04	0.03	0.03	0.35	0	0	0.1	0.1	0	0.02	0.02		90.8	90.8	< 0.005	< 0.005	0.14	92.1
Vendor	0.02	0.01	0.23	0.11	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.02		183	183	0.01	0.03	0.17	191
Hauling	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Annual																		
Worker	0.01	0.01	0.01	0.06	0	0	0.02	0.02	0	< 0.005	< 0.005		15	15	< 0.005	< 0.005	0.02	15.2
Vendor	< 0.005	< 0.005	0.04	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005		30.2	30.2	< 0.005	< 0.005	0.03	31.6
Hauling	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0

3.28. Building Construction (2027) - Mitigated

Location	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R	CO_2e
Onsite																		
Daily, Summer (Max)																		
Off-Road Equipment	0.35	0.33	2.82	14.8	0.02	0.07		0.07	0.07		0.07		2387	2387	0.1	0.02		2395
Onsite truck	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Daily, Winter (Max)																		

Off-Road Equipment	0.35	0.33	2.82	14.8	0.02	0.07		0.07	0.07		0.07		2387	2387	0.1	0.02		2395
Onsite truck	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Average Daily																		
Off-Road Equipment	0.25	0.23	2.01	10.6	0.02	0.05		0.05	0.05		0.05		1705	1705	0.07	0.01		1711
Onsite truck	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Annual																		
Off-Road Equipment	0.05	0.04	0.37	1.93	< 0.005	0.01		0.01	0.01		0.01		282	282	0.01	< 0.005		283
Onsite truck	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Offsite																		
Daily, Summer (Max)																		
Worker	0.05	0.05	0.03	0.6	0	0	0.13	0.13	0	0.03	0.03		137	137	< 0.005	0.01	0.47	139
Vendor	0.02	0.01	0.32	0.15	< 0.005	< 0.005	0.07	0.07	< 0.005	0.02	0.02		255	255	0.01	0.04	0.55	268
Hauling	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Daily, Winter (Max)																		
Worker	0.05	0.05	0.04	0.5	0	0	0.13	0.13	0	0.03	0.03		126	126	< 0.005	0.01	0.01	127
Vendor	0.02	0.01	0.34	0.16	< 0.005	< 0.005	0.07	0.07	< 0.005	0.02	0.02		256	256	0.01	0.04	0.01	267
Hauling	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Average Daily																		
Worker	0.04	0.03	0.03	0.35	0	0	0.1	0.1	0	0.02	0.02		90.8	90.8	< 0.005	< 0.005	0.14	92.1
Vendor	0.02	0.01	0.23	0.11	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.02		183	183	0.01	0.03	0.17	191
Hauling	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Annual																		
Worker	0.01	0.01	0.01	0.06	0	0	0.02	0.02	0	< 0.005	< 0.005		15	15	< 0.005	< 0.005	0.02	15.2
Vendor	< 0.005	< 0.005	0.04	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005		30.2	30.2	< 0.005	< 0.005	0.03	31.6
Hauling	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0

3.29. Building Construction (2028) - Unmitigated

Location	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R	CO_2e
Onsite																		
Daily, Summer (Max)																		
Off-Road Equipment	1.18	0.99	8.92	12.9	0.02	0.3		0.3	0.28		0.28		2397	2397	0.1	0.02		2406
Onsite truck	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Daily, Winter (Max)																		
Off-Road Equipment	1.18	0.99	8.92	12.9	0.02	0.3		0.3	0.28		0.28		2397	2397	0.1	0.02		2406
Onsite truck	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Average Daily																		
Off-Road Equipment	0.85	0.71	6.39	9.26	0.02	0.22		0.22	0.2		0.2		1717	1717	0.07	0.01		1723
Onsite truck	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Annual																		
Off-Road Equipment	0.15	0.13	1.17	1.69	< 0.005	0.04		0.04	0.04		0.04		284	284	0.01	< 0.005		285
Onsite truck	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Offsite																		
Daily, Summer (Max)																		
Worker	0.05	0.05	0.03	0.56	0	0	0.13	0.13	0	0.03	0.03		135	135	< 0.005	< 0.005	0.42	136
Vendor	0.02	0.01	0.3	0.15	< 0.005	< 0.005	0.07	0.07	< 0.005	0.02	0.02		249	249	0.01	0.04	0.49	261
Hauling	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Daily, Winter (Max)																		
Worker	0.05	0.05	0.04	0.47	0	0	0.13	0.13	0	0.03	0.03		123	123	< 0.005	0.01	0.01	125
Vendor	0.02	0.01	0.32	0.15	< 0.005	< 0.005	0.07	0.07	< 0.005	0.02	0.02		249	249	0.01	0.04	0.01	261

Hauling	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Average Daily																		
Worker	0.04	0.03	0.03	0.33	0	0	0.1	0.1	0	0.02	0.02		89.4	89.4	< 0.005	< 0.005	0.13	90.7
Vendor	0.02	0.01	0.22	0.11	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.02		179	179	0.01	0.03	0.15	187
Hauling	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Annual																		
Worker	0.01	0.01	< 0.005	0.06	0	0	0.02	0.02	0	< 0.005	< 0.005		14.8	14.8	< 0.005	< 0.005	0.02	15
Vendor	< 0.005	< 0.005	0.04	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005		29.6	29.6	< 0.005	< 0.005	0.03	30.9
Hauling	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0

3.30. Building Construction (2028) - Mitigated

Location	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R	CO_2e
Onsite																		
Daily, Summer (Max)																		
Off-Road Equipment	0.35	0.33	2.81	14.8	0.02	0.07		0.07	0.07		0.07		2387	2387	0.1	0.02		2395
Onsite truck	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Daily, Winter (Max)																		
Off-Road Equipment	0.35	0.33	2.81	14.8	0.02	0.07		0.07	0.07		0.07		2387	2387	0.1	0.02		2395
Onsite truck	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Average Daily																		
Off-Road Equipment	0.25	0.24	2.02	10.6	0.02	0.05		0.05	0.05		0.05		1710	1710	0.07	0.01		1716
Onsite truck	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Annual																		
Off-Road Equipment	0.05	0.04	0.37	1.94	< 0.005	0.01		0.01	0.01		0.01		283	283	0.01	< 0.005		284
Onsite truck	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Offsite																		
Daily, Summer (Max)																		
Worker	0.05	0.05	0.03	0.56	0	0	0.13	0.13	0	0.03	0.03		135	135	< 0.005	< 0.005	0.42	136
Vendor	0.02	0.01	0.3	0.15	< 0.005	< 0.005	0.07	0.07	< 0.005	0.02	0.02		249	249	0.01	0.04	0.49	261
Hauling	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Daily, Winter (Max)																		
Worker	0.05	0.05	0.04	0.47	0	0	0.13	0.13	0	0.03	0.03		123	123	< 0.005	0.01	0.01	125
Vendor	0.02	0.01	0.32	0.15	< 0.005	< 0.005	0.07	0.07	< 0.005	0.02	0.02		249	249	0.01	0.04	0.01	261
Hauling	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Average Daily																		
Worker	0.04	0.03	0.03	0.33	0	0	0.1	0.1	0	0.02	0.02		89.4	89.4	< 0.005	< 0.005	0.13	90.7
Vendor	0.02	0.01	0.22	0.11	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.02		179	179	0.01	0.03	0.15	187
Hauling	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Annual																		
Worker	0.01	0.01	< 0.005	0.06	0	0	0.02	0.02	0	< 0.005	< 0.005		14.8	14.8	< 0.005	< 0.005	0.02	15
Vendor	< 0.005	< 0.005	0.04	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005		29.6	29.6	< 0.005	< 0.005	0.03	30.9
Hauling	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0

3.31. Building Construction (2029) - Unmitigated

Location	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R	CO_2e
Onsite																		
Daily, Summer (Max)																		
Off-Road Equipment	1.15	0.97	8.58	12.9	0.02	0.28		0.28	0.25		0.25		2397	2397	0.1	0.02		2405
Onsite truck	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0

Daily, Winter (Max)																		
Off-Road Equipment	1.15	0.97	8.58	12.9	0.02	0.28		0.28	0.25		0.25		2397	2397	0.1	0.02		2405
Onsite truck	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Average Daily																		
Off-Road Equipment	0.82	0.69	6.13	9.22	0.02	0.2		0.2	0.18		0.18		1712	1712	0.07	0.01		1718
Onsite truck	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Annual																		
Off-Road Equipment	0.15	0.13	1.12	1.68	< 0.005	0.04		0.04	0.03		0.03		283	283	0.01	< 0.005		284
Onsite truck	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Offsite																		
Daily, Summer (Max)																		
Worker	0.05	0.05	0.03	0.53	0	0	0.13	0.13	0	0.03	0.03		133	133	< 0.005	< 0.005	0.38	133
Vendor	0.02	0.01	0.29	0.14	< 0.005	< 0.005	0.07	0.07	< 0.005	0.02	0.02		242	242	0.01	0.04	0.43	254
Hauling	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Daily, Winter (Max)																		
Worker	0.04	0.04	0.04	0.44	0	0	0.13	0.13	0	0.03	0.03		121	121	< 0.005	0.01	0.01	123
Vendor	0.02	0.01	0.3	0.15	< 0.005	< 0.005	0.07	0.07	< 0.005	0.02	0.02		242	242	0.01	0.04	0.01	254
Hauling	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Average Daily																		
Worker	0.03	0.03	0.02	0.31	0	0	0.1	0.1	0	0.02	0.02		87.6	87.6	< 0.005	< 0.005	0.12	88.9
Vendor	0.01	0.01	0.21	0.1	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.01		173	173	0.01	0.03	0.13	181
Hauling	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Annual																		
Worker	0.01	0.01	< 0.005	0.06	0	0	0.02	0.02	0	< 0.005	< 0.005		14.5	14.5	< 0.005	< 0.005	0.02	14.7
Vendor	< 0.005	< 0.005	0.04	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005		28.7	28.7	< 0.005	< 0.005	0.02	30
Hauling	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0

3.32. Building Construction (2029) - Mitigated

Location	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R	CO_2e
Onsite																		
Daily, Summer (Max)																		
Off-Road Equipment	0.35	0.33	2.81	14.8	0.02	0.07		0.07	0.07		0.07		2386	2386	0.1	0.02		2395
Onsite truck	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Daily, Winter (Max)																		
Off-Road Equipment	0.35	0.33	2.81	14.8	0.02	0.07		0.07	0.07		0.07		2386	2386	0.1	0.02		2395
Onsite truck	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Average Daily																		
Off-Road Equipment	0.25	0.23	2.01	10.6	0.02	0.05		0.05	0.05		0.05		1705	1705	0.07	0.01		1710
Onsite truck	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Annual																		
Off-Road Equipment	0.05	0.04	0.37	1.93	< 0.005	0.01		0.01	0.01		0.01		282	282	0.01	< 0.005		283
Onsite truck	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Offsite																		
Daily, Summer (Max)																		
Worker	0.05	0.05	0.03	0.53	0	0	0.13	0.13	0	0.03	0.03		133	133	< 0.005	< 0.005	0.38	133
Vendor	0.02	0.01	0.29	0.14	< 0.005	< 0.005	0.07	0.07	< 0.005	0.02	0.02		242	242	0.01	0.04	0.43	254
Hauling	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Daily, Winter (Max)																		
Worker	0.04	0.04	0.04	0.44	0	0	0.13	0.13	0	0.03	0.03		121	121	< 0.005	0.01	0.01	123

Vendor	0.02	0.01	0.3	0.15	< 0.005	< 0.005	0.07	0.07	< 0.005	0.02	0.02		242	242	0.01	0.04	0.01	254
Hauling	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Average Daily																		
Worker	0.03	0.03	0.02	0.31	0	0	0.1	0.1	0	0.02	0.02		87.6	87.6	< 0.005	< 0.005	0.12	88.9
Vendor	0.01	0.01	0.21	0.1	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.01		173	173	0.01	0.03	0.13	181
Hauling	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Annual																		
Worker	0.01	0.01	< 0.005	0.06	0	0	0.02	0.02	0	< 0.005	< 0.005		14.5	14.5	< 0.005	< 0.005	0.02	14.7
Vendor	< 0.005	< 0.005	0.04	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005		28.7	28.7	< 0.005	< 0.005	0.02	30
Hauling	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0

3.33. Building Construction (2030) - Unmitigated

Location	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R	CO_2e
Onsite																		
Daily, Summer (Max)																		
Daily, Winter (Max)																		
Off-Road Equipment	1.12	0.94	8.39	12.9	0.02	0.26		0.26	0.24		0.24		2397	2397	0.1	0.02		2405
Onsite truck	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Average Daily																		
Off-Road Equipment	0.13	0.11	0.97	1.49	< 0.005	0.03		0.03	0.03		0.03		277	277	0.01	< 0.005		278
Onsite truck	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Annual																		
Off-Road Equipment	0.02	0.02	0.18	0.27	< 0.005	0.01		0.01	0.01		0.01		45.8	45.8	< 0.005	< 0.005		46
Onsite truck	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Offsite																		
Daily, Summer (Max)																		
Daily, Winter (Max)																		
Worker	0.04	0.04	0.03	0.42	0	0	0.13	0.13	0	0.03	0.03		119	119	< 0.005	0.01	0.01	121
Vendor	0.02	0.01	0.29	0.14	< 0.005	< 0.005	0.07	0.07	< 0.005	0.02	0.02		235	235	0.01	0.03	0.01	245
Hauling	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Average Daily																		
Worker	< 0.005	< 0.005	< 0.005	0.05	0	0	0.02	0.02	0	< 0.005	< 0.005		13.9	13.9	< 0.005	< 0.005	0.02	14
Vendor	< 0.005	< 0.005	0.03	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005		27.1	27.1	< 0.005	< 0.005	0.02	28.3
Hauling	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Annual																		
Worker	< 0.005	< 0.005	< 0.005	0.01	0	0	< 0.005	< 0.005	0	< 0.005	< 0.005		2.3	2.3	< 0.005	< 0.005	< 0.005	2.31
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005		4.49	4.49	< 0.005	< 0.005	< 0.005	4.69
Hauling	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0

3.34. Building Construction (2030) - Mitigated

Location	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R	CO_2e
Onsite																		
Daily, Summer (Max)																		
Daily, Winter (Max)																		
Off-Road Equipment	0.35	0.33	2.81	14.8	0.02	0.07		0.07	0.07		0.07		2386	2386	0.1	0.02		2395
Onsite truck	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Average Daily																		
Off-Road Equipment	0.04	0.04	0.32	1.71	< 0.005	0.01		0.01	0.01		0.01		276	276	0.01	< 0.005		276
Onsite truck	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0

Annual																		
Off-Road Equipment	0.01	0.01	0.06	0.31	< 0.005	< 0.005		< 0.005	< 0.005		< 0.005		45.6	45.6	< 0.005	< 0.005		45.8
Onsite truck	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Offsite																		
Daily, Summer (Max)																		
Daily, Winter (Max)																		
Worker	0.04	0.04	0.03	0.42	0	0	0.13	0.13	0	0.03	0.03		119	119	< 0.005	0.01	0.01	121
Vendor	0.02	0.01	0.29	0.14	< 0.005	< 0.005	0.07	0.07	< 0.005	0.02	0.02		235	235	0.01	0.03	0.01	245
Hauling	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Average Daily																		
Worker	< 0.005	< 0.005	< 0.005	0.05	0	0	0.02	0.02	0	< 0.005	< 0.005		13.9	13.9	< 0.005	< 0.005	0.02	14
Vendor	< 0.005	< 0.005	0.03	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005		27.1	27.1	< 0.005	< 0.005	0.02	28.3
Hauling	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Annual																		
Worker	< 0.005	< 0.005	< 0.005	0.01	0	0	< 0.005	< 0.005	0	< 0.005	< 0.005		2.3	2.3	< 0.005	< 0.005	< 0.005	2.31
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005		4.49	4.49	< 0.005	< 0.005	< 0.005	4.69
Hauling	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0

3.35. Paving (2028) - Unmitigated

Location	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R	CO_2e
Onsite																		
Daily, Summer (Max)																		
Off-Road Equipment	0.92	0.77	6.93	10.3	0.02	0.23		0.23	0.21		0.21		1528	1528	0.06	0.01		1534
Paving		< 0.005																
Onsite truck	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Daily, Winter (Max)																		
Off-Road Equipment	0.92	0.77	6.93	10.3	0.02	0.23		0.23	0.21		0.21		1528	1528	0.06	0.01		1534
Paving		< 0.005																
Onsite truck	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Average Daily																		
Off-Road Equipment	0.55	0.46	4.15	6.16	0.01	0.14		0.14	0.13		0.13		915	915	0.04	0.01		918
Paving		< 0.005																
Onsite truck	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Annual																		
Off-Road Equipment	0.1	0.08	0.76	1.12	< 0.005	0.03		0.03	0.02		0.02		152	152	0.01	< 0.005		152
Paving		< 0.005																
Onsite truck	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Offsite																		
Daily, Summer (Max)																		
Worker	0.05	0.05	0.03	0.57	0	0	0.14	0.14	0	0.03	0.03		137	137	< 0.005	< 0.005	0.43	138
Vendor	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Hauling	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Daily, Winter (Max)																		
Worker	0.05	0.05	0.04	0.48	0	0	0.14	0.14	0	0.03	0.03		126	126	< 0.005	0.01	0.01	128
Vendor	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Hauling	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Average Daily																		
Worker	0.03	0.03	0.02	0.28	0	0	0.08	0.08	0	0.02	0.02		76.1	76.1	< 0.005	< 0.005	0.11	77.2
Vendor	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0

Hauling	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Annual																		
Worker	0.01	< 0.005	< 0.005	0.05	0	0	0.01	0.01	0	< 0.005	< 0.005		12.6	12.6	< 0.005	< 0.005	0.02	12.8
Vendor	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Hauling	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0

3.36. Paving (2028) - Mitigated

Location	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R	CO_2e
Onsite																		
Daily, Summer (Max)																		
Off-Road Equipment	0.26	0.24	3	10.6	0.02	0.05		0.05	0.05		0.05		1528	1528	0.06	0.01		1534
Paving		< 0.005																
Onsite truck	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Daily, Winter (Max)																		
Off-Road Equipment	0.26	0.24	3	10.6	0.02	0.05		0.05	0.05		0.05		1528	1528	0.06	0.01		1534
Paving		< 0.005																
Onsite truck	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Average Daily																		
Off-Road Equipment	0.16	0.15	1.79	6.37	0.01	0.03		0.03	0.03		0.03		915	915	0.04	0.01		918
Paving		< 0.005																
Onsite truck	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Annual																		
Off-Road Equipment	0.03	0.03	0.33	1.16	< 0.005	0.01		0.01	0.01		0.01		152	152	0.01	< 0.005		152
Paving		< 0.005																
Onsite truck	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Offsite																		
Daily, Summer (Max)																		
Worker	0.05	0.05	0.03	0.57	0	0	0.14	0.14	0	0.03	0.03		137	137	< 0.005	< 0.005	0.43	138
Vendor	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Hauling	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Daily, Winter (Max)																		
Worker	0.05	0.05	0.04	0.48	0	0	0.14	0.14	0	0.03	0.03		126	126	< 0.005	0.01	0.01	128
Vendor	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Hauling	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Average Daily																		
Worker	0.03	0.03	0.02	0.28	0	0	0.08	0.08	0	0.02	0.02		76.1	76.1	< 0.005	< 0.005	0.11	77.2
Vendor	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Hauling	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Annual																		
Worker	0.01	< 0.005	< 0.005	0.05	0	0	0.01	0.01	0	< 0.005	< 0.005		12.6	12.6	< 0.005	< 0.005	0.02	12.8
Vendor	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Hauling	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0

3.37. Paving (2029) - Unmitigated

Location	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R	CO_2e
Onsite																		
Daily, Summer (Max)																		
Off-Road Equipment	0.9	0.75	6.79	10.3	0.02	0.21		0.21	0.2		0.2		1528	1528	0.06	0.01		1533
Paving		< 0.005																

Onsite truck	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Daily, Winter (Max)																		
Off-Road Equipment	0.9	0.75	6.79	10.3	0.02	0.21		0.21	0.2		0.2		1528	1528	0.06	0.01		1533
Paving		< 0.005																
Onsite truck	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Average Daily																		
Off-Road Equipment	0.64	0.54	4.85	7.35	0.01	0.15		0.15	0.14		0.14		1091	1091	0.04	0.01		1095
Paving		< 0.005																
Onsite truck	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Annual																		
Off-Road Equipment	0.12	0.1	0.88	1.34	< 0.005	0.03		0.03	0.03		0.03		181	181	0.01	< 0.005		181
Paving		< 0.005																
Onsite truck	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Offsite																		
Daily, Summer (Max)																		
Worker	0.05	0.05	0.03	0.54	0	0	0.14	0.14	0	0.03	0.03		135	135	< 0.005	< 0.005	0.38	136
Vendor	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Hauling	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Daily, Winter (Max)																		
Worker	0.05	0.04	0.04	0.45	0	0	0.14	0.14	0	0.03	0.03		124	124	< 0.005	0.01	0.01	125
Vendor	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Hauling	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Average Daily																		
Worker	0.04	0.03	0.02	0.32	0	0	0.1	0.1	0	0.02	0.02		89.2	89.2	< 0.005	< 0.005	0.12	90.5
Vendor	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Hauling	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Annual																		
Worker	0.01	0.01	< 0.005	0.06	0	0	0.02	0.02	0	< 0.005	< 0.005		14.8	14.8	< 0.005	< 0.005	0.02	15
Vendor	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Hauling	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0

3.38. Paving (2029) - Mitigated

Location	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R	CO_2e
Onsite																		
Daily, Summer (Max)																		
Off-Road Equipment	0.26	0.24	3	10.6	0.02	0.05		0.05	0.05		0.05		1528	1528	0.06	0.01		1533
Paving		< 0.005																
Onsite truck	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Daily, Winter (Max)																		
Off-Road Equipment	0.26	0.24	3	10.6	0.02	0.05		0.05	0.05		0.05		1528	1528	0.06	0.01		1533
Paving		< 0.005																
Onsite truck	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Average Daily																		
Off-Road Equipment	0.19	0.17	2.14	7.6	0.01	0.04		0.04	0.03		0.03		1091	1091	0.04	0.01		1095
Paving		< 0.005																
Onsite truck	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Annual																		
Off-Road Equipment	0.03	0.03	0.39	1.39	< 0.005	0.01		0.01	0.01		0.01		181	181	0.01	< 0.005		181
Paving		< 0.005																

Onsite truck	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Offsite																		
Daily, Summer (Max)																		
Worker	0.05	0.05	0.03	0.54	0	0	0.14	0.14	0	0.03	0.03		135	135	< 0.005	< 0.005	0.38	136
Vendor	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Hauling	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Daily, Winter (Max)																		
Worker	0.05	0.04	0.04	0.45	0	0	0.14	0.14	0	0.03	0.03		124	124	< 0.005	0.01	0.01	125
Vendor	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Hauling	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Average Daily																		
Worker	0.04	0.03	0.02	0.32	0	0	0.1	0.1	0	0.02	0.02		89.2	89.2	< 0.005	< 0.005	0.12	90.5
Vendor	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Hauling	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Annual																		
Worker	0.01	0.01	< 0.005	0.06	0	0	0.02	0.02	0	< 0.005	< 0.005		14.8	14.8	< 0.005	< 0.005	0.02	15
Vendor	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Hauling	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0

3.39. Paving (2030) - Unmitigated

Location	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R	CO_2e
Onsite																		
Daily, Summer (Max)																		
Off-Road Equipment	0.87	0.73	6.66	10.3	0.02	0.2		0.2	0.18		0.18		1528	1528	0.06	0.01		1533
Paving		< 0.005																
Onsite truck	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Daily, Winter (Max)																		
Off-Road Equipment	0.87	0.73	6.66	10.3	0.02	0.2		0.2	0.18		0.18		1528	1528	0.06	0.01		1533
Paving		< 0.005																
Onsite truck	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Average Daily																		
Off-Road Equipment	0.62	0.52	4.75	7.34	0.01	0.14		0.14	0.13		0.13		1091	1091	0.04	0.01		1095
Paving		< 0.005																
Onsite truck	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Annual																		
Off-Road Equipment	0.11	0.09	0.87	1.34	< 0.005	0.03		0.03	0.02		0.02		181	181	0.01	< 0.005		181
Paving		< 0.005																
Onsite truck	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Offsite																		
Daily, Summer (Max)																		
Worker	0.05	0.04	0.03	0.51	0	0	0.14	0.14	0	0.03	0.03		133	133	< 0.005	< 0.005	0.34	133
Vendor	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Hauling	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Daily, Winter (Max)																		
Worker	0.04	0.04	0.03	0.43	0	0	0.14	0.14	0	0.03	0.03		121	121	< 0.005	0.01	0.01	123
Vendor	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Hauling	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Average Daily																		
Worker	0.03	0.03	0.02	0.3	0	0	0.1	0.1	0	0.02	0.02		87.7	87.7	< 0.005	< 0.005	0.11	88.1

Vendor	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Hauling	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Annual																		
Worker	0.01	0.01	< 0.005	0.05	0	0	0.02	0.02	0	< 0.005	< 0.005		14.5	14.5	< 0.005	< 0.005	0.02	14.6
Vendor	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Hauling	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0

3.40. Paving (2030) - Mitigated

Location	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R	CO_2e
Onsite																		
Daily, Summer (Max)																		
Off-Road Equipment	0.26	0.24	3	10.6	0.02	0.05		0.05	0.05		0.05		1528	1528	0.06	0.01		1533
Paving		< 0.005																
Onsite truck	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Daily, Winter (Max)																		
Off-Road Equipment	0.26	0.24	3	10.6	0.02	0.05		0.05	0.05		0.05		1528	1528	0.06	0.01		1533
Paving		< 0.005																
Onsite truck	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Average Daily																		
Off-Road Equipment	0.19	0.17	2.14	7.6	0.01	0.04		0.04	0.03		0.03		1091	1091	0.04	0.01		1095
Paving		< 0.005																
Onsite truck	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Annual																		
Off-Road Equipment	0.03	0.03	0.39	1.39	< 0.005	0.01		0.01	0.01		0.01		181	181	0.01	< 0.005		181
Paving		< 0.005																
Onsite truck	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Offsite																		
Daily, Summer (Max)																		
Worker	0.05	0.04	0.03	0.51	0	0	0.14	0.14	0	0.03	0.03		133	133	< 0.005	< 0.005	0.34	133
Vendor	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Hauling	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Daily, Winter (Max)																		
Worker	0.04	0.04	0.03	0.43	0	0	0.14	0.14	0	0.03	0.03		121	121	< 0.005	0.01	0.01	123
Vendor	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Hauling	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Average Daily																		
Worker	0.03	0.03	0.02	0.3	0	0	0.1	0.1	0	0.02	0.02		87.7	87.7	< 0.005	< 0.005	0.11	88.1
Vendor	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Hauling	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Annual																		
Worker	0.01	0.01	< 0.005	0.05	0	0	0.02	0.02	0	< 0.005	< 0.005		14.5	14.5	< 0.005	< 0.005	0.02	14.6
Vendor	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Hauling	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0

3.41. Paving (2031) - Unmitigated

Location	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R	CO_2e
Onsite																		
Daily, Summer (Max)																		
Daily, Winter (Max)																		

Off-Road Equipment	0.85	0.71	6.52	10.3	0.02	0.19		0.19	0.17		0.17		1528	1528	0.06	0.01		1533
Paving		< 0.005																
Onsite truck	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Average Daily																		
Off-Road Equipment	0.15	0.12	1.12	1.77	< 0.005	0.03		0.03	0.03		0.03		263	263	0.01	< 0.005		264
Paving		< 0.005																
Onsite truck	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Annual																		
Off-Road Equipment	0.03	0.02	0.2	0.32	< 0.005	0.01		0.01	0.01		0.01		43.6	43.6	< 0.005	< 0.005		43.7
Paving		< 0.005																
Onsite truck	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Offsite																		
Daily, Summer (Max)																		
Daily, Winter (Max)																		
Worker	0.04	0.04	0.03	0.41	0	0	0.14	0.14	0	0.03	0.03		120	120	< 0.005	0.01	0.01	121
Vendor	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Hauling	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Average Daily																		
Worker	0.01	0.01	< 0.005	0.07	0	0	0.02	0.02	0	0.01	0.01		20.8	20.8	< 0.005	< 0.005	0.02	20.9
Vendor	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Hauling	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Annual																		
Worker	< 0.005	< 0.005	< 0.005	0.01	0	0	< 0.005	< 0.005	0	< 0.005	< 0.005		3.45	3.45	< 0.005	< 0.005	< 0.005	3.47
Vendor	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Hauling	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0

3.42. Paving (2031) - Mitigated

Location	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R	CO_2e
Onsite																		
Daily, Summer (Max)																		
Daily, Winter (Max)																		
Off-Road Equipment	0.26	0.24	3	10.6	0.02	0.05		0.05	0.05		0.05		1528	1528	0.06	0.01		1533
Paving		< 0.005																
Onsite truck	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Average Daily																		
Off-Road Equipment	0.04	0.04	0.52	1.83	< 0.005	0.01		0.01	0.01		0.01		263	263	0.01	< 0.005		264
Paving		< 0.005																
Onsite truck	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Annual																		
Off-Road Equipment	0.01	0.01	0.09	0.33	< 0.005	< 0.005		< 0.005	< 0.005		< 0.005		43.6	43.6	< 0.005	< 0.005		43.7
Paving		< 0.005																
Onsite truck	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Offsite																		
Daily, Summer (Max)																		
Daily, Winter (Max)																		
Worker	0.04	0.04	0.03	0.41	0	0	0.14	0.14	0	0.03	0.03		120	120	< 0.005	0.01	0.01	121
Vendor	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Hauling	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Average Daily																		

Worker	0.01	0.01	< 0.005	0.07	0	0	0.02	0.02	0	0.01	0.01		20.8	20.8	< 0.005	< 0.005	0.02	20.9
Vendor	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Hauling	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Annual																		
Worker	< 0.005	< 0.005	< 0.005	0.01	0	0	< 0.005	< 0.005	0	< 0.005	< 0.005		3.45	3.45	< 0.005	< 0.005	< 0.005	3.47
Vendor	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Hauling	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0

4. Operations Emissions Details

4.1. Mobile Emissions by Land Use

4.1.1. Unmitigated

Land Use	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R	CO_2e
Daily, Summer (Max)																		
Refrigerated Warehouse-No Rail	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Other Asphalt Surfaces	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Daily, Winter (Max)																		
Refrigerated Warehouse-No Rail	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Other Asphalt Surfaces	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Annual																		
Refrigerated Warehouse-No Rail	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Other Asphalt Surfaces	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0

4.1.2. Mitigated

Land Use	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R	CO_2e
Daily, Summer (Max)																		
Refrigerated Warehouse-No Rail	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Other Asphalt Surfaces	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Daily, Winter (Max)																		
Refrigerated Warehouse-No Rail	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Other Asphalt Surfaces	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Annual																		
Refrigerated Warehouse-No Rail	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Other Asphalt Surfaces	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0

4.2. Energy

4.2.1. Electricity Emissions By Land Use - Unmitigated

Land Use	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R	CO_2e
Daily, Summer (Max)																		
Refrigerated Warehouse-No Rail													3.91	3.91	< 0.005	< 0.005		3.95
Other Asphalt Surfaces													0	0	0	0		0
Total													3.91	3.91	< 0.005	< 0.005		3.95
Daily, Winter (Max)																		
Refrigerated Warehouse-No Rail													3.91	3.91	< 0.005	< 0.005		3.95

Other Asphalt Surfaces													0	0	0	0		0
Total													3.91	3.91	< 0.005	< 0.005		3.95
Annual																		
Refrigerated Warehouse-No Rail													0.65	0.65	< 0.005	< 0.005		0.65
Other Asphalt Surfaces													0	0	0	0		0
Total													0.65	0.65	< 0.005	< 0.005		0.65

4.2.2. Electricity Emissions By Land Use - Mitigated

Land Use	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R	CO_2e
Daily, Summer (Max)																		
Refrigerated Warehouse-No Rail													3.91	3.91	< 0.005	< 0.005		3.95
Other Asphalt Surfaces													0	0	0	0		0
Total													3.91	3.91	< 0.005	< 0.005		3.95
Daily, Winter (Max)																		
Refrigerated Warehouse-No Rail													3.91	3.91	< 0.005	< 0.005		3.95
Other Asphalt Surfaces													0	0	0	0		0
Total													3.91	3.91	< 0.005	< 0.005		3.95
Annual																		
Refrigerated Warehouse-No Rail													0.65	0.65	< 0.005	< 0.005		0.65
Other Asphalt Surfaces													0	0	0	0		0
Total													0.65	0.65	< 0.005	< 0.005		0.65

4.2.3. Natural Gas Emissions By Land Use - Unmitigated

Land Use	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R	CO_2e
Daily, Summer (Max)																		
Refrigerated Warehouse-No Rail	0	0	0	0	0	0		0	0		0		0	0	0	0		0
Other Asphalt Surfaces	0	0	0	0	0	0		0	0		0		0	0	0	0		0
Total	0	0	0	0	0	0		0	0		0		0	0	0	0		0
Daily, Winter (Max)																		
Refrigerated Warehouse-No Rail	0	0	0	0	0	0		0	0		0		0	0	0	0		0
Other Asphalt Surfaces	0	0	0	0	0	0		0	0		0		0	0	0	0		0
Total	0	0	0	0	0	0		0	0		0		0	0	0	0		0
Annual																		
Refrigerated Warehouse-No Rail	0	0	0	0	0	0		0	0		0		0	0	0	0		0
Other Asphalt Surfaces	0	0	0	0	0	0		0	0		0		0	0	0	0		0
Total	0	0	0	0	0	0		0	0		0		0	0	0	0		0

4.2.4. Natural Gas Emissions By Land Use - Mitigated

Land Use	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R	CO_2e
Daily, Summer (Max)																		
Refrigerated Warehouse-No Rail	0	0	0	0	0	0		0	0		0		0	0	0	0		0
Other Asphalt Surfaces	0	0	0	0	0	0		0	0		0		0	0	0	0		0
Total	0	0	0	0	0	0		0	0		0		0	0	0	0		0
Daily, Winter (Max)																		
Refrigerated Warehouse-No Rail	0	0	0	0	0	0		0	0		0		0	0	0	0		0
Other Asphalt Surfaces	0	0	0	0	0	0		0	0		0		0	0	0	0		0
Total	0	0	0	0	0	0		0	0		0		0	0	0	0		0
Annual																		
Refrigerated Warehouse-No Rail	0	0	0	0	0	0		0	0		0		0	0	0	0		0

Other Asphalt Surfaces	0	0	0	0	0	0		0	0		0		0	0	0	0		0
Total	0	0	0	0	0	0		0	0		0		0	0	0	0		0

4.3. Area Emissions by Source

4.3.1. Unmitigated

Source	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R	CO_2e
Daily, Summer (Max)																		
Consumer Products		1.29																
Architectural Coatings		< 0.005																
Total		1.29																
Daily, Winter (Max)																		
Consumer Products		1.29																
Architectural Coatings		< 0.005																
Total		1.29																
Annual																		
Consumer Products		0.23																
Architectural Coatings		< 0.005																
Total		0.23																

4.3.2. Mitigated

Source	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R	CO_2e
Daily, Summer (Max)																		
Consumer Products		1.29																
Architectural Coatings		< 0.005																
Total		1.29																
Daily, Winter (Max)																		
Consumer Products		1.29																
Architectural Coatings		< 0.005																
Total		1.29																
Annual																		
Consumer Products		0.23																
Architectural Coatings		< 0.005																
Total		0.23																

4.4. Water Emissions by Land Use

4.4.1. Unmitigated

Land Use	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R	CO_2e
Daily, Summer (Max)																		
Refrigerated Warehouse-No Rail												0	0	0	0	0		0
Other Asphalt Surfaces												0	0	0	0	0		0
Total												0	0	0	0	0		0
Daily, Winter (Max)																		
Refrigerated Warehouse-No Rail												0	0	0	0	0		0
Other Asphalt Surfaces												0	0	0	0	0		0
Total												0	0	0	0	0		0
Annual																		
Refrigerated Warehouse-No Rail												0	0	0	0	0		0
Other Asphalt Surfaces												0	0	0	0	0		0
Total												0	0	0	0	0		0

4.4.2. Mitigated

Land Use	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R	CO_2e
Daily, Summer (Max)																		
Refrigerated Warehouse-No Rail												0	0	0	0	0		0
Other Asphalt Surfaces												0	0	0	0	0		0
Total												0	0	0	0	0		0
Daily, Winter (Max)																		
Refrigerated Warehouse-No Rail												0	0	0	0	0		0
Other Asphalt Surfaces												0	0	0	0	0		0
Total												0	0	0	0	0		0
Annual																		
Refrigerated Warehouse-No Rail												0	0	0	0	0		0
Other Asphalt Surfaces												0	0	0	0	0		0
Total												0	0	0	0	0		0

4.5. Waste Emissions by Land Use

4.5.1. Unmitigated

Land Use	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R	CO_2e
Daily, Summer (Max)																		
Refrigerated Warehouse-No Rail												0	0	0	0	0		0
Other Asphalt Surfaces												0	0	0	0	0		0
Total												0	0	0	0	0		0
Daily, Winter (Max)																		
Refrigerated Warehouse-No Rail												0	0	0	0	0		0
Other Asphalt Surfaces												0	0	0	0	0		0
Total												0	0	0	0	0		0
Annual																		
Refrigerated Warehouse-No Rail												0	0	0	0	0		0
Other Asphalt Surfaces												0	0	0	0	0		0
Total												0	0	0	0	0		0

4.5.2. Mitigated

Land Use	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R	CO_2e
Daily, Summer (Max)																		
Refrigerated Warehouse-No Rail												0	0	0	0	0		0
Other Asphalt Surfaces												0	0	0	0	0		0
Total												0	0	0	0	0		0
Daily, Winter (Max)																		
Refrigerated Warehouse-No Rail												0	0	0	0	0		0
Other Asphalt Surfaces												0	0	0	0	0		0
Total												0	0	0	0	0		0
Annual																		
Refrigerated Warehouse-No Rail												0	0	0	0	0		0
Other Asphalt Surfaces												0	0	0	0	0		0
Total												0	0	0	0	0		0

4.6. Refrigerant Emissions by Land Use

4.6.1. Unmitigated

Land Use	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R	CO_2e
Daily, Summer (Max)																		
Total																		
Daily, Winter (Max)																		
Total																		
Annual																		
Total																		

4.6.2. Mitigated

Land Use	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R	CO_2e
Daily, Summer (Max)																		
Total																		
Daily, Winter (Max)																		
Total																		
Annual																		
Total																		

4.7. Offroad Emissions By Equipment Type

4.7.1. Unmitigated

Equipment Type	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R	CO_2e
Daily, Summer (Max)																		
Total																		
Daily, Winter (Max)																		
Total																		
Annual																		
Total																		

4.7.2. Mitigated

Equipment Type	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R	CO_2e
Daily, Summer (Max)																		
Total																		
Daily, Winter (Max)																		
Total																		
Annual																		
Total																		

4.8. Stationary Emissions By Equipment Type

4.8.1. Unmitigated

Equipment Type	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R	CO_2e
Daily, Summer (Max)																		
Emergency Generator	19.3	17.6	78.7	44.9	0.08	2.59	0	2.59	2.59	0	2.59	0	9006	9006	0.36	0.07	0	9036
Total	19.3	17.6	78.7	44.9	0.08	2.59	0	2.59	2.59	0	2.59	0	9006	9006	0.36	0.07	0	9036
Daily, Winter (Max)																		
Emergency Generator	19.3	17.6	78.7	44.9	0.08	2.59	0	2.59	2.59	0	2.59	0	9006	9006	0.36	0.07	0	9036
Total	19.3	17.6	78.7	44.9	0.08	2.59	0	2.59	2.59	0	2.59	0	9006	9006	0.36	0.07	0	9036
Annual																		
Emergency Generator	0.06	0.06	0.25	0.14	< 0.005	0.01	0	0.01	0.01	0	0.01	0	25.5	25.5	< 0.005	< 0.005	0	25.6
Total	0.06	0.06	0.25	0.14	< 0.005	0.01	0	0.01	0.01	0	0.01	0	25.5	25.5	< 0.005	< 0.005	0	25.6

4.8.2. Mitigated

Equipment Type	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R	CO_2e
Daily, Summer (Max)																		
Emergency Generator	19.3	17.6	78.7	44.9	0.08	2.59	0	2.59	2.59	0	2.59	0	9006	9006	0.36	0.07	0	9036
Total	19.3	17.6	78.7	44.9	0.08	2.59	0	2.59	2.59	0	2.59	0	9006	9006	0.36	0.07	0	9036
Daily, Winter (Max)																		
Emergency Generator	19.3	17.6	78.7	44.9	0.08	2.59	0	2.59	2.59	0	2.59	0	9006	9006	0.36	0.07	0	9036
Total	19.3	17.6	78.7	44.9	0.08	2.59	0	2.59	2.59	0	2.59	0	9006	9006	0.36	0.07	0	9036
Annual																		
Emergency Generator	0.06	0.06	0.25	0.14	< 0.005	0.01	0	0.01	0.01	0	0.01	0	25.5	25.5	< 0.005	< 0.005	0	25.6
Total	0.06	0.06	0.25	0.14	< 0.005	0.01	0	0.01	0.01	0	0.01	0	25.5	25.5	< 0.005	< 0.005	0	25.6

4.9. User Defined Emissions By Equipment Type

4.9.1. Unmitigated

Equipment Type	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R	CO_2e
Daily, Summer (Max)																		
Total																		
Daily, Winter (Max)																		
Total																		
Annual																		
Total																		

4.9.2. Mitigated

Equipment Type	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R	CO_2e
Daily, Summer (Max)																		
Total																		
Daily, Winter (Max)																		
Total																		
Annual																		
Total																		

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

Vegetation	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R	CO_2e
Daily, Summer (Max)																		
Total																		
Daily, Winter (Max)																		
Total																		
Annual																		
Total																		

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

Land Use	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R	CO_2e
Daily, Summer (Max)																		
Total																		
Daily, Winter (Max)																		
Total																		
Annual																		
Total																		

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

Species	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R	CO_2e
Daily, Summer (Max)																		
Avoided																		
Evergreen ash		< 0.005	< 0.005		< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005		3.29	3.29				3.29
Subtotal		< 0.005	< 0.005		< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005		3.29	3.29				3.29
Sequestered																		
Evergreen ash													2.38	2.38				2.38
Subtotal													2.38	2.38				2.38
Removed																		
Evergreen ash			< 0.005		< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005							
Subtotal			< 0.005		< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005							
Total		< 0.005	< 0.005		< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005		5.68	5.68				5.68
Daily, Winter (Max)																		
Avoided																		
Evergreen ash		< 0.005	< 0.005		< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005		3.29	3.29				3.29
Subtotal		< 0.005	< 0.005		< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005		3.29	3.29				3.29
Sequestered																		
Evergreen ash													2.38	2.38				2.38
Subtotal													2.38	2.38				2.38
Removed																		
Evergreen ash			< 0.005		< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005							
Subtotal			< 0.005		< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005							
Total		< 0.005	< 0.005		< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005		5.68	5.68				5.68
Annual																		
Avoided																		
Evergreen ash		< 0.005	< 0.005		< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005		0.55	0.55				0.55
Subtotal		< 0.005	< 0.005		< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005		0.55	0.55				0.55
Sequestered																		
Evergreen ash													0.39	0.39				0.39
Subtotal													0.39	0.39				0.39
Removed																		
Evergreen ash			< 0.005		< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005							
Subtotal			< 0.005		< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005							
Total		< 0.005	< 0.005		< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005		0.94	0.94				0.94

4.10.4. Soil Carbon Accumulation By Vegetation Type - Mitigated

Vegetation	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R	CO_2e
Daily, Summer (Max)																		
Total																		
Daily, Winter (Max)																		
Total																		
Annual																		
Total																		

4.10.5. Above and Belowground Carbon Accumulation by Land Use Type - Mitigated

Land Use	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R	CO_2e
Daily, Summer (Max)																		
Total																		
Daily, Winter (Max)																		
Total																		
Annual																		
Total																		

4.10.6. Avoided and Sequestered Emissions by Species - Mitigated

Species	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R	CO_2e
Daily, Summer (Max)																		
Avoided																		
Evergreen ash		< 0.005	< 0.005		< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005		3.29	3.29				3.29
Subtotal		< 0.005	< 0.005		< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005		3.29	3.29				3.29
Sequestered																		
Evergreen ash													2.38	2.38				2.38
Subtotal													2.38	2.38				2.38
Removed																		
Evergreen ash			< 0.005		< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005							
Subtotal			< 0.005		< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005							
Total		< 0.005	< 0.005		< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005		5.68	5.68				5.68
Daily, Winter (Max)																		
Avoided																		
Evergreen ash		< 0.005	< 0.005		< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005		3.29	3.29				3.29
Subtotal		< 0.005	< 0.005		< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005		3.29	3.29				3.29
Sequestered																		
Evergreen ash													2.38	2.38				2.38
Subtotal													2.38	2.38				2.38
Removed																		
Evergreen ash			< 0.005		< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005							
Subtotal			< 0.005		< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005							
Total		< 0.005	< 0.005		< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005		5.68	5.68				5.68
Annual																		
Avoided																		
Evergreen ash		< 0.005	< 0.005		< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005		0.55	0.55				0.55
Subtotal		< 0.005	< 0.005		< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005		0.55	0.55				0.55
Sequestered																		
Evergreen ash													0.39	0.39				0.39
Subtotal													0.39	0.39				0.39
Removed																		
Evergreen ash			< 0.005		< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005							
Subtotal			< 0.005		< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005							
Total		< 0.005	< 0.005		< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005		0.94	0.94				0.94

5. Activity Data

5.1. Construction Schedule

Phase Name	Phase Type	Start Date	End Date	Days Per Week	Work Days per P	Phase Description
Demolition	Demolition	3/1/2030	3/1/2031	5	261	
Site Preparation	Site Preparation	3/3/2026	2/28/2030	5	1043	
Grading	Grading	3/3/2026	2/28/2030	5	1043	
Building Construction	Building Construc	3/3/2026	2/28/2030	5	1043	
Paving	Paving	3/1/2028	3/29/2031	5	803	

5.2. Off-Road Equipment

5.2.1. Unmitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepowe	Load Factor
Demolition	Concrete/Industr	Diesel	Average	1	8	33	0.73
Demolition	Excavators	Diesel	Average	3	8	36	0.38
Demolition	Rubber Tired Doz	Diesel	Average	2	8	367	0.4
Site Preparation	Rubber Tired Doz	Diesel	Average	3	8	367	0.4
Site Preparation	Tractors/Loaders	Diesel	Average	4	8	84	0.37
Grading	Excavators	Diesel	Average	1	8	36	0.38
Grading	Graders	Diesel	Average	1	8	148	0.41
Grading	Rubber Tired Doz	Diesel	Average	1	8	367	0.4
Grading	Tractors/Loaders	Diesel	Average	3	8	84	0.37
Building Construction	Cranes	Diesel	Average	1	7	367	0.29
Building Construction	Forklifts	Diesel	Average	3	8	82	0.2
Building Construction	Generator Sets	Diesel	Average	1	8	14	0.74
Building Construction	Tractors/Loaders	Diesel	Average	3	7	84	0.37
Building Construction	Welders	Diesel	Average	1	8	46	0.45
Paving	Cement and Mort	Diesel	Average	2	6	10	0.56
Paving	Pavers	Diesel	Average	1	8	81	0.42
Paving	Paving Equipmen	Diesel	Average	2	6	89	0.36
Paving	Rollers	Diesel	Average	2	6	36	0.38
Paving	Tractors/Loaders	Diesel	Average	1	8	84	0.37
Paving	Air Compressors	Diesel	Average	1	8	37	0.48

5.2.2. Mitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepowe	Load Factor
Demolition	Concrete/Industr	Diesel	Tier 4 Final	1	8	33	0.73
Demolition	Excavators	Diesel	Tier 4 Final	3	8	36	0.38
Demolition	Rubber Tired Doz	Diesel	Tier 4 Final	2	8	367	0.4
Site Preparation	Rubber Tired Doz	Diesel	Tier 4 Final	3	8	367	0.4
Site Preparation	Tractors/Loaders	Diesel	Tier 4 Final	4	8	84	0.37
Grading	Excavators	Diesel	Tier 4 Final	1	8	36	0.38
Grading	Graders	Diesel	Tier 4 Final	1	8	148	0.41
Grading	Rubber Tired Doz	Diesel	Tier 4 Final	1	8	367	0.4
Grading	Tractors/Loaders	Diesel	Tier 4 Final	3	8	84	0.37
Building Construction	Cranes	Diesel	Tier 4 Final	1	7	367	0.29
Building Construction	Forklifts	Diesel	Tier 4 Final	3	8	82	0.2
Building Construction	Generator Sets	Diesel Hybri	Average	1	8	14	0.74
Building Construction	Tractors/Loaders	Diesel	Tier 4 Final	3	7	84	0.37
Building Construction	Welders	Diesel	Tier 4 Final	1	8	46	0.45
Paving	Cement and Mort	Diesel	Average	2	6	10	0.56

Paving	Pavers	Diesel	Tier 4 Final	1	8	81	0.42
Paving	Paving Equipmen	Diesel	Tier 4 Final	2	6	89	0.36
Paving	Rollers	Diesel	Tier 4 Final	2	6	36	0.38
Paving	Tractors/Loaders	Diesel	Tier 4 Final	1	8	84	0.37
Paving	Air Compressors	Diesel	Tier 4 Final	1	8	37	0.48

5.3. Construction Vehicles

5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Tri	Miles per Tri	Vehicle Mix
Demolition				
Demolition	Worker	10	11.7	LDA,LDT1,LDT2
Demolition	Vendor		8.4	HHDT,MHDT
Demolition	Hauling	3.25	100	HHDT
Demolition	Onsite truck			HHDT
Site Preparation				
Site Preparation	Worker	10.5	11.7	LDA,LDT1,LDT2
Site Preparation	Vendor		8.4	HHDT,MHDT
Site Preparation	Hauling	7.71	5	HHDT
Site Preparation	Onsite truck			HHDT
Grading				
Grading	Worker	9	11.7	LDA,LDT1,LDT2
Grading	Vendor		8.4	HHDT,MHDT
Grading	Hauling	5.39	20	HHDT
Grading	Onsite truck			HHDT
Building Construction				
Building Construction	Worker	16.2	11.7	LDA,LDT1,LDT2
Building Construction	Vendor	9.83	8.4	HHDT,MHDT
Building Construction	Hauling	0	20	HHDT
Building Construction	Onsite truck			HHDT
Paving				
Paving	Worker	16.5	11.7	LDA,LDT1,LDT2
Paving	Vendor		8.4	HHDT,MHDT
Paving	Hauling	0	20	HHDT
Paving	Onsite truck			HHDT

5.3.2. Mitigated

Phase Name	Trip Type	One-Way Tri	Miles per Tri	Vehicle Mix
Demolition				
Demolition	Worker	10	11.7	LDA,LDT1,LDT2
Demolition	Vendor		8.4	HHDT,MHDT
Demolition	Hauling	3.25	100	HHDT
Demolition	Onsite truck			HHDT
Site Preparation				
Site Preparation	Worker	10.5	11.7	LDA,LDT1,LDT2
Site Preparation	Vendor		8.4	HHDT,MHDT
Site Preparation	Hauling	7.71	5	HHDT
Site Preparation	Onsite truck			HHDT
Grading				
Grading	Worker	9	11.7	LDA,LDT1,LDT2

Grading	Vendor		8.4	HHDT,MHDT
Grading	Hauling	5.39	20	HHDT
Grading	Onsite truck			HHDT
Building Construction				
Building Construction	Worker	16.2	11.7	LDA,LDT1,LDT2
Building Construction	Vendor	9.83	8.4	HHDT,MHDT
Building Construction	Hauling	0	20	HHDT
Building Construction	Onsite truck			HHDT
Paving				
Paving	Worker	16.5	11.7	LDA,LDT1,LDT2
Paving	Vendor		8.4	HHDT,MHDT
Paving	Hauling	0	20	HHDT
Paving	Onsite truck			HHDT

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

Control Strategies Applied	PM10 Reduction	PM2.5 Reduction
Water unpaved roads twice daily	55	55
Limit vehicle speeds on unpaved r	44	44
Sweep paved roads once per mon	9	9

5.5. Architectural Coatings

Phase Name	Residential Interi	Residential I	Non-Reside	Non-Residential Exter	Parking Area Coated (sq ft)

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

Phase Name	Material Importec	Material Exp	Acres Grade	Material Demolished (	Acres Paved (acres)
Demolition	0	0	0	51000	
Site Preparation		56000	1565	0	
Grading	45000		1043	0	
Paving	0	0	0	0	0.34

5.6.2. Construction Earthmoving Control Strategies

Control Strategies Applied	Frequency (per da	PM10 Reduc	PM2.5 Reduction
Water Exposed Area	2	61	61
Water Demolished Area	2	36	36

5.7. Construction Paving

Land Use	Area Paved (acres	% Asphalt
Refrigerated Warehouse-No Rail	0	0
Other Asphalt Surfaces	0.34	100

5.8. Construction Electricity Consumption and Emissions Factors

Year	kWh per Year	CO2	CH4	N2O
2026	200000	204	0.03	< 0.005
2027	200000	204	0.03	< 0.005
2028	200000	204	0.03	< 0.005
2029	200000	204	0.03	< 0.005
2030	200000	204	0.03	< 0.005

2031	200000	204	0.03	< 0.005

5.9. Operational Mobile Sources

5.9.1. Unmitigated

Land Use Type	Trips/Weekday	Trips/Saturd	Trips/Sunda	Trips/Year	VMT/Weekday	VMT/Satur	VMT/Sund	VMT/Year
Refrigerated Warehouse-No Rail	0	0	0	0	0	0	0	0
Other Asphalt Surfaces	0	0	0	0	0	0	0	0

5.9.2. Mitigated

Land Use Type	Trips/Weekday	Trips/Saturd	Trips/Sunda	Trips/Year	VMT/Weekday	VMT/Satur	VMT/Sund	VMT/Year
Refrigerated Warehouse-No Rail	0	0	0	0	0	0	0	0
Other Asphalt Surfaces	0	0	0	0	0	0	0	0

5.10. Operational Area Sources

5.10.1. Hearths

5.10.1.1. Unmitigated

Hearth Type	Unmitigated (number)

5.10.1.2. Mitigated

Hearth Type	Unmitigated (number)

5.10.2. Architectural Coatings

Residential Interior Area Coated (s	Residential Exteri	Non-Reside	Non-Reside	Parking Area Coated (sq ft)
0	0	0	0	881

5.10.3. Landscape Equipment

Season	Unit	Value
Snow Days	day/yr	0
Summer Days	day/yr	0

5.10.4. Landscape Equipment - Mitigated

Season	Unit	Value
Snow Days	day/yr	0
Summer Days	day/yr	0

5.11. Operational Energy Consumption

5.11.1. Unmitigated

Land Use	Electricity (kWh/y	CO2	CH4	N2O	Natural Gas (kBTU/yr)
Refrigerated Warehouse-No Rail	7000	204	0.033	0.004	0
Other Asphalt Surfaces	0	204	0.033	0.004	0

5.11.2. Mitigated

Land Use	Electricity (kWh/y	CO2	CH4	N2O	Natural Gas (kBTU/yr)
Refrigerated Warehouse-No Rail	7000	204	0.033	0.004	0
Other Asphalt Surfaces	0	204	0.033	0.004	0

5.12. Operational Water and Wastewater Consumption

5.12.1. Unmitigated

Land Use	Indoor Water (gal	Outdoor Water (gal/year)

Refrigerated Warehouse-No Rail	0	0
Other Asphalt Surfaces	0	0

5.12.2. Mitigated

Land Use	Indoor Water (gal	Outdoor Water (gal/year)
Refrigerated Warehouse-No Rail	0	0
Other Asphalt Surfaces	0	0

5.13. Operational Waste Generation

5.13.1. Unmitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
Refrigerated Warehouse-No Rail	0	
Other Asphalt Surfaces	0	

5.13.2. Mitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
Refrigerated Warehouse-No Rail	0	
Other Asphalt Surfaces	0	

5.14. Operational Refrigeration and Air Conditioning Equipment

5.14.1. Unmitigated

Land Use Type	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leal	Service Lea	Times Serviced

5.14.2. Mitigated

Land Use Type	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leal	Service Lea	Times Serviced

5.15. Operational Off-Road Equipment

5.15.1. Unmitigated

Equipment Type	Fuel Type	Engine Tier	Number per	Hours Per Day	Horsepower	Load Factor

5.15.2. Mitigated

Equipment Type	Fuel Type	Engine Tier	Number per	Hours Per Day	Horsepower	Load Factor

5.16. Stationary Sources

5.16.1. Emergency Generators and Fire Pumps

Equipment Type	Fuel Type	Number per	Hours per D	Hours per Year	Horsepower	Load Factor
Emergency Generator	Diesel	1	8	50	1341	0.73

5.16.2. Process Boilers

Equipment Type	Fuel Type	Number	Boiler Rating	Daily Heat Input (MME	Annual Heat Input (MMBtu/yr)

5.17. User Defined

Equipment Type	Fuel Type

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Ty	Initial Acres	Final Acres

5.18.1.2. Mitigated

Vegetation Land Use Type	Vegetation Soil Ty	Initial Acres	Final Acres

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.1.2. Mitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.2. Sequestration

5.18.2.1. Unmitigated

Tree Type	Number	Electricity S	Natural Gas Saved (btu/year)
Evergreen ash	−17.0		

5.18.2.2. Mitigated

Tree Type	Number	Electricity S	Natural Gas Saved (btu/year)
Evergreen ash	−17.0		

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

Cal-Adapt midcentury 2040–2059 average projections for four hazards are reported below for your project location. These are under Representation Concentration Pathway (RCP) 8.5 which assumes GHG emissions will continue to rise strongly through 2050 and then plateau around 2100.

Climate Hazard	Result for Project	Unit
Temperature and Extreme Heat	18.8	annual days of extreme heat
Extreme Precipitation	2.2	annual days with precipitation above 20 mm
Sea Level Rise		meters of inundation depth
Wildfire	0	annual hectares burned

Temperature and Extreme Heat data are for grid cell in which your project are located. The projection is based on the 98th historical percentile of daily maximum/minimum temperatures from observed historical data (32 climate model ensemble from Cal-Adapt, 2040–2059 average under RCP 8.5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

Extreme Precipitation data are for the grid cell in which your project are located. The threshold of 20 mm is equivalent to about ¾ an inch of rain, which would be light to moderate rainfall if received over a full day or heavy rain if received over a period of 2 to 4 hours. Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

Sea Level Rise data are for the grid cell in which your project are located. The projections are from Radke et al. (2017), as reported in Cal-Adapt (Radke et al., 2017, CEC-500-2017-008), and consider inundation location and depth for the San Francisco Bay, the Sacramento-San Joaquin River Delta and California coast resulting different increments of sea level rise coupled with extreme storm events. Users may select from four scenarios to view the range in potential inundation depth for the grid cell. The four scenarios are: No rise, 0.5 meter, 1.0 meter, 1.41 meters

Wildfire data are for the grid cell in which your project are located. The projections are from UC Davis, as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider historical data of climate, vegetation, population density, and large (> 400 ha) fire history. Users may select from four model simulations to view the range in potential wildfire probabilities for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter

6.2. Initial Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity S	Adaptive Ca	Vulnerability Score
Temperature and Extreme Heat	N/A	N/A	N/A	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	N/A	N/A	N/A	N/A
Wildfire	N/A	N/A	N/A	N/A
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	N/A	N/A	N/A	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.

The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.

The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores do not include implementation of climate risk reduction measures.

6.3. Adjusted Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity S	Adaptive Ca	Vulnerability Score
Temperature and Extreme Heat	N/A	N/A	N/A	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	N/A	N/A	N/A	N/A
Wildfire	N/A	N/A	N/A	N/A
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	N/A	N/A	N/A	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores include implementation of climate risk reduction measures.

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Exposure Indicators	
AQ-Ozone	37.6
AQ-PM	29.3
AQ-DPM	61
Drinking Water	10.7
Lead Risk Housing	89
Pesticides	0
Toxic Releases	72.2
Traffic	32.4
Effect Indicators	
CleanUp Sites	68.9
Groundwater	94.3
Haz Waste Facilities/Generators	86.4
Impaired Water Bodies	98.1
Solid Waste	9.67
Sensitive Population	
Asthma	99.4
Cardio-vascular	93.8
Low Birth Weights	84.8
Socioeconomic Factor Indicators	
Education	68
Housing	56.5
Linguistic	73.4
Poverty	89.5
Unemployment	96.9

7.2. Healthy Places Index Scores

The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Economic	
Above Poverty	25.61272937
Employed	11.27935327
Median HI	21.22417554
Education	
Bachelor's or higher	6.659822918
High school enrollment	100
Preschool enrollment	27.71718209
Transportation	
Auto Access	20.21044527
Active commuting	65.32785833
Social	
2-parent households	30.47606827
Voting	33.44026691
Neighborhood	
Alcohol availability	21.26267163
Park access	61.64506608
Retail density	68.07391249
Supermarket access	38.85538304
Tree canopy	44.15501091
Housing	
Homeownership	11.34351341
Housing habitability	40.5363788
Low-inc homeowner severe housi	93.08353651
Low-inc renter severe housing cos	48.68471705
Uncrowded housing	34.55665341
Health Outcomes	
Insured adults	44.9121006
Arthritis	22
Asthma ER Admissions	0.4
High Blood Pressure	22
Cancer (excluding skin)	58
Asthma	6.7
Coronary Heart Disease	26
Chronic Obstructive Pulmonary D	7.7
Diagnosed Diabetes	31
Life Expectancy at Birth	5.7
Cognitively Disabled	6.1
Physically Disabled	2.9
Heart Attack ER Admissions	4.3
Mental Health Not Good	11
Chronic Kidney Disease	27
Obesity	3.1
Pedestrian Injuries	79
Physical Health Not Good	16
Stroke	20
Health Risk Behaviors	
Binge Drinking	57

Current Smoker	7.4
No Leisure Time for Physical Activ	19
Climate Change Exposures	
Wildfire Risk	0
SLR Inundation Area	0
Children	7.3
Elderly	83
English Speaking	41
Foreign-born	37
Outdoor Workers	17
Climate Change Adaptive Capacity	
Impervious Surface Cover	35
Traffic Density	53
Traffic Access	55
Other Indices	
Hardship	76
Other Decision Support	
2016 Voting	10

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Pro	93
Healthy Places Index Score for Pro	24
Project Located in a Designated D	Yes
Project Located in a Low-Income (	Yes
Project Located in a Community A	No

a: The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.

b: The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

7.4. Health & Equity Measures

Measure Title	Co-Benefits Achieved

7.5. Evaluation Scorecard

Category	Number of Applic	Total Points	Max Possibl	Weighted Score

7.6. Health & Equity Custom Measures

Measure Title	Sponsor

8. User Changes to Default Data

Screen	Justification
Land Use	see project description
Construction: Construction Phase	see project description
Construction: Off-Road Equipmer	see project description
Construction: Electricity	see project description
Operations: Vehicle Data	no new ops trips
Operations: Architectural Coating	no on-site buildings coatings, only paved areas re-striping
Operations: Energy Use	see project description. no new natural gas use. no title 24
Operations: Water and Waste Wat	no new water use
Operations: Solid Waste	no new solid waste

Operations: Refrigerants	no refrigerants
Operations: Emergency Generato	permitted to run the generator 50 hrs per year
Construction: Trips and VMT	see project description
Operations: Landscape Equipmer	no new landscaping

APPENDIX B: OPERATIONAL AIR QUALITY OUTPUT

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June 10, 2024

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Subject: Delta Diablo Secondary Process Improvements Project – Air Quality Technical Memorandum

Dear Ms. Roa:

INTRODUCTION

Delta Diablo is preparing an Initial Study (IS) to evaluate the potential environmental impacts related to implementation of the Secondary Process Improvements Project (the "proposed project", "project"), which consists of a new secondary clarifier, new aeration basin, new 42-inch air header, new return activated sludge pump station, improvements to the primary influent pump station and blower building, and ancillary facilities at its Wastewater Treatment Plant (WWTP). Ancillary facilities would include a secondary clarifier splitter box and various new pipelines to connect new and existing facilities.

This technical memorandum is being prepared to inform the air quality section of the IS, and it summarizes project emissions and health risks and compares the results to applicable CEQA (California Environmental Quality Act) significant thresholds.

CRITERIA POLLUTANTS

CEQA analyses require that project impacts be determined. As a result, the increase in emissions as a result of this project is required to be calculated and compared to Bay Area Air Quality Management District (BAAQMD) CEQA significance thresholds. This means calculating the increase in emissions between the recent historic actual emissions and the new maximum potential to emit (PTE) after the project. For this approach, we compared the baseline condition (current operations of the WWTP based on average wastewater flow from the last 5 years of 13.4 MGD) to the operations after the facility changes (increased wastewater treatment throughput of 19.5 MGD and the new emergency generator engine, up to a size of 1.5 MW). All other process units which may emit air pollutants at the facility will not be changed as a part of this project and as a result do not need to be included in the analysis (for pre-project baseline emissions or post project emissions).

For an emergency engine, emergency use is exempt from regulation, so only the maintenance and testing emissions are included. Further, to remain exempt from various California air toxic control measures (ATCMs), the emissions from the engine were set to 50 hours of operation (up to 24 hours in a day) per year to qualify for the exemption. Standard permit conditions for emergency diesel engines in BAAQMD also typically require a maximum of 50 hours of maintenance and testing.

For the criteria pollutants, emission factors from the Joint Emission Inventory Program (JEIP) database were used. Because the JEIP emissions factors calculate emissions based on million gallons per day (MGD) of wastewater throughput at each process unit, the physical changes proposed to the aeration basins and secondary clarifiers do not affect the emission calculations; only the increased wastewater throughput affects emission calculations. Although this sounds like a consequence of the emission factors used, it is not inconsistent with the way wastewater treatment plants (WWTPs) operate. Precursor organic compound (POC) emissions from wastewater treatment plants are the direct result of organics in the influent wastewater. Generally, regardless of the physical arrangement of the WWTP, a certain percentage of the total influent organics volatilize into the air and as a result, the emissions are dependent primarily on the total wastewater treated (which contains a concentration of organics which is assumed constant) and not the physical arrangement of the plant.

JEIP emission factors are based on MGD at each wastewater treatment process unit. In this analysis, emissions from the following processes were calculated:

- Headworks;
- Grit chamber;
- Sedimentation;
- Equalization Basin;
- Aeration Basin;
- Trickling Filters;
- Secondary Clarifier;
- Flocculating Clarifier;
- Tertiary Filters;
- Chlorine Contact Tank - 1;
- Chlorine Contact Tank - 2;
- Gravity Belt Thickener;
- Sludge Handling;
- Sludge Dewatering; and
- Anaerobic Digester.

Emissions from these distinct processes were summed to get total POC emissions from the entire WWTP.

The permitted limits on digester gas combustion at the flare, boiler, or CHP engines are not proposed to change as part of this project. As a result, this analysis does not address an increase due to any of these sources.

Detailed emissions from before the project and after the project are available in Attachment 1. The total increase in emissions is presented in Table 1:

Table 1: Increase in Criteria Pollutant Emissions

Equipment	Pollutant	Annual Emissions (lb/year)	Average Daily Emissions (lb/day)	BAAQMD Thresholds Average Daily Emissions (lb/day)	Emissions are Above Thresholds?
Total Project Change in Emissions	POC	3.61E+03	9.89E+00	54	No
	SO_x	1.34E+00	3.68E-03	-	No
	NO_x	1.11E+02	3.04E-01	54	No
	$PM_{10}/PM_{2.5}$	4.43E+00	1.21E-02	82/54	No
	CO	5.76E+02	1.58E+00	Concentration Based	-
Daily emissions are calculated based on dividing annual emissions by 365 days of operation per year for WWTP and assuming 24 hours in a day for the Emergency Engine					

These emission increases are not above the BAAQMD thresholds of significance for CEQA[1], as evident in the table above. The CO concentration thresholds are not expected to be a concern from a single engine (typically this limit is associated with busy intersections).

TOXIC AIR CONTAMINANTS

For the toxic emissions, emission factors from BAAQMD's permitting handbook for 80th percentile toxic emissions from WWTPs were used. However, there are two toxics in BAAQMD's handbook that are extraneous. 1,1,1-TCA and perchloroethylene (also called tetrachloroethylene) used to be common in dry cleaning operations and as a result were common in wastewater. Since the release of the BAAQMD toxic emission factors, which we are using for this CEQA analysis, dry cleaners have stopped using these compounds and as a result they are not expected in wastewater. As a result, the emission factors for these two compounds were set to 0.

The increase in toxic emissions are above BAAQMD screening thresholds found in BAAQMD Regulation 2, Rule 5 (Rule 2-5), Table 1. Table 2 below shows the increase in toxic emissions compared to BAAQMD Rule 2-5 Table 1 screening thresholds:

Table 2: Increase in Criteria Pollutant Emissions Compared to Rule 2-5 Table 1 Screening Thresholds

Compound	TAC Emissions		BAAQMD 2-5 Table 1 TAC Thresholds		TAC Emissions Over Thresholds	
	lb/hr	lb/yr	lb/hr	lb/yr	lb/hr	lb/yr
Methylene Chloride	6.62E-02	5.80E+02	6.20E+00	8.20E+01	No	Yes
Chloroform	2.79E-02	2.44E+02	6.62E-02	1.50E+01	No	Yes

[1] Bay Area Air Quality Management District California Environmental Quality Act Air Quality Guidelines Appendix A: Thresholds of Significance Justification (2022), https://www.baaqmd.gov/~/media/files/planning-and-research/ceqa/ceqa-guidelines-2022/appendix-a-thresholds-of-significance-justification_final-pdf.pdf?rev=d35960ec035546629124ae2a25fb1df9&sc_lang=en.

Compound	TAC Emissions		BAAQMD 2-5 Table 1 TAC Thresholds		TAC Emissions Over Thresholds	
	lb/hr	lb/yr	lb/hr	lb/yr	lb/hr	lb/yr
1,1,1-TCA	0.00E+00	0.00E+00	3.00E+01	3.90E+04	No	No
Benzene	2.58E-03	2.26E+01	1.20E-02	2.90E+00	No	Yes
TCE	7.66E-03	6.71E+01	-	4.10E+01	No	Yes
Toluene	1.95E-02	1.71E+02	2.20E+00	1.60E+04	No	No
Tetrachloroethylene	0.00E+00	0.00E+00	8.80E+00	1.40E+01	No	No
Xylenes	2.30E-02	2.01E+02	9.70E+00	2.70E+04	No	No
1,4-Dichlorobenzene	3.48E-03	3.05E+01	-	7.20E+00	No	Yes
DPM	5.06E-04	4.43E+00	-	2.60E-01	No	Yes
Notes: TAC Thresholds from BAAQMD Rule 2-5, lb/hr calculated based on 8,760 hours of operation per year for WWTP and 50 hours for Emergency Engine						

Because the increase in toxic emissions are above BAAQMD Rule 2-5 Table 1 screening thresholds a more in-depth analysis of toxics is required. BAAQMD publishes a screening tool (called the "Health Risk Calculator with Distance Multipliers"[2]), which does not account for meteorology, residential vs commercial receptors, the type of source (point versus volume), the height of the emissions release, or the duration of the project. However, it accounts for the distance between the source and the nearest receptor up to 300m.

The SCAQMD also has a screening tool (called the "Tier 1/Tier 2 Screening Risk Assessment tool") which is used in the SCAQMD permitting process and is more sophisticated. The SCAQMD risk screening tool accounts for residential vs commercial receptors, the type of source (point versus volume), and the height of the emissions release all of which are important distinctions in this case. Because of this, the SCAQMD screening tool was chosen to do a health risk screening for this CEQA analysis. In this case, the screening tool was set up with:

- Operating schedule of 24 hours a day, 7 days a week, 365 days a year;
- The source as a volume source with the maximum area the screening tool allows of 30,000 square feet (because the emissions happen over much of the WWTP which exceeds 30,000 square feet);
- A distance of 60 meters for commercial receptors [which is the distance from the fenceline of the commercial receptor to the west to the nearest edge of the nearest wastewater source (the secondary clarifiers)];
- A residential distance of 800 meters (any part of the WWTP facility is at least 800 meters from the nearest residence); and
- Emissions per calculations in Attachment 1, described above and presented in Table 2 above.

The SCAQMD screening tool, however, accounts for meteorological conditions at various locations throughout SCAQMD's jurisdiction not BAAQMD's jurisdiction. To account for this,

[2] BAAQMD Health Risk Calculator with Distance Multipliers (5/3/2022), https://www.baaqmd.gov/plans-and-climate/california-environmental-quality-act-ceqa/ceqa-tools/health-risk-screening-and-modeling.

the screening tool was run for every location available in the tool, and the maximum health risks are used in this analysis (i.e. the worst-case weather scenario of all 24 weather stations available in the screening tool).

More details and information on the various results from the various weather stations is presented in the "Summary" sheet of the SCAQMD screening tool workbook in Attachment 2. The SCAQMD screening tool used is available in Attachment 2. Note that not every sheet of the screening tool is printed in Attachment 2 because many of the sheets contain unnecessary details.

The two tables below show the results from the SCAQMD screening tool analysis. Table 3 shows the cancer risk per million, and Table 4 shows the acute and chronic health risks:

Table 3: SCAQMD Screening Tool Analysis Results – Maximum Cancer Risk

Residential Cancer Risk per Million	Commercial Cancer Risk per Million
0.92	2.66

Table 4: SCAQMD Screening Tool Analysis Results – Acute and Chronic Risk

	Target Organs	Acute	Chronic	8-hr Chronic
Maximum Health Risk	Alimentary system (liver) – AL	0.0000	0.0026	0.0000
	Bones and teeth – BN	0.0000	0.0000	0.0000
	Cardiovascular system – CV	0.0011	0.0045	0.0000
	Developmental – DEV	0.0653	0.0042	0.0000
	Endocrine system – END	0.0000	0.0000	0.0000
	Eye	0.0004	0.0012	0.0000
	Hematopoietic system – HEM	0.0221	0.0231	0.0231
	Immune system – IMM	0.0221	0.0000	0.0000
	Kidney – KID	0.0000	0.0026	0.0000
	Nervous system – NS	0.0445	0.0075	0.0000
	Reproductive system – REP	0.0653	0.0042	0.0000
	Respiratory system – RESP	0.0434	0.0055	0.0000
	Skin	0.0000	0.0000	0.0000

The toxic significance thresholds for a project are an increase in cancer risk of > 10 in a million or > 5 in a million if the project is in an impacted community and an increase in non-cancer hazard of >1.0 (regardless of location). Delta Diablo is within an "impacted area" per BAAQMD's CARE program[3]. Given this, the cancer risk CEQA significance threshold per BAAQMD's CEQA guidelines are 5 in a million and the acute and chronic risks are 1.0. None of the maximum results presented in Table 3 or 4 are above CEQA significance thresholds.

Finally, because BAAQMD CEQA guidelines include a PM concentration with a significance threshold of 0.3 µg/m^3, a PM screening was completed using the BAAQMD Health Risk Calculator with Distance Multipliers screening tool. This screening uses PM emissions from the emergency engine and the approximate distance (55 m) of the engine to the nearest Delta Diablo

[3] BAAQMD CARE program data map of impacted communities, https://www.baaqmd.gov/about-air-quality/interactive-data-maps.

facility fence-line to the east. This screening analysis shows a PM concentration of 0.011 $\mu g/m^3$, which is below the CEQA significance threshold of 0.3 $\mu g/m^3$. The results of this screening are in Attachment 3.

CONCLUSION

The increases in criteria pollutants are less than the published BAAQMD CEQA significance thresholds and should therefore be considered less than significant. The increase in toxic emissions is above BAAQMD Rule 2-5 Table 1 screening thresholds, yet the emissions result in less than significant cancer and non-cancer health risks when utilizing SCAQMD Tier 1/Tier 2 Screening Risk Assessment tool. PM concentrations at the facility fence-line are also less than BAAQMD CEQA significance thresholds when using BAAQMD screening tools.

Should you have any questions or concerns, please contact me at (949) 248-8490.

Sincerely,

James Yorke
Engineer
Yorke Engineering, LLC
JRYorke@YorkeEngr.com

Enclosures:

1. Attachment 1 – Emission Calculations
2. Attachment 2 – SCAQMD Screening Tool
3. Attachment 3 – BAAQMD PM Screening

ATTACHMENT 1 – EMISSION CALCULATIONS

Project Total Emissions

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Pre-Project Criteria Pollutant Emissions		
Equipment	**Pollutant**	**Annual (tons/year)**
Pre-Project WWTP Emissions	POC	3.93E+00
	SOx	0.00E+00
	NOx	0.00E+00
	PM/PM10/PM2.5	0.00E+00
	CO	0.00E+00

Post-Project Criteria Pollutant Emissions		
Equipment	**Pollutant**	**Annual (tons/year)**
Post-Project WWTP + Emergency Engine Emissions	POC	5.73E+00
	SOx	6.71E-04
	NOx	5.54E-02
	PM/PM10/PM2.5	2.22E-03
	CO	2.88E-01

Increase in Criteria Pollutant Emissions			
Equipment	**Pollutant**	**Annual (lb/year)**	**Average Daily (lb/day)**
Total Project Change in Emissions	POC	3.61E+03	9.89E+00
	SOx	1.34E+00	3.68E-03
	NOx	1.11E+02	3.04E-01
	PM/PM10/PM2.5	4.43E+00	1.21E-02
	CO	5.76E+02	1.58E+00

Daily emissions are calculated based on dividing annual emissions by 365 days of operation per year for WWTP and allotting for 24 hour sin a day for the Emergency Engine

Project Total Emissions

Pre Project TAC Emissions

Compound	Average TAC Emissions		Average TAC Thresholds		TAC Emissions Over Thresholds	
	lb/hr	lb/yr	lb/hr	lb/yr	lb/hr	lb/yr
Methylene Chloride	1.45E-01	1.27E+03	6.20E+00	8.20E+01	No	Yes
Chloroform	6.12E-02	5.36E+02	6.62E-02	1.50E+01	No	Yes
1,1,1-TCA	0.00E+00	0.00E+00	3.00E+01	3.90E+04	No	No
Benzene	5.66E-03	4.96E+01	1.20E-02	2.90E+00	No	Yes
TCE	1.68E-02	1.47E+02	-	4.10E+01	No	Yes
Toluene	4.28E-02	3.75E+02	2.20E+00	1.60E+04	No	No
Tetrachloroethylene	0.00E+00	0.00E+00	8.80E+00	1.40E+01	No	No
Xylenes	5.05E-02	4.42E+02	9.70E+00	2.70E+04	No	No
1,4-Dichlorobenzene	7.65E-03	6.70E+01	-	7.20E+00	No	Yes
DPM	0.00E+00	0.00E+00	-	2.60E-01	No	No

Notes: TAC Thresholds from BAAQMD Rule 2-5, lb/hr calculated based on 8,760 hours of operation per year for WWTP and 50 hours for Emergency Engine

Post Project TAC Emissions

Compound	Average TAC Emissions		TAC Thresholds		TAC Emissions Over Thresholds	
	lb/hr	lb/yr	lb/hr	lb/yr	lb/hr	lb/yr
Methylene Chloride	2.11E-01	1.85E+03	6.20E+00	8.20E+01	No	Yes
Chloroform	8.90E-02	7.80E+02	6.62E-02	1.50E+01	Yes	Yes
1,1,1-TCA	0.00E+00	0.00E+00	3.00E+01	3.90E+04	No	No
Benzene	8.24E-03	7.22E+01	1.20E-02	2.90E+00	No	Yes
TCE	2.45E-02	2.15E+02	-	4.10E+01	No	Yes
Toluene	6.23E-02	5.46E+02	2.20E+00	1.60E+04	No	No
Tetrachloroethylene	0.00E+00	0.00E+00	8.80E+00	1.40E+01	No	No
Xylenes	7.35E-02	6.44E+02	9.70E+00	2.70E+04	No	No
1,4-Dichlorobenzene	1.11E-02	9.75E+01	-	7.20E+00	No	Yes
DPM	5.06E-04	4.43E+00	-	2.60E-01	No	Yes

Notes: TAC Thresholds from BAAQMD Rule 2-5, lb/hr calculated based on 8,760 hours of operation per year for WWTP and 50 hours for Emergency Engine

Project Total Emissions

Increase in TAC Emissions

Compound	Average TAC Emissions Increase		TAC Thresholds		TAC Emissions Over Thresholds	
	lb/hr	lb/yr	lb/hr	lb/yr	lb/hr	lb/yr
Methylene Chloride	6.62E-02	5.80E+02	6.20E+00	8.20E+01	No	Yes
Chloroform	2.79E-02	2.44E+02	6.62E-02	1.50E+01	No	Yes
1,1,1-TCA	0.00E+00	0.00E+00	3.00E+01	3.90E+04	No	No
Benzene	2.58E-03	2.26E+01	1.20E-02	2.90E+00	No	Yes
TCE	7.66E-03	6.71E+01	-	4.10E+01	No	Yes
Toluene	1.95E-02	1.71E+02	2.20E+00	1.60E+04	No	No
Tetrachloroethylene	0.00E+00	0.00E+00	8.80E+00	1.40E+01	No	No
Xylenes	2.30E-02	2.01E+02	9.70E+00	2.70E+04	No	No
1,4-Dichlorobenzene	3.48E-03	3.05E+01	-	7.20E+00	No	Yes
DPM	5.06E-04	4.43E+00	-	2.60E-01	No	Yes

Notes: TAC Thresholds from BAAQMD Rule 2-5, lb/hr calculated based on 8,760 hours of operation per year for WWTP and 50 hours for Emergency Engine

Increase in TAC Emissions

Compound	Average TAC Emissions		
	lb/hr	lb/day	lb/yr
Methylene Chloride	6.62E-02	1.59E+00	5.80E+02
Chloroform	2.79E-02	6.68E-01	2.44E+02
1,1,1-TCA	0.00E+00	0.00E+00	0.00E+00
Benzene	2.58E-03	6.18E-02	2.26E+01
TCE	7.66E-03	1.84E-01	6.71E+01
Toluene	1.95E-02	4.68E-01	1.71E+02
Tetrachloroethylene	0.00E+00	0.00E+00	0.00E+00
Xylenes	2.30E-02	5.52E-01	2.01E+02
1,4-Dichlorobenzene	3.48E-03	8.36E-02	3.05E+01
DPM	5.06E-04	1.21E-02	4.43E+00

Notes: lb/day and lb/hr are average numbers, except diesel lb/hr which is an expected maximum value (engine running at full capacity)

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EMISSION YEAR	HARP / CEIDARS WWTP **EMISSION**	FORM **EmFac**

Criteria Pollutant Emissions by Influent - Million Gallons per year

SCC = 50100701

Throughput in MGD: 13.4

VOC EMISSIONS

Unit Process	Notes	Flow-Related POC Emission Factor (lb/yr/MGD)	Design Flow (MGD)	POC Emissions Design lb/yr	POC Emissions Design tpy
Headworks	Ducted	86.37	13.4	1,157	0.58
Grit chamber	Aerated	7.54	13.4	101	0.05
Sedimentation		36.69	13.4	492	0.25
Equalization Basin	Primary Effluent	106.96	13.4	1,433	0.72
Aeration Basin		185.75	13.4	2,489	1.24
Trickling Filters		111.7	13.4	1,497	0.75
Secondary Clarifier		12.29	13.4	165	0.08
Flocculating Clarifier	Modeled as Secondary Claifier	12.29	13.4	165	0.08
Tertiary Filters	Modeled as Secondary Claifier	12.29	13.4	165	0.08
Chlorine Contact Tank		0.91	13.4	12	0.01
Chlorine Contact Tank	RWF	0.91	13.4	12	0.01
Gravity Belt Thickener	Modeled as Secondary Sludge Thickening - Mechanical	6	13.4	80	0.04
Sludge Handling	Gravity Thickener	0.14	13.4	2	0.00
Sludge Dewatering		6.65	13.4	89	0.04
Anaerobic Digester		0.04	13.4	1	0.00
Total Emissions:				**7,860**	**3.93**

Notes: Emission Factors from Joint Emission Inventory Program Table 1-7
Thoughput of 13.4 MGD is the average for the last 5 years of actual throughputs

TAC EMISSIONS

Compound	Flow-Related TAC Emission Factor (lb/yr/MGD)	Design Flow (MGD)	TAC Emissions Design lb/yr	TAC Emissions Design tpy
Methylene Chloride	95	13.4	1,273	0.64
Chloroform	40	13.4	536	0.27
1,1,1-TCA	0	13.4	0	0.00
Benzene	3.7	13.4	50	0.02
TCE	11	13.4	147	0.07
Toluene	28	13.4	375	0.19
Tetrachloroethylene	0	13.4	0	0.00
Xylenes	33	13.4	442	0.22
1,4-Dichlorobenzene	5	13.4	67	0.03

Notes: Emission Factors from BAAQMD Permit Handbook 80th percentile WWTP toxic emissions except 1,1,1-TCA and tetrachloroethylene
1,1,1-TCA and tetrachloroethylene are no longer common compounds used in industry and are expected to be near 0 emissions

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EMISSION YEAR	HARP / CEIDARS WWTP **EMISSION**	FORM **EmFac**

Criteria Pollutant Emissions by Influent - Million Gallons per year

SCC = 50100701

Throughput in MGD: 19.5

VOC EMISSIONS

Unit Process	Notes	Flow-Related VOC Emission Factor (lb/yr/MGD)	Design Flow (MGD)	POC Emissions Design lb/yr	POC Emissions Design tpy
Headworks	Ducted	86.37	19.5	1,684	0.84
Grit chamber	Aerated	7.54	19.5	147	0.07
Sedimentation		36.69	19.5	715	0.36
Equalization Basin	Primary Effluent	106.96	19.5	2,086	1.04
Aeration Basin		185.75	19.5	3,622	1.81
Trickling Filters		111.7	19.5	2,178	1.09
Secondary Clarifier		12.29	19.5	240	0.12
Flocculating Clarifier	Modeled as Secondary Claifier	12.29	19.5	240	0.12
Tertiary Filters	Modeled as Secondary Claifier	12.29	19.5	240	0.12
Chlorine Contact Tank		0.91	19.5	18	0.01
Chlorine Contact Tank	RWF	0.91	19.5	18	0.01
Gravity Belt Thickener	Modeled as Secondary Sludge Thickening - Mechanical	6	19.5	117	0.06
Sludge Handling	Gravity Thickener	0.14	19.5	3	0.00
Sludge Dewatering		6.65	19.5	130	0.06
Anaerobic Digester		0.04	19.5	1	0.00
Total Emissions:				**11,437**	**5.72**

Notes: Emission Factors from Joint Emission Inventory Program Table 1-7

Thoughput of 19.5 MGD is the proposed permitted throughput for the facility

TAC EMISSIONS

Compound	Flow-Related TAC Emission Factor (lb/yr/MGD)	Design Flow (MGD)	TAC Emissions Design lb/yr	TAC Emissions Design tpy
Methylene Chloride	95	19.5	1,853	0.93
Chloroform	40	19.5	780	0.39
1,1,1-TCA	0	19.5	0	0.00
Benzene	3.7	19.5	72	0.04
TCE	11	19.5	215	0.11
Toluene	28	19.5	546	0.27
Tetrachloroethylene	0	19.5	0	0.00
Xylenes	33	19.5	644	0.32
1,4-Dichlorobenzene	5	19.5	98	0.05

Notes: Emission Factors from BAAQMD Permit Handbook 80th percentile WWTP toxic emissions except 1,1,1-TCA and tetrachloroethylene

1,1,1-TCA and tetrachloroethylene are no longer common compounds used in industry and are expected to be near 0 emissions

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Internal Combustion Engine Potential to Emit

Table 1: Criteria Pollutant Emission Factors based on BAAQMD BACT for Diesel Engines over 1,000 hp

									Emission Factors[3] (g/bhp-hr)					Emission Factors (lb/bhp-hr)				
Emission Source Description	Displacement (L)	Fuel Type	Rated HP	Max Daily Hours	Max Annual Hours[1]	Max Hourly Throughput[2] (gal/hr)	Max Annual Throughput (gal)	Tier Rating	POC	SOx[4]	NOx	PM	CO	POC	SOx[3]	NOx	PM	CO
1.5 MW Engine	50.3	Diesel	2011.5	24	50	100.6	5028.75	Tier 4 Final	1.40E-01	6.06E-03	5.00E-01	2.00E-02	2.60E+00	3.09E-04	1.34E-05	1.10E-03	4.41E-05	5.73E-03

[1] 50 hours of operation annually for maintenance and testing.

2 Gallons per hour is calculated using 7,000 Btu/hp-hr from AP-42 Table 3.4-1, footnote e. The methodology is as follows: 7,000 Btu/hp-hr x 1,341 hp / 140,000 BAAQMD HHV (Btu/gal) per BAAQMD permit application 30761 = gal/hr.

[3] POC, NOx, PM, and CO from BAAQMD BACT for engines over 1000 hp (BACT #96.1.5)

[4] SOx emission factor calculated based on BAAQMD Permit Handbook, Section 2.3.1, which references AP-42 Table 3.4-1.
SOx EF = 8.09e-3 * % sulfur in fuel oil (0.0015%)

Table 2: Criteria Pollutants Potential to Emit

	POTENTIAL TO EMIT			
POLLUTANT	Hourly (lbs/hr)	Daily (lbs/day)	Annual (lbs/yr)	Annual (tons/yr)
2011.5 BHP Engine				
POC	6.21E-01	1.49E+01	3.10E+01	1.55E-02
SOx	2.69E-02	6.44E-01	1.34E+00	6.71E-04
NOx	2.22E+00	5.32E+01	1.11E+02	5.54E-02
PM	8.87E-02	2.13E+00	4.43E+00	2.22E-03
CO	1.15E+01	2.77E+02	5.76E+02	2.88E-01

Table 3: Toxic Air Pollutant Emissions

Toxic Compound	Max Annual Hours	Engine Rating (hp)	DPM Emission Factor (lb/bhp-hr)	Max Annual DPM Emissions (lbs)	Chronic Trigger Level (lb/year) [5]	Exceeded Thresholds?
Diesel Particulate Matter (DPM)	50	2011.5	0.00004409	4.435	0.26	YES

[5] Source: BAAQMD Regulation 2 Rule 5 Table 2-5-1

ATTACHMENT 2 – SCAQMD SCREENING TOOL

Rule 1401 Risk Assessment Program

Implements SCAQMD Risk Assessment Procedures Version 8.1 & Attachment N
For applications deemed complete on or after October 1, 2017

Boiler **Crematory** **Spray I**

Lean Burn ICE **Rich Burn ICE** **Gas St**

Diesel ICE **Pressure Washer** **Oth**

Emissions **Tier 1 Report** **Tier 2 Report**

Fac Name: Delta Diablo A/N: 0

TAC Code	Compound	Emission Rate (lbs/hr)	Molecular Weight	R1 - Uncontrolled (lbs/hr)	Efficiency Factor (Fraction range 0-1)	R2-Controlled (lbs/hr)
X1	Xylenes (Mixed Isomers)	2.30E-02	106.2	2.30E-02	0.00000	0.022979452
T8	Trichloroethylene	7.66E-03	130.4	7.66E-03	0.00000	0.007659817
T3	Toluene	1.95E-02	92.13	1.95E-02	0.00000	0.019497717
B1	Benzene	2.58E-03	78.11	2.58E-03	0.00000	0.002576484
M13	Methylene Chloride (Dichloromethane)	6.62E-02	84.94	6.62E-02	0.00000	0.066152968
P1	Particulate Emissions from Diesel-Fueled Engines	5.06E-04	350	5.06E-04	0.00000	0.000506233
C11	Chloroform	2.79E-02	119.38	2.79E-02	0.00000	0.027853881
D4	p-Dichlorobenzene	3.48E-03	147.01	3.48E-03	0.00000	0.003481735

EMISSIONS ARE ENTERED ON THE EMISSIONS WORKSHEET OR ON ONE OF EQUIPMENT WORKSHEETS

INPUT PARAMETERS ENTERED ON THE EMISSIONS SHEET ARE USED FOR TIERS 1 AND TIER 2 ANALYSES

TIER 2 SCREENING RISK ASSESSMENT REPORT

(Procedure Version 8.1 & Package N, September 1, 2017) - Risk Tool V1.105

A/N: ______ **Fac:** Delta Diablo **Application deemed complete date:** 5/20/2024

1. Stack Data

Equipment Type: Other

Combustion Eff: 0.0

No T-BACT

Operation Schedule: 24 hrs/day
7 days/week
52 weeks/year

Stack Height: 5 ft
Building Area: 30000 ft²

Distance to Residential: 800 m

Distance to Commercial: 60 m

Meteorological Station: Azusa

2. Tier 2 Data

Dispersion Factors tables	Volume Source
For Chronic X/Q	Table 7
For Acute X/Q max	Table 7.7

Dilution Factors

Receptor	X/Q (μg/m³)/(tons/yr)	X/Qmax (μg/m³)/(lbs/hr)
Residential	0.08	5.07
Commercial - Worker	3.74	231.98

Intake and Adjustment Factors

	Residential	Worker
Year of Exposure	30	
Combined Exposure Factor (CEF) - Table 4	677.40	55.86
Worker Adjustment Factor (WAF) - Table 5	1	1.00

A/N: ______________ Application deemed complete date: 05/20/24

3. Rule 1401 Compound Data

Compound	R1 - Uncontrolled (lbs/hr)	R2 - Controlled (lbs/hr)	CP $(mg/kg\text{-}day)^{-1}$	MP MICR Resident	MP MICR Worker	MP Chronic Resident	MP Chronic Worker	REL Chronic (µg/m³)	REL 8-hr Chronic (µg/m³)	REL Acute (µg/m³)	MWAF
Xylenes (Mixed Isomers)	2.30E-02	2.30E-02		1.00	1.00	1.00	1.00	7.00E+02		2.20E+04	1
Trichloroethylene	7.66E-03	7.66E-03	7.00E-03	1.00	1.00	1.00	1.00	6.00E+02			1
Toluene	1.95E-02	1.95E-02		1.00	1.00	1.00	1.00	3.00E+02		3.70E+04	1
Benzene	2.58E-03	2.58E-03	1.00E-01	1.00	1.00	1.00	1.00	3.00E+00	3.00E+00	2.70E+01	1
Methylene Chloride (Dichloromethane)	6.62E-02	6.62E-02	3.50E-03	1.00	1.00	1.00	1.00	4.00E+02		1.40E+04	1
Particulate Emissions from Diesel-Fueled En	5.06E-04	5.06E-04	1.10E+00	1.00	1.00	1.00	1.00	5.00E+00			1
Chloroform	2.79E-02	2.79E-02	1.90E-02	1.00	1.00	1.00	1.00	3.00E+02		1.50E+02	1
p-Dichlorobenzene	3.48E-03	3.48E-03	4.00E-02	1.00	1.00	1.00	1.00	8.00E+02			1

A/N: ______________ Application deemed complete date: 05/20/24

4. Emission Calculations

Compound	R1 (lbs/hr)	R2 (lbs/hr)	R1 (lbs/day)	R2 (lbs/day)	R2 (lbs/yr)	R2 (tons/yr)
Xylenes (Mixed Isomers)	2.30E-02	2.30E-02	5.52E-01	5.52E-01	2.01E+02	1.00E-01
Trichloroethylene	7.66E-03	7.66E-03	1.84E-01	1.84E-01	6.69E+01	3.35E-02
Toluene	1.95E-02	1.95E-02	4.68E-01	4.68E-01	1.70E+02	8.52E-02
Benzene	2.58E-03	2.58E-03	6.18E-02	6.18E-02	2.25E+01	1.13E-02
Methylene Chloride (Dichloromethane)	6.62E-02	6.62E-02	1.59E+00	1.59E+00	5.78E+02	2.89E-01
Particulate Emissions from Diesel-Fueled En	5.06E-04	5.06E-04	1.21E-02	1.21E-02	4.42E+00	2.21E-03
Chloroform	2.79E-02	2.79E-02	6.68E-01	6.68E-01	2.43E+02	1.22E-01
p-Dichlorobenzene	3.48E-03	3.48E-03	8.36E-02	8.36E-02	3.04E+01	1.52E-02
Total	**1.51E-01**	**1.51E-01**	**3.62E+00**	**3.62E+00**	**1.32E+03**	**6.58E-01**

TIER 2 RESULTS

A/N: ______________ Application deemed complete date: 05/20/24

5a. MICR

MICR Resident = CP (mg/(kg-day))^-1 * Q (ton/yr) * (X/Q) Resident * CEF Resident * MP Resident * 1e-6 * MWAF

MICR Worker = CP (mg/(kg-day))^-1 * Q (ton/yr) * (X/Q) Worker * CEF Worker* MP Worker* WAF Worker* 1e-6 * MWAF

Compound	Residential	Commercial
Xylenes (Mixed Isomers)		
Trichloroethylene	1.21E-08	4.90E-08
Toluene		
Benzene	5.79E-08	2.35E-07
Methylene Chloride (Dichloromethane)	5.21E-08	2.12E-07
Particulate Emissions from Diesel-Fueled En	1.25E-07	5.09E-07
Chloroform	1.19E-07	4.83E-07
p-Dichlorobenzene	3.13E-08	1.27E-07
Total	**3.98E-07**	**1.62E-06**
	PASS	**FAIL**

5b. Is Cancer Burden Calculation Needed (MICR >1E-6)?	**YES**
New X/Q at which $MICR_{70yr}$ is one-in-a-million [(µg/m³)/(tons/yr)]:	8.32E+00
New Distance, interpolated from X/Q table using New X/Q (meter):	32.35
Zone Impact Area (km²):	3.29E-03
Zone of Impact Population (7000 person/km²):	2.30E+01
Cancer Burden:	**1.04E-05**
Cancer Burden is less than or equal to 0.5	**PASS**

6. Hazard Index Summary **A/N:** ______________ **Application deemed complete date:** 05/20/24

HIA = [Q(lb/hr) * (X/Q)max * MWAF]/ Acute REL

HIC = [Q(ton/yr) * (X/Q) * MP * MWAF] / Chronic REL

HIC 8-hr= [Q(ton/yr) * (X/Q) * WAF * MWAF] / 8-hr Chronic REL

Target Organs	Acute	Chronic	8-hr Chronic	Acute Pass/Fail	Chronic Pass/Fail	8-hr Chronic Pass/Fail
Alimentary system (liver) - AL		1.59E-03		Pass	Pass	Pass
Bones and teeth - BN				Pass	Pass	Pass
Cardiovascular system - CV	1.10E-03	2.70E-03		Pass	Pass	Pass
Developmental - DEV	6.53E-02	2.58E-03		Pass	Pass	Pass
Endocrine system - END				Pass	Pass	Pass
Eye	3.65E-04	7.46E-04		Pass	Pass	Pass
Hematopoietic system - HEM	2.21E-02	1.40E-02	1.40E-02	Pass	Pass	Pass
Immune system - IMM	2.21E-02			Pass	Pass	Pass
Kidney - KID		1.59E-03		Pass	Pass	Pass
Nervous system - NS	4.45E-02	4.58E-03		Pass	Pass	Pass
Reproductive system - REP	6.53E-02	2.58E-03		Pass	Pass	Pass
Respiratory system - RESP	4.34E-02	3.33E-03		Pass	Pass	Pass
Skin				Pass	Pass	Pass

6a. Hazard Index Acute - Resident

HIA = [Q(lb/hr) * (X/Q)max resident * MWAF] / Acute REL

	HIA - Residential									
Compound	AL	CV	DEV	EYE	HEM	IMM	NS	REP	RESP	SKIN
Xylenes (Mixed Isomers)				5.29E-06			5.29E-06		5.29E-06	
Trichloroethylene										
Toluene			2.67E-06	2.67E-06			2.67E-06	2.67E-06	2.67E-06	
Benzene			4.84E-04		4.84E-04	4.84E-04		4.84E-04		
Methylene Chloride (Dichloromethane)		2.39E-05					2.39E-05			
Particulate Emissions from Diesel-Fueled En										
Chloroform			9.41E-04				9.41E-04	9.41E-04	9.41E-04	
p-Dichlorobenzene										
Total		2.39E-05	1.43E-03	7.96E-06	4.84E-04	4.84E-04	9.73E-04	1.43E-03	9.49E-04	

6a. Hazard Index Acute - Worker **A/N:** ______________ **Application deemed complete date:** 05/20/24

HIA = [Q(lb/hr) * (X/Q)max Worker * MWAF] / Acute REL

	HIA - Commercial									
Compound	AL	CV	DEV	EYE	HEM	IMM	NS	REP	RESP	SKIN
Xylenes (Mixed Isomers)				2.42E-04			2.42E-04		2.42E-04	
Trichloroethylene										
Toluene			1.22E-04	1.22E-04			1.22E-04	1.22E-04	1.22E-04	
Benzene			2.21E-02		2.21E-02	2.21E-02		2.21E-02		
Methylene Chloride (Dichloromethane)		1.10E-03					1.10E-03			
Particulate Emissions from Diesel-Fueled En										
Chloroform			4.31E-02				4.31E-02	4.31E-02	4.31E-02	
p-Dichlorobenzene										
Total		1.10E-03	6.53E-02	3.65E-04	2.21E-02	2.21E-02	4.45E-02	6.53E-02	4.34E-02	

A/N: ______________ **Application deemed complete date:** 05/20/24

6b. Hazard Index Chronic - Resident

HIC = [Q(ton/yr) * (X/Q) Resident * MP Chronic Resident * MWAF] / Chronic REL

	HIC - Residential												
Compound	AL	BN	CV	DEV	END	EYE	HEM	IMM	KID	NS	REP	RESP	SKIN
Xylenes (Mixed Isomers)						1.09E-05				1.09E-05		1.09E-05	
Trichloroethylene						4.24E-06				4.24E-06			
Toluene				2.16E-05						2.16E-05	2.16E-05	2.16E-05	
Benzene							2.85E-04						
Methylene Chloride (Dichloromethane)			5.49E-05							5.49E-05			
Particulate Emissions from Diesel-Fueled En												3.36E-05	
Chloroform	3.08E-05			3.08E-05					3.08E-05		3.08E-05		
p-Dichlorobenzene	1.44E-06								1.44E-06	1.44E-06		1.44E-06	
Total	3.23E-05		5.49E-05	5.24E-05		1.51E-05	2.85E-04		3.23E-05	9.31E-05	5.24E-05	6.75E-05	

6b. Hazard Index Chronic - Worker

HIC = [Q(ton/yr) * (X/Q) * MP Chronic Worker * MWAF] / Chronic REL

	HIC - Commercial												
Compound	AL	BN	CV	DEV	END	EYE	HEM	IMM	KID	NS	REP	RESP	SKIN
Xylenes (Mixed Isomers)						5.37E-04				5.37E-04		5.37E-04	
Trichloroethylene						2.09E-04				2.09E-04			
Toluene				1.06E-03						1.06E-03	1.06E-03	1.06E-03	
Benzene							1.40E-02						
Methylene Chloride (Dichloromethane)			2.70E-03							2.70E-03			
Particulate Emissions from Diesel-Fueled En												1.66E-03	
Chloroform	1.52E-03			1.52E-03					1.52E-03		1.52E-03		
p-Dichlorobenzene	7.12E-05								7.12E-05	7.12E-05		7.12E-05	
Total	1.59E-03		2.70E-03	2.58E-03		7.46E-04	1.40E-02		1.59E-03	4.58E-03	2.58E-03	3.33E-03	

6c. 8-hour Hazard Index Chronic - Resident **A/N:** ______________ **Application deemed complete date:** 05/20/24

HIC 8-hr = [Q(ton/yr) * (X/Q) Resident * WAF Resident * MWAF] / 8-hr Chronic REL

	HIC - Residential												
Compound	AL	BN	CV	DEV	END	EYE	HEM	IMM	KID	NS	REP	RESP	SKIN
Xylenes (Mixed Isomers)													
Trichloroethylene													
Toluene													
Benzene							2.85E-04						
Methylene Chloride (Dichloromethane)													
Particulate Emissions from Diesel-Fueled En													
Chloroform													
p-Dichlorobenzene													
Total							2.85E-04						

A/N: ______________ Application deemed complete date: 05/20/24

6c. 8-hour Hazard Index Chronic - Worker

HIC 8-hr = [Q(ton/yr) * (X/Q) Worker * WAF Worker * MWAF] / 8-hr Chronic REL

	HIC - Commercial												
Compound	AL	BN	CV	DEV	END	EYE	HEM	IMM	KID	NS	REP	RESP	SKIN
Xylenes (Mixed Isomers)													
Trichloroethylene													
Toluene													
Benzene							1.40E-02						
Methylene Chloride (Dichloromethane)													
Particulate Emissions from Diesel-Fueled En													
Chloroform													
p-Dichlorobenzene													
Total							1.40E-02						

Weather Station	Residential	Commercial	Residential Cancer Risk per Million	Commercial Cancer Risk per Million
Azusa	3.98E-07	1.62E-06	0.40	1.62
Banning	8.27E-07	2.40E-06	0.83	2.40
Central L.A.	3.98E-07	1.56E-06	0.40	1.56
Lake Elsinore	4.92E-07	1.93E-06	0.49	1.93
Fontana	4.92E-07	1.87E-06	0.49	1.87
Mission Viejo	4.71E-07	1.83E-06	0.47	1.83
Perris	5.65E-07	2.13E-06	0.57	2.13
Pico Rivera	3.98E-07	1.66E-06	0.40	1.66
Redlands	5.13E-07	1.99E-06	0.51	1.99
Upland	4.71E-07	1.84E-06	0.47	1.84
Burbank Airport	4.92E-07	1.83E-06	0.49	1.83
Chino Airport.	7.01E-07	2.34E-06	0.70	2.34
USC/Downtown L.A.	4.19E-07	1.75E-06	0.42	1.75
Fullerton Airport	4.71E-07	1.78E-06	0.47	1.78
Hawthorne Airport	4.92E-07	1.87E-06	0.49	1.87
Los Angeles Int'l Airport	7.53E-07	2.27E-06	0.75	2.27
Long Beach Airport	6.38E-07	1.86E-06	0.64	1.86
Ontario Airport	9.21E-07	2.66E-06	0.92	2.66
Palm Springs Airport	6.80E-07	2.06E-06	0.68	2.06
Riverside Airport	6.59E-07	2.15E-06	0.66	2.15
Santa Monica Airport	5.13E-07	1.93E-06	0.51	1.93
John Wayne Int'l Airport	6.59E-07	2.25E-06	0.66	2.25
Desert Hot Springs Airport	8.48E-07	2.42E-06	0.85	2.42
Van Nuys Airport	4.92E-07	1.77E-06	0.49	1.77
Min	**3.98E-07**	**1.56E-06**	**0.40**	**1.56**
Max	**9.21E-07**	**2.66E-06**	**0.92**	**2.66**
Avg	**5.73E-07**	**1.99E-06**	**0.57**	**1.99**

	Target Organs	Acute	Chronic	8-hr Chronic	Acute Pass/Fail	Chronic Pass/Fail	8-hr Chronic Pass/Fail
Azusa	Alimentary system (liver) - AL	0.00E+00	1.59E-03	0.00E+00	Pass	Pass	Pass
	Bones and teeth - BN		0.00E+00	0.00E+00	Pass	Pass	Pass
	Cardiovascular system - CV	1.10E-03	2.70E-03	0.00E+00	Pass	Pass	Pass
	Developmental - DEV	6.53E-02	2.58E-03	0.00E+00	Pass	Pass	Pass
	Endocrine system - END		0.00E+00	0.00E+00	Pass	Pass	Pass
	Eye	3.65E-04	7.46E-04	0.00E+00	Pass	Pass	Pass
	Hematopoietic system - HEM	2.21E-02	1.40E-02	1.40E-02	Pass	Pass	Pass
	Immune system - IMM	2.21E-02	0.00E+00	0.00E+00	Pass	Pass	Pass
	Kidney - KID		1.59E-03	0.00E+00	Pass	Pass	Pass
	Nervous system - NS	4.45E-02	4.58E-03	0.00E+00	Pass	Pass	Pass
	Reproductive system - REP	6.53E-02	2.58E-03	0.00E+00	Pass	Pass	Pass
	Respiratory system - RESP	4.34E-02	3.33E-03	0.00E+00	Pass	Pass	Pass
	Skin	0.00E+00	0.00E+00	0.00E+00	Pass	Pass	Pass

	Target Organs	Acute	Chronic	8-hr Chronic	Acute Pass/Fail	Chronic Pass/Fail	8-hr Chronic Pass/Fail
Banning	Alimentary system (liver) - AL	0.00E+00	2.36E-03	0.00E+00	Pass	Pass	Pass
	Bones and teeth - BN		0.00E+00	0.00E+00	Pass	Pass	Pass
	Cardiovascular system - CV	1.10E-03	4.02E-03	0.00E+00	Pass	Pass	Pass
	Developmental - DEV	6.53E-02	3.83E-03	0.00E+00	Pass	Pass	Pass
	Endocrine system - END		0.00E+00	0.00E+00	Pass	Pass	Pass
	Eye	3.65E-04	1.11E-03	0.00E+00	Pass	Pass	Pass
	Hematopoietic system - HEM	2.21E-02	2.09E-02	2.09E-02	Pass	Pass	Pass
	Immune system - IMM	2.21E-02	0.00E+00	0.00E+00	Pass	Pass	Pass
	Kidney - KID		2.36E-03	0.00E+00	Pass	Pass	Pass
	Nervous system - NS	4.45E-02	6.81E-03	0.00E+00	Pass	Pass	Pass
	Reproductive system - REP	6.53E-02	3.83E-03	0.00E+00	Pass	Pass	Pass
	Respiratory system - RESP	4.34E-02	4.94E-03	0.00E+00	Pass	Pass	Pass
	Skin	0.00E+00	0.00E+00	0.00E+00	Pass	Pass	Pass
Central L.A.	**Target Organs**	**Acute**	**Chronic**	**8-hr Chronic**	**Acute Pass/Fail**	**Chronic Pass/Fail**	**8-hr Chronic Pass/Fail**
	Alimentary system (liver) - AL	0.00E+00	1.54E-03	0.00E+00	Pass	Pass	Pass
	Bones and teeth - BN		0.00E+00	0.00E+00	Pass	Pass	Pass
	Cardiovascular system - CV	1.10E-03	2.62E-03	0.00E+00	Pass	Pass	Pass
	Developmental - DEV	6.53E-02	2.50E-03	0.00E+00	Pass	Pass	Pass
	Endocrine system - END		0.00E+00	0.00E+00	Pass	Pass	Pass
	Eye	3.65E-04	7.22E-04	0.00E+00	Pass	Pass	Pass
	Hematopoietic system - HEM	2.21E-02	1.36E-02	1.36E-02	Pass	Pass	Pass
	Immune system - IMM	2.21E-02	0.00E+00	0.00E+00	Pass	Pass	Pass
	Kidney - KID		1.54E-03	0.00E+00	Pass	Pass	Pass
	Nervous system - NS	4.45E-02	4.44E-03	0.00E+00	Pass	Pass	Pass
	Reproductive system - REP	6.53E-02	2.50E-03	0.00E+00	Pass	Pass	Pass
	Respiratory system - RESP	4.34E-02	3.22E-03	0.00E+00	Pass	Pass	Pass
	Skin	0.00E+00	0.00E+00	0.00E+00	Pass	Pass	Pass
Lake Elsinore	**Target Organs**	**Acute**	**Chronic**	**8-hr Chronic**	**Acute Pass/Fail**	**Chronic Pass/Fail**	**8-hr Chronic Pass/Fail**
	Alimentary system (liver) - AL	0.00E+00	1.90E-03	0.00E+00	Pass	Pass	Pass
	Bones and teeth - BN		0.00E+00	0.00E+00	Pass	Pass	Pass
	Cardiovascular system - CV	1.10E-03	3.24E-03	0.00E+00	Pass	Pass	Pass
	Developmental - DEV	6.53E-02	3.09E-03	0.00E+00	Pass	Pass	Pass
	Endocrine system - END		0.00E+00	0.00E+00	Pass	Pass	Pass
	Eye	3.65E-04	8.93E-04	0.00E+00	Pass	Pass	Pass
	Hematopoietic system - HEM	2.21E-02	1.68E-02	1.68E-02	Pass	Pass	Pass
	Immune system - IMM	2.21E-02	0.00E+00	0.00E+00	Pass	Pass	Pass
	Kidney - KID		1.90E-03	0.00E+00	Pass	Pass	Pass
	Nervous system - NS	4.45E-02	5.49E-03	0.00E+00	Pass	Pass	Pass
	Reproductive system - REP	6.53E-02	3.09E-03	0.00E+00	Pass	Pass	Pass
	Respiratory system - RESP	4.34E-02	3.98E-03	0.00E+00	Pass	Pass	Pass
	Skin	0.00E+00	0.00E+00	0.00E+00	Pass	Pass	Pass

	Target Organs	Acute	Chronic	8-hr Chronic	Acute Pass/Fail	Chronic Pass/Fail	8-hr Chronic Pass/Fail
Fontana	Alimentary system (liver) - AL	0.00E+00	1.85E-03	0.00E+00	Pass	Pass	Pass
	Bones and teeth - BN		0.00E+00	0.00E+00	Pass	Pass	Pass
	Cardiovascular system - CV	1.10E-03	3.14E-03	0.00E+00	Pass	Pass	Pass
	Developmental - DEV	6.53E-02	3.00E-03	0.00E+00	Pass	Pass	Pass
	Endocrine system - END		0.00E+00	0.00E+00	Pass	Pass	Pass
	Eye	3.65E-04	8.66E-04	0.00E+00	Pass	Pass	Pass
	Hematopoietic system - HEM	2.21E-02	1.63E-02	1.63E-02	Pass	Pass	Pass
	Immune system - IMM	2.21E-02	0.00E+00	0.00E+00	Pass	Pass	Pass
	Kidney - KID		1.85E-03	0.00E+00	Pass	Pass	Pass
	Nervous system - NS	4.45E-02	5.32E-03	0.00E+00	Pass	Pass	Pass
	Reproductive system - REP	6.53E-02	3.00E-03	0.00E+00	Pass	Pass	Pass
	Respiratory system - RESP	4.34E-02	3.86E-03	0.00E+00	Pass	Pass	Pass
	Skin	0.00E+00	0.00E+00	0.00E+00	Pass	Pass	Pass
Mission Viejo	**Target Organs**	**Acute**	**Chronic**	**8-hr Chronic**	**Acute Pass/Fail**	**Chronic Pass/Fail**	**8-hr Chronic Pass/Fail**
	Alimentary system (liver) - AL	0.00E+00	1.80E-03	0.00E+00	Pass	Pass	Pass
	Bones and teeth - BN		0.00E+00	0.00E+00	Pass	Pass	Pass
	Cardiovascular system - CV	1.10E-03	3.06E-03	0.00E+00	Pass	Pass	Pass
	Developmental - DEV	6.53E-02	2.92E-03	0.00E+00	Pass	Pass	Pass
	Endocrine system - END		0.00E+00	0.00E+00	Pass	Pass	Pass
	Eye	3.65E-04	8.44E-04	0.00E+00	Pass	Pass	Pass
	Hematopoietic system - HEM	2.21E-02	1.59E-02	1.59E-02	Pass	Pass	Pass
	Immune system - IMM	2.21E-02	0.00E+00	0.00E+00	Pass	Pass	Pass
	Kidney - KID		1.80E-03	0.00E+00	Pass	Pass	Pass
	Nervous system - NS	4.45E-02	5.19E-03	0.00E+00	Pass	Pass	Pass
	Reproductive system - REP	6.53E-02	2.92E-03	0.00E+00	Pass	Pass	Pass
	Respiratory system - RESP	4.34E-02	3.76E-03	0.00E+00	Pass	Pass	Pass
	Skin	0.00E+00	0.00E+00	0.00E+00	Pass	Pass	Pass
Perris	**Target Organs**	**Acute**	**Chronic**	**8-hr Chronic**	**Acute Pass/Fail**	**Chronic Pass/Fail**	**8-hr Chronic Pass/Fail**
	Alimentary system (liver) - AL	0.00E+00	2.10E-03	0.00E+00	Pass	Pass	Pass
	Bones and teeth - BN		0.00E+00	0.00E+00	Pass	Pass	Pass
	Cardiovascular system - CV	1.10E-03	3.57E-03	0.00E+00	Pass	Pass	Pass
	Developmental - DEV	6.53E-02	3.41E-03	0.00E+00	Pass	Pass	Pass
	Endocrine system - END		0.00E+00	0.00E+00	Pass	Pass	Pass
	Eye	3.65E-04	9.84E-04	0.00E+00	Pass	Pass	Pass
	Hematopoietic system - HEM	2.21E-02	1.85E-02	1.85E-02	Pass	Pass	Pass
	Immune system - IMM	2.21E-02	0.00E+00	0.00E+00	Pass	Pass	Pass
	Kidney - KID		2.10E-03	0.00E+00	Pass	Pass	Pass
	Nervous system - NS	4.45E-02	6.05E-03	0.00E+00	Pass	Pass	Pass
	Reproductive system - REP	6.53E-02	3.41E-03	0.00E+00	Pass	Pass	Pass
	Respiratory system - RESP	4.34E-02	4.39E-03	0.00E+00	Pass	Pass	Pass
	Skin	0.00E+00	0.00E+00	0.00E+00	Pass	Pass	Pass

	Target Organs	Acute	Chronic	8-hr Chronic	Acute Pass/Fail	Chronic Pass/Fail	8-hr Chronic Pass/Fail
Pico Rivera	Alimentary system (liver) - AL	0.00E+00	1.63E-03	0.00E+00	Pass	Pass	Pass
	Bones and teeth - BN		0.00E+00	0.00E+00	Pass	Pass	Pass
	Cardiovascular system - CV	1.10E-03	2.78E-03	0.00E+00	Pass	Pass	Pass
	Developmental - DEV	6.53E-02	2.65E-03	0.00E+00	Pass	Pass	Pass
	Endocrine system - END		0.00E+00	0.00E+00	Pass	Pass	Pass
	Eye	3.65E-04	7.66E-04	0.00E+00	Pass	Pass	Pass
	Hematopoietic system - HEM	2.21E-02	1.44E-02	1.44E-02	Pass	Pass	Pass
	Immune system - IMM	2.21E-02	0.00E+00	0.00E+00	Pass	Pass	Pass
	Kidney - KID		1.63E-03	0.00E+00	Pass	Pass	Pass
	Nervous system - NS	4.45E-02	4.71E-03	0.00E+00	Pass	Pass	Pass
	Reproductive system - REP	6.53E-02	2.65E-03	0.00E+00	Pass	Pass	Pass
	Respiratory system - RESP	4.34E-02	3.42E-03	0.00E+00	Pass	Pass	Pass
	Skin	0.00E+00	0.00E+00	0.00E+00	Pass	Pass	Pass
	Target Organs	**Acute**	**Chronic**	**8-hr Chronic**	**Acute Pass/Fail**	**Chronic Pass/Fail**	**8-hr Chronic Pass/Fail**
Redlands	Alimentary system (liver) - AL	0.00E+00	1.96E-03	0.00E+00	Pass	Pass	Pass
	Bones and teeth - BN		0.00E+00	0.00E+00	Pass	Pass	Pass
	Cardiovascular system - CV	1.10E-03	3.34E-03	0.00E+00	Pass	Pass	Pass
	Developmental - DEV	6.53E-02	3.19E-03	0.00E+00	Pass	Pass	Pass
	Endocrine system - END		0.00E+00	0.00E+00	Pass	Pass	Pass
	Eye	3.65E-04	9.21E-04	0.00E+00	Pass	Pass	Pass
	Hematopoietic system - HEM	2.21E-02	1.73E-02	1.73E-02	Pass	Pass	Pass
	Immune system - IMM	2.21E-02	0.00E+00	0.00E+00	Pass	Pass	Pass
	Kidney - KID		1.96E-03	0.00E+00	Pass	Pass	Pass
	Nervous system - NS	4.45E-02	5.66E-03	0.00E+00	Pass	Pass	Pass
	Reproductive system - REP	6.53E-02	3.19E-03	0.00E+00	Pass	Pass	Pass
	Respiratory system - RESP	4.34E-02	4.11E-03	0.00E+00	Pass	Pass	Pass
	Skin	0.00E+00	0.00E+00	0.00E+00	Pass	Pass	Pass
	Target Organs	**Acute**	**Chronic**	**8-hr Chronic**	**Acute Pass/Fail**	**Chronic Pass/Fail**	**8-hr Chronic Pass/Fail**
Upland	Alimentary system (liver) - AL	0.00E+00	1.81E-03	0.00E+00	Pass	Pass	Pass
	Bones and teeth - BN		0.00E+00	0.00E+00	Pass	Pass	Pass
	Cardiovascular system - CV	1.10E-03	3.08E-03	0.00E+00	Pass	Pass	Pass
	Developmental - DEV	6.53E-02	2.94E-03	0.00E+00	Pass	Pass	Pass
	Endocrine system - END		0.00E+00	0.00E+00	Pass	Pass	Pass
	Eye	3.65E-04	8.49E-04	0.00E+00	Pass	Pass	Pass
	Hematopoietic system - HEM	2.21E-02	1.60E-02	1.60E-02	Pass	Pass	Pass
	Immune system - IMM	2.21E-02	0.00E+00	0.00E+00	Pass	Pass	Pass
	Kidney - KID		1.81E-03	0.00E+00	Pass	Pass	Pass
	Nervous system - NS	4.45E-02	5.22E-03	0.00E+00	Pass	Pass	Pass
	Reproductive system - REP	6.53E-02	2.94E-03	0.00E+00	Pass	Pass	Pass
	Respiratory system - RESP	4.34E-02	3.79E-03	0.00E+00	Pass	Pass	Pass
	Skin	0.00E+00	0.00E+00	0.00E+00	Pass	Pass	Pass

	Target Organs	Acute	Chronic	8-hr Chronic	Acute Pass/Fail	Chronic Pass/Fail	8-hr Chronic Pass/Fail
Burbank Airport	Alimentary system (liver) - AL	0.00E+00	1.80E-03	0.00E+00	Pass	Pass	Pass
	Bones and teeth - BN		0.00E+00	0.00E+00	Pass	Pass	Pass
	Cardiovascular system - CV	1.10E-03	3.07E-03	0.00E+00	Pass	Pass	Pass
	Developmental - DEV	6.53E-02	2.93E-03	0.00E+00	Pass	Pass	Pass
	Endocrine system - END		0.00E+00	0.00E+00	Pass	Pass	Pass
	Eye	3.65E-04	8.46E-04	0.00E+00	Pass	Pass	Pass
	Hematopoietic system - HEM	2.21E-02	1.59E-02	1.59E-02	Pass	Pass	Pass
	Immune system - IMM	2.21E-02	0.00E+00	0.00E+00	Pass	Pass	Pass
	Kidney - KID		1.80E-03	0.00E+00	Pass	Pass	Pass
	Nervous system - NS	4.45E-02	5.20E-03	0.00E+00	Pass	Pass	Pass
	Reproductive system - REP	6.53E-02	2.93E-03	0.00E+00	Pass	Pass	Pass
	Respiratory system - RESP	4.34E-02	3.78E-03	0.00E+00	Pass	Pass	Pass
	Skin	0.00E+00	0.00E+00	0.00E+00	Pass	Pass	Pass

	Target Organs	Acute	Chronic	8-hr Chronic	Acute Pass/Fail	Chronic Pass/Fail	8-hr Chronic Pass/Fail
Chino Airport.	Alimentary system (liver) - AL	0.00E+00	2.30E-03	0.00E+00	Pass	Pass	Pass
	Bones and teeth - BN		0.00E+00	0.00E+00	Pass	Pass	Pass
	Cardiovascular system - CV	1.10E-03	3.92E-03	0.00E+00	Pass	Pass	Pass
	Developmental - DEV	6.53E-02	3.74E-03	0.00E+00	Pass	Pass	Pass
	Endocrine system - END		0.00E+00	0.00E+00	Pass	Pass	Pass
	Eye	3.65E-04	1.08E-03	0.00E+00	Pass	Pass	Pass
	Hematopoietic system - HEM	2.21E-02	2.03E-02	2.03E-02	Pass	Pass	Pass
	Immune system - IMM	2.21E-02	0.00E+00	0.00E+00	Pass	Pass	Pass
	Kidney - KID		2.30E-03	0.00E+00	Pass	Pass	Pass
	Nervous system - NS	4.45E-02	6.64E-03	0.00E+00	Pass	Pass	Pass
	Reproductive system - REP	6.53E-02	3.74E-03	0.00E+00	Pass	Pass	Pass
	Respiratory system - RESP	4.34E-02	4.82E-03	0.00E+00	Pass	Pass	Pass
	Skin	0.00E+00	0.00E+00	0.00E+00	Pass	Pass	Pass

	Target Organs	Acute	Chronic	8-hr Chronic	Acute Pass/Fail	Chronic Pass/Fail	8-hr Chronic Pass/Fail
USC/Downtown L.A.	Alimentary system (liver) - AL	0.00E+00	1.72E-03	0.00E+00	Pass	Pass	Pass
	Bones and teeth - BN		0.00E+00	0.00E+00	Pass	Pass	Pass
	Cardiovascular system - CV	1.10E-03	2.92E-03	0.00E+00	Pass	Pass	Pass
	Developmental - DEV	6.53E-02	2.79E-03	0.00E+00	Pass	Pass	Pass
	Endocrine system - END		0.00E+00	0.00E+00	Pass	Pass	Pass
	Eye	3.65E-04	8.06E-04	0.00E+00	Pass	Pass	Pass
	Hematopoietic system - HEM	2.21E-02	1.52E-02	1.52E-02	Pass	Pass	Pass
	Immune system - IMM	2.21E-02	0.00E+00	0.00E+00	Pass	Pass	Pass
	Kidney - KID		1.72E-03	0.00E+00	Pass	Pass	Pass
	Nervous system - NS	4.45E-02	4.95E-03	0.00E+00	Pass	Pass	Pass
	Reproductive system - REP	6.53E-02	2.79E-03	0.00E+00	Pass	Pass	Pass
	Respiratory system - RESP	4.34E-02	3.60E-03	0.00E+00	Pass	Pass	Pass
	Skin	0.00E+00	0.00E+00	0.00E+00	Pass	Pass	Pass

	Target Organs	Acute	Chronic	8-hr Chronic	Acute Pass/Fail	Chronic Pass/Fail	8-hr Chronic Pass/Fail
Fullerton Airport	Alimentary system (liver) - AL	0.00E+00	1.75E-03	0.00E+00	Pass	Pass	Pass
	Bones and teeth - BN		0.00E+00	0.00E+00	Pass	Pass	Pass
	Cardiovascular system - CV	1.10E-03	2.97E-03	0.00E+00	Pass	Pass	Pass
	Developmental - DEV	6.53E-02	2.84E-03	0.00E+00	Pass	Pass	Pass
	Endocrine system - END		0.00E+00	0.00E+00	Pass	Pass	Pass
	Eye	3.65E-04	8.20E-04	0.00E+00	Pass	Pass	Pass
	Hematopoietic system - HEM	2.21E-02	1.54E-02	1.54E-02	Pass	Pass	Pass
	Immune system - IMM	2.21E-02	0.00E+00	0.00E+00	Pass	Pass	Pass
	Kidney - KID		1.75E-03	0.00E+00	Pass	Pass	Pass
	Nervous system - NS	4.45E-02	5.04E-03	0.00E+00	Pass	Pass	Pass
	Reproductive system - REP	6.53E-02	2.84E-03	0.00E+00	Pass	Pass	Pass
	Respiratory system - RESP	4.34E-02	3.66E-03	0.00E+00	Pass	Pass	Pass
	Skin	0.00E+00	0.00E+00	0.00E+00	Pass	Pass	Pass
Hawthorne Airport	**Target Organs**	**Acute**	**Chronic**	**8-hr Chronic**	**Acute Pass/Fail**	**Chronic Pass/Fail**	**8-hr Chronic Pass/Fail**
	Alimentary system (liver) - AL	0.00E+00	1.84E-03	0.00E+00	Pass	Pass	Pass
	Bones and teeth - BN		0.00E+00	0.00E+00	Pass	Pass	Pass
	Cardiovascular system - CV	1.10E-03	3.12E-03	0.00E+00	Pass	Pass	Pass
	Developmental - DEV	6.53E-02	2.98E-03	0.00E+00	Pass	Pass	Pass
	Endocrine system - END		0.00E+00	0.00E+00	Pass	Pass	Pass
	Eye	3.65E-04	8.61E-04	0.00E+00	Pass	Pass	Pass
	Hematopoietic system - HEM	2.21E-02	1.62E-02	1.62E-02	Pass	Pass	Pass
	Immune system - IMM	2.21E-02	0.00E+00	0.00E+00	Pass	Pass	Pass
	Kidney - KID		1.84E-03	0.00E+00	Pass	Pass	Pass
	Nervous system - NS	4.45E-02	5.29E-03	0.00E+00	Pass	Pass	Pass
	Reproductive system - REP	6.53E-02	2.98E-03	0.00E+00	Pass	Pass	Pass
	Respiratory system - RESP	4.34E-02	3.84E-03	0.00E+00	Pass	Pass	Pass
	Skin	0.00E+00	0.00E+00	0.00E+00	Pass	Pass	Pass
Los Angeles Int'l Airport	**Target Organs**	**Acute**	**Chronic**	**8-hr Chronic**	**Acute Pass/Fail**	**Chronic Pass/Fail**	**8-hr Chronic Pass/Fail**
	Alimentary system (liver) - AL	0.00E+00	2.24E-03	0.00E+00	Pass	Pass	Pass
	Bones and teeth - BN		0.00E+00	0.00E+00	Pass	Pass	Pass
	Cardiovascular system - CV	1.10E-03	3.80E-03	0.00E+00	Pass	Pass	Pass
	Developmental - DEV	6.53E-02	3.63E-03	0.00E+00	Pass	Pass	Pass
	Endocrine system - END		0.00E+00	0.00E+00	Pass	Pass	Pass
	Eye	3.65E-04	1.05E-03	0.00E+00	Pass	Pass	Pass
	Hematopoietic system - HEM	2.21E-02	1.98E-02	1.98E-02	Pass	Pass	Pass
	Immune system - IMM	2.21E-02	0.00E+00	0.00E+00	Pass	Pass	Pass
	Kidney - KID		2.24E-03	0.00E+00	Pass	Pass	Pass
	Nervous system - NS	4.45E-02	6.45E-03	0.00E+00	Pass	Pass	Pass
	Reproductive system - REP	6.53E-02	3.63E-03	0.00E+00	Pass	Pass	Pass
	Respiratory system - RESP	4.34E-02	4.68E-03	0.00E+00	Pass	Pass	Pass
	Skin	0.00E+00	0.00E+00	0.00E+00	Pass	Pass	Pass

	Target Organs	Acute	Chronic	8-hr Chronic	Acute Pass/Fail	Chronic Pass/Fail	8-hr Chronic Pass/Fail
Long Beach Airport	Alimentary system (liver) - AL	0.00E+00	1.83E-03	0.00E+00	Pass	Pass	Pass
	Bones and teeth - BN		0.00E+00	0.00E+00	Pass	Pass	Pass
	Cardiovascular system - CV	1.10E-03	3.12E-03	0.00E+00	Pass	Pass	Pass
	Developmental - DEV	6.53E-02	2.98E-03	0.00E+00	Pass	Pass	Pass
	Endocrine system - END		0.00E+00	0.00E+00	Pass	Pass	Pass
	Eye	3.65E-04	8.61E-04	0.00E+00	Pass	Pass	Pass
	Hematopoietic system - HEM	2.21E-02	1.62E-02	1.62E-02	Pass	Pass	Pass
	Immune system - IMM	2.21E-02	0.00E+00	0.00E+00	Pass	Pass	Pass
	Kidney - KID		1.83E-03	0.00E+00	Pass	Pass	Pass
	Nervous system - NS	4.45E-02	5.29E-03	0.00E+00	Pass	Pass	Pass
	Reproductive system - REP	6.53E-02	2.98E-03	0.00E+00	Pass	Pass	Pass
	Respiratory system - RESP	4.34E-02	3.84E-03	0.00E+00	Pass	Pass	Pass
	Skin	0.00E+00	0.00E+00	0.00E+00	Pass	Pass	Pass
	Target Organs	**Acute**	**Chronic**	**8-hr Chronic**	**Acute Pass/Fail**	**Chronic Pass/Fail**	**8-hr Chronic Pass/Fail**
Ontario Airport	Alimentary system (liver) - AL	0.00E+00	2.62E-03	0.00E+00	Pass	Pass	Pass
	Bones and teeth - BN		0.00E+00	0.00E+00	Pass	Pass	Pass
	Cardiovascular system - CV	1.10E-03	4.45E-03	0.00E+00	Pass	Pass	Pass
	Developmental - DEV	6.53E-02	4.25E-03	0.00E+00	Pass	Pass	Pass
	Endocrine system - END		0.00E+00	0.00E+00	Pass	Pass	Pass
	Eye	3.65E-04	1.23E-03	0.00E+00	Pass	Pass	Pass
	Hematopoietic system - HEM	2.21E-02	2.31E-02	2.31E-02	Pass	Pass	Pass
	Immune system - IMM	2.21E-02	0.00E+00	0.00E+00	Pass	Pass	Pass
	Kidney - KID		2.62E-03	0.00E+00	Pass	Pass	Pass
	Nervous system - NS	4.45E-02	7.55E-03	0.00E+00	Pass	Pass	Pass
	Reproductive system - REP	6.53E-02	4.25E-03	0.00E+00	Pass	Pass	Pass
	Respiratory system - RESP	4.34E-02	5.48E-03	0.00E+00	Pass	Pass	Pass
	Skin	0.00E+00	0.00E+00	0.00E+00	Pass	Pass	Pass
	Target Organs	**Acute**	**Chronic**	**8-hr Chronic**	**Acute Pass/Fail**	**Chronic Pass/Fail**	**8-hr Chronic Pass/Fail**
Palm Springs Airport	Alimentary system (liver) - AL	0.00E+00	2.03E-03	0.00E+00	Pass	Pass	Pass
	Bones and teeth - BN		0.00E+00	0.00E+00	Pass	Pass	Pass
	Cardiovascular system - CV	1.10E-03	3.45E-03	0.00E+00	Pass	Pass	Pass
	Developmental - DEV	6.53E-02	3.30E-03	0.00E+00	Pass	Pass	Pass
	Endocrine system - END		0.00E+00	0.00E+00	Pass	Pass	Pass
	Eye	3.65E-04	9.52E-04	0.00E+00	Pass	Pass	Pass
	Hematopoietic system - HEM	2.21E-02	1.79E-02	1.79E-02	Pass	Pass	Pass
	Immune system - IMM	2.21E-02	0.00E+00	0.00E+00	Pass	Pass	Pass
	Kidney - KID		2.03E-03	0.00E+00	Pass	Pass	Pass
	Nervous system - NS	4.45E-02	5.85E-03	0.00E+00	Pass	Pass	Pass
	Reproductive system - REP	6.53E-02	3.30E-03	0.00E+00	Pass	Pass	Pass
	Respiratory system - RESP	4.34E-02	4.25E-03	0.00E+00	Pass	Pass	Pass
	Skin	0.00E+00	0.00E+00	0.00E+00	Pass	Pass	Pass

	Target Organs	Acute	Chronic	8-hr Chronic	Acute Pass/Fail	Chronic Pass/Fail	8-hr Chronic Pass/Fail
Riverside Airport	Alimentary system (liver) - AL	0.00E+00	2.12E-03	0.00E+00	Pass	Pass	Pass
	Bones and teeth - BN		0.00E+00	0.00E+00	Pass	Pass	Pass
	Cardiovascular system - CV	1.10E-03	3.60E-03	0.00E+00	Pass	Pass	Pass
	Developmental - DEV	6.53E-02	3.44E-03	0.00E+00	Pass	Pass	Pass
	Endocrine system - END		0.00E+00	0.00E+00	Pass	Pass	Pass
	Eye	3.65E-04	9.94E-04	0.00E+00	Pass	Pass	Pass
	Hematopoietic system - HEM	2.21E-02	1.87E-02	1.87E-02	Pass	Pass	Pass
	Immune system - IMM	2.21E-02	0.00E+00	0.00E+00	Pass	Pass	Pass
	Kidney - KID		2.12E-03	0.00E+00	Pass	Pass	Pass
	Nervous system - NS	4.45E-02	6.11E-03	0.00E+00	Pass	Pass	Pass
	Reproductive system - REP	6.53E-02	3.44E-03	0.00E+00	Pass	Pass	Pass
	Respiratory system - RESP	4.34E-02	4.43E-03	0.00E+00	Pass	Pass	Pass
	Skin	0.00E+00	0.00E+00	0.00E+00	Pass	Pass	Pass
Santa Monica Airport	**Target Organs**	**Acute**	**Chronic**	**8-hr Chronic**	**Acute Pass/Fail**	**Chronic Pass/Fail**	**8-hr Chronic Pass/Fail**
	Alimentary system (liver) - AL	0.00E+00	1.90E-03	0.00E+00	Pass	Pass	Pass
	Bones and teeth - BN		0.00E+00	0.00E+00	Pass	Pass	Pass
	Cardiovascular system - CV	1.10E-03	3.24E-03	0.00E+00	Pass	Pass	Pass
	Developmental - DEV	6.53E-02	3.09E-03	0.00E+00	Pass	Pass	Pass
	Endocrine system - END		0.00E+00	0.00E+00	Pass	Pass	Pass
	Eye	3.65E-04	8.93E-04	0.00E+00	Pass	Pass	Pass
	Hematopoietic system - HEM	2.21E-02	1.68E-02	1.68E-02	Pass	Pass	Pass
	Immune system - IMM	2.21E-02	0.00E+00	0.00E+00	Pass	Pass	Pass
	Kidney - KID		1.90E-03	0.00E+00	Pass	Pass	Pass
	Nervous system - NS	4.45E-02	5.49E-03	0.00E+00	Pass	Pass	Pass
	Reproductive system - REP	6.53E-02	3.09E-03	0.00E+00	Pass	Pass	Pass
	Respiratory system - RESP	4.34E-02	3.98E-03	0.00E+00	Pass	Pass	Pass
	Skin	0.00E+00	0.00E+00	0.00E+00	Pass	Pass	Pass
John Wayne Int'l Airport	**Target Organs**	**Acute**	**Chronic**	**8-hr Chronic**	**Acute Pass/Fail**	**Chronic Pass/Fail**	**8-hr Chronic Pass/Fail**
	Alimentary system (liver) - AL	0.00E+00	2.22E-03	0.00E+00	Pass	Pass	Pass
	Bones and teeth - BN		0.00E+00	0.00E+00	Pass	Pass	Pass
	Cardiovascular system - CV	1.10E-03	3.77E-03	0.00E+00	Pass	Pass	Pass
	Developmental - DEV	6.53E-02	3.60E-03	0.00E+00	Pass	Pass	Pass
	Endocrine system - END		0.00E+00	0.00E+00	Pass	Pass	Pass
	Eye	3.65E-04	1.04E-03	0.00E+00	Pass	Pass	Pass
	Hematopoietic system - HEM	2.21E-02	1.96E-02	1.96E-02	Pass	Pass	Pass
	Immune system - IMM	2.21E-02	0.00E+00	0.00E+00	Pass	Pass	Pass
	Kidney - KID		2.22E-03	0.00E+00	Pass	Pass	Pass
	Nervous system - NS	4.45E-02	6.39E-03	0.00E+00	Pass	Pass	Pass
	Reproductive system - REP	6.53E-02	3.60E-03	0.00E+00	Pass	Pass	Pass
	Respiratory system - RESP	4.34E-02	4.64E-03	0.00E+00	Pass	Pass	Pass
	Skin	0.00E+00	0.00E+00	0.00E+00	Pass	Pass	Pass

	Target Organs	Acute	Chronic	8-hr Chronic	Acute Pass/Fail	Chronic Pass/Fail	8-hr Chronic Pass/Fail
Desert Hot Springs Airport	Alimentary system (liver) - AL	0.00E+00	2.38E-03	0.00E+00	Pass	Pass	Pass
	Bones and teeth - BN		0.00E+00	0.00E+00	Pass	Pass	Pass
	Cardiovascular system - CV	1.10E-03	4.06E-03	0.00E+00	Pass	Pass	Pass
	Developmental - DEV	6.53E-02	3.87E-03	0.00E+00	Pass	Pass	Pass
	Endocrine system - END		0.00E+00	0.00E+00	Pass	Pass	Pass
	Eye	3.65E-04	1.12E-03	0.00E+00	Pass	Pass	Pass
	Hematopoietic system - HEM	2.21E-02	2.11E-02	2.11E-02	Pass	Pass	Pass
	Immune system - IMM	2.21E-02	0.00E+00	0.00E+00	Pass	Pass	Pass
	Kidney - KID		2.38E-03	0.00E+00	Pass	Pass	Pass
	Nervous system - NS	4.45E-02	6.87E-03	0.00E+00	Pass	Pass	Pass
	Reproductive system - REP	6.53E-02	3.87E-03	0.00E+00	Pass	Pass	Pass
	Respiratory system - RESP	4.34E-02	4.99E-03	0.00E+00	Pass	Pass	Pass
	Skin	0.00E+00	0.00E+00	0.00E+00	Pass	Pass	Pass
Van Nuys Airport	**Target Organs**	**Acute**	**Chronic**	**8-hr Chronic**	**Acute Pass/Fail**	**Chronic Pass/Fail**	**8-hr Chronic Pass/Fail**
	Alimentary system (liver) - AL	0.00E+00	1.74E-03	0.00E+00	Pass	Pass	Pass
	Bones and teeth - BN		0.00E+00	0.00E+00	Pass	Pass	Pass
	Cardiovascular system - CV	1.10E-03	2.97E-03	0.00E+00	Pass	Pass	Pass
	Developmental - DEV	6.53E-02	2.83E-03	0.00E+00	Pass	Pass	Pass
	Endocrine system - END		0.00E+00	0.00E+00	Pass	Pass	Pass
	Eye	3.65E-04	8.18E-04	0.00E+00	Pass	Pass	Pass
	Hematopoietic system - HEM	2.21E-02	1.54E-02	1.54E-02	Pass	Pass	Pass
	Immune system - IMM	2.21E-02	0.00E+00	0.00E+00	Pass	Pass	Pass
	Kidney - KID		1.74E-03	0.00E+00	Pass	Pass	Pass
	Nervous system - NS	4.45E-02	5.03E-03	0.00E+00	Pass	Pass	Pass
	Reproductive system - REP	6.53E-02	2.83E-03	0.00E+00	Pass	Pass	Pass
	Respiratory system - RESP	4.34E-02	3.65E-03	0.00E+00	Pass	Pass	Pass
	Skin	0.00E+00	0.00E+00	0.00E+00	Pass	Pass	Pass
Maximum	**Target Organs**	**Acute**	**Chronic**	**8-hr Chronic**	**Acute Pass/Fail**	**Chronic Pass/Fail**	**8-hr Chronic Pass/Fail**
	Alimentary system (liver) - AL	**0.0000**	**0.0026**	**0.0000**	**Pass**	**Pass**	**Pass**
	Bones and teeth - BN	**0.0000**	**0.0000**	**0.0000**	**Pass**	**Pass**	**Pass**
	Cardiovascular system - CV	**0.0011**	**0.0045**	**0.0000**	**Pass**	**Pass**	**Pass**
	Developmental - DEV	**0.0653**	**0.0042**	**0.0000**	**Pass**	**Pass**	**Pass**
	Endocrine system - END	**0.0000**	**0.0000**	**0.0000**	**Pass**	**Pass**	**Pass**
	Eye	**0.0004**	**0.0012**	**0.0000**	**Pass**	**Pass**	**Pass**
	Hematopoietic system - HEM	**0.0221**	**0.0231**	**0.0231**	**Pass**	**Pass**	**Pass**
	Immune system - IMM	**0.0221**	**0.0000**	**0.0000**	**Pass**	**Pass**	**Pass**
	Kidney - KID	**0.0000**	**0.0026**	**0.0000**	**Pass**	**Pass**	**Pass**
	Nervous system - NS	**0.0445**	**0.0075**	**0.0000**	**Pass**	**Pass**	**Pass**
	Reproductive system - REP	**0.0653**	**0.0042**	**0.0000**	**Pass**	**Pass**	**Pass**
	Respiratory system - RESP	**0.0434**	**0.0055**	**0.0000**	**Pass**	**Pass**	**Pass**
	Skin	**0.0000**	**0.0000**	**0.0000**	**Pass**	**Pass**	**Pass**

Risk Tool Release Notes

Implements SCAQMD Risk Assessment Procedures For Rule 1401, 1401.1 and Rule 212
(Procedure Version 8.1 & Package N, September 1, 2017)

Risk Tool V1.105

1. Fixed bug in Rule 409 PM grain/scf formula for Spraybooth.

Risk Tool V1.104

1. Fixed bug in Tier 2 Report 70 yr MICR calculation for Spraybooth.

Risk Tool V1.103

1. Fixed bug in Table Acute TO. Remove V1 look up code for Vanadium Compound.

2. DieselICE. Add lookup fuction for EPA emssion standard in cell D10 to reflect different EFs from different inputs of engine HP, mfg year, and engine generator type.

Risk Tool V1.102

1. Improved conversion factor of g/sec to lb/hr in Tier 3 Input sheet.

2. Fixed bug in Tier 2 report (cell H249 had no formula)

Risk Tool V1.101

1. Corrected Hourly screening values for Styrene (CAS 100-42-5). Was 2.65E-2, 6.61E-2 and 1.66E-1 lb/hr for 25 m, 50 m and 100 m respectively. Corrected to 4.64, 1.16E+1 and 2.90 E+1 lb/hr for 25 m, 50 m and 100 m respectively.

2. Fixed Tier 2 report print out bug

Risk Tool V1.1

1. Applied Risk Procedure Version 8.1 & Package N tables from September 1, 2017 Rule 1401 amendment. Applicable for applications with deemed complete date on or after October 1, 2017.
2. Updated MET station list.
3. Added Spray Booth module.
4. Added Gas Station module. MICR for Gas Station is looked up from tables in Package N, not calculated and displayed in Tier 2 report like other modules. There is no Tier 3 for Gas Station.
5. Added new TACs to Table 1: Caprolactum (CAS 105-60-2) & Carbonyl Sulfide (CAS 463-58-1) with Chronic and Acute effective date of 9/1/2017; Vanadium (fume or dust) (CAS 7440-62-2) with Acute effective date of 8/13/1999.
6. Added Acute effective date of 9/1/2017 for other TACs:
   1,3-Butadiene (CAS 106-99-0); Methylene Diphenyl Diisocyanate (CAS 101-68-8)
   Toluene Diisocyantates (CAS 26471-62-5); Toluene-2,4-Diisocyanate (CAS 584-84-9)
   Toluene-2,6-Diisocyanate (CAS 91-08-7)
7. Added or modified Acute, Chronic & 8-hr Chronic RELs for:
   Methylene Diphenyl Diisocyanate (CAS 101-68-8)
   Toluene Diisocyantates (CAS 26471-62-5); Toluene-2,4-Diisocyanate (CAS 584-84-9)
   Toluene-2,6-Diisocyanate (CAS 91-08-7)
8. Added conversion feature in Emission sheet.
9. Renamed table names according to Package N

Risk Tool (V1.03) *(Version 8.0 & Attachment M, Revision March 2016)*

1. Corrected screening emission levels for PAH (CAS 1151) in table 1 to match with Table 1.1, Package M, Revision March 2016, (was 6.28E-3 lb/hr @25 m, 1.19E-2 lb/hr @50m, 3.89E-2 lb/hr @100m; corrected to 6.28E-4 lb/hr @25 m, 1.19E-3 lb/hr @50m, 3.89E-3 lb/hr @100m)
2. Removed the *Do Not Use* tag for Selenium Sulfide (CAS 7446-34-6) in TAC list to match with Table 1.1 and table 8.1, Package M, Revision March 2016.
3. Modified Emission input sheet to accept non-integer values for operating hours.

RiskTool (V1.02)

1. Unlocked Unit Conversion Calculator in Tier 3 Input tab.
2. Corrected CAS number and screening emission levels for PAH (CAS 1151) in table 1.
3. Corrected CAS number for PAH in table 8 (was 1150 instead of 1151).
4. Corrected error in calculating 8-hour Hazard Index Chronic - Resident in Tier 2 Report tab (was using Worker WAF in calculation instead of Resident WAF).

RiskTool (V1.01)

1. Modified Boiler input sheet to allow boiler rating cell to accept non-integer numbers
2. Fixed bug so that HIC value for Diesel Particulates (code P1) is calculated
3. Fixed bug so Cancer potency for Polychlorinated Biphenyls (code P8) is calculated
4. Fixed bug when San Bernardino is selected as the monitoring station.
5. Streamlined calculation for Cancer Burden when Tier 3 AERSCREEN is chosen. Fixed several typos.
6. Modified lookup method for WAF so WAF can be calculated when the hours of operation is not an integer.
7. Modified Diesel ICE sheet to accept engines with rating greater than 1150 BHP for Tier 3 analysis.
8. Modified Boiler sheet to accept boilers with rating greater than 200MMBtu/hr for Tier 3 analysis.

RiskTool (V1.00)

1. 8 Hour Chronic REL effective date is 7/5/2015

ATTACHMENT 3 – BAAQMD PM SCREENING

	Step 1: Enter Facility Data
Plant Name	**Delta Diablo**
Plant No.	

Note: This tool can only be used for permitted facilities that are not gas stations.

Step 2: Estimate Distance

What is the distance (m) from the facility boundary to the MEI?	**55**

Step 3: Enter Emissions Data

Step 4: Specify Source Type

Does facility have only diesel backup generators?	**yes**

Note: Default generic distance multiplier used if source is not a generator.

Step 5: Record the Estimates

Cancer Risk	**0.000**	**per 1,000,000**
Chronic Hazard	**0.000**	
PM2.5 Concentration	**0.011**	**µg/m³**

Chemical Name	CAS No.	Rate	Risk	Hazard	Concentration
	(dashes removed)	(lb/day)	(# / 1,000,000)	(index)	(µg/m3)
Fine Particulate Matter (PM2.5)		1.21E-02			0.02

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APPENDIX C: BIOLOGICAL RESOURCES REPORT

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Biological Resources Report for the Delta Diablo Secondary Process Improvements Project

Prepared for:

Delta Diablo
2500 Pittsburg-Antioch Hwy
Antioch, CA 94509

Prepared by:

ICF
201 Mission Street, Suite 1500
San Francisco, CA 94105

May 2024

ICF. 2019. *Biological Resources Report for the Delta Diablo Secondary Process Improvements Project*. April. (ICF 104850.0.001.00) San Francisco, CA. Prepared for Delta Diablo, Antioch, CA.

Contents

Tables and Figures

Acronyms and Abbreviations

CCR	California Code of Regulations
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CFGC	California Fish and Game Code
CFR	Code of Federal Regulations
CNDDB	California Natural Diversity Database
CNPPA	California Native Plant Protection Act
CNPS	California Native Plant Society
CRPR	California Rare Plant Rank
CWA	Clean Water Act
EPA	U.S. Environmental Protection Agency
ESA	federal Endangered Species Act
FR	Federal Register
IPaC	Information for Planning and Consultation
MBTA	Migratory Bird Treaty Act
MLRA	Major Land Resource Area
NPDES	Pollutant Discharge Elimination System
proposed project or project	Seconday Process Improvements Project
RWQCBs	Regional Water Quality Control Boards
SB	Senate Bill
State Water Board	State Water Resources Control Board
SWPPP	stormwater pollution prevention plan
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
waters of the state	waters of the State of California
WBWG	Western Bat Working Group
WMMM	Western Monarch Milkweed Mapper
WWTP	Wastewater Treatment Plant

Chapter 1
Introduction

ICF has completed a field investigation and subsequent analysis of biological resources potentially occurring in the Delta Diablo Secondary Process Improvements Project (proposed project or project) area in Contra Costa County, California. This report describes the methods and results of the field investigations and subsequent analysis of special-status plants, animals, natural communities, and potentially jurisdictional aquatic features present to support Delta Diablo preparation of documentation under the California Environmental Quality Act (CEQA), and to provide supporting information for regulatory permit applications.

Project Description

Project Location

The project area is located in Contra Costa County within the North Antioch U.S. Geological Survey 7.5-minute quadrangle in the cities of Pittsburg and Antioch (Figure 1). The project area is located on property owned by Delta Diablo at 38.015451°N, -121.842189°W (latitude, longitude in decimal degrees), and includes a portion of the existing Delta Diablo Wastewater Treatment Plant (WWTP) and a proposed staging area on vacant land outside the WWTP located north of Pittsburg-Antioch Highway northwest of the existing entrance to the WWTP. The boundary line between the cities of Pittsburg and Antioch runs north south though the middle of the project area and WWTP. The project area is accessed from Arcy Lane.

Environmental Setting

The study area consisted of the project area and the area approximately 250 feet north of the proposed staging area (Figure 2). The existing WWTP is located in an industrial area. The project area is bounded by the Pittsburg-Antioch Highway to the south, the Burlington Northern and Santa Fe (BNSF) railroad tracks to the north the Delta Energy Center to the west, and Los Medanos Wasteway (a channelized manmade conveyance) to the east. Industrial facilities adjacent to the WWTP include the Dow Chemical, Calpine Delta Energy Center, and Generon facilities, which are located west and northwest of the WWTP. Wetlands are situated directly north and east of the WWTP. New York Slough, which is a section of the San Joaquin River, is about 0.5 mile north of the WWTP. A variety of light industrial businesses are located approximately 0.25 mile to the south, on the south side of the Pittsburg-Antioch Highway.

Although the WWTP is located in an industrial area, it has open space to the north, west (partial), and east. The Corteva Wetlands Preserve is located north and east of the WWTP; the preserve is 471 acres of undeveloped land made up of 172 acres of freshwater and brackish tidal marsh, freshwater ponds, open water, mudflats, riparian zones, uplands, and grasslands. Open space is located to the west between the Delta Energy Center and additional industry (e.g., Hasa Inc, Black Diamond Receiving) and includes wetlands and grassland. Located south of the project area, Kirker Creek drains water to the Contra Costa Canal (also shown as Kirker Creek on the National Hydrography Dataset (NHD) maps) through the Corteva Wetlands Preserve and into the San Joaquin River.

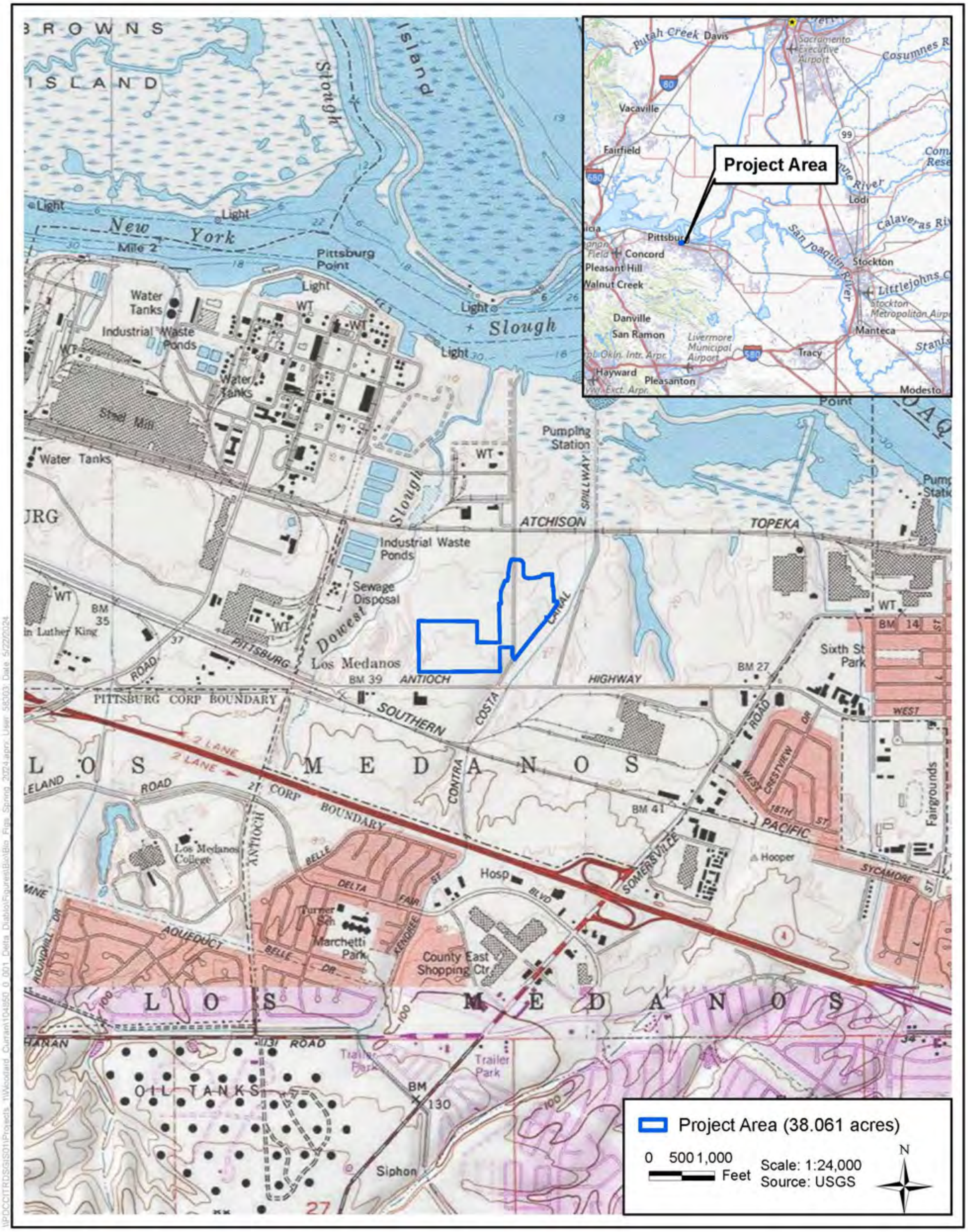

Figure 1. Project Location

Figure 2. Land Cover and Mammal Burrow Locations

Project Overview

The proposed project would include a new secondary clarifier, six new aeration basins, a new blower building, retrofit of existing aeration basins, a new return activated sludge pump station, a new primary effluent pump station, retrofit of existing tower trickling filter pump station, demolition of existing trickling filters and odor control biofilter facility, demolition of an existing aeration basin, electrical improvements including a new motor control center and standby generator, and various new buried pipelines (Figures 3a and 3b). Vacant land north of Pittsburg-Antioch Highway near the entrance to the WWTP would be used for stockpiling of materials, construction staging, and construction office trailers and parking (Figure 2).

Figure 3a. Potential Project Component Overview

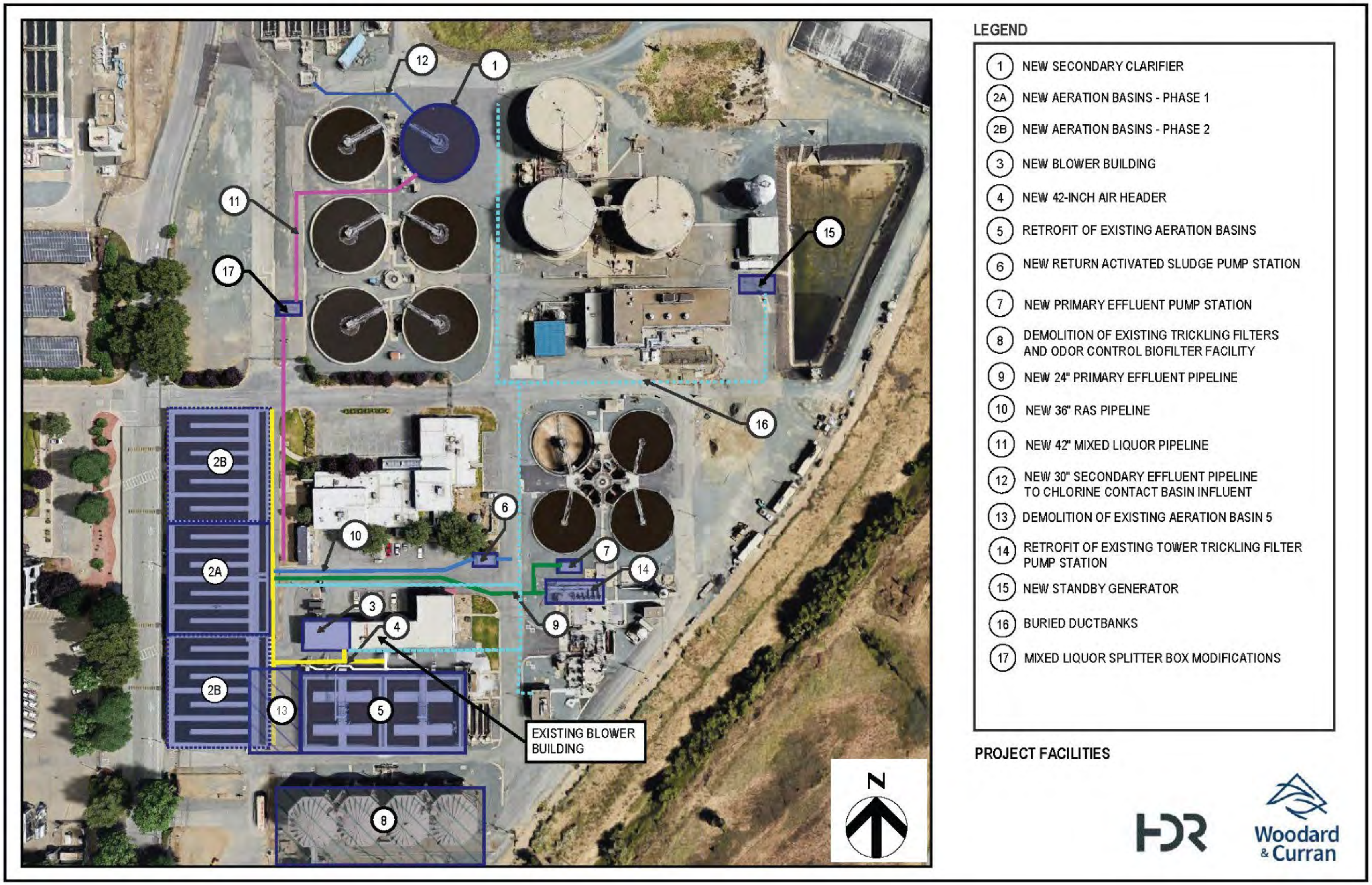

Figure 3b: Potential Project Component Overview

The project consists of modification of existing facilities at the WWTP as well as addition of new structures and below-grade utilities (pipelines, electrical duct banks, etc.). The project is anticipated to be constructed as a single project; however, depending on the construction costs and external funding sources, the project may be constructed in phases. If construction is done as a single effort, construction is anticipated to begin in approximately March 2026 and is expected to last until March 2031. Delta Diablo would use vacant land along the north side of Pittsburg-Antioch Highway near the entrance to the WWTP as a staging area for stockpiling of materials, construction staging, and construction office trailers and parking (Figure 2). The area would be accessed from the WWTP through an existing gate that is located along the west side of Arcy Lane approximately 550 feet north of the Pittsburg-Antioch Highway.

The new treatment system would not include new chemical facilities or loadout truck access, but would require added electrical service. The new treatment system would require added operations and maintenance from Delta Diablo, but no additional vehicle traffic is anticipated with the new facilities. The electrical improvements would add a new standby generator that would operate in parallel with the existing 1 megawatt generator.

Applicable Regulations

This section provides an overview of the laws and regulations that apply to biological resources that may be impacted by the project.

Federal

Endangered Species Act

The U.S. Fish and Wildlife Service (USFWS) has jurisdiction over species listed as threatened or endangered under Section 9 of the federal Endangered Species Act (ESA). ESA protects listed species from harm, or *take*, which is broadly defined as to "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to engage in any such conduct." For any project involving a federal agency in which a listed species could be affected, the federal agency must consult with USFWS in accordance with Section 7 of ESA. USFWS issues a biological opinion and, if the project does not jeopardize the continued existence of the listed species, issues an incidental take permit. When no federal context is present, proponents of a project affecting a listed species must consult with USFWS and apply for an incidental take permit under ESA Section 10. Section 10 requires an applicant to submit a habitat conservation plan that specifies project impacts and mitigation measures.

Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) (16 USC Section 703, et seq.), enacted in 1918, provides for protection of international migratory birds and authorizes the Secretary of the Interior to regulate the taking of migratory birds. The MBTA of 1918 provides that it shall be unlawful, except as permitted by regulations, to pursue, take, or kill any migratory bird, or any part, nest, or egg of any such bird. On December 22, 2017, the U.S. Department of the Interior's Office of the Solicitor issued a legal, revised interpretation (Opinion M-37050) of the MBTA's prohibition on the take of migratory bird species. Opinion M-37050 concludes that "consistent with the text, history, and purpose of the

MBTA, the statute's prohibitions on pursuing, hunting, taking, capturing, killing, or attempting to do the same apply only to affirmative actions that have as their purpose the taking or killing of migratory birds, their nests, or their eggs." According to the Opinion M-37050, take of a migratory bird, its nest, or eggs that is incidental to another lawful activity does not violate the MBTA, and the MBTA's criminal provisions do not apply to those activities. Opinion M-37050 may affect how MBTA is interpreted but it does not legally change the regulation itself. The current list of species protected by the MBTA can be found in Title 50 Code of Federal Regulations (CFR), Section 10.13. The list includes nearly all birds native to the United States.

Clean Water Act

The Clean Water Act (CWA) was passed by Congress in 1972 with a broad mandate "to restore and maintain the chemical, physical, and biological integrity of the Nation's waters." The chief purpose of the CWA is to establish the basic structure for regulating discharges of pollutants into waters of the United States. The CWA authorizes the U.S. Environmental Protection Agency (EPA) to set national water quality standards and effluent limitations, and includes programs addressing both point-source and nonpoint-source pollution. Point-source pollution is pollution that originates or enters surface waters at a single, discrete location, such as an outfall structure or an excavation or construction site. Nonpoint-source pollution originates over a broader area and includes urban contaminants in stormwater runoff and sediment loading from upstream areas. The CWA operates on the principle that all discharges into the nation's waters are unlawful unless specifically authorized by a permit; permit review is the CWA's primary regulatory tool.

Aquatic resources in the project area, such as streams, ponds, and wetlands, potentially could be regulated as waters of the United States under the current definition of waters of the United States.

On September 8, 2023, EPA and the U.S. Army Corps of Engineers (USACE) announced a final rule, the "*Revised Definition of 'Waters of the United States'; Conforming*" (Conforming Rule). California is among the states that have adopted this rule. The Conforming Rule is the latest definition resulting from revised rules and litigation over the past few years. It conforms the previous definition (i.e., the January 2023 *Revised Definition of "Waters of the United State*s," which took effect on March 20, 2023, and replaced the 2020 *Navigable Waters Protection Rule*) to the United States Supreme Court's May 25, 2023, decision in the case of *Sackett v. Environmental Protection Agency.*

Significant changes include the revised definition of adjacent wetlands; "adjacent" now means having a continuous surface connection. The Conforming Rule also removes the significant nexus test from consideration when identifying tributaries and other waters as federally protected.

Section 401: Water Quality Certification

Under CWA Section 401, applicants for a federal license or permit to conduct activities that may result in the discharge of a pollutant into waters of the United States must apply for water quality certification from the state. Therefore, all projects with a federal component that may affect the quality of waters of the state (including projects that require federal approval, such as a CWA Section 404 permit) must comply with CWA Section 401.

In California, CWA Section 401 is administered by the State Water Resources Control Board through the Regional Water Quality Control Boards (RWQCBs). All areas qualifying as waters of the United States under CWA Section 404 also qualify as "waters of the State of California" (waters of the state) under the jurisdiction of CWA Section 401, the State Water Resources Control Board (State Water

Board), and the RWQCBs; however, some areas considered as waters of the state do not qualify as waters of the United States. State Water Board jurisdiction at streams, lakes, and ponds considered as other waters of the United States extends beyond the ordinary high water mark to the top of bank or to the greatest lateral extent of riparian vegetation, whichever is greater. Isolated wetlands, non-navigable waters, and intrastate waters may also qualify as waters of the state subject to State Water Board jurisdiction under CWA Section 401

Section 402: Permits for Stormwater Discharge

CWA Section 402 regulates construction-related stormwater discharges to surface waters through the National Pollutant Discharge Elimination System (NPDES) program, administered by EPA. In California, the State Water Board is authorized by EPA to oversee the NPDES program through the RWQCBs.

NPDES permits are required for projects that disturb more than 1 acre of land. The NPDES permitting process requires the applicant to file a public notice of intent to discharge stormwater and to prepare and implement a Stormwater Pollution Prevention Plan (SWPPP). The SWPPP must include a site map, a description of proposed construction activities, and the best management practices that will be implemented to prevent soil erosion and discharge of other construction-related pollutants (e.g., petroleum products, solvents, paints, and cement) that could contaminate nearby water resources. Permittees are required to conduct annual monitoring and reporting to ensure that best management practices are correctly implemented and effective in controlling the discharge of stormwater-related pollutants. Because the Pproposed Pproject would disturb more than 1 acre of land, the project proponent will prepare a SWPPP and apply for an NPDES permit.

Section 404 of the CWA: Protection of Waters of the Unites States

Waters of the United States (including wetlands) are protected under Section 404 of the Clean Water Act (CWA). Any activity that involves a discharge of dredged or fill material into waters of the United States, including wetlands, is subject to regulation by the U.S. Army Corps of Engineers (USACE). *Waters of the United States* is defined to encompass navigable waters of the United States; interstate waters; all other waters where their use, degradation, or destruction could affect interstate or foreign commerce; tributaries of any of these waters; and wetlands that meet any of these criteria or are adjacent to any of these waters or their tributaries. *Wetlands* are defined under Section 404 as those areas that are inundated or saturated by surface water or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Jurisdictional wetlands must meet three wetland delineation criteria: support hydrophytic vegetation (i.e., plants that grow in saturated soil); have hydric soil types (i.e., soils that are wet or moist enough to develop anaerobic conditions); and have wetland hydrology.

To be considered potential jurisdictional wetlands, they must be adjacent to a waters of the United States and have a continuous surface connection to those waters.

State

California Environmental Quality Act

CEQA is the regulatory framework by which California public agencies identify and mitigate significant environmental impacts. A project normally has a significant environmental impact on biological resources if it would substantially affect a rare or endangered species or the habitat of that species, substantially interfere with the movement of resident or migratory fish or wildlife, or substantially diminish habitat for fish, wildlife, or plants. The State CEQA Guidelines define rare, threatened, and endangered species as those listed under ESA or the California Endangered Species Act (CESA) or any other species that meet the criteria of the resource agencies or local agencies (e.g., species of special concern, as designated by California Department of Fish and Wildlife (CDFW). The guidelines state that the lead agency preparing an environmental impact report must consult with and receive written findings from CDFW concerning project impacts on species listed as endangered or threatened. The effects of a proposed project on these resources are important in determining whether the project would have significant environmental impacts under CEQA.

California Endangered Species Act

CESA (California Fish and Game Code [CFGC] Sections 2050–2116) states that all native species of fishes, amphibians, reptiles, birds, mammals, invertebrates, and plants and their habitats that are threatened with extinction and those experiencing a significant decline that, if not halted, would lead to a threatened or endangered designation will be protected or preserved.

Under Section 2081 of the CFGC, an incidental take permit from CDFW is required for projects that could result in take of a species that is state listed as threatened or endangered. Under CESA, *take* is defined as an activity that would directly or indirectly kill an individual of a species. The definition does not include harm or harassment, as does the definition of take under ESA. Consequently, the threshold for take under CESA is higher than that under ESA. For example, habitat modification is not necessarily considered take under CESA.

California Native Plant Protection Act

The California Native Plant Protection Act (CNPPA) of 1977 gave the California Fish and Game Commission the authority to list plant species as rare or endangered and authorized them to adopt regulations prohibiting importation of rare and endangered plants into California, take of rare and endangered plants, and sale of rare and endangered plants. The CNPPA prohibits take, possession, transportation, exportation, importation, or sale of rare and threatened plants, except as a result of agricultural practices, fire control measures, timber operations, mining, or actions of public agencies or private utilities. Private landowners are also exempt from the prohibition against removing rare and endangered plants, although they must provide 10-day notice to CDFW before removing the plants. The CNPPA has mostly been superseded by CESA.

California Fish and Game Code

Sections 3503, 3503.5, and 3513: Protection of Birds and Raptors

Section 3503 of the CFGC prohibits the killing of birds and/or the destruction of bird nests. Section 3503.5 prohibits the killing of raptor species and/or the destruction of raptor nests. Typical violations include destruction of active bird and raptor nests as a result of tree removal, and failure of nesting attempts (loss of eggs and/or young) as a result of disturbance of nesting pairs caused by nearby human activity. Section 3513 prohibits any take or possession of birds designated by the MBTA as migratory nongame birds except as allowed by federal rules and regulations pursuant to the MBTA. CDFW cannot issue permits under MBTA for the take of birds by the project.

Sections 3511, 3513, 4700, and 5050: Fully Protected Species

The CFGC provides protection from take for a variety of species, referred to as *fully protected species*. Sections 3511, 3513, 4700, and 5050 of the CFGCpertain to fully protected wildlife species (birds in Sections 3511 and 3513, mammals in Section 4700, and reptiles and amphibians in Section 5050) and strictly prohibit the take of these species. CDFW cannot issue a take permit for fully protected species, except under narrow conditions for scientific research or the protection of livestock, or if a Natural Community Conservation Plan has been adopted.

Senate Bill (SB) 147, that took effect on July 10, 2023, amends Sections 395, 3511, 4700, 5050, and 5515, and adds Section 2081.15 to the CFGC. Unless a project is eligible for a take authorization permit pursuant to section 2081.35, fully protected species may not be taken or possessed at any time and no licenses or permits may be issued for their take, except for collecting the species for necessary scientific research or relocation of the species for the protection of livestock.

Porter-Cologne Water Quality Control Act

Under the Porter-Cologne Act, waters of the state fall under jurisdiction of the nine Regional Water Quality Control Boards (RWQCBs). Under this act, each RWQCB must prepare and periodically update water quality control basin plans. Each basin plan sets forth water quality standards for surface water and groundwater, as well as actions to control nonpoint and point sources of pollution. Projects that affect wetlands or waters must meet the waste discharge requirements of the RWQCB. Pursuant to CWA Sections 401, an applicant for a Section 404 permit to conduct any activity that may result in discharge into navigable waters must provide a certification from the RWQCB that such discharge will comply with state water quality standards. As part of the wetlands permitting process under Section 404, a project applicant would be required to obtain a water quality certification from the applicable RWQCB.

Section 13050 of the Porter-Cologne Act (California Water Code, Division 7) authorizes the State Water Resources Control Board and the relevant to regulate biological pollutants. The California Water Code generally regulates more substances contained in discharges, and defines discharges to receiving waters more broadly than the CWA does.

Chapter 2
Methods

The potential presence of biological resources in the project area was determined through a review of existing information and field surveys. The approximately 38-acre project area consists of an 18.8-acre area within the existing WWTP facility and a 19.3-acre staging area between the Delta Energy Center and the Pittsburg-Antioch Highway, as discussed in Chapter1 and shown in Figures 1 and 2. The project is located within the Antioch North California U.S. Geological Survey (USGS) 7.5-minute quadrangle. The methodology for the information review and surveys is described below.

Special-Status Species

For the purpose of this report, *special-status species* are plants and animals that are legally protected under ESA, CESA, or other regulations, or species that are considered sufficiently rare by the scientific community to qualify for such listing. Special-status plants and animals are those species in any of the categories listed below.

- Species listed or proposed for listing as threatened or endangered under ESA (50 CFR 17.11 [listed animals], 50 CFR 17.12 [listed plants], and various notices in the Federal Register [FR; proposed species]).
- Species that are candidates for possible future listing as threatened or endangered under ESA (88 FR 41560, June 27, 2023).
- Species listed or proposed for listing by the State of California as threatened or endangered under CESA (14 California Code of Regulations [CCR] 670.5).
- Species that meet the definitions of rare or endangered under CEQA (State CEQA Guidelines Section 15380).
- Animals fully protected in California (CFGC Section 3511 [birds], 4700 [mammals], 5050 [amphibians and reptiles], and 5515 [fish]).
- Animal species, subspecies, or distinct populations designated as California species of special concern on the CDFW Special Animals List (California Department of Fish and Wildlife 2024a).
- Bats identified as medium or high priority on the Western Bat Working Group (WBWG) regional priority species matrix (Western Bat Working Group 2017).
- Plants listed as rare under the California Native Plant Protection Act (CFGC 1900 et seq.).
- Plants considered by CDFW and the California Native Plant Society (CNPS) to be “rare, threatened, or endangered in California” (California Rare Plant Ranks [CRPR] 1A,1B, and 2) (California Department of Fish and Wildlife 2024b; California Native Plant Society 2024).
- Plants identified by CDFW and CNPS about which more information is needed to determine their status, and plants of limited distribution (Rare Plant Ranks 3 and 4), (California Department of Fish and Wildlife 2024b; California Native Plant Society 2024), which may be included as special-status species on the basis of local significance or recent biological information.

Review of Existing Information

The sources of information listed below were reviewed to identify special-status species or other sensitive biological resources (e.g., natural communities) with potential to occur in the study area.

- Online soil maps from the U.S. Department of Agriculture National Resources Conservation Service (NRCS) Web Soil Survey database (U.S. Department of Agriculture 2024).
- USFWS National Wetland Inventory database and EPA WATERS GeoViewer database (U.S. Fish and Wildlife Service 2024a; U. S. Environmental Protection Agency 2024).
- CDFW's California Natural Diversity Database (CNDDB) for records of special-status plant occurrences within 10 miles and special-status wildlife occurrences within 5 miles of the project area (California Department of Fish and Wildlife 2024b).
- CNPS's online Inventory of Rare and Endangered Plants of California records search for special-status plants within the Antioch North and 8 surrounding USGS 7.5-minute quadrangles (Denverton, Birds Landing, Rio Vista, Honker Bay, Jersey Island, Clayton, Antioch South, and Brentwood; California Native Plant Society 2024).
- USFWS Information for Planning and Consultation (IPaC) resource list for the project area (U.S. Fish and Wildlife Service 2024b).
- The Western Monarch Milkweed Mapper (WMMM; Xerces Society et al. 2024).1
- Google Earth Pro for aerial imagery (Google Earth Pro 2024).
- The CNDDB, CNPS and IPaC lists are provided in Appendix A.

Field Surveys

ICF Senior Wildlife Biologist Ross Wilming and Senior Botanist/Wetland Ecologist Joe Sanders conducted surveys on March 7 and March 13, 2024, respectively. The survey area consisted of the study area as shown in Figure 2 and areas south of the study area that were visible from Arcy Lane and the Pittsburg-Antioch Highway. Field surveys were conducted by vehicle and by walking meandering transects throughout the staging area. The perimeters of developed areas were also surveyed on foot. Mr. Wilming used binoculars (8x10) to inspect habitat and aid in the identification of avian species.

During the surveys, the biologist and botanist/wetland ecologist mapped land cover including potential wetlands; documented the presence and suitability of special-status species habitat; mapped locations of mammal burrows (Figure 2); and recorded all observed plant and wildlife species. No formal aquatic resources delineation field survey or focused plant or wildlife surveys were conducted; however, habitat characteristics present within and surrounding the study area were evaluated to determine the potential for the study area to support special-status plant and wildlife species. Photos taken during the surveys are provided in Appendix B and all plant and wildlife species identified during the surveys are provided in Appendix C.

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[1] The Western Monarch Milkweed Mapper is a relatively new citizen-scientist reporting tool. There is no mandatory reporting for milkweed. Given that the mapper is new and data collection is opportunistic, it is assumed that milkweed abundance and diversity in the project site is underreported.

Chapter 3
Results

Soils

There are four mapped soil units within the study area (U.S. Department of Agriculture 2024). The mapped soil units are described below.

- **Capay clay 1 to 15% slopes, Major Land Resource Area (MLRA) 17:** This soil map unit is not listed as hydric by the National Resource Conservation Service (NRCS; U.S. Department of Agriculture 2024). It contains moderately well drained clay soils found on terraces and derived from alluvium from sedimentary rock. It is comprised of 85% Capay and similar soils and 15% minor components. Minor components include Rincon, Antioch, and Brentwood, none of which are listed as hydric by the NRCS.
- **Rincon clay loam, 2 to 9% slopes, MLRA 14:** This soil map unit is not listed as hydric by the NRCS (U.S. Department of Agriculture 2024). It contains well drained clay loams found on alluvial fans and terraces derived from alluvium from sedimentary rock. It is comprised of 90% Rincon and similar soils and 10% minor components. Minor components include Lockwood, Arbuckle, Capay, Cropley, Antioch, and Brentwood, none of which are listed as hydric by the NRCS.
- **Rincon clay loam, 9 to 15% slopes, MLRA 14:** This soil map unit is not listed as hydric by the NRCS (U.S. Department of Agriculture 2024). It contains well drained clay loams found on alluvial fans and terraces derived from alluvium from sedimentary rock. It is comprised of 85% Rincon and similar soils and 15% minor components. Minor components include Los Osos, Alo, Chamise, Linne, Lockwood, Nacimiento, and Diablo, none of which are listed as hydric by the NRCS.
- **Sycamore silty clay loam, 0 to 2% slopes, MLRA 17:** This soil map unit is not listed as hydric by the NRCS (U.S. Department of Agriculture 2024). It contains poorly drained silty clay loams found on alluvial fans derived from alluvium from sedimentary rock. It is comprised of 85% Sycamore and similar soils and 15% minor components. Minor components include Sorrento, Laugenour, Omni, Delhi, and Unnamed. Laugenour, Omni and Unnamed are listed as hydric by the NRCS. This soil map unit occurs within developed areas.

Land Cover Types

A *land cover type* is defined as the dominant character of the land surface discernible from aerial photographs, as determined by vegetation, water, or human uses. Land cover types are the most widely used units in analyzing ecosystem function, habitat diversity, natural communities, wetlands and streams, and covered species habitat (Conservation Biology Institute 2021).

The four land cover types in the study area and their approximate acreages are listed in Table 1. Land cover types in the study area are shown in Figure 2.

Table 1. Approximate Acreages of Land Cover Types in the Study Area

Land Cover Type	Acres in Study Area
Non-native annual grassland	24.171
Potential seasonal wetland	0.411
Developed	18.778
Disturbed	0.472
Total	**43.832**

Non-native Annual Grassland

Non-native annual grassland is an herbaceous community dominated by naturalized annual grasses with intermixed perennial and annual forbs. Non-native annual grassland is located in the study area outside the WWTP where the staging area is proposed. Non-native annual grassland in the study area is dominated by non-native annual grasses and forbs including charlock mustard (*Sinapis arvensis*), ripgut brome (*Bromus diandrus*), oats (*Avena* spp.), foxtail barley (*Hordeum murinum*), filarees (*Erodium* spp.), field bindweed (*Convolvulus arvensis*), and vetches (*Vicia* spp.).

Non-native annual grasslands provide breeding and foraging habitat for a number of wildlife species. Species associated with this habitat may include a variety of rodent species such as the California vole (*Microtus californicus*) and California ground squirrel (*Otospermophilus beecheyi*) that utilize burrows in the grasslands. Raptors, including red-tailed hawk (*Buteo jamaicensis*), white-tailed kite (*Elanus leucurus*), barn owl (*Tyto alba*), American kestrel (*Falco sparverius*), northern harriers (*Circus cyaneus*), commonly use open grassland areas for foraging, while species such as western meadowlark (*Sturnella neglecta*), red-winged blackbird (*Agelaius phoeniceus*), and burrowing owl (*Athene cunicularia*) use open grassland areas for nesting. Amphibians including western toad (*Anaxyrus boreas*), California tiger salamander (*Ambystoma californiense*) and California red-legged frog (*Rana draytonii*) utilize non-native annual grasslands for dispersal and can utilize burrows in these grasslands for aestivation. Northwestern pond turtle (*Actinemys marmorata*) can utilize non-native annual grasslands for dispersal and nesting. Reptiles that commonly breed within non-native annual grassland habitat include western fence lizard (*Sceloporus occidentalis)* and Pacific gopher snake (*Pituophis catenifer catenfie*r). Coyotes (*Canis latrans*) also use non-native grasslands for foraging and denning habitat.

Potential Seasonal Wetland

Minor algal matting and plant species that have an equal likelihood of occurring within wetlands and uplands, indicating the potential presence of wetlands, were observed during the field surveys. These areas were restricted to the northern edge of the non-native annual grassland, along a dirt access road; the proposed staging area would avoid the area with potential seasonal wetlands. Plant species observed in these areas include toad rush (*Juncus bufonius*), tall annual willowherb (*Epilobium brachycarpum*), prostrate knotweed (*Polygonum aviculare*), and wooly marbles (*Psilocarphus* sp.). A routine delineation of aquatic resources was not conducted in accordance with the USACE's *Wetlands Delineation Manual,* nor was a jurisdictional determination request made, so these findings are preliminary and subject to written verification by the USACE.

Developed

Developed areas are generally paved or covered with an impermeable substrate (i.e., asphalt, concrete) and may include landscaping. Structures and ornamental vegetation such as buildings, trees, and bushes may provide suitable roosting habitat for bats or nesting habitat for birds in developed areas. Roadways, parking lots, and other paved surfaces do not provide habitat for wildlife. The WWTP portion of the project area is developed.

Developed areas provide limited habitat for wildlife but are often known to support common "urban-dwelling species" such as northern mockingbird (*Mimus polyglottos*), rock pigeon (*Columba livia*), mourning dove (*Zenaida macroura*), house sparrow (*Passer domesticus*), house finch (*Carpodacus mexicanus*), California scrub jay (*Aphelocoma californica*), house mouse (*Mus musculus*), black rat (*Rattus rattus*), raccoon, (*Procyon lotor),* striped skunk (*Mephitis mephitis*), and Virginia opossum (*Didelphis virginiana*).

Disturbed

Disturbed lands are areas that have been physically disturbed and are no longer recognizable as native or naturalized vegetation associations, but may continue to retain soil substrate. If vegetation is present, it is composed almost entirely of non-native vegetation. Disturbed land cover includes a gravel road in the proposed staging area . Because disturbed areas are typically subject to repeated human disturbance, they provide low-quality habitat for wildlife. Disturbed areas in the staging area would support those wildlife species found in the surrounding non-native annual grassland and developed areas.

Sensitive Natural Communities

Special-status or *sensitive natural communities* are communities (vegetation types) that are of limited distribution statewide or within a county or region. CDFW's Vegetation Classification and Mapping Program works to classify and map the vegetation of California and determine the rarity of vegetation types. Vegetation types with a state rarity ranking of S1 through S3 in CDFW's list of *California Sensitive Natural Communities* (California Department of Fish and Wildlife 2023a) are considered to be highly imperiled, and project impacts on high-quality occurrences of these vegetation types are typically considered significant under CEQA.

The CNDDB includes records of sensitive natural communities within 10 miles of the study area, however, the study area does not overlap any of the sensitive natural community records. Additionally, no sensitive natural communities were observed in the study area during the surveys.

Special-Status Species

Special-status plant and wildlife species with moderate or high potential to occur in the study area are discussed further in this section. For each species, suitable habitat in the study area and information about known occurrences in and near the study area are described.

Special-Status Plants

Based on a review of the CNDDB list and CNPS Inventory, 20 special-status plant species were identified as having the potential to occur in the study area (Table 2). Non-native annual grassland and potential seasonal wetlands in the study area have a moderate potential to support two special-status plants (big tarplant [*Blepharizonia plumosa*] and stinkbells [*Fritillaria agrestis*]). These two species are discussed in greater detail below. The remaining species in Table 2 that were determined to have low or no potential to occur on the study area based on the specific microhabitat conditions and geographic range are not discussed further.

Table 2. Special-Status Plants with Potential to Occur in the Study Area

Species	Status[a] Federal/State/CRPR	Habitats	Blooming Period	Potential to Occur in the Study Area[b]
Amsinckia grandiflora Large-flowered fiddleneck	E/E/1B.1	Open grassy slopes in annual grasslands and cismontane woodlands	April–May	Low. Suitable habitat present. However, all nearby occurrences are the result of introduction efforts.
Arctostaphylos auriculata Mt. Diable manzanita	-/-/1B.3	Chaparral and woodland	January–March	None. No manzanitas present during surveys. No suitable habitat present.
Arctostaphylos manzanita subsp. *laevigata* Contra Costa manzanita	-/-/1B.2	Chaparral	January–March	None. No manzanitas observed during surveys. No suitable habitat present.
Astragalus tener var. *tener* Alkali milk-vetch	–/–/1B.2	Playas and grasslands with adobe clay soils and alkaline vernal pools	March–June	Low. Grassland present only provides marginal suitable habitat and suitable soil does not appear to be present.
Atriplex cordulata var. cordulata heartscale	-/-/1B.2	Alkali or saline soil.	April–October	Low. Grassland present only provides marginal suitable habitat and suitable soil does not appear to be present. Nearest occurrence is approximately 9.9 miles away (CNDDB occurrence #93).
Atriplex depressa Brittlescale	–/–/1B.2	Mesic areas in alkali grassland, alkali meadow, and alkali scrub	May–October	Low. Grassland present only provides marginal suitable habitat. Alkali areas not present.
Atriplex minuscula Lesser saltscale	–/–/1B.1	Alkali sink and sandy alkaline soils in grasslands	May–October	Low. Grassland present only provides marginal suitable habitat. Alkali areas not present.
Blepharizonia plumosa Big tarplant	–/–/1B.1	Dry slopes in grassland	July–October	Moderate. Historical occurrence overlaps the study area but was submitted in 1937 (CNDDB occurrence #1). Sloped areas within grassland provide suitable habitat.
Calochortus pulchellus Mt. Diablo fairy-lantern	-/-/1B.2	Woodland slopes.	April–June	None. Suitable habitat not present.

Species	Status[a] Federal/State/CRPR	Habitats	Blooming Period	Potential to Occur in the Study Area[b]
Centromadia parryi subsp. *parryi* Pappose tarplant	–/–/1B.2	Grassland, coastal salt marshes, alkaline springs and seeps.	June–October	Low. Grassland provides suitable habitat. However, there are no records from Contra Costa County.
Chloropyron molle subsp. *molle* Soft salty bird's-beak	E/R/1B.2	Salt marsh.	July–November	None. No suitable habitat present.
Cicuta maculata var. *bolanderi* Bolander's water-hemlock	-/-/2B.1	Coastal wetlands	July–September	Low. Potential seasonal wetlands are non-tidal and would only provide marginal suitable habitat. All nearby occurrences are within tidal marsh.
Cordylanthus nidularius Mt. Diablo bird's-beak	-/R/1B.1	Open serpentine in chaparral	July–August	None. Suitable habitat not present.
Cryptantha hooveri Hoover's cryptantha	-/-/1A	Sand flats and grassland	April–May	Low. This species has not been observed since 1939.
Delphinium californicum subsp*. interius* Hospital canyon larkspur	-/-/1B.2	Slopes in open woodland	April–June	None. Suitable habitat not present.
Downingia pusilla Dwarf downingia	-/-/2B.2	Vernal pools and roadside ditches	March–May	None. Suitable habitat not present.
Eriastrum ertterae Lime Ridge woolly-star	-/-/1B.1	Open areas in chaparral	June	None. Suitable habitat not present.
Eriogonum nudum var. *psychicola* Antioch Dunes buckwheat	-/-/1B.1	Inland dunes	July–October	None. Suitable habitat not present.
Eriogonum truncatum Mt. Diablo buckwheat	-/-/1B.1	Sand	April–October	None. Suitable habitat not present.
Eryngium jepsonii Jepson's coyote-thistle	-/-/1B.2	Clay soil in wetlands	April–August	None. Suitable habitat not present.
Erysimum capitatum var. *angustatum* Contra Costa wallflower	E/E/1B.1	Inland dunes	March–July	None. Suitable habitat not present.

Species	Status[a] Federal/State/CRPR	Habitats	Blooming Period	Potential to Occur in the Study Area[b]
Eschscholzia rhombipetala diamond-petaled California poppy	-/-/1B.1	Fallow fields, grasslands	March–April	Low. Suitable habitat present. There is only one occurrence within 10 miles (CNDDB occurrence #3), and that population is thought to have been extirpated.
Extriplex joaquinana San Joaquin spearscale	-/-/1B.2	Alkaline soils	April–October	None. Suitable habitat not present.
Fritillaria agrestis Stinkbells	-/-/4.2	Grassland, chaparral, woodland, clay soil.	March–June	Moderate. Suitable habitat present. Nearest occurrence is approximately 5.5 miles away (CNDDB occurrence #6).
Helianthella castanea Diablo helianthells	-/-/1B.2	Open areas in grassland	April–June	Low. Suitable habitat present. However, the study area is north and outside of the species known range.
Hesperolinon breweri Brewer's western flax	-/-/1B.2	Chaparral, grassland, usually on serpentine soil.	March–June	Low. Non-native grassland provides only marginal suitable habitat as it does not occur on serpentine soil. Nearest occurrence is approximately 4.4 miles away (CNDDB occurrence #7).
Hibiscus lasiocarpos var. *occidentalis* Wooly rose-mallow	-/-/1B.2	Freshwater wetlands, wet banks and marshes	July–November	Low. Potential seasonal wetlands only provide marginal suitable habitat.
Isocoma arguta Carquinez goldenbush	-/-/1B.2	Alkaline soils, flats, low hills and grassland	August–December	Low. Suitable habitat present. However, nearest occurrence is across the Delta, a geographic barrier, in Solano county, approximately 8.2 miles away (CNDDB occurrence #1).
Lasthenia conjugens Conta Costa goldfields	E/-/1B.1	Vernal pools, wet meadows	March–June	Low. Potential seasonal wetlands only provide marginal suitable habitat. All occurrences within 10 miles are considered extirpated.
Lathyrus jepsonii var. *jepsonii* Delta tule pea	-/-/1B.2	Tidal marsh	April–August	None. Suitable habitat not present.
Lilaeopsis masonii Mason's lilaeopsis	-/-/1B.1	Tidal marsh	June–August	None. Suitable habitat not present.
Lilaeopsis masonii Delta mudwort	-/-/2B.1	Tidal marsh	April	None. Suitable habitat not present.
Madia radiata Showy golden madia	-/-/1B.1	Grassy or open slopes, vertic clay.	March–May	Low. Suitable habitat present. However, all records within 10 miles are from 1938 and 1941 (CNDDB occurrences #27 and #25).
Malacothamnus hallii Hall's bush-mallow	-/-/1B.2	Chaparral, coastal scrub	April–October	None. Suitable habitat not present.

Species	Status[a] Federal/State/CRPR	Habitats	Blooming Period	Potential to Occur in the Study Area[b]
Monolopia gracilens woodland woollythreads	-/-/1B.2	Serpentine grassland, open chaparral, oak woodland	March–July	None. Suitable habitat not present.
Navarretia gowenii Lime Ridge Navarretia	-/-/1B.1	Clay or serpentine soil.	May–June	None. Project is outside of species' range.
Navarretia nigelliformis subsp. *radians* Shining Navarretia	-/-/1B.2	Vernal pools and clay depressions	May–July	Low. Potential seasonal wetlands provide marginal suitable habitat. Nearest occurrence is 3.5 miles away (CNDDB occurrence #63).
Oenothera deltoides subsp. *howellii*	E/E/1B.1	Sandy buffs, dunes	March–September	None. Suitable habitat not present.
Phacelia phacelioides Mt Diablo Phacelia	-/-/1B.2	Chaparral and woodland	April–May	None. Suitable habitat not present. Project is outside of species' range.
Plagiobothrys hystriculus Bearded popcorn flower	-/-/1B.1	Wet grassland, vernal pool margins	April–May	Low. Potential seasonal wetlands provide marginal suitable habitat. No occurrences within Contra Costa County.
Ravenella exigua Chaparral harebell	-/-/1B.2	Chaparral	March–June	None. Suitable habitat not present. Project is outside of species' range.
Sanicula saxatilis Rock sanicle	-/-/1B.2	Rocky ridges or talus, chaparral, woodland	May-June	None. Suitable habitat not present.
Senecio aphanactis Chaparral ragwort	-/-/2B.2	Alkaline flats, dry open rocky areas	February–May	None. Suitable habitat not present.
Sidalcea keckii Keck's checkerbloom	E/-/1B.1	Grassy slopes	April–May	Low. Suitable habitat present. However, there are no occurrences within Contra Costa County.
Streptanthus albidus subsp. *peramoenus* most beautiful jewelflower	-/-/1B.2	Chaparral, woodland, and grassland	March–October	Low. Suitable habitat present. However, project is outside of species' range.
Streptanthus hispidus Mt. Diablo jewelflower	-/-/1B.3	Chaparral, grassland	March–June	Low. Suitable habitat present. However, project is outside of species' range.
Symphyotrichum lentum Suisun Marsh Aster	-/-/1B.2	Marshes	May–November	None. Suitable habitat not present.

Species	Status[a] Federal/State/CRPR	Habitats	Blooming Period	Potential to Occur in the Study Area[b]
Tropidocarpum capparideum Caper-fruited Tropidocarpum	-/-/1B.1	Alkaline soils, low hills, valleys	March–April	Low. Suitable habitat present. However, project is outside of species' range.
Viburnum ellipticum Oval-leaved Viburnum	-/-/2B.3	Chaparral, yellow-pine forest	May–June	None. Suitable habitat not present.

[a] Status explanations:

Federal

E = listed as endangered under ESA.

– = no listing.

State

E = listed as endangered under CESA.

– = no listing.

California Rare Plant Rank (CRPR)

1A = List 1A species: presumed extinct in California.

1B = List 1B species: rare, threatened, or endangered in California and elsewhere.

2 = List 2 species: rare, threatened, or endangered in California but more common elsewhere.

CRPR Code Extensions:

0.1 = seriously endangered in California (over 80% of occurrences threatened / high degree and immediacy of threat.

0.2 = fairly endangered in California (20–80% of occurrences threatened).

[b] Potential for occurrence was determined using the following rationale.

None. No suitable habitat (including vegetation community, soils, and elevation) is present within the study area and/or there are no records of occurrences (CNDDB or other documents) within 10 miles of the study area.

Low. Low-quality suitable habitat is present within the study area and/or there are no records of occurrences (CNDDB or other documents) within 10 miles of the study area.

Moderate. Low-quality or limited suitable habitat is present in the study area and records of occurrences (CNDDB or other documents) are located within 10 miles of the study area, or quality suitable habitat is present within the study area but there are no known records of occurrences within 10 miles of the study area.

High. Suitable habitat is present in the study area and records of occurrences (CNDDB or other documents) overlap the study area or are located within 10 miles of the study area.

Big Tarplant

Non-native annual grassland in the study area provides potential habitat for big tarplant. There are 21 CNNDB occurrences of big tarplant within 10 miles of the study area (California Department of Fish and Wildlife 2024b). All the CNDDB occurrences are considered extant, but one occurrence was last observed in 1932. The closest occurrence is 0.4 mile east of the study area on the other side of PG&E's Tesla substation. Based on the presence of potential habitat in the study area and nearby known occurrences, the potential for big tarplant to be present in the study area is moderate.

Stinkbells

Non-native annual grassland in the study area provides potential habitat for stinkbells. There are three CNDDB occurrences of stinkbells within 10 miles of the study area (California Department of Fish and Wildlife 2024b), all of which are considered extant. The closest occurrence is approximately 5.8 miles southwest of the study area. Based on the presence of potential habitat and nearby known occurrences, the potential for stinkbells to be present in the study area is moderate.

Special-Status Wildlife

Based on a review of the CNDDB and IPaC lists, 36 special-status wildlife species were identified as having the potential to occur in the vicinity of the study area. Table 3 provides the regulatory status, distribution, habitat requirements, and a rationale for the potential for each of these 36 species to occur at the study area. The study area has a moderate to high potential to support eight special-status wildlife; an additional species, Modesto song sparrow (*Melospiza melodia*), has a moderate potential to occur immediately adjacent to the study area and could be impacted by project activities. The remaining species in Table 3 were determined to have low or no potential to occur in the study area and are not discussed further.

The nine special-status wildlife with moderate to high potential to occur in or adjacent to the study area are listed below and discussed in greater detail in the following subsections.

- Monarch butterfly (*Danaus plexippus)*
- California tiger salamander
- California red-legged frog
- Western pond turtle
- Giant garter snake (*Thamnophis gigas*)
- Western burrowing owl
- Northern harrier
- White-tailed kite
- Modesto song sparrow

Table 3. Special-Status Wildlife Potential to Occur in or Adjacent to the Project Area

Scientific Name Common Name	Status Federal/State/ Other[a]	Distribution in California	Habitat Requirements	Potential to Occur in or Adjacent to the Project Area[b]
Invertebrates				
Apodemia mormo langei Lange's metalmark butterfly	E/–/–	Only known to occur at Antioch Dunes in Contra Costa County.	Sandy soils; associated with naked-stemmed buckwheat (*Eriogonum nudum var. psychicola*).	None. Although there are CNDDB occurrences within 5 miles of the study area, there is no suitable habitat present in the study area and the study area is outside the known range of the species.
Bombus crotchii Crotch's bumble bee	–/CE/–	Occurs throughout the Pacific Coast, Western Desert, and adjacent foothills throughout most of the state's southwestern region.	Inhabits grasslands and shrublands. Visits a wide variety of wildflowers; plant genera it is most commonly associated with are *Antirrhinum, Asclepias*, *Chaenactis, Clarkia, Dendromecon, Eriogonum*, *Eschscholzia, Lupinus*, *Medicago*, *Phacelia,* and *Salvia* spp.	Low. Low quality suitable habitat (i.e., grassland with plants they are associated with) is present in the staging area. Plant genera commonly associated with the species including *Lupinus* and *Medicago* were found in the study area during the surveys. There is one historic (1926) CNDDB occurrence within 5 miles of the study area that is approximately 1.25 miles southeast of the study area. The potential to occur is low due to the rarity of the species.
Bombus occidentalis occidentalis Western bumble bee	–/CE/–	Historically occurred throughout much of northern California but current range appears to be absent from much of this area; current range include high elevation sites in the Northern Coast Range and Sierra Nevada (California Department of Fish and Wildlife 2023b).	Habitat varies widely and includes open grassy areas, urban parks and gardens, chaparral and scrub lands, and mountain meadows. Nests underground in squirrel burrows, in mouse nests, and in open west-southwest facing slopes bordered by trees. Visits a wide variety of wildflowers. Plant genera it is most commonly associated with are *Cirsium*, *Erigonum*, *Solidago*, "Aster," *Ceonothus*, *Centaurea*, and *Penstemon*.	Low. Although suitable habitat (i.e., grassland with wildflowers) is present in the staging area, the study area is not within the current range of the species. There are three historic (1966, 1974, and 1979) CNDDB records for occurrences within 5 miles of the study area.

Scientific Name Common Name	Status Federal/State/ Other[a]	Distribution in California	Habitat Requirements	Potential to Occur in or Adjacent to the Project Area[b]
Branchinecta lynchi Vernal pool fairy shrimp	T/–/–	Central Valley, central and south Coast Ranges from Tehama County to Santa Barbara County; isolated populations also in Riverside County.	Common in vernal pools although inhabits a variety of natural and artificial seasonal wetland habitats, such as alkali pools, ephemeral drainage, stock ponds, roadside ditches, vernal swales, and rock outcrop pools (Helm 1998).	None. Although there are CNDDB occurrences within 5 miles of the study area, there is no suitable habitat present in the study area. Potential seasonal wetlands in the study area would not pool water to a depth and duration to support this species.
Danaus plexippus Monarch butterfly	C/–/–	Western monarchs overwinter in wooded groves along the coast; migratory and breeding habitat throughout the state.	Overwinter roosting occurs in wind-protected tree groves with nectar and water sources nearby. Host plants for egg laying and larvae food sources are native milkweed plants (*Asclepias spp.).* Milkweeds grow in open habitats include fields, meadows, weedy areas, marshes, and roadsides.	Moderate. Suitable foraging habitat (i.e., grassland with wildflowers) is present in the staging area; narrow leaved milkweed (*Asclepias fascicularis*) (used for egg laying) was not observed during surveys, but surveys were conducted outside the growth period for milkweed. No suitable overwintering habitat (i.e., wind-protected tree groves) is present in the study area and no breeding has been documented in or near the study area (Xerces Society et al. 2024). Although there are no CNDDB occurrences within 5 miles of the study area, adult monarchs and milkweed plants have been documented less than 0.6-mile northeast of the study area (Xerces Society et al. 2024).
Lepidurus packardi Vernal pool tadpole shrimp	E/–/–	Shasta County south to Merced County.	Vernal pools and ephemeral stock ponds.	None. Although there are CNDDB occurrences within 5 miles of the study area, there is no suitable habitat present in the study area. Potential seasonal wetlands in the study area would not pool water to a depth and duration to support this species.

Scientific Name Common Name	Status Federal/State/ Other[a]	Distribution in California	Habitat Requirements	Potential to Occur in or Adjacent to the Project Area[b]
Fish				
Acipenser medirostris Green sturgeon (southern DPS)	T/–/–	Primarily in the Klamath/Trinity and Sacramento Rivers including in the Sacramento–San Francisco Estuary.	Primarily marine, using large anadromous freshwater rivers and associated estuaries for spawning and rearing. Primarily spawn in the upper mainstem of the Sacramento River, although some spawning activity has recently been documented in the Feather and Yuba Rivers.	None. Although there are CNDDB occurrences within 5 miles of the study area, there is no suitable habitat present in the study area.
Archoplites interruptus Sacramento perch	–/SSC/–	Currently, populations in Clear Lake and Alameda Creek including the Calaveras Reservoir, are the only populations within the historic native range. Outside of native range, populations exist in California reservoirs and associated streams (Moyle 2002).	Mostly found in warm, turbid reservoirs or farm ponds; also occurs in sloughs, slow moving rivers, and large lakes in the Central Valley.	None. Although there are CNDDB occurrences within 5 miles of the study area, there is no suitable habitat present in the study area.
Hypomesus transpacificus Delta smelt	T/E/–	Primarily in the Sacramento–San Joaquin Estuary, but has been found as far upstream as the mouth of the American River on the Sacramento River and Mossdale on the San Joaquin River; range extends downstream to San Pablo Bay.	Occurs in estuary habitat in the Delta where fresh and brackish water mix in the salinity range of 2–7 parts per thousand (Moyle 2002).	None. Although there are CNDDB occurrences within 5 miles of the study area, there is no suitable habitat present in the study area.
Oncorhynchus mykiss irideus Steelhead – Central Valley DPS (pop 11)	T/–/–	Naturally spawned Steelhead originating below natural and manmade impassable barriers from the Sacramento and San Joaquin Rivers and their tributaries.	An anadromous fish that spawns and spends a portion of its life in inland streams, typically maturing in the open ocean.	None. Although there are CNDDB occurrences within 5 miles of the study area, there is no suitable habitat present in the study area.

Scientific Name Common Name	Status Federal/State/ Other[a]	Distribution in California	Habitat Requirements	Potential to Occur in or Adjacent to the Project Area[b]
Spirinchus thaleichthys Longfin smelt	PE/T/–	Within California, mostly in the Sacramento River–San Joaquin River Delta, but also in Humboldt Bay, Eel River estuary, and Klamath River estuary. Also found in South San Francisco Bay and sloughs in Coyote Creek, Alviso Slough, and nearby salt ponds.	Salt or brackish estuary waters with freshwater inputs for spawning.	None. Although there are CNDDB occurrences within 5 miles of the study area, there is no suitable habitat present in the study area.
Amphibians				
Ambystoma californiense California tiger salamander (Central California DPS)	T/T/–	Central Valley, including Sierra Nevada foothills, up to approximately 1,000 feet, and coastal region from Sonoma County south to Santa Barbara County.	Small ponds, lakes, or vernal pools in grasslands and oak woodlands for larvae; rodent burrows, rock crevices, or fallen logs for cover for adults and for summer dormancy.	Moderate. No suitable aquatic breeding habitat is present in the study area but the emergency retention basin in the north part of the WWTP and the wetland located 0.71-mile northwest of the staging area provide suitable aquatic habitat. Grassland and seasonal wetlands in the study area provide suitable upland habitat. There are 12 CNDDB records for occurrences within 5 miles of the study area; the nearest presumed extant CNDDB occurrence (#666) is from 2003 and is approximately 2 miles southwest of the study area.
Rana boylii Foothill yellow-legged frog (Central Coast DPS)	T/E/–	Occurs in the Klamath, Cascade, north Coast, south Coast, Transverse, and Sierra Nevada Ranges up to approximately 1,800 meters (6,000 feet).	Creeks or rivers in woodland, forest, mixed chaparral, and wet meadow habitats with rock and gravel substrate and low overhanging vegetation along the edge. Usually found near riffles with rocks and sunny banks nearby.	None. No suitable habitat is present in the study area and there are no CNDDB records for occurrences within 5 miles of the study area.

Scientific Name Common Name	Status Federal/State/ Other[a]	Distribution in California	Habitat Requirements	Potential to Occur in or Adjacent to the Project Area[b]
Rana draytonii California red-legged frog	T/SSC/–	Found along the coast and coastal mountain ranges of California from Mendocino County to San Diego County and in the Sierra Nevada from Butte County to Stanislaus County.	Permanent and semipermanent aquatic habitats, such as creeks and cold-water ponds, with emergent and submergent vegetation; may estivate in rodent burrows or cracks during dry periods. Uses upland habitat for foraging, sheltering, and dispersal. Dispersal distances vary by topography and habitat conditions, but the species may disperse up to 1.7 miles straight-line distance away from aquatic habitat (U.S. Fish and Wildlife Service 2022:13).	Moderate. No suitable breeding habitat is in the study area but breeding habitat is present nearby in the emergency retention basin in the north part of the WWTP, Kirker Creek/Contra Costa Canal east and south of the study area, and wetlands located 0.17 mile northwest of the staging area; suitable upland habitat (i.e., grassland and seasonal wetlands) is present in the study area. There are 12 CNDDB occurrences within 5 miles of the study area; the nearest presumed extant CNDDB occurrence (#531) from 2002 is approximately 1.4 miles south of the study area.
Spea hammondii Western spadefoot	PT/SSC/–	Sierra Nevada foothills, Central Valley, Coast Ranges, coastal Counties in southern California.	Shallow streams with riffles; seasonal wetlands, such as vernal pools in annual grasslands and oak woodlands. The distance that individuals disperse is variable; the maximum dispersal distance recorded is 0.4 mile (88 FR 84261).	None. No suitable aquatic habitat is present in the study area and no CNDDB occurrences within 5 miles of the study area. Potential seasonal wetlands in study area would not pool water to a depth and duration to support this species.
Reptiles				
Actinemys marmorata Northwestern pond turtle	PT/SSC/–	Occurs throughout California west of the Sierra-Cascade crest. Found from sea level to 6,000 feet. Does not occur in desert regions except for along the Mojave River and its tributaries.	Occupies ponds, marshes, rivers, streams, and irrigation canals with muddy or rocky bottoms and with watercress, cattails, water lilies, or other aquatic vegetation in woodlands, grasslands, and open forests. Nests are typically constructed in upland habitat within 0.25 mile of aquatic habitat. Turtles may overwinter/ aestivate in upland habitat up to 0.31 mile from aquatic habitat. Dispersal within/along aquatic habitat up to 4.3 miles has been observed;	Moderate. No suitable aquatic habitat is present in the study area but the emergency retention basin in the north part of the WWTP, Kirker Creek/Contra Costa Canal east and south of the study area, and wetlands located 0.17-mile northwest of the staging area provide suitable aquatic habitat. Suitable upland (for nesting, overwintering/aestivation and dispersal) habitat (i.e., grassland in proximity to suitable aquatic habitat) is present in the study area. There are 4 CNDDB records for occurrences within 5 miles of the study area; the nearest CNDDB occurrence (#145) from 1998 is approximately 0.5 mile

Scientific Name Common Name	Status Federal/State/ Other[a]	Distribution in California	Habitat Requirements	Potential to Occur in or Adjacent to the Project Area[b]
			overland movements appear to be uncommon (U.S. Fish and Wildlife Service 2023:27,29).	east of the study area in the Corteva Wetlands open space.
Anniella pulchra Northern California legless lizard	–/SSC/–	Along the Coast, Transverse, and Peninsular Ranges from Contra Costa County to San Diego County with spotty occurrences in the San Joaquin Valley; elevation range extends from sea level to about 5,100 feet.	Occurs in moist warm loose soil with plant cover. Moisture is essential. Habitat consist of sparsely vegetated areas of beach dunes, chaparral, pine-oak woodlands, desert scrub, sandy washes, and stream terraces with sycamores, cottonwoods, or oaks. Leaf litter under trees and bushes in sunny areas, and dunes stabilized with bush lupine and mock heather often indicate suitable habitat. Use surface objects such as rocks, boards, driftwood, and logs for cover.	Low. Although there are CNDDB occurrences within 5 miles of the study area, there is no suitable habitat present in the study area. Vegetation in the staging area is dense and tall, and there are no loose soils.
Arizona elegans occidentalis California glossy snake	–/SSC/–	Occurs from the eastern part of the San Francisco Bay Area south to northwestern Baja California; absent along the central coast. There are also old reports of this snake from the Santa Monica Mountains.	Most common in desert habitats but also occur in chaparral, sagebrush, valley-foothill hardwood, pine-juniper, and annual grass.	Low. Low quality suitable habitat (i.e., grassland) is present within the staging area. There is one CNDDB occurrence within 5 miles of the study area; the record (#259) from 1958 is located over 2.8 miles east of the study area. The study area is in the northern extent of the species range and is separated from more suitable habitat by development.
Masticophis lateralis euryxanthus Alameda whipsnake	T/T/–	Restricted to the inner Coast Range in western and central Contra Costa and Alameda Counties (65 FR 58933, October 3, 2000). In its range, fragmented into five disjunct populations: Tilden–Briones, Oakland–Las Trampas, Hayward–Pleasanton Ridge, Sunol-Cedar Mountain, and the	Valleys, foothills, and low mountains associated with northern coastal scrub or chaparral habitat; requires rock outcrops for cover and foraging. Also occurs in grassland areas near scrub and chaparral.	None. Although there are CNDDB occurrences within 5 miles of the study area, there is no suitable habitat present in the study area and the study area is outside the subspecies known.

Scientific Name Common Name	Status Federal/State/ Other[a]	Distribution in California	Habitat Requirements	Potential to Occur in or Adjacent to the Project Area[b]
		Mount Diablo–Black Hills (71 FR 58176, October 2, 2006).		
Thamnophis gigas Giant garter snake	T/T/–	Central Valley from the vicinity of Burrel in Fresno County to near Chico in Butte County; extirpated from areas south of Fresno.	Sloughs, canals, low-gradient streams, and freshwater marshes where there is a prey base of small fish and amphibians. Also occurs in irrigation ditches and rice fields. Requires grassy banks and emergent vegetation for basking and areas of high ground protected from flooding during winter.	Moderate. No suitable aquatic habitat is present in the study area but the emergency retention basin in the north part of the WWTP, Kirker Creek/Contra Costa Canal east and south of the study area, and wetlands located 0.17 mile northwest of the staging area provide suitable aquatic habitat. Suitable upland habitat (i.e., grassland and seasonal wetland) is present in the study area. There are four CNDDB records for occurrences within 5 miles of the study area. The nearest CNDDB occurrence (#433) from 2022 is approximately 1 mile northeast of the study area in the Corteva Wetlands Preserve.
Birds				
Athene cunicularia hypugaea Western burrowing owl	–/P, SSC/–	Lowlands throughout California, including the Central Valley, northeastern plateau, southeastern deserts, and coastal areas; rare along south coast.	Level, open, dry, heavily grazed or low stature grassland or desert vegetation with available burrows.	Moderate. Suitable foraging habitat (i.e., grassland) is present within the study area; potential for nesting and wintering is low due to a lack of appropriately sized California ground squirrel burrows. There are 10 CNDDB records for occurrences within 5 miles of the study area. The nearest presumed extant CNDDB occurrence (#1161) is from 2008 and is approximately 2.1 miles south of the study area.

Scientific Name Common Name	Status Federal/State/ Other[a]	Distribution in California	Habitat Requirements	Potential to Occur in or Adjacent to the Project Area[b]
Buteo swainsoni Swainson's hawk	–/T/–	Lower Sacramento and San Joaquin Valleys, Klamath Basin, and Butte Valley; highest nesting densities occur near Davis and Woodland in Yolo County.	Prefers to nest in large trees (e.g., oaks, eucalyptus and cottonwoods) near foraging habitat; forages in grasslands, irrigated pastures, and grain fields.	Low. Although there are three CNDDB occurrences within 5 miles of the study area and suitable habitat is present, the study area is outside the current nesting range of the species. There are no occurrences in Contra Costa County after 1900 as far west as the study area (California Department of Fish and Wildlife 2024b).; The nearest CNDDB occurrence (#2690) and furthest west occurrence in Contra Costa County after 1900 is from 2016 and is approximately 3.8 miles southeast of the study area.
Circus cyaneus Northern harrier	–/SSC/–	Throughout lowland California; has been recorded in fall at high elevations.	Grasslands, meadows, marshes, and seasonal and agricultural wetlands providing tall cover.	High. Suitable nesting and foraging habitat (i.e., grassland) is present in the study area. Additional nesting habitat is nearby in the emergency retention basin in the north part of the WWTP and in Contra Costa Canal (Kirker Creek on NHD maps) east of the study area. There are three CNDDB records for occurrences within 5 miles of the study area. The nearest CNDDB occurrence (#87) is from 2004 and is approximately 4 miles northeast of the study area.
Elanus leucurus White-tailed kite	–/FP/–	Lowland areas west of Sierra Nevada from the head of the Sacramento Valley south, including coastal valleys and foothills to western San Diego County at the Mexico border.	Low foothills or valley areas with valley or live oaks, riparian areas, and marshes near open grasslands for foraging.	Moderate. Suitable nesting and foraging habitat is present in the study area although nesting habitat quality is low due to the size (medium) of the trees in the study area and the area having a moderate level of human disturbance. There is one CNDDB record for an occurrence (#17) from 1985 approximately 0.3 mile east of the study area at the Corteva Wetlands Preserve.

Scientific Name Common Name	Status Federal/State/ Other[a]	Distribution in California	Habitat Requirements	Potential to Occur in or Adjacent to the Project Area[b]
Melospiza melodia maxillaris Suisun song sparrow	–/SSC/–	Restricted to Suisun Marsh from the Carquinez Strait east to the confluence of the Sacramento and San Joaquin rivers near Antioch (Shuford and Gardali 2008).	Confined to tidal salt and brackish marshes. Associated primarily with tidal channels, especially in marshes where pickleweed (*Salicornia virginica*) dominates and gumplant (*Grindelia stricta*) lines the channels. In marshes where there are no sloughs, some tidal influence is still required as few occur in diked areas with stagnant water; weaker associations with brackish or freshwater marshes with substantial cover of tall bulrush, tule, or cattail (Shuford and Gardali 2008).	Low. Although there are CNDDB occurrences within 5 miles of the study area, there is no suitable habitat present in the study area.
Charadrius alexandrinus nivosus Western snowy plover (nesting)	T/SSC/–	Nests along the entire coast of California from Del Norte to San Diego County adjacent to or near tidal waters, including along the mainland coast, peninsulas, offshore islands, and adjacent bays and estuaries. Nests at inland lakes throughout northeastern, central, and southern California, including Mono Lake and Salton Sea.	Coastal beaches above the normal high tide limit in flat, open areas with sandy or saline substrates; vegetation and driftwood are usually sparse or absent. Inland, they require barren to sparsely vegetated ground at alkaline or saline lakes, reservoirs, ponds and riverine sand bars; also along sewage, salt-evaporation, and agricultural wastewater ponds.	Low. Although there are CNDDB occurrences within 5 miles of the study area, there is no suitable habitat present in the study area.

Scientific Name Common Name	Status Federal/State/ Other[a]	Distribution in California	Habitat Requirements	Potential to Occur in or Adjacent to the Project Area[b]
Geothlypis trichas sinuosa Saltmarsh common yellowthroat	–/SSC/–	The current range includes four main areas: coastal riparian and wetland areas of western Marin County, the tidal marsh system of San Pablo Bay, the tidal marsh system of southern San Francisco Bay, and coastal riparian and wetland areas in San Mateo County. Additionally, there are some disjunct populations: Stafford Lake, Marin County; Lake Merced, San Francisco County; and wet areas on San Bruno Mountain, San Mateo County (Shuford and Gardali 2008).	Freshwater marshes in summer and salt or brackish marshes in fall and winter; requires tall grasses, tules, and willow thickets for nesting and cover.	Low. Although there are CNDDB occurrences within 5 miles of the study area, the study area is outside the known range of the species.
Gymnogyps californianus California condor	E/E, FP/–	Rugged canyons, gorges, and forested mountains at elevations ranging from sea level to 8,860 feet. In California, there are populations in Big Sur, Pinnacles National Monument, and inland from Ventura in the Sespe wilderness.	Pairs nest in caves high on cliff faces and feed on carcasses of livestock, sea lions, and other animals.	None. There is no suitable habitat present in the study area and there are no CNDDB occurrences within 5 miles of the study area. The species is rare, and the study area is not within a known population.
Laterallus jamaicensis coturniculus California black rail	–/T, FP/–	The species persists in remaining tidal marshes in the San Francisco Bay Estuary, Tomales Bay, Bolinas Lagoon, the Delta, Morro Bay, the Salton Sea, and the lower Colorado River. The species has also been found more recently at several inland freshwater sites in the Sierra Nevada foothills in Butte, Yuba, Nevada Counties, and most recently in Placer County.	Occurs most commonly in tidal emergent wetlands dominated by pickleweed, or in brackish marshes supporting bulrushes in association with pickleweed. In freshwater, usually found in bulrushes, cattails, and saltgrass; usually found in immediate vicinity of tidal sloughs (Zeiner et al. 1990).	Low. Although there are CNDDB occurrences within 5 miles of the study area and habitat (i.e., freshwater marsh) is present at the emergency retention basin, it is not preferred habitat (i.e., tidal emergent wetland) and the basin is not in immediate vicinity of a tidal slough (Zeiner et al. 1990). In addition, the species prefers large marshes away from urban areas (Spautz et al. 2005).

Scientific Name Common Name	Status Federal/State/ Other[a]	Distribution in California	Habitat Requirements	Potential to Occur in or Adjacent to the Project Area[b]
		In the Sacramento–San Joaquin Delta, the species occurs in patches of emergent wetland found along the perimeter of sloughs and on in-Channel Islands of larger watercourses.		
Melospiza melodia Song sparrow (“Modesto”population)	–/SSC/–	Year-round range includes the Delta east of Suisun Marsh, the Sacramento Valley, and the northern San Joaquin Valley.	Associated with freshwater marshes dominated by tules and cattails, riparian scrub, and early successional riparian forest habitats; infrequently in mature riparian forest and sparsely vegetated ditches and levees.	Moderate. No suitable habitat is present in the study area but the emergency retention basin adjacent to the study area in the north part of the WWTP and Kirker Creek/Contra Costa Canal east and south of the study area provide suitable habitat. There is one CNDDB record for an occurrence (#91) from 1901 that is 1.3 miles southeast of the study area.
Rallus obsoletus obsoletus California Ridgway's rail	E/E, FP/–	Marshes around the San Francisco Bay and east through the Delta to Suisun Marsh.	Restricted to salt marshes and tidal sloughs; usually associated with heavy growth of pickleweed (*Sarcocornia pacifica*) and California cord grass (*Spartina foliosa*).	None. No suitable habitat is present in the study area and no CNDDB occurrences within 5 miles of the study area.
Sternula antillarum browni California least tern (nesting)	E/E, FP/–	Nests on beaches along the San Francisco Bay and along the southern California coast from southern San Luis Obispo County south to San Diego County.	Nests on sandy, upper ocean beaches, and occasionally uses sparsely vegetated mudflats; forages on adjacent surf line, estuaries, or the open ocean.	Low Although there are CNDDB occurrences within 5 miles of the study area, there is no suitable habitat present in the study area.
Phalacrocorax auritus Double-crested cormorant (rookery site)	–/–/–	Winters along the entire California coast and inland over the Coast Ranges into the Central Valley from Tehama County to Fresno County; a permanent resident along the coast from Monterey County to San Diego County, along the Colorado River, Imperial, Riverside, Kern and King	Rocky coastlines, beaches, inland ponds, rivers, (brackish and freshwater) wetlands/ponds, and lakes; uncommon in marine subtidal habitats; needs open water for foraging (ice-free), and nests in riparian forests or on protected islands, usually in snags.	Low. Although there are CNDDB occurrences within 5 miles of the study area, there is no suitable habitat present in the study area. Additionally, no sign of nesting (i.e., group of large nests) was observed in trees in the study area during the surveys.

Scientific Name Common Name	Status Federal/State/ Other[a]	Distribution in California	Habitat Requirements	Potential to Occur in or Adjacent to the Project Area[b]
		Counties, and the islands off San Francisco; breeds in Siskiyou, Modoc, Lassen, Shasta, Plumas, and Mono Counties; also breeds in the San Francisco Bay Area and in Yolo and Sacramento Counties.		
Mammals				
Lasiurus blossevillii Western red bat	–/SSC/ WBWG High	Coastal areas from the San Francisco Bay Area south, plus the Central Valley and surrounding foothills, with a limited number of records from southern California, extending as far east as western Riverside and central San Diego Counties, upper Sacramento River near Dunsmuir, Siskiyou County. Not found in desert areas.	Found primarily in riparian and wooded habitats. Orchards may also be used as maternity roosts; the species is not found in desert areas. Mature riparian broadleaf forest in the Central Valley is the primary summer breeding habitat for the species in California. Roosts within tree foliage and occasionally in shrubs. Prefers edges or habitat mosaics that have trees for roosting and open areas for foraging. Feeds over a wide variety of habitats including grasslands, shrublands, open woodlands and forests, and croplands.	Low. Although there are CNDDB occurrences within 5 miles of the study area, there is no suitable habitat present in the study area.
Reithrodontomys raviventris Salt marsh harvest mouse	E/E,FP/–	San Francisco, San Pablo, and Suisun Bays; the Delta/ San Francisco Bay Area.	The basic habitat of the salt is pickleweed (*Sarcocornia*) dominated vegetation. Found in saline or subsaline marsh habitats around the San Francisco Bay Estuary and in mixed saline or brackish areas in the Suisun Bay area; their distribution in tidal and diked marshes closely corresponds with the abundance of pickleweed (U.S. Fish and Wildlife Service 2024c).	Low. Although there are CNDDB occurrences within 5 miles of the study area, there is no suitable habitat present in the study area.

Scientific Name Common Name	Status Federal/State/ Other[a]	Distribution in California	Habitat Requirements	Potential to Occur in or Adjacent to the Project Area[b]
Vulpes macrotis mutica San Joaquin kit fox	E/T/–	Principally occurs in the San Joaquin Valley and adjacent open foothills to the west; recent records from 17 counties extending from Kern County north to Contra Costa County. May be extirpated in the northern portion of the range (Contra Costa and Alameda Counties).	Saltbush scrub, grassland, oak, savanna, and freshwater scrub.	Low. Although suitable habitat (i.e., grassland) is present in the study area and there are CNDDB occurrences within 5 miles of the study area, CNDDB occurrences are not recent (from 1991–1995), and the population in the northern range (including the study area) has either been extirpated or the number of individuals has fallen below detectable numbers (Clark et al. 2007).

[a]**Status explanations:**

Federal

E = listed as endangered under ESA.
T = listed as threatened under ESA.
C = candidate for listing under ESA.
PE = proposed for listing as endangered under ESA.
PT = proposed for listing as threatened under ESA.
– = no listing.

State

E = listed as endangered under CESA.
T = listed as threatened under CESA.
CE = candidate for endangered status under the California Endangered Species Act.
P = proposed for listing under CESA.
FP = fully protected under the California Fish and Game Code.
SSC = species of special concern in California.
– = no listing.

Other

Western Bat Working Group (WBWG) Priority

High Species are imperiled or at high risk of imperilment.

[b]Potential for occurrence was determined from the review of existing information, information gathered during the field surveys, and professional judgment.

Monarch Butterfly

Non-native annual grasslands in the staging area provide suitable foraging habitat for adult monarch butterflies. Host plants for egg laying and larval food sources (narrow leaved milkweed) were not observed during surveys, but surveys were conducted outside the growth period for milkweed. Although there are no CNDDB records of occurrences of monarch butterfly within 5 miles of the study area, adult monarchs and milkweed plants have been documented less than 0.6 mile northeast of the study area (Xerces Society et al. 2024).Although trees are present in the study area, there is no suitable overwintering habitat (i.e., wind-protected tree groves) present in the study area and no breeding has been documented in the study area (Xerces Society et al. 2024).

There are no CNDDB occurrences for this species within 5 miles of the study area but adult monarchs are documented in the WMMM within 5 miles of the study area (Xerces Society et al. 2024). Based on the presence of suitable foraging habitat and WMMM records of individuals within 5 miles, there is moderate potential for monarch butterfly to forage or lay eggs in the staging area.

California Tiger Salamander

No suitable aquatic habitat for California tiger salamander is present in the study area, but suitable aquatic breeding habitat is present nearby. Suitable aquatic habitat is located immediately north of the study area in the emergency retention basin in the north part of the WWTP, and in wetlands located 0.71-mile northwest of the staging area.

California tiger salamander uses upland habitat for dispersal and refuge within 1.24 miles of aquatic breeding habitat (U.S. Fish and Wildlife Service and California Department of Fish and Game 2003). Suitable upland habitat (i.e., non-native annual grassland) is present in the staging area. Small mammal burrows (approximately 3 inches in diameter) were observed during the survey in the middle and around the northern and eastern edges of the staging area (Figure 2). Although the WWTP is fenced, the fence would not prevent individuals from entering the WWTP and project area.

There are 12 CNDDB records for occurrences of California tiger salamander within 5 miles of the study area; the nearest presumed extant CNDDB occurrence (#531) is from 2002 and is approximately 1.4 miles south of the study area. Based on the presence of suitable aquatic habitat near the study area, the presence of upland habitat in the staging area, and CNDDB occurrences within 5 mile of the study area, there is moderate potential for California tiger salamander to be present in the study area.

California Red-Legged Frog

No suitable aquatic breeding habitat for California red-legged frog is present in the study area but suitable aquatic breeding habitat is present nearby. Suitable aquatic habitat is located immediately north of the study area in the emergency retention basin in the north part of the WWTP, in Kirker Creek located immediately south of the study area, Contra Costa Canal (shown as Kirker Creek on NHD maps) located east of the study area, and in wetlands located 0.71-mile northwest of the staging area.

California red-legged frog uses upland habitat for foraging, refuge, and dispersal. Dispersal distances vary by topography and habitat conditions, but the species may disperse up to 1.7 miles straight-line distance away from aquatic habitat (U.S. Fish and Wildlife Service 2022:13). Suitable upland habitat (i.e., non-native annual grassland) is present in the staging area. Small mammal burrows (approximately 3 inches in diameter) were observed during the survey in the middle and around the northern and eastern edges of the staging area (Figure 2). Although the WWTP is fenced, the fence would not prevent individuals from entering the WWTP and project area.

There are 12 CNDDB records for occurrences of California red-legged frog within 5 miles of the study area; the nearest presumed extant CNDDB occurrence (#531) is from 2002 and is approximately 1.4 miles south of the study area. Based on the presence of suitable aquatic habitat near the study area, the presence of upland habitat in the staging area, and CNDDB occurrences within 5 mile of the study area, there is moderate potential for California red-legged frog to be present in the study area.

Northwestern Pond Turtle

No suitable aquatic habitat for northwestern pond turtle is present in the study area but suitable aquatic breeding habitat is present nearby. Suitable aquatic habitat is located immediately north of the study area in the emergency retention basin in the north part of the WWTP, in Kirker Creek located immediately south of the study area, Contra Costa Canal (shown as Kirker Creek on NHD maps) located east of the study area, and in wetlands located 0.71-mile northwest of the staging area. Additional suitable aquatic habitat is located further north and east within the Corteva Wetlands Preserve. Suitable upland habitat (i.e., non-native annual grassland) is present in the staging area.

There are four CNDDB records for occurrences of northwestern pond turtle within 5 miles of the study area; the nearest CNDDB occurrence (#145) is from 1998 and is approximately 0.5 mile east of the study area in the Corteva Wetlands Preserve. Based on the presence of suitable aquatic habitat near the study area, the presence of upland habitat in the staging area, and CNDDB occurrences within 5 miles of the study area, there is moderate potential for northwestern pond turtle to be present in the study area.

Giant Gartersnake

No suitable aquatic habitat for giant gartersnake is present in the study area but suitable aquatic breeding habitat is present nearby. Suitable aquatic habitat is located immediately north of the study area in the emergency retention basin in the north part of the WWTP, in Kirker Creek located immediately south of the study area, Contra Costa Canal (shown as Kirker Creek on NHD maps) located east of the study area, and in wetlands located 0.71-mile northwest of the staging area. Additional suitable aquatic habitat is located further north and east within the Corteva Wetlands Preserve. Suitable upland habitat (i.e., non-native annual grassland) is present in the staging area.

There are four CNDDB records for occurrences of giant gartersnake within 5 miles of the study area. The nearest CNDDB occurrence (#433) is from 2022 and is approximately 1 mile northeast of the study area in the Corteva Wetlands Preserve. Based on the presence of suitable aquatic habitat near the study area, the presence of upland habitat in the staging area, and CNDDB occurrences within 5 miles of the study area, there is moderate potential for giant gartersnake to be present in the study area.

Western Burrowing Owl

Non-native annual grassland in the staging area provide suitable foraging habitat for western burrowing owl. The staging area does not provide nesting or wintering habitat for western burrowing owl due to the absence of medium-sized burrows, such as burrows created by California ground squirrel. If appropriately sized burrows were created and abandoned in the staging area, they could be used by burrowing owls for nesting or wintering habitat. Additional suitable habitat (i.e., non-native annual grassland) is located north, south, east and west of the study area.

There are 10 CNDDB records for occurrences of western burrowing owl within 5 miles of the study area. The nearest presumed extant CNDDB occurrence (#1161) is from 2008 and is approximately 2.1 miles south of the study area. Based on the presence of suitable foraging habitat at the study area and CNDDB occurrences within 5 miles of the study area, there is moderate potential for western burrowing owl to be present in the staging area.

Song Sparrow ("Modesto" Population)

No suitable habitat for Modesto song sparrow is present in the study area but nesting and foraging habitat is present nearby. Suitable nesting and foraging habitat for Modesto song sparrow is present immediately north of the study area at the emergency retention basin in the north part of the WWTP, along Kirker Creek located immediately south of the study area, and along the Contra Costa Canal (shown as Kirker Creek on NHD maps) located east of the study area. Habitat at the emergency retention basin is lower quality due to its proximity to ongoing human activities and its isolation from other suitable habitat. Habitats along Kirker Creek and the Contra Costa Canal are also lower quality due to the narrow riparian zones.

There is one CNDDB record for an occurrence of Modesto song sparrow within 5 miles of the study area. The occurrence (#91) is from 1901 and is 1.3 miles southeast of the study area. Based on the presence of lower quality nesting and foraging habitat near the study area, there is moderate potential for Modesto song sparrow to forage and nest near the study area.

White-tailed Kite

Trees along Arcy Lane, in the WWTP, and along portions of the staging area provide suitable nesting habitat for white-tailed kite. The suitability of nesting habitat in the study area is reduced due to the moderate level of human disturbance from WWTP operations. Non-native annual grasslands in the staging area provide suitable foraging habitat for white-tailed kite. Small rodents (e.g., Botta's pocket gopher, voles, and mice) that provide prey for white-tailed kite are present in the staging area.

There is one CNDDB record for an occurrence of white-tailed kite within 5 miles of the study area; the occurrence (#17) is from 1985 and is approximately 3.2 miles east of the study area in the Corteva Wetlands Preserve. Based on the presence of suitable foraging habitat and lower quality nesting habitat in and surrounding the study area, and the CNDDB occurrence within 5 miles of the study area, there is moderate potential white-tailed kite to forage and nest in the study area.

Northern Harrier

Non-native annual grasslands in the staging area provide suitable nesting and foraging habitat for northern harrier. Small rodents (e.g., Botta's pocket gopher, voles, and mice) that provide prey for northern harrier are present in the staging area. Additional nesting habitat is present in grasslands and wetland areas surrounding the study area.

There are three CNDDB records for occurrences of northern harrier within 5 miles of the study area. The nearest CNDDB occurrence (#87) is from 2004 and is approximately 4 miles northeast of the study area. Based on the presence of suitable nesting and foraging habitat in and surrounding the study area and CNDDB occurrences within 5 miles, there is high potential for northern harrier to be present in the study area.

Non-Special-Status Migratory Birds

Non-special-status migratory birds have the potential to nest in the study area. Trees and shrubs in the study area provide suitable nesting habitat for birds such as California scrub jay (*Aphelocoma californica*), Anna's hummingbird (*Calypte anna*), American crow (*Corvus brachyrhynchos*), common raven (*Corvus corax*), Brewer's blackbird (*Euphagus cyanocephalus*), house finch (*Haemorhous mexicanus*), dark eyed junco (*Junco hyemalis*), northern mockingbird (*Mimus polyglotto*), lesser goldfinch (*Spinus psaltria*), mourning dove (*Zenaida macroura*), and white-crowned sparrow (*Zonotrichia leucophrys*), which were observed during surveys. Buildings and other WWTP infrastructure in the study area provide suitable nesting habitat for birds such as common raven, house finch, black phoebe (*Sayornis nigricans*), and mourning dove, which were observed during surveys. Non-native annual grassland in the staging area provide suitable nesting habitat for ground-nesting birds observed such as red-winged blackbird (*Agelaius phoeniceus*), mallard (*Anas platyrhynchos*), and western meadowlark (*Sturnella neglecta*), which were observed during surveys. The breeding season for migratory birds generally extends from February through August, although nesting periods vary by species.

Chapter 4
References Cited

California Department of Fish and Wildlife (CDFW). 2023a. *California Sensitive Natural Communities.* Available: https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=153609&inline. Accessed May 15, 2024.

———. 2023b. Western Bumble Bee (*Bombus occidentalis*) Current and Historic Species Range, May 23. Available: https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=213186&inline. Accessed: April 4, 2024.

———. 2024a. California Natural Diversity Database (CNDDB). April 2024. Special Animals List. California Department of Fish and Wildlife. Sacramento, CA. Available: https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=109406&inline. Accessed: March 6, 2024.

———. 2024b. California Natural Diversity Database, RareFind Records Search. RareFind Version 5.3.0. Available: https://www.wildlife.ca.gov/Data/CNDDB/Maps-and-Data. Available: https://apps.wildlife.ca.gov/rarefind/view/RareFind.aspx. Accessed: March 6, 2024.

California Native Plant Society. 2024. *Inventory of Rare and Endangered Plants (Online Edition, Version v8-03 0.45)*. Available: http://www.rareplants.cnps.org. Accessed: April 5, 2024.

Clark, H. O. Jr, R. R. Duke, M. C. Orland, R. T. Golightly, and S. I. Hagen. 2007. The San Joaquin kit fox in north-central California: a review. Transactions of the Western Section Wildlife Society 43:27-36.

Conservation Biology Institute. 2021. Data Basin. Natural Communities and Land Cover Types of Santa Clara County, California, April Available: https://databasin.org/datasets/1a71a6ebef804315886df92b3e9241f5/

Google Earth Pro. 2024. Aerial imagery: 2500 Pittsburg-Antioch Hwy, Antioch, 38.015451°N, -121.842189°W. Available: https://www.google.com/earth/about/versions/#earth-pro. Accessed: March 6, 2024.

Helm, B. P. 1998. Biogeography of eight large branchiopods endemic to California. in : C. W. Witham, E. T. Bauder, D. Belk, W.R. Ferren Jr., and R. Ornduff (eds.). Ecology, conservation, and management of vernal pool ecosystems proceeding from a 1996 conference. California Native Plant Society, Sacramento, California.

Moyle, P. 2002. *Inland Fishes of California*. Berkeley: University of California Press.

Shuford, W. D., and Gardali, T., editors. 2008. California Bird Species of Special Concern: A ranked assessment of species, subspecies, and distinct populations of birds of immediate conservation concern in California. Studies of Western Birds 1. Western Field Ornithologists, Camarillo, California, and California Department of Fish and Game, Sacramento.

Spautz H, Nur Nadav, and Diana Stralberg. 2005. California Black Rail (*Laterallus jamaicensis coturniculus*) Distribution and Abundance in Relation to Habitat and Landscape Features in the

San Francisco Bay Estuary. United States Department of Agriculture Forest Service Gen. Tech. Rep. PSW-GTR-191.

U.S. Department of Agriculture. 2024. Natural Resources Conservation Service. Soil Survey Staff. Web Soil Survey. Available: https://soilseries.sc.egov.usda.gov/osdname.aspx. Accessed April 4, 2024.

U.S. Environmental Protection Agency. 2024. WATERS GeoViewer. Available: https://www.epa.gov/waterdata/waters-geoviewer. Accessed: April 4, 2024.

U.S. Fish and Wildlife Service. 2022. *California Red-legged Frog (Rana draytonii) 5-Year Review: Summary and Evaluation*. December 2022. U.S. Fish and Wildlife Service, Sacramento Fish and Wildlife Office, Sacramento, CA.

———. 2023. *Species status assessment report for the northwestern pond turtle* (Actinemys marmorata) *and southwestern pond turtle* (Actinemys pallida), Version 1.1, April 2023. U.S. Fish and Wildlife Service, Ventura Fish and Wildlife Office, Ventura, CA.

———. 2024. National Wetland Inventory Wetland Mapper. Available: https://www.fws.gov/program/national-wetlands-inventory/wetlands-mapper/. Accessed: Accessed: April 4, 2024.

———. 2024b. IPaC Resource List for the project area. Obtained from the Information for Planning and Consultation website: https://ecos.fws.gov/ipac/. Accessed: March 6, 2024.

———. 2024c. FWS Focus Salt-marsh Harvest Mouse. Available: https://www.fws.gov/species/salt-marsh-harvest-mouse-reithrodontomys-raviventris. Accessed: April 1, 2024.

U.S. Fish and Wildlife Service and California Department of Fish and Game. 2003. *Interim Guidance on Site Assessment and Field Surveys for Determining Presence or a Negative Finding of the California Tiger Salamander*. Sacramento, CA.

Western Bat Working Group. 2017. *Regional Bat Species Priority Matrix*. Available: http://wbwg.org/matrices/species-matrix/.

Xerces Society, Idaho Department of Fish and Game, Washington Department of Fish and Wildlife, National Fish and Wildlife Foundation, and U.S. Fish and Wildlife Service. 2024. *Monarch Milkweed Mapper*. Available: www.monarchmilkweedmapper.org. Accessed: February 28, 2024.

Zeiner, D. C., W. F. Laudenslayer, Jr., and K. E. Mayer (eds.). 1990. *California's Wildlife. Volume II: Birds*. California Statewide Wildlife Habitat Relationships System. Sacramento, CA: California Department of Fish and Game.

Appendix A
CNDDB, CNPS, and IPaC Lists

Selected Elements by Common Name

California Department of Fish and Wildlife

California Natural Diversity Database

Query Criteria: BIOS selection

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Alameda whipsnake *Masticophis lateralis euryxanthus*	ARADB21031	Threatened	Threatened	G4T2	S2	
American bumble bee *Bombus pensylvanicus*	IIHYM24260	None	None	G3G4	S2	
American peregrine falcon *Falco peregrinus anatum*	ABNKD06071	Delisted	Delisted	G4T4	S3S4	
Antioch andrenid bee *Perdita scitula antiochensis*	IIHYM01031	None	None	G1T1	S2	
Antioch cophuran robberfly *Cophura hurdi*	IIDIP06010	None	None	GX	SX	
Antioch Dunes anthicid beetle *Anthicus antiochensis*	IICOL49020	None	None	G3	S3	
Antioch Dunes buckwheat *Eriogonum nudum var. psychicola*	PDPGN0849Q	None	None	G5T1	S1	1B.1
Antioch Dunes evening-primrose *Oenothera deltoides ssp. howellii*	PDONA0C0B4	Endangered	Endangered	G5T1	S1	1B.1
Antioch Dunes halcitid bee *Sphecodogastra antiochensis*	IIHYM78010	None	None	G1	S1	
Antioch efferian robberfly *Efferia antiochi*	IIDIP07010	None	None	G1G2	S1S2	
Antioch multilid wasp *Myrmosula pacifica*	IIHYM15010	None	None	GH	SH	
Antioch specid wasp *Philanthus nasalis*	IIHYM20010	None	None	G2	S2	
big tarplant *Blepharizonia plumosa*	PDAST1C011	None	None	G1G2	S1S2	1B.1
Blennosperma vernal pool andrenid bee *Andrena blennospermatis*	IIHYM35030	None	None	G2	S1	
Bolander's water-hemlock *Cicuta maculata var. bolanderi*	PDAPI0M051	None	None	G5T4T5	S2?	2B.1
Brewer's western flax *Hesperolinon breweri*	PDLIN01030	None	None	G2	S2	1B.2
burrowing owl *Athene cunicularia*	ABNSB10010	None	None	G4	S2	SSC
California black rail *Laterallus jamaicensis coturniculus*	ABNME03041	None	Threatened	G3T1	S2	FP
California glossy snake *Arizona elegans occidentalis*	ARADB01017	None	None	G5T2	S2	SSC
California least tern *Sternula antillarum browni*	ABNNM08103	Endangered	Endangered	G4T2T3Q	S2	FP

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
California linderiella *Linderiella occidentalis*	ICBRA06010	None	None	G2G3	S2S3	
California red-legged frog *Rana draytonii*	AAABH01022	Threatened	None	G2G3	S2S3	SSC
California tiger salamander - central California DPS *Ambystoma californiense pop. 1*	AAAAA01181	Threatened	Threatened	G2G3T3	S3	WL
chaparral ragwort *Senecio aphanactis*	PDAST8H060	None	None	G3	S2	2B.2
Coastal Brackish Marsh *Coastal Brackish Marsh*	CTT52200CA	None	None	G2	S2.1	
Contra Costa goldfields *Lasthenia conjugens*	PDAST5L040	Endangered	None	G1	S1	1B.1
Contra Costa manzanita *Arctostaphylos manzanita ssp. laevigata*	PDERI04273	None	None	G5T2	S2	1B.2
Contra Costa wallflower *Erysimum capitatum var. angustatum*	PDBRA16052	Endangered	Endangered	G5T1	S1	1B.1
Crotch's bumble bee *Bombus crotchii*	IIHYM24480	None	Candidate Endangered	G2	S2	
Delta mudwort *Limosella australis*	PDSCR10030	None	None	G4G5	S2	2B.1
Delta smelt *Hypomesus transpacificus*	AFCHB01040	Threatened	Endangered	G1	S1	
Delta tule pea *Lathyrus jepsonii var. jepsonii*	PDFAB250D2	None	None	G5T2	S2	1B.2
Diablo helianthella *Helianthella castanea*	PDAST4M020	None	None	G2	S2	1B.2
diamond-petaled California poppy *Eschscholzia rhombipetala*	PDPAP0A0D0	None	None	G1	S1	1B.1
double-crested cormorant *Nannopterum auritum*	ABNFD01020	None	None	G5	S4	WL
giant gartersnake *Thamnophis gigas*	ARADB36150	Threatened	Threatened	G2	S2	
green sturgeon - southern DPS *Acipenser medirostris pop. 1*	AFCAA01031	Threatened	None	G2T1	S1	
Hall's bush-mallow *Malacothamnus hallii*	PDMAL0Q0F0	None	None	G2	S2	1B.2
Hoover's cryptantha *Cryptantha hooveri*	PDBOR0A190	None	None	GH	SH	1A
Hurd's metapogon robberfly *Metapogon hurdi*	IIDIP08010	None	None	G1G2	S1S2	
Jepson's coyote-thistle *Eryngium jepsonii*	PDAPI0Z130	None	None	G2	S2	1B.2

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Lange's metalmark butterfly *Apodemia mormo langei*	IILEPH7012	Endangered	None	G5T1	S1	
large-flowered fiddleneck *Amsinckia grandiflora*	PDBOR01050	Endangered	Endangered	G1	S1	1B.1
longfin smelt *Spirinchus thaleichthys*	AFCHB03010	Proposed Endangered	Threatened	G5	S1	
Mason's lilaeopsis *Lilaeopsis masonii*	PDAPI19030	None	Rare	G2	S2	1B.1
Middlekauff's shieldback katydid *Idiostatus middlekauffi*	IIORT31010	None	None	G1G2	S1	
Mt. Diablo buckwheat *Eriogonum truncatum*	PDPGN085Z0	None	None	G1	S1	1B.1
Mt. Diablo fairy-lantern *Calochortus pulchellus*	PMLIL0D160	None	None	G2	S2	1B.2
Mt. Diablo manzanita *Arctostaphylos auriculata*	PDERI04040	None	None	G2	S2	1B.3
Northern California legless lizard *Anniella pulchra*	ARACC01020	None	None	G3	S2S3	SSC
northern harrier *Circus hudsonius*	ABNKC11011	None	None	G5	S3	SSC
redheaded sphecid wasp *Eucerceris ruficeps*	IIHYM18010	None	None	G1G3	S2	
Sacramento perch *Archoplites interruptus*	AFCQB07010	None	None	G1	S1	SSC
saltmarsh common yellowthroat *Geothlypis trichas sinuosa*	ABPBX1201A	None	None	G5T3	S3	SSC
salt-marsh harvest mouse *Reithrodontomys raviventris*	AMAFF02040	Endangered	Endangered	G1G2	S3	FP
San Joaquin dune beetle *Coelus gracilis*	IICOL4A020	None	None	G1	S1	
San Joaquin kit fox *Vulpes macrotis mutica*	AMAJA03041	Endangered	Threatened	G4T2	S3	
San Joaquin pocket mouse *Perognathus inornatus*	AMAFD01060	None	None	G2G3	S2S3	
San Joaquin spearscale *Extriplex joaquinana*	PDCHE041F3	None	None	G2	S2	1B.2
San Joaquin Valley giant flower-loving fly *Rhaphiomidas trochilus*	IIDIP05010	None	None	G1	S1	
shining navarretia *Navarretia nigelliformis ssp. radians*	PDPLM0C0J2	None	None	G4T2	S2	1B.2
showy golden madia *Madia radiata*	PDAST650E0	None	None	G3	S3	1B.1

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
slender silver moss *Anomobryum julaceum*	NBMUS80010	None	None	G5?	S2	4.2
soft salty bird's-beak *Chloropyron molle ssp. molle*	PDSCR0J0D2	Endangered	Rare	G2T1	S1	1B.2
song sparrow ("Modesto" population) *Melospiza melodia pop. 1*	ABPBXA3013	None	None	G5T3?Q	S3?	SSC
Stabilized Interior Dunes *Stabilized Interior Dunes*	CTT23100CA	None	None	G1	S1.1	
steelhead - Central Valley DPS *Oncorhynchus mykiss irideus pop. 11*	AFCHA0209K	Threatened	None	G5T2Q	S2	
Suisun Marsh aster *Symphyotrichum lentum*	PDASTE8470	None	None	G2	S2	1B.2
Suisun song sparrow *Melospiza melodia maxillaris*	ABPBXA301K	None	None	G5T3	S2	SSC
Swainson's hawk *Buteo swainsoni*	ABNKC19070	None	Threatened	G5	S4	
vernal pool fairy shrimp *Branchinecta lynchi*	ICBRA03030	Threatened	None	G3	S3	
vernal pool tadpole shrimp *Lepidurus packardi*	ICBRA10010	Endangered	None	G3	S3	
western bumble bee *Bombus occidentalis*	IIHYM24252	None	Candidate Endangered	G3	S1	
western pond turtle *Emys marmorata*	ARAAD02030	Proposed Threatened	None	G3G4	S3	SSC
western red bat *Lasiurus frantzii*	AMACC05080	None	None	G4	S3	SSC
western ridged mussel *Gonidea angulata*	IMBIV19010	None	None	G3	S2	
western snowy plover *Charadrius nivosus nivosus*	ABNNB03031	Threatened	None	G3T3	S3	SSC
white-tailed kite *Elanus leucurus*	ABNKC06010	None	None	G5	S3S4	FP
yellow-banded andrenid bee *Perdita hirticeps luteocincta*	IIHYM01021	None	None	GNRTX	SX	

Record Count: 79

Selected Elements by Common Name

California Department of Fish and Wildlife

California Natural Diversity Database

Query Criteria: BIOS selection

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Alameda whipsnake *Masticophis lateralis euryxanthus*	ARADB21031	Threatened	Threatened	G4T2	S2	
alkali milk-vetch *Astragalus tener var. tener*	PDFAB0F8R1	None	None	G2T1	S1	1B.2
American badger *Taxidea taxus*	AMAJF04010	None	None	G5	S3	SSC
American bumble bee *Bombus pensylvanicus*	IIHYM24260	None	None	G3G4	S2	
American peregrine falcon *Falco peregrinus anatum*	ABNKD06071	Delisted	Delisted	G4T4	S3S4	
Antioch andrenid bee *Perdita scitula antiochensis*	IIHYM01031	None	None	G1T1	S2	
Antioch cophuran robberfly *Cophura hurdi*	IIDIP06010	None	None	GX	SX	
Antioch Dunes anthicid beetle *Anthicus antiochensis*	IICOL49020	None	None	G3	S3	
Antioch Dunes buckwheat *Eriogonum nudum var. psychicola*	PDPGN0849Q	None	None	G5T1	S1	1B.1
Antioch Dunes evening-primrose *Oenothera deltoides ssp. howellii*	PDONA0C0B4	Endangered	Endangered	G5T1	S1	1B.1
Antioch Dunes halcitid bee *Sphecodogastra antiochensis*	IIHYM78010	None	None	G1	S1	
Antioch efferian robberfly *Efferia antiochi*	IIDIP07010	None	None	G1G2	S1S2	
Antioch multilid wasp *Myrmosula pacifica*	IIHYM15010	None	None	GH	SH	
Antioch specid wasp *Philanthus nasalis*	IIHYM20010	None	None	G2	S2	
bearded popcornflower *Plagiobothrys hystriculus*	PDBOR0V0H0	None	None	G2	S2	1B.1
Berkeley kangaroo rat *Dipodomys heermanni berkeleyensis*	AMAFD03061	None	None	G4T1	S2	
big tarplant *Blepharizonia plumosa*	PDAST1C011	None	None	G1G2	S1S2	1B.1
Blennosperma vernal pool andrenid bee *Andrena blennospermatis*	IIHYM35030	None	None	G2	S1	
Bolander's water-hemlock *Cicuta maculata var. bolanderi*	PDAPI0M051	None	None	G5T4T5	S2?	2B.1
Brewer's western flax *Hesperolinon breweri*	PDLIN01030	None	None	G2	S2	1B.2

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Bridges' coast range shoulderband *Helminthoglypta nickliniana bridgesi*	IMGASC2362	None	None	G3T1	S1S2	
brittlescale *Atriplex depressa*	PDCHE042L0	None	None	G2	S2	1B.2
burrowing owl *Athene cunicularia*	ABNSB10010	None	None	G4	S2	SSC
California black rail *Laterallus jamaicensis coturniculus*	ABNME03041	None	Threatened	G3T1	S2	FP
California glossy snake *Arizona elegans occidentalis*	ARADB01017	None	None	G5T2	S2	SSC
California least tern *Sternula antillarum browni*	ABNNM08103	Endangered	Endangered	G4T2T3Q	S2	FP
California linderiella *Linderiella occidentalis*	ICBRA06010	None	None	G2G3	S2S3	
California red-legged frog *Rana draytonii*	AAABH01022	Threatened	None	G2G3	S2S3	SSC
California Ridgway's rail *Rallus obsoletus obsoletus*	ABNME05011	Endangered	Endangered	G3T1	S2	FP
California tiger salamander - central California DPS *Ambystoma californiense pop. 1*	AAAAA01181	Threatened	Threatened	G2G3T3	S3	WL
caper-fruited tropidocarpum *Tropidocarpum capparideum*	PDBRA2R010	None	None	G1	S1	1B.1
Carquinez goldenbush *Isocoma arguta*	PDAST57050	None	None	G1	S1	1B.1
chaparral harebell *Ravenella exigua*	PDCAM020A0	None	None	G2	S2	1B.2
chaparral ragwort *Senecio aphanactis*	PDAST8H060	None	None	G3	S2	2B.2
coast horned lizard *Phrynosoma blainvillii*	ARACF12100	None	None	G4	S4	SSC
Coastal Brackish Marsh *Coastal Brackish Marsh*	CTT52200CA	None	None	G2	S2.1	
coastal triquetrella *Triquetrella californica*	NBMUS7S010	None	None	G2	S2	1B.2
Conservancy fairy shrimp *Branchinecta conservatio*	ICBRA03010	Endangered	None	G2	S2	
Contra Costa goldfields *Lasthenia conjugens*	PDAST5L040	Endangered	None	G1	S1	1B.1
Contra Costa manzanita *Arctostaphylos manzanita ssp. laevigata*	PDERI04273	None	None	G5T2	S2	1B.2
Contra Costa wallflower *Erysimum capitatum var. angustatum*	PDBRA16052	Endangered	Endangered	G5T1	S1	1B.1

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Crotch's bumble bee *Bombus crotchii*	IIHYM24480	None	Candidate Endangered	G2	S2	
curved-foot hygrotus diving beetle *Hygrotus curvipes*	IICOL38030	None	None	G2	S2	
Delta mudwort *Limosella australis*	PDSCR10030	None	None	G4G5	S2	2B.1
Delta smelt *Hypomesus transpacificus*	AFCHB01040	Threatened	Endangered	G1	S1	
Delta tule pea *Lathyrus jepsonii var. jepsonii*	PDFAB250D2	None	None	G5T2	S2	1B.2
Diablo helianthella *Helianthella castanea*	PDAST4M020	None	None	G2	S2	1B.2
diamond-petaled California poppy *Eschscholzia rhombipetala*	PDPAP0A0D0	None	None	G1	S1	1B.1
double-crested cormorant *Nannopterum auritum*	ABNFD01020	None	None	G5	S4	WL
dwarf downingia *Downingia pusilla*	PDCAM060C0	None	None	GU	S2	2B.2
ferruginous hawk *Buteo regalis*	ABNKC19120	None	None	G4	S3S4	WL
foothill yellow-legged frog - central coast DPS *Rana boylii pop. 4*	AAABH01054	Threatened	Endangered	G3T2	S2	
fragrant fritillary *Fritillaria liliacea*	PMLIL0V0C0	None	None	G2	S2	1B.2
giant gartersnake *Thamnophis gigas*	ARADB36150	Threatened	Threatened	G2	S2	
golden eagle *Aquila chrysaetos*	ABNKC22010	None	None	G5	S3	FP
great blue heron *Ardea herodias*	ABNGA04010	None	None	G5	S4	
green sturgeon - southern DPS *Acipenser medirostris pop. 1*	AFCAA01031	Threatened	None	G2T1	S1	
Hall's bush-mallow *Malacothamnus hallii*	PDMAL0Q0F0	None	None	G2	S2	1B.2
heartscale *Atriplex cordulata var. cordulata*	PDCHE040B0	None	None	G3T2	S2	1B.2
hoary bat *Lasiurus cinereus*	AMACC05032	None	None	G3G4	S4	
Hoover's cryptantha *Cryptantha hooveri*	PDBOR0A190	None	None	GH	SH	1A
Hospital Canyon larkspur *Delphinium californicum ssp. interius*	PDRAN0B0A2	None	None	G3T3	S3	1B.2

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Hurd's metapogon robberfly *Metapogon hurdi*	IIDIP08010	None	None	G1G2	S1S2	
Jepson's coyote-thistle *Eryngium jepsonii*	PDAPI0Z130	None	None	G2	S2	1B.2
Keck's checkerbloom *Sidalcea keckii*	PDMAL110D0	Endangered	None	G2	S2	1B.1
Lange's metalmark butterfly *Apodemia mormo langei*	IILEPH7012	Endangered	None	G5T1	S1	
large-flowered fiddleneck *Amsinckia grandiflora*	PDBOR01050	Endangered	Endangered	G1	S1	1B.1
Lime Ridge eriastrum *Eriastrum ertterae*	PDPLM030F0	None	Candidate Endangered	G1	S1	1B.1
Lime Ridge navarretia *Navarretia gowenii*	PDPLM0C120	None	None	G1	S1	1B.1
loggerhead shrike *Lanius ludovicianus*	ABPBR01030	None	None	G4	S4	SSC
longfin smelt *Spirinchus thaleichthys*	AFCHB03010	Proposed Endangered	Threatened	G5	S1	
Mason's lilaeopsis *Lilaeopsis masonii*	PDAPI19030	None	Rare	G2	S2	1B.1
Middlekauff's shieldback katydid *Idiostatus middlekauffi*	IIORT31010	None	None	G1G2	S1	
midvalley fairy shrimp *Branchinecta mesovallensis*	ICBRA03150	None	None	G2	S2S3	
molestan blister beetle *Lytta molesta*	IICOL4C030	None	None	G2	S2	
most beautiful jewelflower *Streptanthus albidus ssp. peramoenus*	PDBRA2G012	None	None	G2T2	S2	1B.2
Mt. Diablo bird's-beak *Cordylanthus nidularius*	PDSCR0J0F0	None	Rare	G1	S1	1B.1
Mt. Diablo buckwheat *Eriogonum truncatum*	PDPGN085Z0	None	None	G1	S1	1B.1
Mt. Diablo fairy-lantern *Calochortus pulchellus*	PMLIL0D160	None	None	G2	S2	1B.2
Mt. Diablo jewelflower *Streptanthus hispidus*	PDBRA2G0M0	None	None	G2	S2	1B.3
Mt. Diablo manzanita *Arctostaphylos auriculata*	PDERI04040	None	None	G2	S2	1B.3
Mt. Diablo phacelia *Phacelia phacelioides*	PDHYD0C3Q0	None	None	G2	S2	1B.2
Northern California legless lizard *Anniella pulchra*	ARACC01020	None	None	G3	S2S3	SSC

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
northern harrier *Circus hudsonius*	ABNKC11011	None	None	G5	S3	SSC
oval-leaved viburnum *Viburnum ellipticum*	PDCPR07080	None	None	G4G5	S3	2B.3
pallid bat *Antrozous pallidus*	AMACC10010	None	None	G4	S3	SSC
pappose tarplant *Centromadia parryi ssp. parryi*	PDAST4R0P2	None	None	G3T2	S2	1B.2
prairie falcon *Falco mexicanus*	ABNKD06090	None	None	G5	S4	WL
redheaded sphecid wasp *Eucerceris ruficeps*	IIHYM18010	None	None	G1G3	S2	
rock sanicle *Sanicula saxatilis*	PDAPI1Z0H0	None	Rare	G2	S2	1B.2
Sacramento perch *Archoplites interruptus*	AFCQB07010	None	None	G1	S1	SSC
Sacramento splittail *Pogonichthys macrolepidotus*	AFCJB34020	None	None	G3	S3	SSC
saltmarsh common yellowthroat *Geothlypis trichas sinuosa*	ABPBX1201A	None	None	G5T3	S3	SSC
salt-marsh harvest mouse *Reithrodontomys raviventris*	AMAFF02040	Endangered	Endangered	G1G2	S3	FP
San Francisco dusky-footed woodrat *Neotoma fuscipes annectens*	AMAFF08082	None	None	G5T2T3	S2S3	SSC
San Joaquin dune beetle *Coelus gracilis*	IICOL4A020	None	None	G1	S1	
San Joaquin kit fox *Vulpes macrotis mutica*	AMAJA03041	Endangered	Threatened	G4T2	S3	
San Joaquin pocket mouse *Perognathus inornatus*	AMAFD01060	None	None	G2G3	S2S3	
San Joaquin spearscale *Extriplex joaquinana*	PDCHE041F3	None	None	G2	S2	1B.2
San Joaquin Valley giant flower-loving fly *Rhaphiomidas trochilus*	IIDIP05010	None	None	G1	S1	
Serpentine Bunchgrass *Serpentine Bunchgrass*	CTT42130CA	None	None	G2	S2.2	
shining navarretia *Navarretia nigelliformis ssp. radians*	PDPLM0C0J2	None	None	G4T2	S2	1B.2
short-eared owl *Asio flammeus*	ABNSB13040	None	None	G5	S2	SSC
showy golden madia *Madia radiata*	PDAST650E0	None	None	G3	S3	1B.1

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
slender silver moss *Anomobryum julaceum*	NBMUS80010	None	None	G5?	S2	4.2
soft salty bird's-beak *Chloropyron molle ssp. molle*	PDSCR0J0D2	Endangered	Rare	G2T1	S1	1B.2
song sparrow ("Modesto" population) *Melospiza melodia pop. 1*	ABPBXA3013	None	None	G5T3?Q	S3?	SSC
Stabilized Interior Dunes *Stabilized Interior Dunes*	CTT23100CA	None	None	G1	S1.1	
steelhead - Central Valley DPS *Oncorhynchus mykiss irideus pop. 11*	AFCHA0209K	Threatened	None	G5T2Q	S2	
stinkbells *Fritillaria agrestis*	PMLIL0V010	None	None	G3	S3	4.2
Suisun Marsh aster *Symphyotrichum lentum*	PDASTE8470	None	None	G2	S2	1B.2
Suisun song sparrow *Melospiza melodia maxillaris*	ABPBXA301K	None	None	G5T3	S2	SSC
Swainson's hawk *Buteo swainsoni*	ABNKC19070	None	Threatened	G5	S4	
Toren's grimmia *Grimmia torenii*	NBMUS32330	None	None	G2	S2	1B.3
Townsend's big-eared bat *Corynorhinus townsendii*	AMACC08010	None	None	G4	S2	SSC
tricolored blackbird *Agelaius tricolor*	ABPBXB0020	None	Threatened	G1G2	S2	SSC
vernal pool fairy shrimp *Branchinecta lynchi*	ICBRA03030	Threatened	None	G3	S3	
vernal pool tadpole shrimp *Lepidurus packardi*	ICBRA10010	Endangered	None	G3	S3	
western bumble bee *Bombus occidentalis*	IIHYM24252	None	Candidate Endangered	G3	S1	
western pond turtle *Emys marmorata*	ARAAD02030	Proposed Threatened	None	G3G4	S3	SSC
western red bat *Lasiurus frantzii*	AMACC05080	None	None	G4	S3	SSC
western ridged mussel *Gonidea angulata*	IMBIV19010	None	None	G3	S2	
western snowy plover *Charadrius nivosus nivosus*	ABNNB03031	Threatened	None	G3T3	S3	SSC
white-tailed kite *Elanus leucurus*	ABNKC06010	None	None	G5	S3S4	FP
woodland woollythreads *Monolopia gracilens*	PDAST6G010	None	None	G3	S3	1B.2

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
woolly rose-mallow *Hibiscus lasiocarpos var. occidentalis*	PDMAL0H0R3	None	None	G5T3	S3	1B.2
yellow rail *Coturnicops noveboracensis*	ABNME01010	None	None	G4	S2	SSC
yellow-banded andrenid bee *Perdita hirticeps luteocincta*	IIHYM01021	None	None	GNRTX	SX	

Record Count: 128

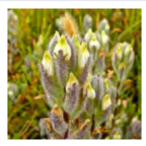
[CNPS Rare Plant Inventory](#)

Search Results

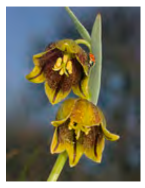
88 matches found. Click on scientific name for details

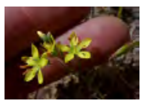
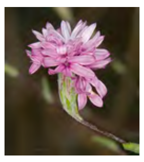
Search Criteria: Quad is one of [3812117:3812128:3812127:3812126:3812116:3712186:3712187:3712188:3812118]

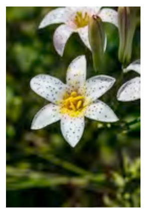
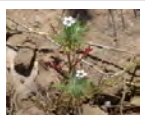
▲ SCIENTIFIC NAME	COMMON NAME	FAMILY	LIFEFORM	BLOOMING PERIOD	FED LIST	STATE LIST	GLOBAL RANK	STATE RANK	CA RARE PLANT RANK	CA ENDEMIC	DATE ADDED	PHOTO
Amsinckia grandiflora	large-flowered fiddleneck	Boraginaceae	annual herb	(Mar)Apr-May	FE	CE	G1	S1	1B.1	Yes	1974-01-01	 © 2015 Zoya Akulova
Androsace elongata ssp. *acuta*	California androsace	Primulaceae	annual herb	Mar-Jun	None	None	G5? T3T4	S3S4	4.2		1994-01-01	 © 2008 Aaron Schusteff
Anomobryum julaceum	slender silver moss	Bryaceae	moss		None	None	G5?	S2	4.2		2001-01-01	 © 2013 Scot Loring
Arabis blepharophylla	coast rockcress	Brassicaceae	perennial herb	Feb-May	None	None	G4	S4	4.3	Yes	1974-01-01	 © 2011 Neal Kramer
Arctostaphylos auriculata	Mt. Diablo manzanita	Ericaceae	perennial evergreen shrub	Jan-Mar	None	None	G2	S2	1B.3	Yes	1974-01-01	 © 2006 Steve Matson
Arctostaphylos manzanita ssp. *laevigata*	Contra Costa manzanita	Ericaceae	perennial evergreen shrub	Jan-Mar(Apr)	None	None	G5T2	S2	1B.2	Yes	1984-01-01	 © 2019 Susan McDougall
Astragalus tener var. *tener*	alkali milk-vetch	Fabaceae	annual herb	Mar-Jun	None	None	G2T1	S1	1B.2	Yes	1994-01-01	No Photo Available

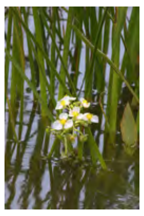
Atriplex cordulata var. cordulata	heartscale	Chenopodiaceae	annual herb	Apr-Oct	None	None	G3T2	S2	1B.2	Yes	1988-01-01	 © 1994 Robert E. Preston, Ph.D.
Atriplex coronata var. coronata	crownscale	Chenopodiaceae	annual herb	Mar-Oct	None	None	G4T3	S3	4.2	Yes	1994-01-01	 © 1994 Robert E. Preston, Ph.D.
Atriplex depressa	brittlescale	Chenopodiaceae	annual herb	Apr-Oct	None	None	G2	S2	1B.2	Yes	1994-01-01	 © 2009 Zoya Akulova
Blepharizonia plumosa	big tarplant	Asteraceae	annual herb	Jul-Oct	None	None	G1G2	S1S2	1B.1	Yes	1994-01-01	No Photo Available
Calandrinia breweri	Brewer's calandrinia	Montiaceae	annual herb	(Jan)Mar-Jun	None	None	G4	S4	4.2		1994-01-01	No Photo Available
Calochortus pulchellus	Mt. Diablo fairy-lantern	Liliaceae	perennial bulbiferous herb	Apr-Jun	None	None	G2	S2	1B.2	Yes	1974-01-01	No Photo Available
Centromadia parryi ssp. parryi	pappose tarplant	Asteraceae	annual herb	May-Nov	None	None	G3T2	S2	1B.2	Yes	2004-01-01	 © 2016 John Doyen
Centromadia parryi ssp. rudis	Parry's rough tarplant	Asteraceae	annual herb	May-Oct	None	None	G3T3	S3	4.2	Yes	2007-05-22	 © 2019 John Doyen
Chloropyron molle ssp. hispidum	hispid salty bird's-beak	Orobanchaceae	annual herb (hemiparasitic)	Jun-Sep	None	None	G2T1	S1	1B.1	Yes	1974-01-01	No Photo Available
Chloropyron molle ssp. molle	soft salty bird's-beak	Orobanchaceae	annual herb (hemiparasitic)	Jun-Nov	FE	CR	G2T1	S1	1B.2	Yes	1974-01-01	 © 2014 John Doyen
Cicuta maculata var. bolanderi	Bolander's water-hemlock	Apiaceae	perennial herb	Jul-Sep	None	None	G5T4T5	S2?	2B.1		1974-01-01	 © 2007 Doreen L Smith

Cirsium hydrophilum var. hydrophilum	Suisun thistle	Asteraceae	perennial herb	Jun-Sep	FE	None	G2T1	S1	1B.1	Yes	1974-01-01	No Photo Available
Collomia diversifolia	serpentine collomia	Polemoniaceae	annual herb	May-Jun	None	None	G4	S4	4.3	Yes	1974-01-01	 ©2019 Zoya Akulova
Convolvulus simulans	small-flowered morning-glory	Convolvulaceae	annual herb	Mar-Jul	None	None	G4	S4	4.2		1994-01-01	No Photo Available
Cordylanthus nidularius	Mt. Diablo bird's-beak	Orobanchaceae	annual herb (hemiparasitic)	Jun-Aug	None	CR	G1	S1	1B.1	Yes	1974-01-01	No Photo Available
Cryptantha hooveri	Hoover's cryptantha	Boraginaceae	annual herb	Apr-May	None	None	GH	SH	1A	Yes	1974-01-01	No Photo Available
Delphinium californicum ssp. interius	Hospital Canyon larkspur	Ranunculaceae	perennial herb	Apr-Jun	None	None	G3T3	S3	1B.2	Yes	1984-01-01	No Photo Available
Downingia pusilla	dwarf downingia	Campanulaceae	annual herb	Mar-May	None	None	GU	S2	2B.2		1980-01-01	 © 2013 Aaron Arthur
Eleocharis parvula	small spikerush	Cyperaceae	perennial herb	(Apr)Jun-Aug(Sep)	None	None	G5	S3	4.3		1980-01-01	 ©2018 Ron Vanderhoff
Eriastrum ertterae	Lime Ridge eriastrum	Polemoniaceae	annual herb	Jun-Jul	None	CC	G1	S1	1B.1	Yes	2013-12-19	 © 2013 John Doyen
Eriogonum nudum var. psychicola	Antioch Dunes buckwheat	Polygonaceae	perennial herb	Jul-Oct	None	None	G5T1	S1	1B.1	Yes	2010-06-21	No Photo Available
Eriogonum truncatum	Mt. Diablo buckwheat	Polygonaceae	annual herb	Apr-Sep(Nov-Dec)	None	None	G1	S1	1B.1	Yes	1974-01-01	No Photo Available
Eriogonum umbellatum var. bahiiforme	bay buckwheat	Polygonaceae	perennial herb	Jul-Sep	None	None	G5T3	S3	4.2	Yes	2001-01-01	No Photo Available
Eriophyllum jepsonii	Jepson's woolly sunflower	Asteraceae	perennial herb	Apr-Jun	None	None	G3	S3	4.3	Yes	1974-01-01	No Photo Available

Eryngium jepsonii	Jepson's coyote-thistle	Apiaceae	perennial herb	Apr-Aug	None	None	G2	S2	1B.2	Yes	2016-09-13	No Photo Available
Erysimum capitatum var. angustatum	Contra Costa wallflower	Brassicaceae	perennial herb	Mar-Jul	FE	CE	G5T1	S1	1B.1	Yes	1974-01-01	No Photo Available
Erythranthe inconspicua	small-flowered monkeyflower	Phrymaceae	annual herb	May-Jun	None	None	G4	S4	4.3	Yes	1974-01-01	 © 2017 Debra L. Cook
Eschscholzia rhombipetala	diamond-petaled California poppy	Papaveraceae	annual herb	Mar-Apr	None	None	G1	S1	1B.1	Yes	1980-01-01	No Photo Available
Extriplex joaquinana	San Joaquin spearscale	Chenopodiaceae	annual herb	Apr-Oct	None	None	G2	S2	1B.2	Yes	1988-01-01	No Photo Available
Fritillaria agrestis	stinkbells	Liliaceae	perennial bulbiferous herb	Mar-Jun	None	None	G3	S3	4.2	Yes	1980-01-01	 © 2016 Aaron Schusteff
Fritillaria liliacea	fragrant fritillary	Liliaceae	perennial bulbiferous herb	Feb-Apr	None	None	G2	S2	1B.2	Yes	1974-01-01	 © 2004 Carol W. Witham
Galium andrewsii ssp. gatense	phlox-leaf serpentine bedstraw	Rubiaceae	perennial herb	Apr-Jul	None	None	G5T3	S3	4.2	Yes	1994-01-01	 © 2021 Steve Matson
Grimmia torenii	Toren's grimmia	Grimmiaceae	moss		None	None	G2	S2	1B.3	Yes	2014-05-14	 ©2021 Scot Loring
Helianthella castanea	Diablo helianthella	Asteraceae	perennial herb	Mar-Jun	None	None	G2	S2	1B.2	Yes	1974-01-01	 © 2013 Christopher Bronny
Hesperevax caulescens	hogwallow starfish	Asteraceae	annual herb	Mar-Jun	None	None	G3	S3	4.2	Yes	2001-01-01	 © 2017 John Doyen

Hesperolinon breweri	Brewer's western flax	Linaceae	annual herb	May-Jul	None	None	G2	S2	1B.2	Yes	1974-01-01	 © 2014 Neal Kramer
Hibiscus lasiocarpos var. occidentalis	woolly rose-mallow	Malvaceae	perennial rhizomatous herb (emergent)	Jun-Sep	None	None	G5T3	S3	1B.2	Yes	1974-01-01	 © 2020 Steven Perry
Isocoma arguta	Carquinez goldenbush	Asteraceae	perennial shrub	Aug-Dec	None	None	G1	S1	1B.1	Yes	1994-01-01	No Photo Available
Lasthenia conjugens	Contra Costa goldfields	Asteraceae	annual herb	Mar-Jun	FE	None	G1	S1	1B.1	Yes	1974-01-01	 © 2013 Neal Kramer
Lasthenia glabrata ssp. coulteri	Coulter's goldfields	Asteraceae	annual herb	Feb-Jun	None	None	G4T2	S2	1B.1		1994-01-01	 © 2013 Keir Morse
Lathyrus jepsonii var. jepsonii	Delta tule pea	Fabaceae	perennial herb	May-Jul(Aug-Sep)	None	None	G5T2	S2	1B.2	Yes	1974-01-01	 © 2003 Mark Fogiel
Legenere limosa	legenere	Campanulaceae	annual herb	Apr-Jun	None	None	G2	S2	1B.1	Yes	1974-01-01	 ©2000 John Game
Leptosiphon ambiguus	serpentine leptosiphon	Polemoniaceae	annual herb	Mar-Jun	None	None	G4	S4	4.2	Yes	1994-01-01	 © 2010 Aaron Schusteff
Leptosiphon grandiflorus	large-flowered leptosiphon	Polemoniaceae	annual herb	Apr-Aug	None	None	G3G4	S3S4	4.2	Yes	1994-01-01	 © 2003 Doreen L. Smith
Lessingia hololeuca	woolly-headed lessingia	Asteraceae	annual herb	Jun-Oct	None	None	G2G3	S2S3	3	Yes	1994-01-01	 © 2015 Aaron Schusteff
Lilaeopsis masonii	Mason's lilaeopsis	Apiaceae	perennial rhizomatous herb	Apr-Nov	None	CR	G2	S2	1B.1	Yes	1974-01-01	No Photo Available

Lilium rubescens	redwood lily	Liliaceae	perennial bulbiferous herb	(Mar)Apr-Aug(Sep)	None	None	G3	S3	4.2	Yes	1974-01-01	 Gerald and Buff Corsi © 2022 California Academy of Sciences
Limosella australis	Delta mudwort	Scrophulariaceae	perennial stoloniferous herb	May-Aug	None	None	G4G5	S2	2B.1		1994-01-01	 © 2020 Richard Sage
Lupinus albifrons var. abramsii	Abrams' lupine	Fabaceae	perennial herb	Apr-Jun	None	None	G5T3?Q	S3?	3.2	Yes	1974-01-01	No Photo Available
Madia radiata	showy golden madia	Asteraceae	annual herb	Mar-May	None	None	G3	S3	1B.1	Yes	1988-01-01	No Photo Available
Malacothamnus hallii	Hall's bush-mallow	Malvaceae	perennial deciduous shrub	(Apr)May-Sep(Oct)	None	None	G2	S2	1B.2	Yes	1974-01-01	 © 2017 Keir Morse
Meesia triquetra	three-ranked hump moss	Meesiaceae	moss	Jul	None	None	G5	S4	4.2		2001-01-01	 Steve Matson 2008
Microseris paludosa	marsh microseris	Asteraceae	perennial herb	Apr-Jun(Jul)	None	None	G2	S2	1B.2	Yes	2001-01-01	No Photo Available
Microseris sylvatica	sylvan microseris	Asteraceae	perennial herb	Mar-Jun	None	None	G4	S4	4.2	Yes	2001-01-01	No Photo Available
Monolopia gracilens	woodland woollythreads	Asteraceae	annual herb	(Feb)Mar-Jul	None	None	G3	S3	1B.2	Yes	2010-04-06	 © 2016 Richard Spellenberg
Myosurus minimus ssp. apus	little mousetail	Ranunculaceae	annual herb	Mar-Jun	None	None	G5T2Q	S2	3.1		1980-01-01	No Photo Available
Navarretia gowenii	Lime Ridge navarretia	Polemoniaceae	annual herb	May-Jun	None	None	G1	S1	1B.1	Yes	2008-05-15	No Photo Available
Navarretia heterandra	Tehama navarretia	Polemoniaceae	annual herb	Apr-Jun	None	None	G4	S4	4.3		1974-01-01	 ©2021 Scot Loring

Navarretia leucocephala ssp. bakeri	Baker's navarretia	Polemoniaceae	annual herb	Apr-Jul	None	None	G4T2	S2	1B.1	Yes	1994-01-01	 © 2018 Barry Rice
Navarretia nigelliformis ssp. radians	shining navarretia	Polemoniaceae	annual herb	(Mar)Apr-Jul	None	None	G4T2	S2	1B.2	Yes	1994-01-01	No Photo Available
Oenothera deltoides ssp. howellii	Antioch Dunes evening-primrose	Onagraceae	perennial herb	Mar-Sep	FE	CE	G5T1	S1	1B.1	Yes	1974-01-01	No Photo Available
Phacelia phacelioides	Mt. Diablo phacelia	Hydrophyllaceae	annual herb	Apr-May	None	None	G2	S2	1B.2	Yes	1974-01-01	 ©2019 Steve Matson
Piperia michaelii	Michael's rein orchid	Orchidaceae	perennial herb	Apr-Aug	None	None	G3	S3	4.2	Yes	1984-01-01	No Photo Available
Plagiobothrys hystriculus	bearded popcornflower	Boraginaceae	annual herb	Apr-May	None	None	G2	S2	1B.1	Yes	1974-01-01	No Photo Available
Potamogeton zosteriformis	eel-grass pondweed	Potamogetonaceae	annual herb (aquatic)	Jun-Jul	None	None	G5	S3	2B.2		1994-01-01	No Photo Available
Puccinellia simplex	California alkali grass	Poaceae	annual herb	Mar-May	None	None	G2	S2	1B.2		2015-10-15	 © 2017 Chris Winchell
Ranunculus lobbii	Lobb's aquatic buttercup	Ranunculaceae	annual herb (aquatic)	Feb-May	None	None	G4	S3	4.2		1974-01-01	No Photo Available
Ravenella exigua	chaparral harebell	Campanulaceae	annual herb	May-Jun	None	None	G2	S2	1B.2	Yes	1974-01-01	No Photo Available
Sagittaria sanfordii	Sanford's arrowhead	Alismataceae	perennial rhizomatous herb (emergent)	May-Oct(Nov)	None	None	G3	S3	1B.2	Yes	1984-01-01	 ©2013 Debra L. Cook
Sanicula saxatilis	rock sanicle	Apiaceae	perennial herb	Apr-May	None	CR	G2	S2	1B.2	Yes	1974-01-01	 © 1998 John Game
Senecio aphanactis	chaparral ragwort	Asteraceae	annual herb	Jan-Apr(May)	None	None	G3	S2	2B.2		1994-01-01	No Photo Available

Senecio hydrophiloides	sweet marsh ragwort	Asteraceae	perennial herb	May-Aug	None	None	G5	S4	4.2		1984-01-01	 © 2021 Scot Loring
Sidalcea keckii	Keck's checkerbloom	Malvaceae	annual herb	Apr-May(Jun)	FE	None	G2	S2	1B.1	Yes	1974-01-01	No Photo Available
Spergularia macrotheca var. longistyla	long-styled sand-spurrey	Caryophyllaceae	perennial herb	Feb-May	None	None	G5T2	S2	1B.2	Yes	2017-06-16	No Photo Available
Streptanthus albidus ssp. peramoenus	most beautiful jewelflower	Brassicaceae	annual herb	(Mar)Apr-Sep(Oct)	None	None	G2T2	S2	1B.2	Yes	1988-01-01	 © 1994 Robert E. Preston, Ph.D.
Streptanthus hispidus	Mt. Diablo jewelflower	Brassicaceae	annual herb	Mar-Jun	None	None	G2	S2	1B.3	Yes	1974-01-01	 © 2011 Aaron Schusteff
Stuckenia filiformis ssp. alpina	northern slender pondweed	Potamogetonaceae	perennial rhizomatous herb (aquatic)	May-Jul	None	None	G5T5	S2S3	2B.2		1994-01-01	 Dana York (2016)
Symphyotrichum lentum	Suisun Marsh aster	Asteraceae	perennial rhizomatous herb	(Apr)May-Nov	None	None	G2	S2	1B.2	Yes	1974-01-01	No Photo Available
Triquetrella californica	coastal triquetrella	Pottiaceae	moss		None	None	G2	S2	1B.2		2001-01-01	No Photo Available
Tropidocarpum capparideum	caper-fruited tropidocarpum	Brassicaceae	annual herb	Mar-Apr	None	None	G1	S1	1B.1	Yes	1974-01-01	No Photo Available
Viburnum ellipticum	oval-leaved viburnum	Viburnaceae	perennial deciduous shrub	May-Jun	None	None	G4G5	S3	2B.3		1974-01-01	 © 2006 Tom Engstrom

Showing 1 to 88 of 88 entries

Suggested Citation:
California Native Plant Society, Rare Plant Program. 2024. Rare Plant Inventory (online edition, v9.5). Website https://www.rareplants.cnps.org [accessed 19 April 2024].

United States Department of the Interior

FISH AND WILDLIFE SERVICE
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In Reply Refer To: March 06, 2024
Project Code: 2024-0058955
Project Name: Delta Diablo Secondary Process Project

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed, and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through IPaC by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2) (c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at: https://www.fws.gov/sites/default/files/documents/endangered-species-consultation-handbook.pdf

Migratory Birds: In addition to responsibilities to protect threatened and endangered species under the Endangered Species Act (ESA), there are additional responsibilities under the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA) to protect native birds from project-related impacts. Any activity, intentional or unintentional, resulting in take of migratory birds, including eagles, is prohibited unless otherwise permitted by the U.S. Fish and Wildlife Service (50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)). For more information regarding these Acts, see Migratory Bird Permit | What We Do | U.S. Fish & Wildlife Service (fws.gov).

The MBTA has no provision for allowing take of migratory birds that may be unintentionally killed or injured by otherwise lawful activities. It is the responsibility of the project proponent to comply with these Acts by identifying potential impacts to migratory birds and eagles within applicable NEPA documents (when there is a federal nexus) or a Bird/Eagle Conservation Plan (when there is no federal nexus). Proponents should implement conservation measures to avoid or minimize the production of project-related stressors or minimize the exposure of birds and their resources to the project-related stressors. For more information on avian stressors and recommended conservation measures, see https://www.fws.gov/library/collections/threats-birds.

In addition to MBTA and BGEPA, Executive Order 13186: *Responsibilities of Federal Agencies to Protect Migratory Birds*, obligates all Federal agencies that engage in or authorize activities that might affect migratory birds, to minimize those effects and encourage conservation measures that will improve bird populations. Executive Order 13186 provides for the protection of both migratory birds and migratory bird habitat. For information regarding the implementation of Executive Order 13186, please visit https://www.fws.gov/partner/council-conservation-migratory-birds.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Code in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List

OFFICIAL SPECIES LIST

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Sacramento Fish And Wildlife Office
Federal Building
2800 Cottage Way, Room W-2605
Sacramento, CA 95825-1846
(916) 414-6600

PROJECT SUMMARY

Project Code: 2024-0058955
Project Name: Delta Diablo Secondary Process Project
Project Type: Wastewater Facility - Maintenance / Modification
Project Description: Waste Water Treatment Plant Expansion
Project Location:

The approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@38.0153696,-121.84593432878123,14z

Counties: Contra Costa County, California

ENDANGERED SPECIES ACT SPECIES

There is a total of 17 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
Salt Marsh Harvest Mouse *Reithrodontomys raviventris* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/613	Endangered
San Joaquin Kit Fox *Vulpes macrotis mutica* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/2873	Endangered

BIRDS

NAME	STATUS
California Condor *Gymnogyps californianus* Population: U.S.A. only, except where listed as an experimental population There is **final** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/8193	Endangered
California Least Tern *Sternula antillarum browni* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/8104	Endangered
California Ridgway"s Rail *Rallus obsoletus obsoletus* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/4240	Endangered

REPTILES

NAME	STATUS
Northwestern Pond Turtle *Actinemys marmorata* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/1111	Proposed Threatened

AMPHIBIANS

NAME	STATUS
California Red-legged Frog *Rana draytonii* There is **final** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/2891	Threatened
California Tiger Salamander *Ambystoma californiense* Population: U.S.A. (Central CA DPS) There is **final** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/2076	Threatened
Foothill Yellow-legged Frog *Rana boylii* Population: Central Coast Distinct Population Segment (Central Coast DPS) No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/5133	Threatened
Western Spadefoot *Spea hammondii* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/5425	Proposed Threatened

INSECTS

NAME	STATUS
Monarch Butterfly *Danaus plexippus* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9743	Candidate

CRUSTACEANS

NAME	STATUS
Vernal Pool Fairy Shrimp *Branchinecta lynchi* There is **final** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/498	Threatened
Vernal Pool Tadpole Shrimp *Lepidurus packardi* There is **final** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/2246	Endangered

FLOWERING PLANTS

NAME	STATUS
Colusa Grass *Neostapfia colusana* There is **final** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/5690	Threatened
Contra Costa Goldfields *Lasthenia conjugens* There is **final** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/7058	Endangered
Keck's Checker-mallow *Sidalcea keckii* There is **final** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/5704	Endangered
Soft Bird's-beak *Cordylanthus mollis ssp. mollis* There is **final** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/8541	Endangered

CRITICAL HABITATS

There is 1 critical habitat wholly or partially within your project area under this office's jurisdiction.

NAME	STATUS
Delta Smelt *Hypomesus transpacificus* For information on why this critical habitat appears for your project, even though Delta Smelt is not on the list of potentially affected species at this location, contact the local field office. https://ecos.fws.gov/ecp/species/321#crithab	Final

IPAC USER CONTACT INFORMATION

Agency:	ICF
Name:	Ross Wilming
Address:	201 Mission Street
Address Line 2:	Suite 1500
City:	San Francisco
State:	CA
Zip:	94105
Email	rwilming@gmail.com
Phone:	4156777126

Appendix B
Representative Photographs

Photo 1. Ornamental vegetation along Arcy Lane within WWTP (looking north).

Photo 2. Area of planned pipeline in project area within WWTP (looking south).

Photo 3. Area of planned pipeline in project area within WWTP (looking north).

Photo 4. Aeration basin to be retrofitted (on far left) and trickling tower filters and odor control biofilter facility (center) to be demolished in project area within WWTP (looking east).

Photo 5. Area south of trickling tower filters and odor control biofilter facility in project area within WWTP (looking east).

Photo 6. Area of planned pump station in project area within WWTP (looking east).

Photo 7. Gravel road in proposed staging area outside WWTP (looking west).

Photo 8. Vacant parcel with proposed staging area outside WWTP (looking southwest).

Photo 9. Potential seasonal wetlands in north portion of study area outside the WWTP (looking west).

Photo 10. Small mammal burrow adjacent to staging area outside project area and WWTP (looking southeast).

Photo 11. Small mammal burrow north of staging area outside project area and WWTP (looking north).

Photo 12. Emergency retention basin north of project area within WWTP (looking northeast).

Photo 13. Kirker Creek south of staging area outside project area and WWTP (looking west).

Photo 14. Kirker Creek southeast of staging area outside project area and WWTP (looking northeast).

Photo 15. BNSF railroad tracks north of project area and WWTP (looking east).

Appendix C
List of Plant and Animal Species Observed during Surveys

Plants

Scientific Name	Common Name
Amsinckia menziesii	fiddleneck
Amsinckia sp.	fiddleneck
Avena barbata	slender oat
Avena fatua	wild oat
Baccharis pilularis	coyote brush
Brassica nigra	short pod mustard
Bromus diandrus	ripgut brome
Bromus sp.	annual brome
Carduus pycnocephalus	Italian thistle
Convolvulus arvensis	field bindweed
Dittrichia graveolens	stinkwort
Epilobium brachycarpum	tall annual willowherb
Erodium botrys	long beaked filaree
Erodium cicutarium	red stemmed filaree
Erodium moschatum	white stemmed filaree
Festuca sp.	festcue
Geranium dissectum	cutleaf geranium
Juncus bufonius	toad rush
Lepidium latifolium	perennial pepperweed
Lupinus bicolor	minature lupine
Lupinus sp.	lupine
Malva sp.	cheeseweed
Medicago polymorpha	bur clover
Phragmites australis	common reed
Polygonum aviculare	prostrate knotweed
Psilocarphus oregonus	wooly marbles
Salsola tragus	Russian thistle
Schoenoplectus sp.	bullrush
Sinapis arvensis	charlock mustard
Typha sp.	cattail

Scientific Name	Common Name
Vicia sativa	garden vetch
Vicia villosa	hairy vetch

Animals

Scientific Name	Common Name
Agelaius phoeniceus	red-winged blackbird
Anas platyrhynchos	mallard
Aphelocoma californica	California scrub jay
Ardea alba	great egret
Calypte anna	Anna's hummingbird
Cathartes aura	turkey vulture
Cistothorus palustris	marsh wren
Corvus brachyrhynchos	American crow
Corvus corax	common raven
Euphagus cyanocephalus	Brewers's blackbird
Gallinago delicata	Wilson's snipe
Haemorhous mexicanus	house finch
Junco hyemalis	dark eyed junco
Melospiza melodia	song sparrow
Mimus polyglotto	northern mockingbird
Passer domesticus	house sparrow
Sayornis nigricans	black phoebe
Setophaga coronata	yellow-rumped warbler
Spinus psaltria	lesser goldfinch
Sturnella neglecta	western meadowlark
Sturnus vulgaris	European starling
Zenaida macroura	mourning dove
Zonotrichia leucophrys	white-crowned sparrow