Draft

NORSD WATER RESOURCE RECOVERY FACILITY PROJECT

Initial Study/Mitigated Negative Declaration

Prepared for
North of River Sanitary District

April 2025

ESA

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Initial Study/Mitigated Negative Declaration

Prepared for
North of River Sanitary District
204 Universe Avenue,
Bakersfield, CA 93308

April 2025

633 West 5th Street
Suite 830
Los Angeles, CA 90071
esassoc.com

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Acronyms and Other Abbreviations

Abbreviation	Definition
Bgs	Below Ground Surface
BPS	Best Performance Standards
Caltrans	California Department of Transportation
CARB	California Air Resources Board
CALFIRE	California Department of Forestry and Fire Protection
CH_4	Methane
CWA	Clean Water Act
CEQA	California Environmental Quality Act
CGS	California Geologic Survey
DOC	Department of Conservation
DTSC	Department of Toxic Substances Control
EIR	Environmental Impact Report
ESA	Environmental Science Associates
FEMA	Federal Emergency Management Agency
GHG	Greenhouse Gas
GIS	Geographic Information System
KCFS	Kern County Fire Services
KCOG	Kern Council of Governments
KCSD	Kern County Sheriff's Department
RTP/SCS	Regional Transportation Plan/Sustainable Communities Strategy
MGD	Million gallons per day
N_2O	Nitrous Oxide
NORSD	North of River Sanitary District
SJVAB	San Joaquin Valley Air Basin
SJVAPCD	San Joaquin Valley Air Pollution Control District
SOI	Sphere of Influence
SPD	Shafter Police Department
SRA	State Responsibility Area
SWPPP	Stormwater Pollution Prevention Plan
SWRCB	State Water Resources Control Board

Abbreviation	Definition
USEPA	U.S. Environmental Project Agency
VHFHSZ	Very High Fire Hazard Severity Zone
VMT	Vehicle Miles Traveled
WRRF	Water Resource Recovery Facility

CHAPTER 1
Project Description

1.1 Introduction

The North of River Sanitary District ("NORSD" or "District") operates and maintains a wastewater treatment plant serving residential, commercial, and industrial customers in Oildale, County Service Area 71 (CSA-71), and some areas of the Cities of Shafter and Bakersfield, within Kern County. The District, as lead agency under the California Environmental Quality Act (CEQA), is proposing to implement the NORSD Water Resource Recovery Facility (WRRF) Project ("Project"). This Mitigated Negative Declaration (MND) evaluates the environmental effects of the proposed Project and has been prepared in accordance with relevant provisions of the CEQA of 1970 (California Public Resources Code [PRC] Section 21000 et. seq.) as amended, and the State CEQA Guidelines (California Code of Regulations [CCR] Title 14, Section 15000 et. seq., as revised).

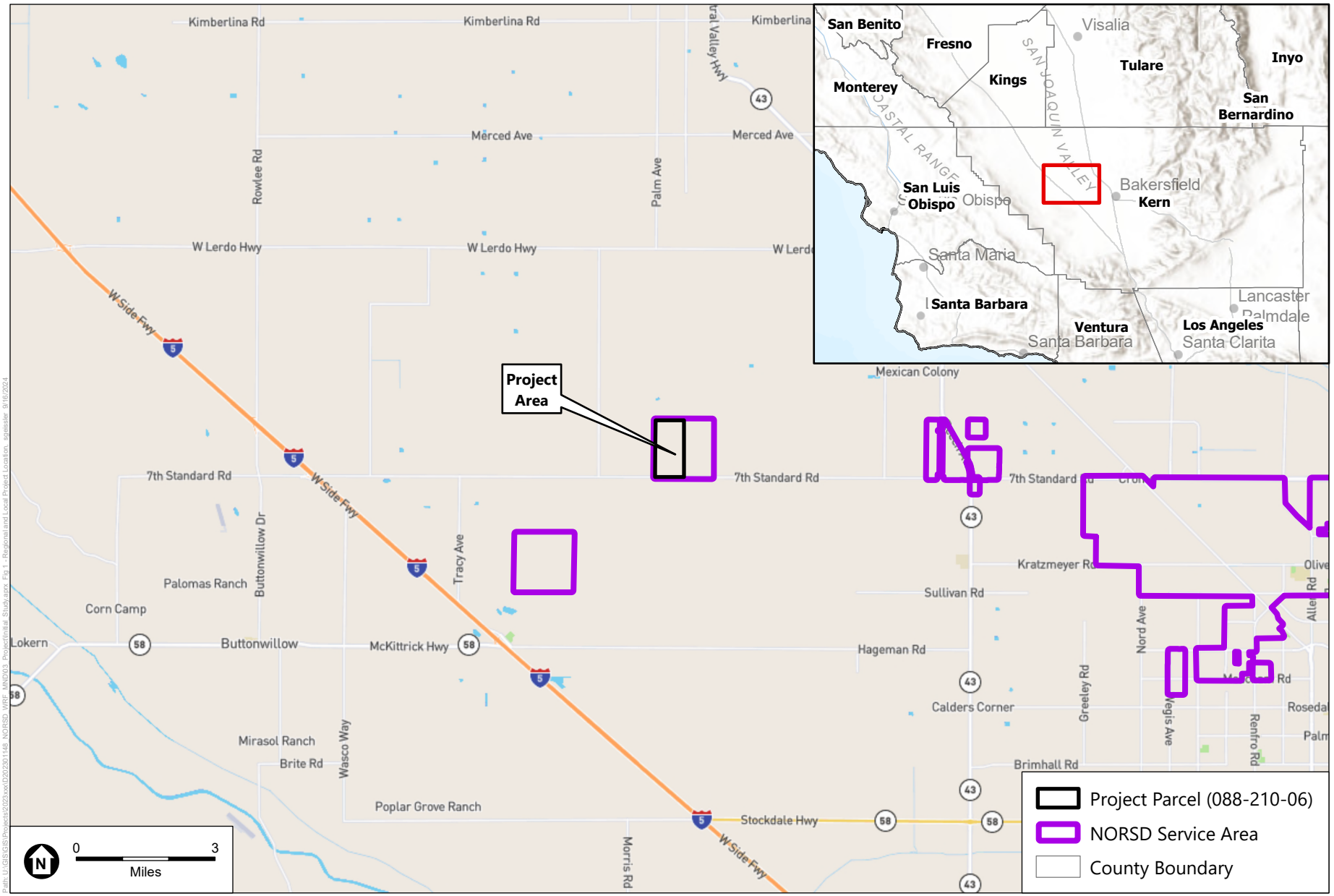
1.2 Project Location

The Project is located on 7th Standard Road, southwest of the City of Shafter, in Kern County within NORSD's boundary and sphere of influence. Project components are located entirely within the existing wastewater treatment plant (WWTP) as shown on **Figure 1,** *Regional and Local Project Location*.

Regional access to the Project area is available from Interstate 5 (I-5) via 7th Standard Road. Local access to the Project area is available from 7th Standard Road, Magnolia Avenue, Wasco Avenue, Palm Avenue, Imperial Street, Cannon Street, Brandt Road, Burbank Street, and San Diego Street. Surrounding land uses in the Project vicinity are exclusively agricultural (Kern County 2024).

1.3 Project Background and Purpose

The NORSD was created in 1940 to provide wastewater collection and treatment for communities north of the Kern River in Kern County, California (Woodard & Curran 2024). The WWTP was constructed in 1999 and has undergone several improvements since that time. The District currently serves approximately 62,000 people and the unincorporated community of Oildale, the City of Shafter, and the northern portion of CSA-71, which includes portions of the City of Bakersfield (Woodard & Curran 2024). The service area is primarily residential and commercial with a few industrial users that produce significant wastewater flows.



SOURCE: ESA, 2024

NORSD Water Resource Recovery Facility Project

Figure 1
Regional and Local Project Location

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The NORSD collection system currently consists of approximately 174 miles of sewer lines ranging in size from 6 to 54-inches (Woodard & Curran 2024). The collection system also includes a total of five lift stations. Raw wastewater from the service area flows to the NORSD's WWTP through an 18-mile-long gravity Outfall Sewer. The WWTP currently has a capacity of 7.5 million gallons per day (MGD) and treats an average inflow of 5.6 MGD (Woodard & Curran 2024). The WWTP consists primary of a clarifier, a trickling filter, and a secondary clarifier. NORSD also provides treatment of the wastewater to meet undisinfected secondary effluent requirements. During irrigation season, treated effluent is pumped from the ponds and applied to 2,500 acres of feed and fodder crops. Approximately 450 acres of the feed and fodder crop farmland is owned by NORSD, and the remainder is privately-owned (Woodard & Curran 2024). Sludge is disposed of as Class-B biosolids on 450 acres of permitted NORSD-owned land surrounding the WWTP (Woodard & Curran 2024).

Due to the increasing population of the service area, the existing plant has reached its biological capacity and approximately 80 percent of the hydraulic capacity.. In order to continue to provide treatment for the growing communities it serves, NORSD is undertaking the expansion of the WWTP analyzed within this document, which would be designed for projected growth through 2050. In addition to expanding capacity to 10 MGD, the upgrade would also add the ability to remove nitrogen to meet the anticipated permit limit of 10 milligrams per liter (mg/L) total nitrogen that would come into effect when the plant is expanded. NORSD has the following additional goals for the new facility:

- Producing a higher quality effluent to allow for expanded beneficial reuse opportunities in the future, including irrigation of higher value crops or groundwater recharge, or other potential beneficial uses.
- Positioning NORSD to take advantage of renewable energy opportunities such as solar photovoltaic (PV) or cogeneration to offset rising electricity costs.
- Maximizing efficiency of the available workforce through improved personnel facilities and the use of supervisory control and data acquisition (SCADA) and automation.

1.4 Proposed Project

NORSD is proposing the expansion of the existing WWTP in order to effectively serve its existing and planned population. The Project consists of a new preliminary and liquid treatment process, solid treatment, an administrative and a maintenance building, and miscellaneous site improvements (Figure 2, Conceptual Site Plan). The following Project components and processes are summarized below and described in detail in the Technical Memorandum 9, Facilities Plan, Water Resource Recovery Facility Expansion Project Phase 1 prepared by Woodard & Curran, April 2024 (W&C 2024). See Appendix A of this Draft IS/MND for the Technical Memorandum.

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SOURCE: Woodard & Curran, 2024

NORSD Water Resource Recovery Facility Project

Figure 2
Conceptual Site Plan

ESA

1.4.1 Preliminary and Liquid Treatment Process

The liquid treatment process aims to separate the liquids from the solids. The liquid treatment process at the new WRRF would consist of preliminary treatment, primary treatment, and secondary treatment. The existing preliminary and primary treatment would be expanded to provide additional capacity. Preliminary treatment consists of three coarse screens, four influent pumps, two grit removal units and two grit classifiers. Primary and secondary treatment would follow the preliminary treatment process to further separate liquids from solids and the removal of organic matter and biological contaminants from liquid waste. Primary treatment consists of two primary clarifiers and four fine screens. The secondary treatment would consist of an entirely new four-stage biological process (Bioreactors) coupled with membranes (MBR). This secondary treatment is designed to meet an effluent Total Nitrogen (TN) limit of 10 mg/L (as nitrogen) and prepare NORSD for expanded effluent reuse options in the foreseeable future. The complete liquid treatment train is shown in Figure 3, Liquid Treatment Process.

Coarse Screens

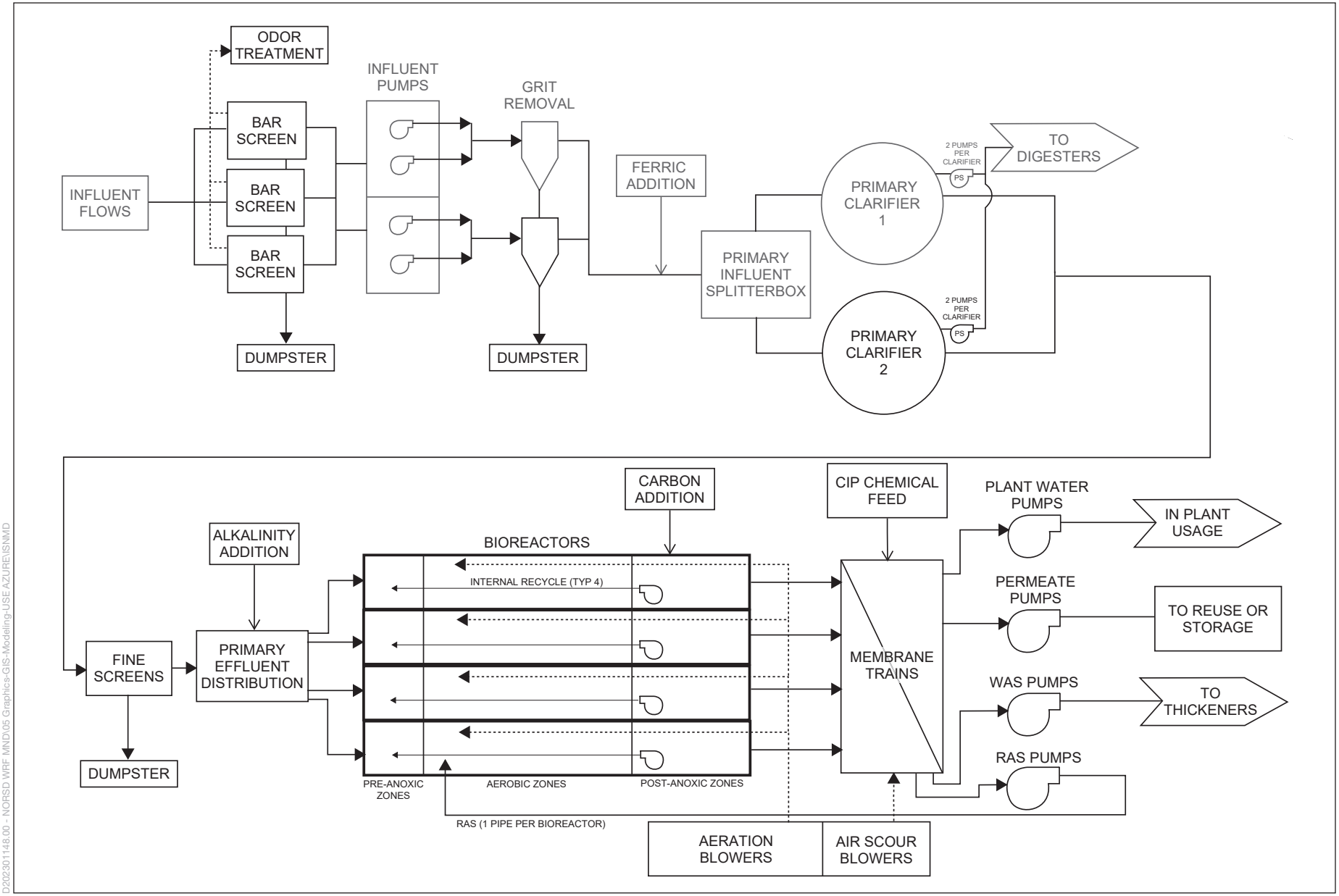
Coarse screening is a critical process for removing trash and debris to protect downstream equipment. Existing screens appear to have a bar spacing of approximately 0.5-inches. The two coarse screens are Duperon Flex-rake, front cleaned with front return, with plastic rakes linkage-type chains. The coarse screen discharges are equipped with grinders and washer-compactors. Dewatered screenings are deposited in totes which are emptied approximately once per day per screen. The coarse screens were installed as part of the plant expansion in 2006 and are approaching the end of their useful life.

The Project would replace the existing influent screens units with two coarse screens with a spacing of 0.375-inches, which is recommended to remove more material ahead of the fine screens. Replacing these influent screens would allow WRRF to accommodate a peak flow of 25 MGD with both mechanical screens on-line. Additionally, the manual bar rack would be replaced with a third mechanical screen, approximately 3- to 4-feet wide, to provide redundancy at peak flow during the liquid treatment process.

Influent Pumps

The influent pumps function is to lift the wastewater from a lower elevation to a higher elevation, to allow for subsequent treatment processes. The current influent pumping at the WWTP consists of four submersible pumps located in two wet wells (a large underground concrete tank where the wastewater accumulates before being pumped to the next stage of treatment). Each wet well has one 2,500 gallons per minute (gpm), 57.6 horsepower (hp) pump, and one 4,200 gpm, 75 hp pump. Three pumps can achieve a peak flow of 12 MGD.

The Project would replace the existing influent pumps with four influent pumps rated at 6,000 gpm to achieve a 25 MGD peak flow.



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SOURCE: North of River Sanitary District, 2024

NORSD Water Resource Recovery Facility Project

Figure 3
Liquid Treatment Process

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Grit Removal

The grit removal process removes grit (solid material entering the sewage influent) from the wastewater to reduce both accumulation in downstream tanks and abrasion of downstream equipment and piping. Removing as much grit as possible ahead of the primary clarifiers is essential in reducing the amount of grit that eventually makes it to the digesters. Currently, the existing grit removal system consists of a single tea-cup style grit chamber rated for up to 12 MGD. This equipment uses velocity of the incoming wastewater to induce a swirl within the chamber which causes grit to separate from the water and fall to the bottom of the tank. A solenoid valve located in the bottom tank opens to send grit to the classifier, where it is concentrated, drained, and delivered to a container for disposal. A plant water connection is provided to fluidize the grit prior to draining.

The District will add an additional Grit King unit to provide additional grit removal capacity.

Primary Clarifiers

The primary clarifier removes settleable material ahead of the trickling filter through sedimentation. The existing primary clarifier is used to co-thicken sludge returned from the tricking filter. The Project would retain the existing primary clarifier and add a second clarifier to reduce the organic load on the secondary system, and shunt degradable solids directly to the digesters where it can be converted to biogas for potential future beneficial use. The Project proposes a second primary clarifier, for a total of two primary clarifiers at the WRRF, to keep overflow rates at values of 600 to 1,200 gallons per day square foot (gpd/sf) at average flow and no more than 3,000 gpd/sf at peak flow.

Fine Screening

The fine screens help remove stringy material such as hair from water. Fine screens with perforated openings of 2 millimeters (mm) or less (1 mm is preferred) are required ahead of the membrane bioreactor (MBR) in order to protect the integrity and performance of the membranes. If the stringy material is not removed, they wrap around the membrane fibers, requiring additional operation and maintenance to remove them and shortening the membrane life.

The Project proposes four 2 mm fine screens, with three fine screens able to pass the peak flow and the fourth screen for redundancy. In the event that two screens are out of service, the WRRF would still be able to pass the maximum day flow required.

Membrane Bioreactors

The MBR processes is effective in reclaiming wastewater, retaining solids, salts, and even disinfecting water for reuse in irrigation and other applications. The Project proposes four parallel trains with pre- and post—anoxic zones and swing zones for maximum flexibility to adapt to changing flows and loads. The aeration basins or bioreactors would consist of fine bubble aeration, blowers, mixers, mixed-liquor return pumps, and slide gates. The tanks would be common wall, open top, with walkways for access to equipment and instrumentation.

The membrane system separates solids (activated sludge) from the wastewater and produces a high-quality effluent. Activated sludge is returned to the bioreactors as returned activated sludge (RAS). The membranes represent a physical barrier that treated wastewater must pass through. Redundancy is critical therefore the membrane system would be sized to treat the peak design flow of 25 MGD with one train out of service. The Project proposes a hollow fiber membrane type, which are typically constructed of polyvinylidene fluoride (PVDF) and have a nominal pore size of 0.04 micrometers. Other major components of the membrane system include the permeate and RAS pumps, the backwash system and cleaning chemicals, air scour blowers, a crane for membrane removal, and automatic valves, instruments, and controls.

1.4.2 Solids Treatment

The Project proposes the rehabilitation and expansion of the current solid treatment processes at the WWTP. The solids treatment would consist of two waste activated sludge thickeners, followed by two new and two existing mesophilic anaerobic digesters, one new and one existing dewatering units, and twelve sludge storage/drying beds, as shown in **Figure 4**, *Solids Treatment Process.* Three additional sludge beds will be lined for sludge storage, adding to the existing three lined sludge beds. Primary sludge thickening would continue to be with primary clarifiers.

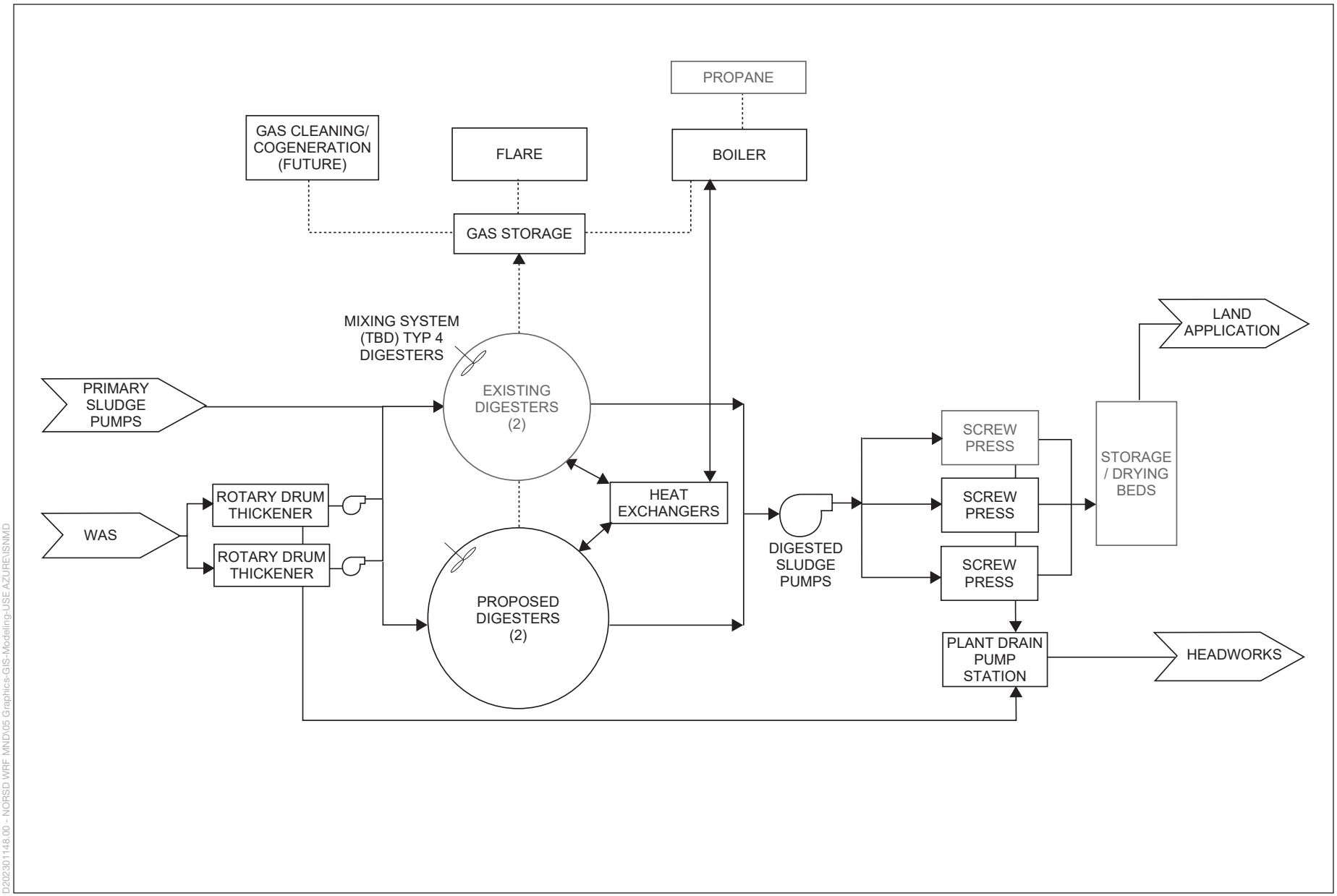
Sludge Thickening

Sludge thickening is a process by which the solids content of sludge is increased by removing part of the liquid fraction. This reduces the sludge volume. Currently, the WWTP thickening process is thickening primary sludge up to 4 percent and this is expected to continue. The Project proposes the primary sludge thickening to continue in the primary clarifiers and pumped directly to the digesters. For waste activated sludge (WAS) thickening, the Project proposes new mechanical thickeners including two rotary drum thickeners (RDT), each with flocculation tank and mixer, polymer in-line injection rings and mixing, polymer make down system, and control panel. A small amount of storage (four hours) would be provided for thickened sludge in a new thickened WAS wet well.

Mesophilic Anaerobic Digestion

Mesophilic anaerobic digestion is a process in which bacteria break down organic matter in the absence of oxygen. Currently, the solids at the WWTP are stabilized using two-stage mesophilic anaerobic digestion in two digesters, which operate to produce Class B biosolids. The Project proposes solid stabilization by a single stage mesophilic anaerobic digestion and additional digesters to provide the required capacity.

The new digesters would have more than twice the volume of the existing digesters, which would reduce the number of new digesters required for the plant buildout and result in a smaller overall footprint. The existing digesters could serve as storage in the future. Two additional large digesters would provide sufficient capacity for this design phase. Digested sludge would be stored in the digesters by allowing the liquid level to vary. Biogas would be stored under membrane covers on the new digesters. Biogas would be used for digester heating, and any excess would be flared. Space would be provided for possible future biogas uses such as cogeneration.



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SOURCE: North of River Sanitary District, 2024

NORSD Water Resource Recovery Facility Project

Figure 4
Solids Treatment Process

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The existing digesters and equipment would be upgraded as well based on their condition. A new digester cover would be installed on digester #2 which currently has a floating cover.

Dewatering System

Dewatering systems remove water from sludge, transforming it from a liquid to a semisolid or solid state. NORSD currently uses dewatering to reduce the volume that must be stored and hauled and make the sludge easier to handle. The WRRF currently has one screw press for dewatering digested sludge.

The Project proposes one new dewatering unit, with the existing dewatering system to remain. The new screw press similar as the existing, would be installed to offer additional capacity to accommodate higher solid loads and provide one redundant unit. A shade roof would be provided over the new and existing screw press.

Sludge Storage/Drying Beds

Sludge storage/drying beds are an essential component for the efficient management and recycling of the byproducts of treated water. Once the sludge reduces in volume and size, it is easier for disposal.

Currently, dewatered sludge is stored for approximately two years in lined storage beds, and then applied on the surrounding agricultural lands owed by NORSD. There are fourteen beds at the site, but only three are lined and used for sludge storage. The Project proposes three additional beds lined to provide additional storage and drying capacity for the sludge production increase at the horizon year of 2050.

1.4.3 Operations Building

The operations building would include offices, an expanded laboratory, meeting rooms, and bathrooms. Due to the expansion of the existing WWTP, a maintenance building would include a crane to facilitate maintenance of heavy equipment, and six truck bays for storage and maintenance of NORSD vehicles. The existing operations building would be repurposed for showers and lockers, as well as additional storage space and/or a redundant server room (W&C 2024).

1.4.4 Miscellaneous Site Improvements

Miscellaneous site improvements include paving, grading, plant drain, and potable water.

1.5 Construction Equipment and Schedule

Construction of the Project would occur entirely within the existing WWTP site. The Project would involve earthwork to modify and construct the new WRRF improvements. Construction staging areas and equipment and vehicle laydown areas would be accommodated within the Project site.

Construction would require, but would not be limited to, the following equipment:

- Excavator
- Flatbed truck
- Lifts
- Light pickup truck
- Truck-mounted earth auger
- Heavy-duty trucks (2)
- Dump trucks (2)
- Scraper
- Crawler loader
- Crane
- Air compressor
- Pavement breakers (2)
- Air hoses (2)
- Two-drum roller

The Project would not involve partial or full closure of traffic lanes as construction would occur entirely within the existing WWTP and on approximately 3.44 acres north of the WWTP.

Construction would begin in the first quarter of 2026 and be finished by the third quarter of 2028 approximately 2.5 years (W&C 2024). Approximately 20 to 30 workers would be required during Project construction.

1.6 Operation and Maintenance

As mentioned, the Project proposes the expansion of the existing WWTP and would consist of four-stage biological process with MBR, clarifiers, mechanical thickening, and digestion as well as headworks, grit removal, and related processes. It is anticipated that between 14 and 16 new staff will be required to operate and maintain the new WRRF (W&C 2024).

1.7 Chemicals and Hazardous Materials

Operation of the proposed WRRF would involve onsite chemical use and storage. Chemicals include: Ferric Chloride, Polymer, Supplemental Alkalinity, Supplemental Carbon, Citric Acid, and Sodium Hypochlorite (W&C 2024). Chemicals would be stored in the proposed dedicated chemical storage areas either within or directly adjacent to the treatment building. Each chemical would be stored in aboveground tanks in a dedicated containment area with secondary containment areas to confine accidental spills and prevent exposure to the environment. The containment areas would be sized to accommodate storage tank volumes.

1.8 Proposed Action Approvals

This MND has been prepared to meet all of the substantive and procedural requirements of CEQA (California Public Resources Code Section 21000 et seq.) and the State CEQA Guidelines (California Code of Regulations [CCR], Title 14, Section 15000 et seq.). **Table 1-1** summarizes the Project approvals and permit requirements from Responsible Agencies.

TABLE 1-1
APPROVALS AND DISCRETIONARY PERMITS POTENTIALLY REQUIRED

Agency	Type of Approval	Needed For
SWRCB	Discharge Permit	Discharge of Wastewater
	Construction Stormwater General Permit	Construction
	SWPPP	Construction

1.9 References

Kern County. 2024. Web Map Service- County Zoning. Available at: https://maps.kerncounty.com/H5/index.html?viewer=KCPublic, accessed May 2024.

North of River Sanitary District (NORSD). 2023. Sanitary Sewer Master Plan.

Woodard & Curran. 2024. Technical Memorandum 9- Facilities Plan for the Water Resource Recovery Facility Expansion Project Phase 1.

CHAPTER 2
Environmental Checklist

2.1 Project Details

1.	Project Title:	NORSD Water Resource Recovery Facility Project
2.	Lead Agency Name and Address:	North of River Sanitary District 204 Universe Avenue, Bakersfield, CA 93308
3.	Contact Person and Phone Number:	Patrick Ostly, (661) 399-6411
4.	Project Location:	7th Standard Road southwest of the City of Shafter, in Kern County
5.	Project Sponsor's Name and Address:	See Lead Agency
6.	General Plan Designation(s) and Zoning:	City of Shafter: Within City Limits, no General Plan or Zoning designation assigned Kern County: Irrigated Land- Land in Production of Food and Fiber Irrigated by Means other than Natural Rainfall

7. Description of Project: (Describe the whole action involved, including but not limited to later phases of the project, and any secondary, support, or off-site features necessary for its implementation. Attach additional sheets if necessary.)

   See Chapter 1 Project Description, above.

8. Surrounding Land Uses and Setting. (Briefly describe the project's surroundings.)

   Surrounding land uses of the Project site are entirely Exclusive Agricultural.

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

   See Table 1-1, above.

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

    See Section 4, XVIII. Tribal Cultural Resources.

2.2 Environmental Factors Potentially Affected

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

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

DETERMINATION: (To be completed by the Lead Agency)

On the basis of this initial study:

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

☒ 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.

_____ _____

Signature Date

_____ _____

Signature Date

2.3 Environmental Checklist

I. Aesthetics

Issues (and Supporting Information Sources):		*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
I.	**AESTHETICS —** Except as provided in Public Resources Code Section 21099, would the project:				
a)	Have a substantial adverse effect on a scenic vista?	☐	☐	☐	☒
b)	Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	☐	☐	☐	☒
c)	In non-urbanized areas, substantially degrade the existing visual character or quality of public 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?	☐	☐	☐	☒
d)	Create a new source of substantial light or glare which would adversely affect daytime or nighttime views in the area?	☐	☐	☒	☐

Discussion

a) **No Impact.** There are no scenic vistas or resources with high or unique scenic value within the Project site or surrounding areas. According to the Kern County General Plan Circulation Element, the California Scenic Highways Master Plan designates Route 1 (which consists of State Route 14 and State Highway 395), Route 2 (which consists of State Route 58 between Mojave and Boron), and Route 3 (which consists of five miles of State Route 41 in northwest Kern County) as scenic route corridors (Kern County 2009). The Project area is not within the vicinity of Route 1, Route 2, and Route 3. Additionally, according to the California State Scenic Highway System Map, no officially designated county route, federal byway, or eligible highway of scenic value are located near the Project areas (Caltrans 2024). Therefore, the Project would not have a substantial adverse effect on a scenic vista, and no impacts would occur.

b) **No Impact.** As mentioned above, the Project site is not located in the vicinity of an officially designated county route, federal byway, or eligible highway of scenic value (Kern County 2009, Caltrans 2024). Therefore, the Project would not damage scenic resources within the Project site or in the vicinity such as trees, rock outcroppings, and historic buildings within a state scenic highway, and no impacts would occur.

c) **No Impact.** The Project site is located within a non-urbanized, rural area in Kern County, surrounded primarily by Exclusive Agriculture (Kern County 2024). The Project proposes the expansion of the existing WWTP in order to effectively service its existing and planning population. The Project consists of a new preliminary and liquid treatment process, solid treatment, an administrative and maintenance building, and miscellaneous site improvements. Project construction activities would occur entirely within the Project site, with intermittent trucks traveling to and from the site. The short-term construction related views would be limited and

would occur next to the existing WWTP. Since the Project site is surrounded entirely by agricultural uses, no sensitive receptors are located in the Project vicinity that would be affected by degrading public views. Therefore, Project impacts would not degrade the existing visual character or quality of public views of the site and its surroundings, and impacts would not occur.

d) **Less than Significant Impact.** While the Project construction activities would temporarily alter the visual character of the Project site through the use of construction equipment, these activities and equipment would be temporarily and would not conflict with the aesthetic/visual resources of the Project site. The Project construction activities would be limited to daytime hours Monday through Friday, and it is not anticipated to require nighttime lighting. Upon Project buildout, any temporary lighting that was required would be removed from the Project site. Additionally, there are no sensitive receptors in the Project vicinity that would be potentially affected. Therefore, the Project construction activities would not create a new permanent source of substantial light or glare that would adversely affect the views of the area, and impacts would be less than significant.

References

California Department of Transportation (Caltrans). 2024. California State Scenic Highway System Map. Available online; https://caltrans.maps.arcgis.com/apps/webappviewer/index.html?id=465dfd3d807c46cc8e8057116f1aacaa. Accessed June 19, 2024.

Kern County, 2009. General Plan Circulation Element. Adopted September 22, 2009. Available online; https://psbweb.kerncounty.com/planning/pdfs/kcgp/KCGP_Complete.pdf. Accessed June 20, 2024.

Kern County, 2024. Kern County Geographic Information System (GIS)- County Zoning. Available online; https://maps.kerncounty.com/H5/index.html?viewer=KCPublic. Accessed June 19, 2024.

II. Agriculture and Forestry Resources

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
II. AGRICULTURE AND FORESTRY RESOURCES — In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Dept. of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board. Would the project:				
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	☐	☐	☒	☐
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☒	☐
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?	☐	☐	☐	☒
d) Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	☒
e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?	☐	☐	☒	☐

Discussion

a) **Less than Significant Impact.** The Project site is located within a rural area in Kern County, surrounded primarily by Exclusive Agriculture (Kern County 2024b). According to the Kern County Assessor Use Codes, the Project site has a Use Code of 4300, defined as Irrigated Land-Land in Production of Food and Fiber Irrigated by Means other than Natural Rainfall (Kern County 2024a). The current use on the Project site is a wastewater treatment plant (NORSD Wastewater Treatment Plant).

According to the California Important Farmland Finder Map, the Project site is designated as Urban and Built-Up Land (DOC 2024a). The Project consists of the expansion of the existing WWTP and would include a new preliminary and liquid treatment process, solid treatment, an administrative and maintenance building, and miscellaneous site improvements. The Project construction activities would occur within the existing WWTP and an additional area of approximately 150,000 square feet (3.44 acres) would be required to accommodate the Project expansion and additional equipment. According to the California Important Farmland Finder Map, the proposed area required to accommodate the Project is designated as Unique Farmland and is not located within a Williamson Act Contract (**Figure 5**, *Williamson Act*). Thus, the Project would result in the conversion of unique farmland to non-agricultural use.

SOURCE: Kern County, 2023; ESA, 2024

NORSD Water Resource Recovery Facility Project

Figure 5
Williamson Act

ESA

Pursuant to State CEQA Guidelines, Section 15206, a project which would result in the cancellation of an open space contract made pursuant to the California Land Conservation Act of 1965 (Williamson Act) for any parcel of 100 or more acres would be considered to be of statewide, regional, or areawide significance and therefore would have significant impacts. Since the Project would convert less than 100 acres (approximately 3.44 acres) of agricultural land to non-agricultural land, Project impacts related to the conversion of Unique Farmland to non-agricultural use would be less than significant.

b) **Less than Significant Impact.** The Project site is not located within a Williamson Act Contract (DOC, 2024b). However, there are various Williamson Act Contract sites located adjacent to the Project site (see Figure 5). However, the Project construction activities would occur within the existing WWTP site and on approximately 3.44 acres north of the WWTP; however, that land is not in a Williamson Act Contract. The Project would require the conversion of approximately 3.44 acres of Unique Farmland to non-agricultural use to accommodate the proposed Project. Furthermore, the Project site has a Use Code of 4300, defined as Irrigated Land- Land in Production of Food and Fiber Irrigated by Means other than Natural Rainfall, and such Use Code would not change as a result of the Project (Kern County 2024a). Therefore, Project impacts related to a conflict with existing zoning or use code for agricultural use, or a Williamson Act Contract, would be less than significant.

c) **No Impact.** The Project site is located in a rural area in Kern County, surrounded primarily by Exclusive Agriculture (Kern County 2024b). The Project site has a Use Code of 4300, defined as Irrigated Land- Land in Production of Food and Fiber Irrigated by Means other than Natural Rainfall (Kern County 2024a). Currently, the Project site land use is a wastewater treatment plant. There is no existing zoning designation in the Project vicinity or Project site for forest land, timberland, or Timberland Production. Therefore, the Project would not result in a conflict with existing zoning for, or cause rezoning of, forest land, timberland, or timberland zoned Timberland Production, and impacts would not occur.

d) **No Impact.** As mentioned above, there is no forest land within the Project vicinity or site and therefore, Project impacts related to the loss of forest land or conversion of forest land to non-forest use would not occur.

e) **Less than Significant Impact.** As discussed above, the Project construction activities would occur within the existing WWTP and an additional area of approximately 150,000 square feet (3.44 acres) would be required to accommodate the Project expansion and additional equipment. According to the California Important Farmland Finder Map, the proposed area required to accommodate the Project expansion is designated as Unique Farmland and is not located within a Williamson Act Contract (DOC 2024a, 2024b). Thus, the Project would result in the conversion of Unique Farmland to non-agricultural use. However, the Project would not convert 100 acres or more of unique farmland to non-agricultural use and thus, pursuant to State CEQA Guidelines, Section 15206, impacts related to the conversion of Farmland to non-agricultural use would be less than significant.

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III. Air Quality

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

Discussion

a) **Less than Significant Impact.** The Project site is located within the San Joaquin Valley Air Basin (SJVAB), which is made up of eight counties in California's Central Valley: San Joaquin, Stanislaus, Merced, Madera, Fresno, Kings, Tulare, and the SJVAB portion of Kern. Air quality within the SJVAB is regulated by several jurisdictions including the U.S. Environmental Protection Agency (USEPA), California Air Resources Board (CARB), and SJVAPCD.

The federal and state Clean Air Acts mandate the control and reduction of certain air pollutants. Under these laws, the USEPA and CARB have established the National Ambient Air Quality Standards (NAAQS) and the California Ambient Air Quality Standards (CAAQS) for "criteria pollutants" and other pollutants. Some pollutants are emitted directly from a source (e.g., vehicle tailpipe, an exhaust stack of a factory, etc.) into the atmosphere, including carbon monoxide (CO), volatile organic compounds (VOC),[1] nitrogen oxides (NOx), particulate matter with diameters of 10 microns or less (PM10) and 2.5 microns or less (PM2.5), sulfur dioxide (SO_2), and lead (Pb). Other pollutants are created indirectly through chemical reactions in the atmosphere, such as ozone, which is created by atmospheric chemical and photochemical reactions primarily between VOC and NOx. Secondary pollutants include oxidants, ozone, sulfate, and nitrate particulates (smog). SJVAPCD is required to monitor air pollutant levels to ensure that the NAAQS and CAAQS are met and, if they are not met, to develop strategies to meet the standards, such as a State Implementation Plan (SIP). Depending on whether the standards are met or exceeded, the Air Basin is classified as being in "attainment" or "nonattainment." The attainment status of the Air Basin for each pollutant regulated by the NAAQS and CAAQS is summarized in **Table 2-1,** *San Joaquin Valley Air Basin Attainment Status*.

[1] VOCs is a term defined by USEPA to exclude certain organic gases with negligible photochemical reactivity. CARB uses a similar term Reactive Organic Gases (ROG) and exempts certain chemicals from the definition of ROG. VOCs and ROG are substantially similar but not the same due to differing lists of exemptions. For the purposes of this analysis, ROG and VOC are considered comparable in terms of mass emissions, and the term VOC is used in this document.

TABLE 2-1
SAN JOAQUIN VALLEY AIR BASIN ATTAINMENT STATUS

Pollutant	National Standards (NAAQS)	California Standards (CAAQS)
O3 (1-hour standard)	No Federal Standard [a]	Non-attainment/Severe
O3 (8-hour standard)	Non-attainment/Extreme [b]	Non-attainment
CO	Attainment/Unclassified	Attainment/Unclassified
NO2	Attainment/Unclassified	Attainment
SO2	Attainment/Unclassified	Attainment
PM10	Attainment [c]	Non-attainment
PM2.5	Non-attainment [d]	Non-attainment
Lead (Pb)	No Designation/Classification	Attainment
Visibility Reducing Particles	No Federal Standard	Unclassified
Sulfates	No Federal Standard	Attainment
Hydrogen Sulfide	No Federal Standard	Unclassified
Vinyl Chloride [e]	No Federal Standard	N/A

[a] Effective June 15, 2005, the U.S. Environmental Protection Agency (EPA) revoked the federal 1-hour ozone standard, including associated designations and classifications. EPA had previously classified the SJVAB as extreme nonattainment for this standard. EPA approved the 2004 Extreme Ozone Attainment Demonstration Plan on March 8, 2010 (effective April 7, 2010). Many applicable requirements for extreme 1-hour ozone nonattainment areas continue to apply to the SJVAB.

[b] Though the Valley was initially classified as serious nonattainment for the 1997 8-hour ozone standard, EPA approved Valley reclassification to extreme nonattainment in the Federal Register on May 5, 2010 (effective June 4, 2010).

[c] On September 25, 2008, EPA redesignated the San Joaquin Valley to attainment for the PM10 National Ambient Air Quality Standard (NAAQS) and approved the PM10 Maintenance Plan.

[d] The Valley is designated nonattainment for the 1997 PM2.5 NAAQS. EPA designated the Valley as nonattainment for the 2006 PM2.5 NAAQS on November 13, 2009 (effective December 14, 2009).

[e] In 1990, the California Air Resources Board identified vinyl chloride as a toxic air contaminant and determined that it does not have an identifiable threshold. Therefore, the California Air Resources Board does not monitor or make status designations for this pollutant.

SOURCE: SJVAPCD 2024a

The SJVAB is in non-attainment area for ozone, PM10, and PM2.5, therefore, the SJVAPCD are subject to some of the toughest regulatory requirements in the nation. The SJVAPCD has also established thresholds of significance for criteria pollutant emissions, which are based on New Source Review offset requirements for stationary sources. Emission reductions achieved through implementation of offset requirements are a major component of the SJVAPCD's air quality plans applicable to the Project, which include:

- Ozone Contingency Measure State Implementation Plan Revision for the 2008 and 2015 8-Hour Ozone Standards (SJVAPCD 2024b),
- 2023 Maintenance Plan and Redesignation Request for the Revoked 1-Hour Ozone Standard (SJVAPCD 2023);
- 2022 Plan for the 2015 8-Hour Ozone Standard (SJVAPCD 2022);
- 2020 Reasonably Available Control Technology (RACT) Demonstration for the 2015 8-Hour Ozone Standard (SJVAPCD 2020);

- 2024 Plan for the 2012 Annual PM25 Standard (SJVAPCD 2024c)
- 2018 Plan for the 1997, 2006, and 2012 PM2.5 Standards (SJVAPCD 2018);
- 2007 PM10 Maintenance Plan and Request for Redesignation (SJVAPCD 2007).

Implementation of the Project would generate both temporary (construction) and long-term (operational) emissions, which could conflict or obstruct with an applicable air quality plan. The Project construction and operation would comply with all applicable rules and regulations set forth by the SJVAPCD. The Project would not exceed SJVAPCD daily screening and annual significance thresholds for both construction and operation, as discussed below in b). Therefore, the Project would not result in emissions of a magnitude that would obstruct the air quality plans set forth by the SJVAPCD and would have a less than significant impact.

The Project would be consistent with the existing land use designations in the current Kern County General Plan and would not introduce a land use that would induce population or housing growth that could result in a substantial increase in vehicle miles traveled (VMT) and associated criteria pollutant emissions. The Project would generate an increase in short-term construction employment; however, which would likely be filled by employees commuting from within the Air Basin. Construction industry jobs generally are temporary in nature, changing over time, with no regular place of business. Further, the operation of the proposed facilities would not require any additional employees and would not result in a substantial amount of new vehicle trips from workers resulting from the WRRF expansion. For emissions purposes, this analysis assumes the Project may result in a minimal number of truck trips to and from the maintenance bays (up to 16 one-way trips per day based on eight maintenance bays and two one-way trips per bay per day). The growth represented by the Project in the form of additional workers is negligible compared to the population growth anticipated by the Kern Council of Governments 2022 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) (KCOG 2022). Additionally, the Project incorporates all reasonably available and feasible air quality control measures; thus, the Project conforms with applicable air quality plans. Since the Project would not conflict with the 2022 RTP/SCS, and the 2022 RTP/SCS projections are incorporated into the SIP, the Project would not conflict with the SIP.

Overall, construction and operation of the Project would not result in a significant increase in criteria pollutant emissions that conflict with or obstruct any SJVAPCD air quality plans nor would the Project impact growth projections in the region. Therefore, based on the above, impacts related to conflicting with or obstructing implementation of an applicable air quality plan would be less than significant.

b) **Less than Significant Impact.** Any project-level significant impact would also be considered significant at a cumulative level. As discussed below, criteria pollutant emissions would be less than significant with the implementation of required SJVAPCD regulated control measures and therefore would not contribute to significant cumulative impacts. Additionally, the Project site is surrounded primarily by Exclusive Agriculture, and no sensitive receptors are located in the Project vicinity. Therefore, construction and operational Project activities would not expose sensitive receptors to substantial pollutant concentrations.

Daily and annual regional construction and operational source project criteria pollutant emissions (VOC, NO_X, CO, SO_2, PM10, and PM2.5) were estimated using the CalEEMod (Version 2022.1) software, an emissions inventory software program recommended by the SJVAPCD. CalEEMod is based on outputs from the OFFROAD model and EMission FACtor (EMFAC) model, which are emissions estimation models developed by CARB and used to calculate emissions from construction activities, heavy-duty off-road equipment, and on-road vehicles. The input values used to estimate air emissions associated with the proposed Project are adjusted based on CalEEMod defaults and Project-specific information identified by the Applicant where provided. Within CalEEMod, fugitive dust emissions include the application of water as a control measure consistent with SJVAPCD Regulation VIII, *Fugitive PM10 Prohibitions*, which applies to the proposed Project's activities. Fugitive dust control measures are not mitigation under CEQA because they are required as regulatory compliance. While the Project would not generate new employee vehicle trips, for emissions purposes, this analysis assumes operation of the Project may result in a minimal number of truck trips to and from the maintenance bays (up to 16 one-way trips per day based on eight maintenance bays and two one-way trips per bay per day). Mobile emissions from truck trips during operations were calculated outside of CalEEMod using the EMFAC model. Detailed emissions calculations are provided in **Appendix B** of this IS/MND.

The maximum daily annual emissions for the proposed Project were estimated for each construction year. The maximum daily emissions are predicted values for a representative worst-case, and do not represent the actual emissions that would occur for every day of construction, which would likely be lower on many days. The results of the criteria pollutant calculations for construction are presented in **Table 2-2**, *Estimated Maximum Unmitigated Regional Construction Emissions.* As shown, Project-related construction emissions would not exceed the SJVAPCD screening level of 100 pounds per day and would not exceed the annual significance thresholds in tons per year. Therefore, the proposed Project construction activities would result in a less than significant impact and no mitigation would be required.

TABLE 2-2
ESTIMATED MAXIMUM UNMITIGATED CONSTRUCTION EMISSIONS[A]

Construction Emissions	ROG	NO_X	CO	SO_2	PM10 [b]	PM2.5 [b]
Maximum Daily Emissions (pounds per day) [c]						
Maximum Daily Emissions – 2026	3.22	29.23	30.02	0.05	9.12	5.13
Maximum Daily Emissions – 2027	1.40	11.27	18.47	0.03	1.40	0.60
Maximum Daily Emissions – 2028	11.32	7.07	11.60	0.02	0.50	0.29
Maximum Daily Construction Emissions	**11.32**	**29.23**	**30.02**	**0.05**	**9.12**	**5.13**
SJVAPCD Daily Screening Level	**100**	**100**	**100**	**100**	**100**	**100**
Exceeds Screening Level?	**No**	**No**	**No**	**No**	**No**	**No**
Annual Emissions (tons per year)						
Annual Emissions - 2026	0.28	2.50	2.78	<0.01	0.49	0.28
Annual Emissions - 2027	0.18	1.48	2.27	<0.01	0.18	0.08
Annual Emissions - 2028	0.40	0.29	0.46	<0.01	0.02	0.01

Construction Emissions	ROG	NO_X	CO	SO_2	PM10 [b]	PM2.5 [b]
Maximum Annual Construction Emissions	**0.40**	**2.50**	**2.78**	**<0.01**	**0.49**	**0.28**
SJVAPCD Annual Significance Threshold	**10**	**10**	**100**	**27**	**15**	**15**
Exceeds Significance Threshold?	**No**	**No**	**No**	**No**	**No**	**No**

NOTES:

[a] Totals may not add up exactly due to rounding in the modeling calculations. Detailed emissions calculations are provided in **Appendix B**.

[b] Emissions include fugitive dust control measures consistent with SJVAPCD rules.

[c] Construction equipment would not be used every day during the phase. However, because CalEEMod assumes each piece of construction equipment is used every workday during the phase for the full 8 hour workday, maximum daily emissions are reported.

SOURCE: ESA 2024.

Operational criteria pollutant emissions were calculated for mobile, area, and energy sources for the full buildout of the Project in 2028 using the same modelling assumptions used above. The results of the criteria pollutant emission calculations for operation of the Project are presented in **Table 2-3,** *Estimated Maximum Unmitigated Operational Emissions*. As shown, Project-related operational emissions would not exceed the SJVAPCD screening level of 100 pounds per day and would not exceed the annual significance thresholds in tons per year. Therefore, Project operational activities would result in a less than significant impact and no mitigation would be required.

TABLE 2-3
ESTIMATED MAXIMUM UNMITIGATED OPERATIONAL EMISSIONS[A]

Operational Emissions	ROG	NO_X	CO	SO_2	PM10	PM2.5
Maximum Daily Emissions (pounds per day)						
Maximum Daily Emissions – Mobile[b]	0.08	3.28	1.20	0.02	0.51	0.30
Maximum Daily Emissions – Area	4.65	0.06	6.78	<0.01	0.01	0.01
Maximum Daily Emissions – Energy	0.09	1.72	1.44	0.01	0.13	0.13
Maximum Daily Emissions – Total	**9.95**	**14.67**	**95.84**	**0.29**	**22.93**	**6.09**
SJVAPCD Screening Level	**100**	**100**	**100**	**100**	**100**	**100**
Exceeds Screening Level?	**No**	**No**	**No**	**No**	**No**	**No**
Annual Emissions (tons per year)						
Annual Emissions - Mobile[b]	0.02	0.60	0.22	<0.01	0.08	0.02
Annual Emissions - Area	0.75	0.01	0.61	<0.01	<0.01	<0.01
Annual Emissions - Energy	0.02	0.31	0.26	<0.01	0.02	0.02
Maximum Annual Emissions – Total	**0.75**	**0.60**	**0.61**	**<0.01**	**0.08**	**0.02**
SJVAPCD Significance Threshold	**10**	**10**	**100**	**27**	**15**	**15**
Exceeds Significance Threshold?	**No**	**No**	**No**	**No**	**No**	**No**

NOTES:

[a] Totals may not add up exactly due to rounding in the modeling calculations. Detailed emissions calculations are provided in **Appendix B**.

[b] Mobile emissions from truck trips during operations were calculated outside of CalEEMod using the EMFAC model. Mobile emissions assume a maximum of 16 truck trips per day based on facility designs. The average trip VMT is based on the 40-mile average truck trip length recommended in the SCAG 2016 Regional Transportation Plan. Detailed emissions calculations are provided in **Appendix B**.

SOURCE: ESA 2024.

As discussed above, Project construction and operational activities emissions would be below any applicable significance thresholds for criterial pollutants enforced by the SJVAPCD. Therefore, Project construction and operational emissions would not result in a considerable net increase of criteria pollutants for which the region is in non-attainment, and impacts would be less than significant.

c) **Less than Significant Impact.** As discussed above, the Project site is surrounded primarily by Exclusive Agriculture. The nearest sensitive receptor is a residence located approximately 1.5 miles northeast of the Project along San Diego Street. Additionally, there are no schools located within 1-mile of the Project site. However, because construction activities would result in localized emissions of dust and diesel exhaust, these emissions could dissipate to surrounding areas which could result in temporary impacts to nearby land uses. Additionally, the Project would comply with regulatory requirements relating to toxic air contaminants at the federal, State, and regional levels that would protect sensitive receptors and reduce potential air quality impacts.

The Project would generate exhaust particulate matter emissions (primarily PM10 and PM2.5 exhaust emissions) and fugitive dust emissions (primarily PM10 fugitive dust) particularly during construction of the Project from site grading and earth-moving activities. Fugitive dust emissions are primarily associated with earth disturbance and grading activities, and vary as a function of soil silt content, soil moisture, wind speed, acreage of disturbance area, and miles traveled by vehicles on- and off-site. The majority of this generated fugitive dust will remain localized and will be deposited near the Project site. Given that there are no sensitive land uses immediately adjacent to the Project site with the nearest residential uses located approximately 1.5 miles to the northeast of the Project site on San Diego Street, substantial particulate matter concentrations at sensitive receptors would not be expected to occur. Further, the Project would be required to comply with SJVAPCD Regulation VIII, including implementation of all applicable and feasible dust control measures specified in SJVAPCD's *Guidance for Assessing and Mitigating Air Quality Impacts* (GAMAQI) (SJVAPCD 2015b).

Operation of the Project would generate mobile emissions primarily from intermittent trucks traveling to and from the Project Site. The proposed facilities would require up to 16 new employees resulting in a minimal amount of new passenger vehicle trips from workers resulting from the WRRF expansion. The Project would generate minimal new employee vehicle trips, a minimal number of truck trips to and from the maintenance bays (up to 16 one-way trips per day based on eight maintenance bays and two one-way trips per bay per day). Mobile source emissions from these periodic truck trips would emit minimal criteria pollutants and toxic air contaminants (TACs) that would be dispersed throughout the region and not concentrated at any one location. On-site emissions from area and energy sources would be minimal. As shown in Table 2-3, operational emission would not exceed the SJVAPCD screening level of 100 pounds per day and would not exceed the annual significance thresholds in tons per year. Vehicles and trucks are required to comply with California regulations with respect to exhaust emissions standards and

newer vehicles would meet increasingly more stringent emissions standards as general fleet turnover results in the replacement of older vehicles with newer vehicle and truck models.

Therefore, based on the Project emissions and regulatory compliance, impacts from construction and operation on sensitive receptors would be less than significant.

d) **Less than Significant Impact.** Construction activities have the potential to emit short-term odors from diesel equipment, paints, solvents, fugitive dust, and adhesives. Odors from construction activities would be intermittent and temporary and would not extend beyond the construction area. Further, odors would be typical of most construction sites and would dissipate rapidly from the source with an increase in distance.

Operation of the Project would not increase the potential to produce odors beyond that which currently exists at the WWTP. The Project consists of expanding wastewater treatment facilities, and such facilities have a well-known potential for generating odors. The SJVAPCD GAMAQI, Table 6*, Potential Levels for Potential Odor Sources* has a screening threshold of a 2-mile distance for wastewater treatment facilities from the nearest sensitive receptor. The nearest sensitive receptor are residences located approximately 1.5 miles northeast of the Project along San Diego Street. Although the Project is under the screening level distance for wastewater treatment facilities, the Project is expanding the existing facilities and will incorporate design elements to minimize objectionable odors. In the Project Facilities Plan, *Section 2.4.1, Headworks Hydrogen Sulfide Control,* the design elements include a H2S treatment system in order to better mitigate potential human health risks from exposure, structure deterioration, corrosion, and noxious odors caused by high H2S concentrations in and surrounding the headworks facility. Proposed treatment systems estimated approximately a 99 percent reduction of the H2S concentrations in the treated air. Therefore, the Project would not result in emissions or odors that would adversely affect a substantial number of people, and impacts would be less than significant.

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IV. Biological Resources

Issues (and Supporting Information Sources):		*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
IV.	**BIOLOGICAL RESOURCES —** Would the project:				
a)	Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☐	☒	☐	☐
b)	Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☐	☐	☐	☒
c)	Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	☐	☐	☐	☒
d)	Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☐	☐	☐	☒
e)	Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☐	☐	☒
f)	Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	☐	☐	☐	☒

Discussion

Setting

Literature Review

To identify the potential biological resources associated with the Project, ESA conducted a literature review and subsequent site survey to characterize existing conditions and determine the potential for sensitive biological resources to occur within the Project site, including a 500-foot buffer (study area). The following resource inventory databases and various publications were referenced:

- California Natural Diversity Data Base (CNDDB). 2024. California Department of Fish and Wildlife (CDFW). Database was queried for special-status species records in the Rio Bravo USGS 7.5-minute quadrangle and eight surrounding quadrangles including East Elk Hills, Wasco, Buttonwillow, Famoso, Wasco SW, Rosedale, Tupman, and Stevens.
- CDFW Sensitive Natural Community List (CDFW 2023).

- Inventory of Rare and Endangered Vascular Plants of California (California Native Plant Society [CNPS] 2024a). Database was queried for special-status species records in the Rio Bravo USGS 7.5-minute quadrangle and eight surrounding quadrangles including East Elk Hills, Wasco, Buttonwillow, Famoso, Wasco SW, Rosedale, Tupman, and Stevens.
- Critical Habitat Portal (United States Fish and Wildlife Service [USFWS] 2024a).
- Information for Planning and Consultation (USFWS 2024b). Database was queried for federally listed species records within and immediately surrounding the Project site.

Site Survey

The site survey was conducted by ESA biologists Florence Chan and Brandon Osorio, on June 14, 2024. The survey consisted of driving and walking throughout the accessible portions of the study area to characterize existing conditions, and to determine the potential for special-status plants and wildlife to occur. All incidental and visual observations of flora and fauna, including signs (i.e., presence of scat) as well as any audible detections, were noted during the assessment. All native and non-native natural communities and land cover types were characterized and delineated on aerial photographs during the field survey, and then digitized on aerial maps using geographic information system software (ArcGIS). Each natural community was characterized using *A Manual of California Vegetation, Second Edition* (Sawyer et al, 2009) as a reference; however, where a particular community was not clearly defined in the publication, it was instead characterized using species dominance, or other physical descriptor.

Existing Conditions

The Project site is entirely within a heavily developed wastewater facility surrounded by a chain-link fence, and is bound in all directions by agriculture fields, with the exception that treated wastewater storage ponds are located along the southern boundary of the Project site (**Figure 6,** *Natural Communities and Land Cover Types*). Vegetation within the study area primarily consists of agriculture fields, including corn (*Zea mays*) and alfalfa (*Medicago sativa*).

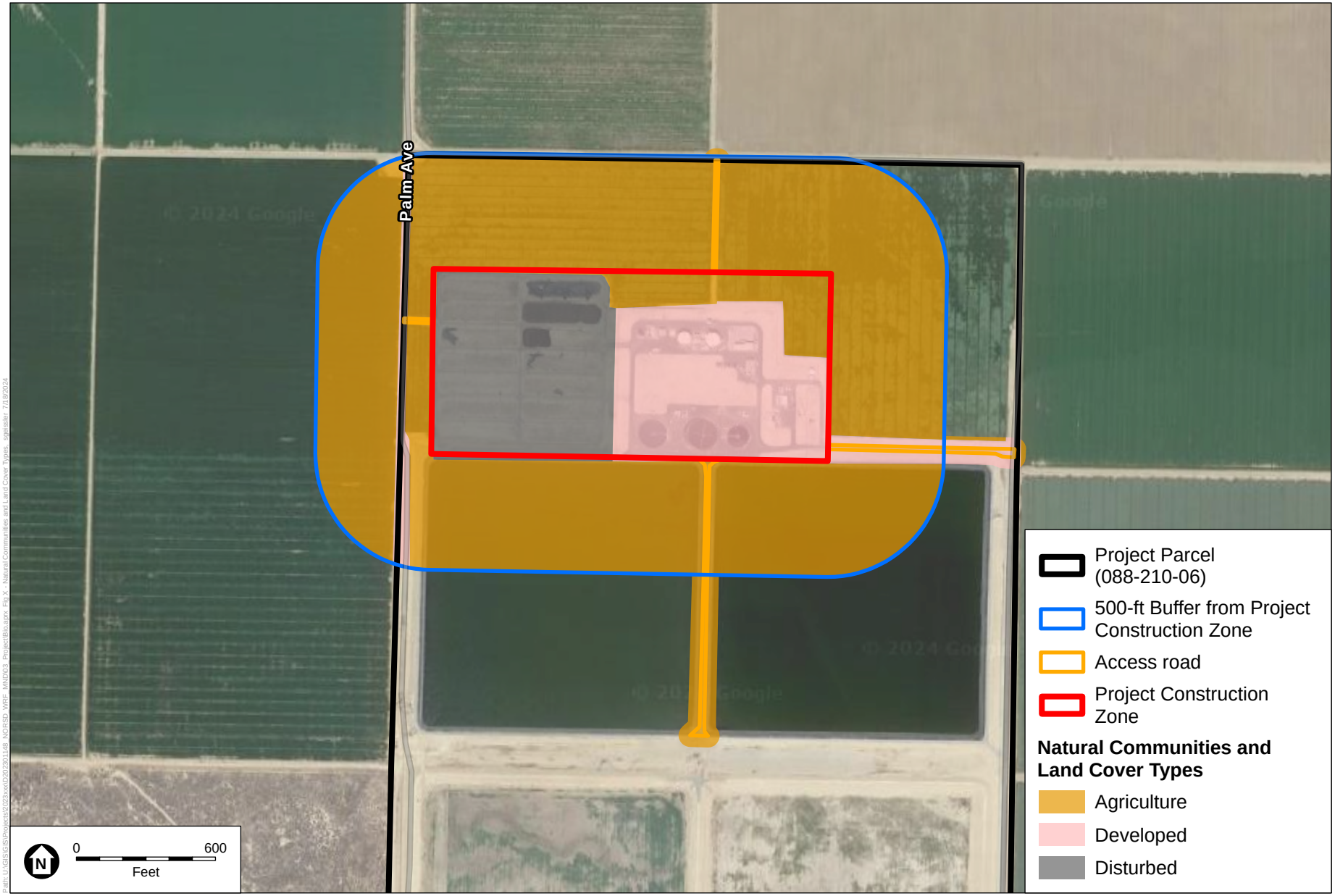
Discussion

a) **Less than Significant with Mitigation Incorporated.**

Bird species observed within the study area include red-tailed hawk (*Buteo jamaicensis*) and Cassin's kingbird (*Tyrannus vociferans*). No other wildlife species or active burrows (fossorial mammal or otherwise) were documented during the survey.

Special-Status Plants and Wildlife

Special-status species are defined as those that, because of their recognized rarity or vulnerability to various forms of habitat loss or population decline, are recognized by federal, state, or other agencies as under threat from human-associated developments. Some of these species receive specific protection that is defined by federal or state endangered species legislation.



SOURCE: ESA, 2024

ORSD Water Resource Recovery Facility Project

Figure 6
Natural Communities and Land Cover Types

ESA

- Others have been designated as special-status on the basis of adopted policies and the expertise of state resource agencies or other respected organizations, or policies adopted by local governmental agencies such as counties, cities, and special districts to meet local conservation objectives. Special-status species are defined as follows: Species listed or proposed for listing as threatened or endangered under the Federal Endangered Species Act (50 CFR 17.11 for listed animals and 50 CFR 17.12 for listed plants and various notices in the Federal Register for proposed species).
- Species that are candidates for possible future listing as threatened or endangered under the Federal Endangered Species Act (Federal Register, December 2, 2016).
- Species that meet the definitions of rare or endangered species under CEQA (State CEQA Guidelines, Section 15380).
- Species listed, proposed for listing, or identified as candidate species for listing by the State of California as threatened or endangered under the California Endangered Species Act (14 CCR 670.5 animals; 14 CCR 670.2 plants).
- Animal species of special concern to the CDFW (Shuford & Gardali 2008 for birds; Williams 1986 for mammals; Moyle et al. 1995 for fish; and Jennings & Hayes 1994 for amphibians and reptiles).
- Animal species that are fully protected in California (California Fish and Game Code [FGC], Sections 3511 [birds], 4700 [mammals], 5050 [reptiles and amphibians], and 5515 [fish]).
- Bat species considered priority by the Western Bat Working Group (WBWG 2023).
- Bird species protected by the Migratory Bird Treaty Act (MBTA).
- Plants considered by the CNPS to be rare, threatened, or endangered (Rank 1A, 1B, 2A, and 2B plants) in California.
- Plants listed as rare under the California Native Plant Protection Act (FGC 1900 et seq.)
- Kern County Valley Floor Habitat Conservation Plan. Covered Plant and Wildlife Species. (Garcia and Associates 2006)

A search of the most current CNDDB, CNPS Rare Plant Inventory (RPI), and Information for Planning and Consultation (IPaC) databases revealed that 24 special-status plant and 27 wildlife species have been previously recorded within the Rio Bravo and surrounding eight USGS 7.5-minute quadrangle maps (see **Appendix C**). Based on absence of suitable native habitat and dominance of agricultural fields and developed land cover, it was determined that 21 plant species and 15 of the wildlife species do not have a potential to occur within the study area based on a lack of suitable habitat or range restrictions and are omitted from further discussion.

A total of 3 plant species, Kern mallow (*Eremalche parryi* ssp. *kernensis*), Hoover's eriastrum (*Eriastrum hooveri*), and Mexican mosquito fern (*Azolla microphylla*), and 12 wildlife species, western spadefoot (*Spea hammondii*), blunt-nosed leopard lizard (*Gambelia sila*), coast horned lizard (*Phrynosoma blainvillii*), tricolored blackbird (*Agelaius tricolor*), burrowing owl (*Athene cunicularia*), Swainson's hawk (*Buteo swainsoni*), white-tailed kite (*Elanus leucurus*), Nelson's antelope squirrel (*Ammospermophilus nelsoni*), Tipton kangaroo rat (*Dipodomys nitratoides nitratoides*), Tulare grasshopper mouse (*Onychomys torridus tularensis*), San Joaquin pocket mouse (*Perognathus inornatus*), and San Joaquin kit fox (*Vulpes macrotis mutica*), were

determined to have a low potential to occur within the study area, based on the following criteria (see **Appendix C**):

Not Expected: There is no suitable habitat for a particular species within the study area. The habitat may not contain the proper vegetative communities, lack suitable soils or microhabitat, or be outside of the species known elevational and/or geographic range. These species have been omitted from further analysis.

Low Potential: Limited habitat exists for a particular species within the study area. For example, the appropriate vegetation assemblage may be present while the substrate preferred by the species may be absent, or the preferred habitat may be present, but has undergone substantial disturbance, such that the species is not expected to occur. Alternatively, the study area lacks suitable habitat, but the species has been known to occur in the vicinity or is highly fragmented from suitable habitat in the vicinity.

Moderate Potential: Marginal habitat for a particular species is present within the study area. For example, the available habitat may be somewhat disturbed and/or may not support all stages of a species' life cycle, or it may not fit all preferred habitat characteristics, however, still supports important components, such as a particular soil or community type.

High Potential: Suitable, high quality habitat exists in the study area. There are known nearby observations of the species in close proximity of the study area.

Present: The species was observed during biological surveys or has known historical observations within the study site.

Special-status plant and wildlife species are not expected to occur within the study area.

Nesting Birds and Raptors

Migratory bird species protected in accordance with the MBTA and Sections 3505, 3503.5, and 3511 of the California FGC may nest within or directly adjacent to the study area and may be affected by Project construction. Impacts associated with Project construction may include the removal of an active nest or the disruption of breeding behavior. To avoid impacts to nesting birds, construction activities should be scheduled outside of the avian nesting season (February 15 to September 15). If this is not feasible, implementation of **Mitigation Measure BIO-1** would ensure that impacts to nesting birds would be considered less than significant.

Mitigation Measures:

BIO-1 – Nesting Birds and Raptors: If construction activities occur within the bird nesting season (generally defined as February 15 through September 15), a qualified biologist shall conduct a nesting bird survey within 7 days prior to the start of construction. If an active nest is observed within 500 feet of the proposed construction, the nest shall be avoided, and a suitable buffer zone shall be delineated in the field such that no impacts shall occur until the nest has been determined to be inactive by a qualified biologist. Construction buffers are generally 300 feet for passerines and up to 500 feet for raptor species; however, avoidance buffers may be reduced at the discretion of the biologist, depending on the location of the nest and species tolerance to human presence and construction-related noise.

If activities must take place within an established buffer, steps should be taken to reduce indirect effects to nesting activity by actively reducing construction noise within proximity to a presumed

nest location and/or installing temporary construction noise barriers. If the reduction of noise is not feasible, construction activities shall be postponed until the nest is deemed inactive and/or the breeding season has concluded.

b) **No Impact.**

CDFW Sensitive Natural Communities

"Sensitive" natural communities and habitats are defined by the CDFW as those natural communities that have a reduced range and/or are imperiled due to residential and commercial development, agriculture, energy production and mining, or an influx of invasive and other problematic species. Vegetation communities are evaluated using the CDFW's Vegetation Classification and Mapping Program (VegCAMP) Heritage Methodology, which is based on the knowledge of range and distribution of a specific vegetation type and the proportion of occurrences that are of good ecological integrity. Evaluation is done at both Global (natural range within and outside of California [G]) and Subnational (State level for California [S]) levels, each ranked from 1 (critically imperiled or very rare and threatened) to 5 (demonstrably secure). Natural communities and habitats with state ranks of S1-S3 are considered Sensitive Natural Communities and require review when evaluating environmental impact (CDFW 2023c). Sensitive natural communities are not present within the study area.

As the study area does not support riparian vegetation and/or "sensitive" natural communities identified in regional plans, policies, or regulations, or by the California Department of Fish and Game (CDFG) or USFWS, impacts to riparian vegetation and/or sensitive natural communities, are not expected. No impact to riparian vegetation and/or "sensitive" natural communities and habitat would occur.

Critical Habitat

Under the Federal Endangered Species Act (FESA), to the extent feasible, the USFWS and National Marine Fisheries Service (NMFS) are required to designate critical habitat for endangered and threatened species. Critical habitat is defined as areas of land, water, and air space containing the physical and biological features essential for the survival and recovery of endangered and threatened species. Designated critical habitat includes sites for breeding and rearing, movement or migration, feeding, roosting, cover, and shelter. Designated critical habitats require special management and protection of existing resources, including water quality and quantity, host animals and plants, food availability, pollinators, sunlight, and specific soil types. Critical habitat delineates all suitable habitat, occupied or not, essential to the survival and recovery of the species.

The USFWS Critical Habitat Portal indicates that critical habitat does not occur within the study area. The closest critical habitat is for the Buena Vista Lake ornate shrew (*Sorex ornatus relictus*), approximately 9.75 miles northwest of the Project site; but, no habitat for this species occurs within the study area. Therefore, the proposed Project would not result in an impact to critical habitat.

c) **No Impact.** Wetlands (including swamps, bogs, seasonal wetlands, seeps, marshes, and similar areas) are considered waters of the U.S., and are defined by U.S. Army Corps of Engineers (USACE) as "those areas that are inundated or saturated by surface or groundwater at a frequency

and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions" (33 CFR 328.3[b]; 40 CFR 230.3[t]).

Aquatic resources regulated by the CDFW, Regional Water Quality Control Board and/or the United State Army Corps of Engineers do not occur onsite. Additionally, best management practices will be implemented to ensure that water quality is not negatively impacted during project activities therefore, impacts to wetlands or protected waters would occur

d) **No Impact**. Wildlife corridors are features that exist as topographical or structural pinch points that, among other purposes, are utilized by wildlife for travel between one geographical area to the next. While these resources may support limited biological function and are perhaps utilized strictly for travel purposes, for example, a dry culvert under a roadway or bridge; more often, they contain natural vegetation and habitats that support foraging, roosting, and breeding activities, as well. Very often, particularly in the case of riparian corridors, aquatic species depend entirely on these features to persist.

Wildlife corridors do not occur within the study area, which is surrounded by various agricultural fields. Thus, the proposed Project would not result in impacts to existing wildlife corridors or result in a significant effect on wildlife movement.

e) **No Impact**. The proposed Project will not conflict with local policies or ordinances protecting biological resources (i.e. Kern County ordinances); therefore, no impacts would occur.

f) **No Impact.** The proposed Project site is located within the Kern County Valley Floor Habitat Conservation Plan (VFHCP) area, which spans a total of 3,110 square miles: bounded by San Luis Obispo County line in the west, Kings and Tulare County lines to the north, and a 2,000 feet elevation boundary in the north and east so most of the San Joaquin Valley floor of Kern County is included. The VFHCP is a long-term conservation plan for Covered Species (14 plant and 11 wildlife species) that are: federally and/or state listed species as well as California Species of Special Concern. It authorizes take of these sensitive species by VFHCP permittees in approved plan activities and jurisdictions utilizing USFWS Section 10(a) Incidental Take Permits and CDFG Section 2081 Incidental Take Permits. Projects that require surface disturbance require mitigation compensation for impacts to Covered Species unless activities are covered in the VFHCP Oil Zone or lack native and natural vegetation (e.g. commercial, industrial or agricultural areas).

The project is not expected to impact covered plant or wildlife species and occurs in non-native and non-naturally occurring vegetation. Therefore, the proposed Project would not conflict with provisions of an adopted natural community conservation plan or other approved local, regional, or state habitat conservation plan, and no impact would occur.

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CNPS (California Native Plant Society). 2024. Inventory of Rare and Endangered Vascular Plants of California. Database was queried for special status species records in the Rio Bravo USGS 7.5-minute quadrangle and eight surrounding quadrangles including Wasco SW, Wasco, Famoso, Buttonwillow, Rosedale, East Elk Hills, Tupman, and Stevens. Accessed June 25 , 2024.

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V. Cultural Resources

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
V. CULTURAL RESOURCES — Would the project:				
a) Cause a substantial adverse change in the significance of a historical resource pursuant to §15064.5?	☐	☒	☐	☐
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	☐	☒	☐	☐
c) Disturb any human remains, including those interred outside of dedicated cemeteries?	☐	☒	☐	☐

Discussion

a) **Less than Significant with Mitigation Incorporated**. A Cultural Resources Assessment was conducted for the Project in October 2024 (ESA, 2024a) and it is located in **Appendix D (Confidential)** of this IS/MND. The assessment included a California Historical Resources Information System – Southern San Joaquin Valley Information Center (SSJVIC) records search conducted on July 8, 2024, a Native American Heritage Commission (NAHC) Sacred Lands File (SLF) search conducted on July 15, 2024, Native American outreach conducted between September and October, 2024, a pedestrian survey conducted on August 14, 2024, and a subsurface archaeological sensitivity assessment based on a review of geologic maps, topographic maps, and SSJVIC records search results.

A study area was delineated for the SSJVIC records search, which includes the boundaries of the WWTP (where improvements would occur), all four access roads immediately adjacent to the WWTP, plus a 1-mile radius for archaeological resources and a 0.25-mile radius for historic architectural resources. The SSJVIC records search results indicate that approximately 100 percent of the study area and Project Site have been included in previous cultural resources assessments. However, the Project Site has not been previously surveyed for archaeological resources. No cultural resources (archaeological or historic architectural) have been recorded within the Project Site or study area.

The SLF search through the NAHC yielded negative results. Outreach letters were sent via certified mail to individuals representing six tribes listed on the NAHC contact list on September 6, 2024. The letters described the Project and included a map depicting the location of the Project Site. Recipients were requested to reply with any information concerning Native American cultural resources that might be affected by the Project. A follow-up to the outreach letters was sent via email to the 11 individuals on September 19, 2024. Follow-up phone calls were conducted on October 3, 2024. Two responses were received. On September 20, 2024, the Northern Chumash Tribal Council replied via email and indicated that they defer to other proximal tribal groups. On

October 3, 2024, the Table Mountain Rancheria indicated via phone call that the Project is outside of their tribal boundaries.

No new cultural resources were encountered within the Project Site during the pedestrian survey. Generally flat areas with visible ground surface were subject to systematic pedestrian survey with transects spaced between 5-15 meters apart (approximately 15-50 feet). Areas with limited ground visibility, such as paved roads/surfaces, and areas around buildings, and wastewater treatment facilities were subject to opportunistic survey, wherein areas with some ground visibility were targeted. Ground surface visibility ranged from 0 to 100 percent.

The subsurface archaeological sensitivity assessment concluded that there is a low potential for encountering subsurface archaeological resources within the Project. The low potential is based on a combination of the following factors: 1) the Project is located on alluvial fan deposits (Qyf), but these are likely underlain by older (Early to Middle Pleistocene) fan deposits, though the depth is unknown. The older fan deposits are too old to be conducive to the preservation of precontact archaeological deposits; 2) no archaeological resources have been recorded within the Project Site or 1-mile radius; 3) the pedestrian survey revealed that the Project Site has undergone ground disturbance for the existing wastewater treatment facilities, access roads, and overflow basins on site. Fill soils have also been introduced to the Project Site where the treatment facilities exist; 4) if resources were once present within the Project Site, these are likely to have been displaced.

As a result of the Cultural Resources Assessment, no archaeological resources were identified as being present within the Project Site. Additionally, the archaeological sensitivity assessment indicates that the Project Site has a low potential for encountering buried archaeological resources. However, since the Project includes ground disturbance up to 26 feet in depth, there remains the possibility that unknown archaeological resources potentially qualifying as historical resources as defined in §15064.5 could be encountered. Therefore, **Mitigation Measures CUL-1 through CUL-3** shall be implemented in order to reduce potential impacts to unknown archaeological resources qualifying as historical resources to a less than significant level.

b) **Less than Significant with Mitigation Incorporated**. As noted under impact a), the SSJVIC records search, NAHC SLF search, and pedestrian survey did not identify archaeological resources within the Project Site. Additionally, the subsurface archaeological sensitivity assessment indicated that the Project Site appears to contain a low potential for yielding buried prehistoric archaeological resources. However, since the Project includes ground disturbance, **Mitigation Measures CUL-1 through CUL-3** would be implemented in order to reduce potential impacts to unknown archaeological resources to less than significant.

c) **Less Than Significant with Mitigation Incorporated.** The SSJVIC records search, NAHC SLF search, and pedestrian survey did not identify human remains within the Project Site. Should ground disturbance encounter human remains, disturbance of those remains could result in a significant effect on the environment. With implementation of **Mitigation Measure CUL-4**,

which requires following state laws in the event of a discovery, impacts to human remains would be less than significant.

Mitigation Measures

CUL-1 - Retention of a Qualified Archaeologist: Prior to start of any ground-disturbing activities, the North of River Sanitary District (District) shall retain a qualified archaeologist meeting the Secretary of the Interior's Professional Qualifications Standards for archaeology (U.S. Department of the Interior, 2008) to carry out all mitigation related to archaeological resources.

CUL-2 - Cultural Resources Sensitivity Training: Prior to start of any ground-disturbing activities, the qualified archaeologist (or an archaeologist working under the direct supervision of the qualified archaeologist) shall conduct cultural resources sensitivity training for all construction personnel. Construction personnel shall be informed of the types of archaeological resources that may be encountered, the proper procedures to be enacted in the event of an inadvertent discovery of archaeological resources or human remains, and safety precautions to be taken when working with archaeological monitors. The District shall ensure that construction personnel are made available for and attend the training and retain documentation demonstrating attendance.

CUL-3 - Inadvertent Discovery of Archaeological Resources: In the event of the unanticipated discovery of archaeological materials, the District shall immediately cease all work activities in the area (within approximately 100 feet) of the discovery until it can be evaluated by the qualified archaeologist. Construction shall not resume until the qualified archaeologist has conferred with the District on the significance of the resource. Appropriate Native American representatives shall also be notified and afforded the opportunity to provide input on the significance and treatment of any discoveries.

If it is determined that the discovered archaeological resource constitutes a historical resource or unique archaeological resource pursuant to CEQA, avoidance and preservation in place shall be the preferred manner of mitigation. Preservation in place maintains the important relationship between artifacts and their archaeological context and also serves to avoid conflict with traditional and religious values of groups who may ascribe meaning to the resource. Preservation in place may be accomplished by, but is not limited to, avoidance, incorporating the resource into open space, capping, or deeding the site into a permanent conservation easement. In the event that preservation in place is determined to be infeasible and data recovery through excavation is the only feasible mitigation available, an Archaeological Resources Treatment Plan shall be prepared and implemented by the qualified archaeologist in consultation with the District and appropriate Native American representatives that provides for the adequate recovery of the scientifically consequential information contained in the archaeological resource. The District shall consult with appropriate Native American representatives in determining treatment for prehistoric or Native American resources to ensure cultural values ascribed to the resource, beyond that which is scientifically important, are considered.

CUL-4 - Inadvertent Discovery of Human Remains: If human remains are encountered, the District shall halt work in the vicinity (within 100 feet) of the discovery and contact the Kern County Coroner in accordance with PRC Section 5097.98 and Health and Safety Code Section 7050.5. If the County Coroner determines that the remains are Native American, the Native American Heritage Commission (NAHC) will be notified in accordance with Health and Safety Code Section 7050.5, subdivision (c), and PRC Section 5097.98 (as amended by AB 2641). The

NAHC will designate a Most Likely Descendant (MLD) for the remains per PRC Section 5097.98. Until the landowner has conferred with the MLD, the contractor shall ensure that the immediate vicinity where the discovery occurred is not disturbed by further activity, is adequately protected according to generally accepted cultural or archaeological standards or practices, and that further activities take into account the possibility of multiple burials.

References

ESA. 2024a. *North of River Sanitary District Water Resource Recovery Facility Project, Cultural Resources Assessment.* On file at ESA.

VI. Energy

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
VI. ENERGY — 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?	☐	☐	☒	☐
b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	☐	☐	☒	☐

Discussion

a-b) **Less than Significant Impact.** The Project would consume energy during construction activities primarily from on- and off-road vehicle fuel consumption in the form of diesel and gasoline. Additionally, limited energy consumption may be required for temporary lighting during construction activities. Construction activities would be required to comply with diesel-idling requirements by the California Air Resources Broad (CARB), including limiting idling to 5 minutes or less, which would avoid unnecessary, wasteful, and inefficient energy consumption during construction.

Energy consumption during operation would result in an increase in energy consumption beyond that currently exists on the WWTP site. The Project would require an increase in energy use based on existing equipment and the additional proposed equipment needed for the Project expansion. Furthermore, the Project compliance with the standard building code and energy code requirements would result in the Project construction and operations having a less than significant impact as a result of wasteful, inefficient, or unnecessary consumption of energy resources and would not conflict with or obstruct any plans related to energy efficiency.

VII. Geology and Soils

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

Discussion

a.i) **Less than Significant Impact.** Under the Alquist-Priolo Earthquake Fault Zoning Act (Alquist-Priolo Act) of 1972, an active fault is defined as a fault that has ruptured in the last 11,000 years. According to the Alquist-Priolo Site Investigation Report Application, the Project site is not located within or near an Alquist-Priolo Site Investigation or near active faults (CGS, 2024). Nonetheless, the Project site is located within Kern County, a seismically active region of California and may, at any time, be subject to moderate-to-severe ground shaking (Kern County 2009a). The Project would be required to undergo appropriate design-level geotechnical evaluations prior to final design and construction. In addition, implementing the regulatory requirements in the California Building Code (CDC), which would help ensure structural resiliency of structures should an earthquake occur within the Project area. Therefore, with implementation of all CBC and related federal, state, and local standards for all components of the

proposed Project, construction and operational impacts related to ground shaking would be considered less than significant.

a.ii) **Less than Significant Impact.** The Project site is located within Kern County, a seismically active region of California and is not located near faults considered to be active (CGS 2024). As mentioned, the Project consists of the expansion of the existing WWTP and would include a new preliminary and liquid treatment process, solid treatment, administrative and maintenance building, and miscellaneous site improvements. Since the Project is located in a seismically active area, there is a potential for high-intensity ground shaking and surface fault rupture. These two geologic hazards could damage structural foundations, distort or break pipelines, and cause structural failure to buildings.

The Project would be required to undergo appropriate design-level geotechnical evaluations prior to final design and construction. Implementing the regulatory requirements in the CDC, which would help ensure structural resiliency of structures should an earthquake occur within the Project area. In addition, proposed structures would be designed per applicable federal, state, and local engineering standards and specifications, which would ensure structural resiliency. With implementation of all CBC and related federal, state, and local standards for all components of the proposed Project, construction and operational impacts related to ground shaking would be considered less than significant.

a.iii) **No Impact.** Liquefaction is the sudden loss of soil strength due to a rapid increase in soil pore water pressures resulting from ground shaking during an earthquake. Typically, low-lying areas adjacent to creeks, rivers, beaches, and estuaries underlain by unconsolidated alluvial soil are more likely to be vulnerable to liquefaction. According to the California Geologic Survey (CGS), Liquefaction Zones Map, the Project area is not located near any major surface water features and is not located within a liquefaction zone (CGS 2022). Therefore, the Project would not result in exposure of people or structures to substantial adverse effects involving seismic-related ground failure, including liquefaction, and no impacts would occur.

a.iv) **No Impact.** Landslides typically occur in areas with steep slopes. Landslides and slope instability can occur as a result of wet weather, weak soils, improper grading, improper drainage, steep slopes, adverse geologic structure, earthquakes, or a combination of these factors. The Project site consists of relatively flat topography, with a low potential for landslide to occur. According to the CGS, the Project site is not located within a landslide zone (CGS 2015). Therefore, the Project would not result in exposure to people or structures to substantial adverse effects involving landslides, and impacts would not occur.

b) **Less than Significant Impact.** Erosion is the wearing away of soil and rock by processes such as mechanical or chemical weathering, mass wasting, and the action of water and wind. Excessive soil erosion can eventually damage infrastructure such as pipelines, wellheads, building foundations, and roadways. In general, granular soils with relatively low cohesion and soils located on steep topography have a higher potential for erosion.

Project construction activities would require ground disturbance during construction of the Project components, which has the potential to increase short-term erosion and loss of topsoil at the Project site. During construction activities, soils within the Project site have the possibility to be disturbed from excavation, grading, or other earthmoving activities which could lead to erosion and loss of topsoil. The construction of the Project components would disturb greater than an acre of ground surface, and would require coverage under the Construction General National Pollutant Discharge Elimination System (NPDES) Permit, which includes preparation and implementation of a Stormwater Pollution Prevention Plan (SWPPP). A SWPPP includes various best management practices (BMPs) designed to minimize the occurrence of erosion and sedimentation during construction. Therefore, potential erosion impacts during construction of the Project would be less than significant. Further, once in operation, The Project would not include any activities that would cause erosion impacts. Impacts would be less than significant.

c) **Less than Significant Impact.** The Project would not be located on an unstable geologic unit or soil that would become unstable and result in landslides, lateral spreading, subsidence, liquefaction, or collapse. As previously discussed above, the Project site is not located in an area susceptible to liquefaction and landslide and therefore, has a low potential for landslide and liquefaction to occur (CGS 2015, 2022).

Lateral spreading occurs when seismic shaking causes a mass of soil to lose cohesion and move relative to the surrounding soil. This movement can be entirely horizontal and can occur on flat ground, but it is more likely to occur on or around sloping ground. The Project site consists of flat topography and the on-site soils consist of clayey silt and clayey sand at the upper 6 to 8 feet (SEI 2023), and thus the probability of the Project structures being subject to lateral spreading or displacement from an earthquake is low.

Subsidence is caused by declining groundwater tables which in turn causes soils to sink down into the space that was previously occupied by groundwater. The Project would not involve pumping groundwater or settlement of foundations as a result of the Project activities. According to the Geotechnical Report, the groundwater level at the Project site is approximately 50 below ground surface (bgs) (SEI 2023). The Project proposes excavation to a maximum depth of approximately 20 feet bgs. Therefore, due to the Project proposed excavation and groundwater level depth, Project impacts related to subsidence would be less than significant.

d) **Less than Significant Impact.** Expansive soils typically contain clay or clay materials and have some potential for expansion. As mentioned, the Project site soil is clayey silt and clayey sand at the upper 6 to 8 feet and the Expansion Index range from low to medium (SEI 2023). The Project does not propose structures designed for human habitation (i.e., residences), however, it would include employees on-site operating the new WRRF on a daily basis. These employees could be subject to risks related to expansive soils in new structures constructed as part of the Project. Nonetheless, the Project would be designed and constructed in accordance with the recommendation of the geotechnical report, CBC and with local, State, and federal regulations and requirements pertaining to seismic hazards. Therefore, the Project potential to exposure of people and structures to substantial risk due to expansive soils would be less than significant.

e) **No Impact.** The Project consists of the expansion of the existing WWTP and would include a new preliminary and liquid treatment process, solid treatment, an administrative and maintenance building, and miscellaneous site improvements. The Project does not propose the construction or use of septic tanks or alternative wastewater systems as no permanent occupiable structures are proposed as part of the Project. Therefore, Project impacts relating to soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems would not occur.

f) **Less than Significant with Mitigation Incorporated.** A Paleontological Resources Assessment was conducted for the Project in October 2024 (ESA, 2024b), and it is located in **Appendix E (Confidential)** of this IS/MND. The assessment included a paleontological resources database search by the Natural History Museum of Los Angeles County (LACM) conducted on June 30, 2024, a search of the University of California Museum of Paleontology (UCMP), a review of geologic maps and scientific literature, and a paleontological sensitivity analysis.

No paleontological resources were identified within the Project area. However, several fossil localities (LACM IP 6945 and 40935, LACM VP 4087 and 6701) were identified nearby from the same sedimentary deposits that may occur in the Project area, at surface or at depth. The fossil localities yielded specimens of mammoth, invertebrate specimens, and uncatalogued invertebrates. The search through the UCMP revealed over 30,000 invertebrate, plant, or vertebrate fossils from the Pleistocene or Pliocene in Kern County. However, the vast majority (99.3 percent) are unrelated to the potential for this Project. The potentially relevant fossils to the Project include a diverse suite of marine invertebrates (e.g., oysters, corals, barnacles) from the Pleistocene San Joaquin Formation.

The Project area is located in an area that is poorly mapped. The older 1:250,000 scale Bakersfield Sheet map (Smith, 1964) shows that the Project area is near the intersection of young basinal deposits (Qb) and young fan deposits (Qf). The uplifted and exposed bedrock units are tentatively assigned to Plio-Pleistocene sediments (QP?). The fan deposits reflect the ancient, broad distribution of fluvial sediments from the Kern River. Review of the 1:100,000 scale surficial geology map by Bedrossian et al. (2012; East Taft Sheet) shows the Project as located within young alluvial fan deposits (Qyf), composed of unconsolidated to slightly consolidated, undissected deposits of boulder through silts. Based on the mapping, these younger Holocene to late Pleistocene deposits likely overly much older (Early to Middle Pleistocene) fan deposits (Qvof), though the depth is unknown. The mapped Qvof corresponds to the QP? of Smith (1964).

The literature and geologic map review, as well as the LACM records search results were used to assign paleontological sensitivity to the geologic units at surface and underlying the Project area, following the guidelines of the Society for Vertebrate Paleontology (SVP 2010). Young alluvial fans (Qyf) are found across the entire Project area to an unknown depth. As alluvium in the San Joaquin Valley is likely less than 5,000 years old, the Qyf is considered too young to contain fossils. Therefore, this unit is assigned a Low Potential to contain paleontological resources. However, the unit is likely underlain by older alluvial units (see below) that may contain scientifically-significant fossils, so the Qyf increases in potential with depth. Very old alluvial fans (Qvof) are exposed northwest of the Project area and likely exist below the young alluvial fans at depth. These deposits are of an age and depositional environment to likely preserve scientifically-

significant fossils. This potential is further corroborated by the museum records of the LACM and UCMP. Therefore, the Qvof is assigned a High Potential to contain paleontological resources.

Excavation for the Project may impact paleontological resources at depth if excavation exceed the thickness of the young alluvial fans and intersect underlying very old alluvial fans. Because the depth to the base of the alluvium is unknown, excavation during construction has the potential to impact unknown resources. However, implementation of **Mitigation Measures GEO-1 through GEO-4** would reduce any potential impacts to paleontological resources to less than significant.

Mitigation Measures

Mitigation Measure GEO-1: The North of River Sanitary District (NORSD) shall retain a paleontologist who meets the Society of Vertebrate Paleontology's (SVP, 2010) definition for Qualified Professional Paleontologist (Qualified Paleontologist) to carry out all mitigation related to paleontological resources. Prior to the start of ground-disturbing activities, the Qualified Paleontologist or their designee should conduct construction worker paleontological resources sensitivity training for all construction personnel. Construction personnel should be informed on how to identify the types of paleontological resources that may be encountered, the proper procedures to be enacted in the event of an inadvertent discovery of paleontological resources, and safety precautions to be taken when working with paleontological monitors. NORSD should ensure that construction personnel are made available for and attend the training and retain documentation demonstrating attendance.

Mitigation Measure PALEO-2: Paleontological monitoring should be conducted during ground-disturbing activities that produce visible spoils or cuts for project construction below 5 feet in young alluvial fans (Qyf) or at a depth otherwise deemed appropriate by the Qualified Paleontologist. Monitoring shall be conducted by a qualified paleontological monitor (SVP, 2010) working under the direct supervision of the Qualified Paleontologist. Monitoring shall consist of visually inspecting fresh exposures for larger fossil remains and, where appropriate, collecting sediment samples to wet or dry screen to test promising horizons for smaller fossil remains. If the Qualified Paleontologist determines that full-time monitoring is no longer warranted, based on the specific geologic conditions at the surface or at depth, the Qualified Paleontologist may recommend that monitoring be reduced to periodic spot-checking or cease entirely.

Mitigation Measure PALEO-3: If a potential fossil is found, the paleontological monitor shall be allowed to temporarily divert or redirect grading and excavation activities in the area of the exposed fossil to facilitate evaluation of the discovery. An appropriate buffer area of 50 feet shall be established around the find where construction activities shall not be allowed to continue. Work shall be allowed to continue outside of the buffer area. At the monitor's discretion, and to reduce any construction delay, the grading and excavation contractor shall assist in removing rock/sediment samples for initial processing and evaluation. If a fossil is determined to be significant, the Qualified Paleontologist shall implement a paleontological salvage program to remove the resources from their location, following the guidelines of the SVP (2010). Any fossils encountered and recovered shall be prepared to the point of identification, catalogued, and curated at an accredited repository.

If construction personnel discover any potential fossils during construction while the paleontological monitor is not present, regardless of the depth of work or location, work at the discovery location shall cease in a 50-foot radius of the discovery until the Qualified

Paleontologist has assessed the discovery and recommended and implemented appropriate treatment as described in this measure.

Mitigation Measure PALEO-4: At the conclusion of paleontological monitoring, the Qualified Paleontologist shall prepare a report summarizing the results of the monitoring and any salvage efforts, the methodology used in these efforts, as well as a description of the fossils collected and their significance. The report shall be submitted to NORSD, the Natural History Museum of Los Angeles County, and representatives of other appropriate or concerned agencies to signify the satisfactory completion of the project and required mitigation measures.

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VIII. Greenhouse Gas Emissions

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
VIII. GREENHOUSE GAS EMISSIONS — Would the project:				
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☐	☐	☒	☐
b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	☐	☐	☒	☐

Discussion

a) **Less than Significant Impact.** The San Joaquin Valley Air Pollution Control District (SJVAPCD) has established greenhouse gas (GHG) thresholds for projects subject to the California Environmental Quality Act (CEQA). For projects implementing the SJVAPCD's Best Performance Standards (BPS), quantification of project-specific GHGs is not required (SJVAPCD 2009a, 2009b). The SJVAPCD's BPS apply to projects with stationary industrial emission sources. The Project's emissions would be generated from stationary industrial emissions sources related to wastewater facilities and thus, the SJVAPCD's BPS apply. Although exempt from quantification, a quantified GHG analysis is provided below to disclose the Project's GHG emissions.

The Project would directly generate GHG emissions during construction and operational and maintenance activities. Construction emissions would be associated with vehicle engine exhaust from construction equipment and vehicles, vendor trips, and construction worker commuting trips. Operation of the Project would generate GHG emissions from building energy use, landscaping, and maintenance activities. Further, for purposes of the emissions analysis, operation of the proposed facilities is assumed to include up to 16 one-way truck trips to and from the Project site (based on eight maintenance bays and two one-way trips per bay per day). Up to 16 new employees are anticipated; however, the additional employees would not result in a substantial number of new passenger vehicle trips from workers resulting from the proposed Project. Operation of the WRRF would result in direct emissions of GHGs such as Nitrous Oxide (N_2O) and Methane (CH_4) as a result of degradation of nitrogen components in wastewater (i.e., urea, nitrate and protein) and anaerobic digestors. The extent of CH_4 production depends primarily on the quantity of degradable organic matter in the wastewater, the temperature, and the type of treatment system. **Table 2-4**, *Annual Operational and Amortized Construction Greenhouse Emissions*, shows annual operational and amortized construction GHG emissions associated with the Project (amortized over the estimated 35-year Project life).

TABLE 2-4
ANNUAL OPERATIONAL AND AMORTIZED CONSTRUCTION GREENHOUSE GAS EMISSIONS

Emissions Source	CO_2e (Metric Tons per Year)[a]
Construction Emissions	
Construction Year 1 (2026)	491
Construction Year 2 (2027)	503
Construction Year 3 (2028)	71
Total Construction GHG Emissions	**1,065**
Construction Emissions Amortized over 35 years	**31**
Operational Emissions	
Area	2
Mobile[b]	376
Energy	519
Water	62
Waste	60
Refrigerants	6
Total Operational GHG Emissions	**1,025**
Amortized Construction	31
Net Total Project Emissions (Operations + Construction)	**1,056**

[a] Totals may not add up exactly due to rounding in the modeling calculations. Detailed emissions calculations are provided in **Appendix B**.

[b] Mobile emissions from truck trips during operations were calculated outside of CalEEMod using the EMFAC model. Mobile emissions assume a maximum of 16 truck trips per day based on facility designs. The average trip VMT is based on the 40-mile average truck trip length recommended in the SCAG 2016 Regional Transportation Plan. Detailed emissions calculations are provided in **Appendix B**.

SOURCE: ESA 2024.

According to the Climate Change Action Plan (CCAP): Addressing GHG Emissions Impacts under CEQA (2009), the SJVAPCD's BPS for stationary sources are established to achieve a reduction in GHG emission from development projects consistent with regional and statewide targets. The Project would incorporate, as applicable, BPS consistent with SJVAPCD BPS for Wastewater Treatment, which are summarized as follows:

1. Sludge Treatment: Sludge shall be treated anaerobically in digesters, with captured methane used for energy recovery in a method that displaces current or required fossil fuel use, such as, but not limited to, injection into natural gas pipeline, or powering mobile equipment; and

2. Wastewater Treatment: At least 33 percent of electricity used for liquid waste aeration shall be derived from renewable energy sources, based on grid power the Renewables Portfolio Standard (RPS), and/or supplementation of grid with onsite generation using renewable energy sources such as, but not limited to, biogas, biomass, solar, and wind.

The Project would increase the existing WWTP capacity to 12 MGD in order to effectively serve its existing and planned population. The Project incorporates processes that are compliant with the SJVAPCD's BPS through its rehabilitation and expansion design. Sludge treatment would include new mesophilic anaerobic digestors with biogas capture used for energy recovery. Biogas would be stored under membrane covers on the new digesters and would be used for digester heating, any excess would be flared. In addition, space would be provided for possible future biogas uses such as vehicle fueling or cogeneration. The Projects bioreactors use liquid waste aeration techniques. The proposed facilities will require electricity from the local utility, which is aligned with the California Renewable Portfolio Standard (RPS) Program, requiring that 33 percent of retail electricity sales are derived from renewable energy sources by 2020. Further, the new WRRP will also be designed to take advantage of future renewable energy opportunities such as solar photovoltaic (PV), battery storage, and/or cogeneration using digester gas to offset electricity consumption. Therefore, the Project would be compliant with the two BPS control measures to reduce GHG emissions and not a significant impact on the environment, and impacts would be less than significant.

b) **Less than Significant Impact.** There are numerous statewide regulations and initiatives related to overall GHG reductions. The SJVAPCDs BPS apply to operation of the Project as it is a stationary industrial GHG emission source. The Project would generate additional long-term stationary or mobile-source GHG emissions. However, the Project would comply with applicable standards in Title 24 and the CALGreen Code; therefore, no conflict with State regulations for GHG reductions would occur with construction or operation of the Project.

Based on the type and size of improvements of the WRRF and anticipated GHG emissions, the Project would not have the potential to generate GHG emissions that could influence climate change. The Project would improve and expand operations at the WWTP through the expansion and technology upgrades for the wastewater treatment processes. The Project would have no net effect on long-term water consumption and would not substantially contribute to GHG emissions from water supply, conveyance, or distribution. However, the Project would increase GHG emissions from expanded wastewater treatment at the existing WWTP. As stated above, the Project would implement SJVAPCD BPS as a stationary industrial GHG emission source, which would have GHG emissions reductions consistent with regional and statewide targets compared to noncompliance with SJVAPCD BPS. For these reasons, implementation of the proposed project would not generate GHG emissions that would hinder the State's ability to achieve the GHG reduction goals under CARB's *2022 Scoping Plan for Achieving Carbon Neutrality*. Furthermore, the proposed project would not conflict with or impede the future statewide GHG emission reductions goals outlined in the *2022 Scoping Plan for Achieving Carbon Neutrality*. These potential strategies include renewable resources for half of the State's electricity by 2030, reducing petroleum use in cars and trucks, reducing the carbon content of transportation fuels, continuation of the Cap-and-Trade Program, and adopting regulations for oil refineries. The Project would involve the construction of a maintenance building, which would be compliant with the most recent Title 24 Building Energy Efficiency Standards. The propose Project would also incorporate technologically advanced and more efficient wastewater treatment processes compared to the existing facility. The project would not conflict with these regulations, as promulgated by the

USEPA, CARB, California Energy Commission, SJVAPCD, or other agencies. Therefore, impacts on GHG plans, policies, or regulations would be less than significant.

References

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IX. Hazards and Hazardous Materials

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
IX. HAZARDS AND HAZARDOUS MATERIALS — Would the project:				
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☐	☒	☐
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☐	☐	☒	☐
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☐	☒
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☐	☐	☒
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?	☐	☐	☐	☒
f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	☒
g) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires?	☐	☐	☐	☒

Discussion

a) **Less than Significant Impact.** The California Office of Emergency Services oversees state agencies and programs that regulate hazardous materials (Health and Safety Code, Article 1, Chapter 6.95). A hazardous material is any material that because of its quantity, concentration, or physical or chemical characteristics, poses a significant present or potential hazard to human health and safety or to the environment if released into the workplace or environment. The proposed project would require the use of construction vehicles and equipment and thus involve the routine transport, use, storage, and disposal of hazardous materials such as diesel fuel, gasoline, oils, grease, equipment fluids, cleaning solutions and solvents, lubricant oils, and adhesives. If such hazardous materials were not handled properly or, in accordance with federal, state and local regulations, a potentially significant hazard to the public or environment could occur.

Existing federal and state law regulates the handling, storage and transport of hazardous materials and hazardous wastes. Pursuant to the federal Hazardous Materials Transportation Act, 49 U.S.C. § 5101 et seq., the United States Department of Transportation promulgated strict regulations applicable to all trucks transporting hazardous materials. Occupational safety standards have been

established in federal and state laws to minimize worker safety risks from both physical and chemical hazards in the workplace, including construction sites. The California Division of Occupational Safety and Health (CalOSHA) has primary responsibility for developing and enforcing standards for safe workplaces and work practices in California in accordance with regulations specified in California Code of Regulations (CCR) Title 8. For example, under Title 8 CCR 5194 (Hazard Communication Standard), construction workers must be informed about hazardous substances that may be encountered, and under Title 8 CCR 3203 (Injury Illness Prevention Program) workers must be properly trained to recognize workplace hazards and to take appropriate steps to reduce potential risks due to such hazards. During construction, contractors and/or NORSD staff handling, storing or transporting hazardous materials or wastes must comply with regulations that would reduce the risk of accidental release and provide protocols and notification requirements should an accidental release occur.

Operation and maintenance activities associated with the proposed project would also require routine transport, storage, use, and disposal of hazardous materials for purposes of treatment of water (e.g., Sodium Hypochlorite, Citric Acid, Ferric Chloride). Hazardous materials would be stored in appropriate containers within the various facilities and would be used in accordance with state and local regulations. Therefore, by complying with relevant federal, state, and local laws, the proposed project would not result in a significant hazard to the public or to the environment through the routine transport, use, or disposal of hazardous materials during implementation of the proposed project.

b) **Less than Significant Impact.** As discussed above in the response to Hazards and Hazardous Materials, Issue IX a), the proposed project would involve the routine use of hazardous materials during activities associated with construction; the transport, use, storage and disposal of such hazardous materials would be required to comply with existing applicable federal, state and local regulations. Accidental spills of small amounts of these materials could occur during routine transport, use, storage or disposal, and could potentially injure construction workers, contaminate soil, and/or affect the groundwater below the site. In the event of an accidental release during implementation of the proposed project, containment and clean up would be in accordance with existing applicable regulatory requirements. Title 8 CCR 5194 requires preparation of a hazards communication program identifying hazardous materials onsite and reducing the potential for a spill; and 29 CFR 1910.120 includes requirements for emergency responses to releases or substantial threats of releases of hazardous substances. Contractors and/or NORSD would be required to prepare and implement a Hazardous Materials Business Plan (HMBP), as required under the state Hazardous Materials Release Response Plans and Inventory Act, to manage any hazardous materials they use during construction and operation, respectively. A HMBP is a document containing detailed information on the inventory of hazardous materials at a facility; Emergency Response Plans (ERP) and procedures in the event of a reportable release or threatened release of a hazardous material; a Site Safety Plan with provisions for training for all workers; a site map that contains north orientation, loading areas, internal roads, adjacent streets, storm and sewer drains, access and exit points, emergency shutoffs, hazardous material handling and storage areas, and emergency response equipment. Further, all spent hazardous materials would be disposed of in accordance with California Department of Toxic Substances Control (DTSC) and County regulations. Construction and maintenance specifications prepared for the

proposed project would identify BMPs to ensure the lawful transport, use, storage, and disposal of hazardous materials.

As discussed above, operation and maintenance activities associated with the proposed project would also require routine transport, storage, use, and disposal of hazardous materials. In the event of an accidental release during operation of the proposed Project, containment and clean up would be in accordance with existing applicable regulatory requirements. Therefore, potential impacts to the public or the environment related to reasonably foreseeable accident conditions involving hazardous materials would be less than significant.

c) **No Impact.** As mentioned, the Project site is surrounded by agricultural land and located in a rural area in Kern County. There are no schools within 0.25 miles of the proposed Project. The nearest school to the Project site is the Rio Bravo Elementary School, addressed 22725 Elementary Lane, Bakersfield, CA, approximately 5.6 miles southeast of the Project site. All nearby schools are located beyond 5 miles and would not be affected by the operations at the proposed Project. Furthermore, the Project would comply with all relevant and applicable federal, State, and local laws and regulations that pertain to the release of hazardous materials and hazardous waste emissions during construction and operation. Therefore, due to the Project location and absence of a school within 0.25 miles of the Project site, Project impacts would not occur.

d) **No Impact.** A records search on the Department of Toxic Substances Control (DTSC) EnviroStor database and the State Water Resources Control Board (SWRCB) Geotracker database did not identify hazardous materials sites located in or adjacent to the Project site (DTSC, 2024). Based on this information, the Project is not located on a site which is included on a list of hazardous material sites compiled pursuant to Government Code Section 65962.5 and would not result in significant hazard to the public or the environment. Therefore, no impacts would occur.

e) **No Impact.** The nearest airport to the Project site is the Minter Field Airport District, addressed 201 Aviation Street, Shafter, CA, approximately 9.7 miles northeast of the Project site. The second nearest airport to the Project site is the Elk Hills-Buttonwillow Airport, located approximately 3.1 miles south of the central business district of Buttonwillow, in Kern County, approximately 10.2 miles southwest of the Project site. Additionally, the Project site is not located within an airport land use plan or sphere of influence (SOI) (Kern County 2024). Therefore, the Project would not be located within an airport land use plan or in close proximity to a public airport; therefore, no impacts would occur.

f) **No Impact.** The Project consists of the expansion of the existing WWTP and would include a new preliminary and liquid treatment process, solid treatment, an administrative and maintenance building, and miscellaneous site improvements. The Project site is located within a rural area in Kern County, surrounded primarily by Exclusive Agriculture (Kern County 2024). The Project would not require traffic controls during construction and operation as the Project site is not within a populated area of Kern County or the City of Shafter. Rather, the Project site is separate from the public with accessible roads that travel through agricultural lands. Therefore, the Project construction and operation would not interfere with an adopted emergency response plan or emergency evacuation plan. Therefore, the Project would not impair implementation of or

physically interfere with an adopted emergency response plan or emergency evacuation plan, and impacts would not occur.

g) **No Impact.** The Project does not propose construction of habitable buildings or structures (i.e., residences). The Project area is not located in a State Responsibility Area (SRA) or a Very High Fire Hazard Severity Zone (VHFHSZ) (CAL FIRE 2023, 2024). Additionally, the Project site is surrounded by agricultural lands, which are extremely irrigated lands, and the probability of a wildland fire would not occur. Therefore, the Project does not include the construction of any buildings or structures intended for human occupancy and would not expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involved wildland fires, and impacts would not occur. Further discussion regarding Wildfire is discussed in Section XX, Wildfire.

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X. Hydrology and Water Quality

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
X. HYDROLOGY AND WATER QUALITY — Would the project:				
a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?	☐	☐	☒	☐
b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?	☐	☐	☒	☐
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:				
i) result in substantial erosion or siltation on- or off-site;	☐	☐	☒	☐
ii) substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite;	☐	☐	☒	☐
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	☐	☐	☒	☐
iv) impede or redirect flood flows?	☐	☐	☒	☐
d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?	☐	☐	☐	☒
e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	☐	☐	☒	☐

Discussion

a) **Less than Significant Impact.** Construction of the proposed Project would involve excavation, trenching, and grading to upgrade the existing WWTP and associated buildings. Construction materials and exposed soils would have the potential to be transported down gradient areas, potentially resulting in water quality impacts. Additionally, stormwater runoff passing through the construction and staging sites has the potential to pick up construction-related pollutants. Since the proposed project would disturb more than one acre during construction, NORSD would be required to obtain coverage under the Statewide Construction General Permit. Construction activities subject to this permit includes clearing, grading and disturbances to one-acre or more, stockpiling and excavation. The Construction General Permit requires the development of a SWPPP by a certified Qualified SWPPP Developer. The SWPPP would identify BMPs to control erosion and sedimentation issues. Compliance with the Construction General Permit by developing

and implementing a SWPPP, would ensure issues related to soil erosion and loss of topsoil would be less than significant.

During its operation, as part of the treatment process, the WRRF would use chemicals such as Sodium Hypochlorite, Citric Acid, and Ferric Chloride. Accidental spills of these chemicals could adversely affect the water quality of nearby surface water bodies. Rainfall falling on the WRRF could result in polluted stormwater runoff that could adversely affect water quality. However, the required SWPPP would include BMPs to manage rainwater falling on the WRRF by treating stormwater prior to discharge to the municipal stormwater system. The required compliance with the numerous laws and regulations discussed above that would govern the operations of the WRRF would limit the potential for adverse impacts to water quality. Impacts would be less than significant.

b) **Less than Significant Impact.** The construction of the WRRF upgrades and associated buildings would require the use of water for dust suppression, and equipment cleaning. Construction would not affect groundwater supplies because the quantity of water used would be minimal. In addition, once operational the WRRF would treat wastewater and would not include any component that would extract groundwater.

The new WRRF upgrades and associated buildings would result in a minor increase in new impervious surface from the current conditions. However, rainwater falling on the WRRF would be captured on-site by the existing drainage system and ultimately would percolate into the ground by the existing drainage system.. Impacts would be less than significant

c.i-c.iv) **Less than Significant Impact.** Construction of the proposed Projects components would not alter existing drainages that could result in erosion or flooding or exceed the capacity of a drainage system. Potential stormwater quality impacts during construction are evaluated in Impact 3.X a), above.

Once constructed, the proposed Project would result in a minor alteration of the drainage pattern of the existing land surface. Currently, the existing WWTP covers a portion of the site; however, the new WRRF upgrades and buildings would have slightly larger footprint resulting in the addition of hardscape that would concentrate the flow of surface water runoff. However, compliance with MS4 development design would ensure that the new facility does not channelize runoff in a manner that could cause scouring and erosion, and captures water prior to runoff from the facility. Impacts would be less than significant.

d) **No Impact.** A tsunami is a series of ocean waves generated by sudden displacements in the sea floor, landslides, or volcanic activity. A seiche is a standing wave in an oscillating body of water. The Project site is located approximately 90 miles east of the Pacific Ocean (closest portion near Moro Bay to the west). There also are no enclosed bodies of water within the Project vicinity; therefore, the risk for tsunami or seiche in the Project area is very low and there would be little or no chance for an impact involving release of pollutants during such events. Further, the Project does not propose construction of any habitable structures and would not expose people or structures to a significant risk of loss, injury, or death involving flooding. Additionally, the site is

located within a developed area and would not be subject to mudflows. Therefore, no impact would occur

e) **Less than Significant Impact.** The proposed Project would upgrade WWTP with a new advanced treatment systems. The proposed Project would not include the extraction of the groundwater. The operation of the proposed Project would be very similar to the current operations of the WWTP and therefore would not conflict with implementation of a water quality control plan or groundwater management plan and impacts would be less than significant

References

Federal Emergency Management Agency, National Flood Hazard Layer FIRMette, September 2024, Available online at: https://www.fema.gov/flood-maps; Accessed on September 2024

XI. Land Use and Planning

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
XI. LAND USE AND PLANNING — Would the project:				
a) Physically divide an established community?	☐	☐	☐	☒
b) Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☒	☐

Discussion

a) **No Impact.** The physical division of an established community typically refers to the construction of a linear feature, such as a highway or railroad, or removal of a means of access, such as a road or bridge that would impact mobility within or between existing communities. The Project consists of the expansion of the existing WWTP and would include a new preliminary and liquid treatment process, solid treatment, an administrative and maintenance building, and miscellaneous site improvements. The Project components would not create a barrier or physically divide an established community, and thus no impacts would occur.

b) **Less than Significant Impact.** The Project construction and operation would occur within the existing WWTP site. However, the Project would require the conversion of approximately 3.44 acres of Unique Farmland to non-agricultural use. Furthermore, the Project site has a Use Code of 4300, defined as Irrigated Land- Land in Production of Food and Fiber Irrigated by Means other than Natural Rainfall, and such Use Code would not change as a result of the Project (Kern County 2024a, 20024b). Based on the Project components, the Project would not conflict with a land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect, and impacts would be less than significant.

References

Kern County, 2024a. Kern County Assessor Use Codes. Available online; https://www.kerncounty.com/government/departments/assessor-recorder/property/assessor-use-codes. Accessed June 19, 2024.

Kern County, 2024. Kern County Geographic Information System (GIS)- County Zoning. Available online; https://maps.kerncounty.com/H5/index.html?viewer=KCPublic. Accessed June 19, 2024.

XII. Mineral Resources

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
XII. MINERAL RESOURCES — Would the project:				
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	☐	☐	☐	☒
b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?	☐	☐	☐	☒

Discussion

a-b) **No Impact.** The Project site is not located on land that is zoned or designated for mineral extraction and no mineral extraction activities occur in the Project site. According to the Mineral Resource Zones for Kern County, the Project site is not located within a designated Mineral Resource Zone (Data Basin 2015). There are no known mineral resources within the Project site or vicinity. Therefore, implementation of the Project would not result in the loss of availability of a known mineral resource or locally important resource that would be of value to the region and the residents of the State, and no impacts would occur.

References

Data Basin. 2015. Mineral Resource Zones for Kern County. Available online at: https://databasin.org/maps/new/#datasets=26c92d3ecbe541ec81451f9de4e1e0e4. Accessed June 20, 2024.

XIII. Noise

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
XIII. NOISE — 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?	☐	☐	☒	☐
b) Generation of excessive groundborne vibration or groundborne noise levels?	☐	☐	☒	☐
c) For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒

Discussion

a) **Less than Significant Impact.** Noise is defined as unwanted sound; however, not all unwanted sound rises to the level of a potentially significant noise impact. Construction noise would be variable, temporary, and limited in nature and duration. Equipment such as heavy trucks and machinery for grading and excavation, concrete pouring, waste disposal, and other construction activities have the potential to generate a significant amount of noise. The Project consists of the expansion of the existing WWTP and would include a new preliminary and liquid treatment process, solid treatment, an administrative and maintenance building, and miscellaneous site improvements. According to the Kern County Municipal Code Section 8.36.020, construction-related noise is allowed within 1,000 feet of noise-sensitive land uses, including residential dwellings, between the hours of 6:00 a.m. and 9:00 p.m. on weekdays and 8:00 a.m. and 9:00 p.m. on weekends (Kern County 2024a). The Project site is surrounded primarily by Exclusive Agriculture, and no sensitive receptors (i.e. residences or schools) are located in the Project vicinity. Therefore, due to the Project nature and distance from the public and sensitive receptors, Project impacts related to substantial temporary or permanent ambient noise levels would be less than significant.

b) **Less than Significant Impact**. Common sources of groundborne vibrations include trains, buses on rough roads, and heavy construction activities, such as blasting, pile driving, and extensive grading and heavy earthmoving equipment. The Project would not generate substantial groundborne vibration or excessive noise levels. Construction activities would generate a short duration of excess noise levels. However, the Project site is surrounded primarily by Exclusive Agriculture and no sensitive receptors are located within or adjacent to the Project site. Thus, construction is not anticipated to result in perceptible vibration levels at nearby receiver locations. Minimal vibration could occur from movement of equipment and materials to and from the construction site, however, vibration would be temporary and momentary in duration and would

not be excessive. Therefore, Project impacts related to the generation of excessive groundborne vibration or groundborne noise levels would be less than significant.

c) **No Impact.** As discussed in Section IX, Hazards and Hazardous Materials, the nearest airport to the Project site is the Minter Field Airport District, addressed 201 Aviation Street, Shafter, CA, approximately 9.7 miles northeast of the Project site. The second nearest airport to the Project site is the Elk Hills-Buttonwillow Airport, located approximately 3.1 miles south of the central business district of Buttonwillow, in Kern County**,** approximately 10.2 miles southwest of the Project site. Additionally, the Project site is not located within an airport land use plan or sphere of influence (SOI) (Kern County 2024b). Therefore, the Project is not located within the vicinity of a private airstrip or an airport land use plan, and Project impacts related to exposing people residing or working in the Project area to excessive noise levels would not occur.

References

Kern County, 2024a. Municipal Code Section 8.36.020. Available online; https://library.municode.com/ca/kern_county/codes/code_of_ordinances?nodeId=TIT8HESA_CH8.36NOCO#:~:text=%28Ord.%20G-7577%20%C2%A7%202%2C%202007%3B%20Ord.%20G-6301%20%C2%A7,acts%20within%20the%20unincorporated%20areas%20of%20the%20county%3A. Accessed June 20, 2024.

Kern County, 2024. Kern County Geographic Information System (GIS)- County Zoning. Available online; https://maps.kerncounty.com/H5/index.html?viewer=KCPublic. Accessed June 19, 2024.

XIV. Population and Housing

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
XIV. POPULATION AND HOUSING — Would the project:				
a) Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	☐	☐	☒	☐
b) Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒

Discussion

a) **Less than Significant Impact.** The Project consists of the expansion of the existing WWTP and would include a new preliminary and liquid treatment process, solid treatment, an administrative and maintenance building, and miscellaneous site improvements. The proposed Project does not include construction of new homes or businesses that would result in a direct increase in population or create a substantial number of jobs. Construction activities would require temporary employment. Construction worker opportunities are expected to be filled by workers within the local economy. Because the majority of the work force is located in the County which is highly populated, there would be an adequate number of local workers that could be available for construction jobs and could commute to the temporary construction jobs rather than relocate and induce growth in the area.

Further, the new facilities would allow NORSDs to continue to provide wastewater services in its service area and to meet forecasted demand and growth in the service area. The proposed Project's minor expansion is consistent with development anticipated by City of Shafter's Urban Water Management Plan and the County of Kern General Plan. Therefore, the implementation of the proposed Project would result in less than significant impacts related to population growth.

The operation of the proposed facilities would require up to 16 new employees. However, the project would not induce unplanned growth or population to the project area as a result of minimal increase in new employees. Impacts would be less than significant.

b) **No Impact.** Currently, the Project site is an existing wastewater treatment plant. No habitable structures or buildings are located within or adjacent to the Project site. Implementation of the Project would not displace a substantial number of existing people or housing as the proposed Project uses would continue to be related to wastewater treatment industrial activities and the Use Code for the property would not change. Therefore, the Project would not displace substantial numbers of existing people or housing during construction and operation, and impacts would not occur.

XV. Public Services

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
XV. PUBLIC SERVICES —				
a) Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the following public services:				
i) Fire protection?	☐	☐	☒	☐
ii) Police protection?	☐	☐	☒	☐
iii) Schools?	☐	☐	☒	☐
iv) Parks?	☐	☐	☒	☐
v) Other public facilities?	☐	☐	☒	☐

Discussion

a.i-v) **Less than Significant Impact.** The Project consists of the expansion of the existing WWTP and would include a new preliminary and liquid treatment process, solid treatment, an administrative and maintenance building, and miscellaneous site improvements. The Project does not include development of new occupiable buildings or structures that would directly increase demand for protective services such as the Shafter Police Department (SPD), Kern County Sheriff's Department (KCSD), and Kern County Fire Services (KCFS). Additionally, the Project would not induce population growth in the Project area, nor would it generate an increase in school-aged children in the region or otherwise create an increase in demand for additional school capacity, parks, or other public facilities such as libraries. It is assumed that the employment opportunities associated with the Project construction and operation would be filled by the local workforce in the Kern County region and would not result in an increase for housing demand, which would not require additional demand for fire and police protection services from the SPD, KCSD, and KCFS. Since the Project would not develop permanent housing necessitating fire, police protection, and generate a population growth in the Kern County region, Project impacts would be less than significant.

XVI. Recreation

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
XVI. RECREATION —				
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?	☐	☐	☐	☒
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?	☐	☐	☐	☒

Discussion

a-b) **No Impact.** The Project consists of the expansion of the existing WWTP and would include a new preliminary and liquid treatment process, solid treatment, an administrative and maintenance building, and miscellaneous site improvements. The Project does not propose construction of occupiable buildings or structures that would directly increase demand on existing parks or recreational facilities in the manner that could result in physical deterioration of the resource. While some of the construction workers may utilize local parks and recreational facilities during the work day, such use would be anticipated to be limited. Therefore, the Project would not increase the use of existing neighborhood and regional parks or other recreational facilities in the Project area or vicinity, and no impacts would occur.

XVII. Transportation

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
XVII. TRANSPORTATION — Would the project:				
a) Conflict with a program plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?	☐	☐	☒	☐
b) Would the project conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)?	☐	☐	☒	☐
c) Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	☐	☒
d) Result in inadequate emergency access?	☐	☐	☐	☒

Discussion

a) **Less than Significant Impact.** The City of Shafter General Plan, Circulation Element (Transportation Program), is concerned with how people and goods move about in and through the community (Kern County 2005). The Transportation Program outlines objectives and policies that provide guidance and sets forth actions to maintain viable levels of service, minimize impacts on the environment, maintain compatibility with adjacent land uses, and improve the overall efficiency of moving people and goods (Kern County 2005). The Project would be consistent with the City of Shafter Transportation Program as the Project would not require traffic controls or lane closures during construction and operation activities, which could have a potential effect on the circulation system. The Project components would not generate a population growth in the Project area which would interfere with an adopted program plan, ordinance or policy addressing the circulation system.

Additionally, the Kern County General Plan Circulation Element and the Kern Council of Governments (KCOG) 2022 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) provide goals, policies, and implementation measures intended to reduce traffic congestion, provide safe alternative travel, and improve existing circulation system issues within the Kern County region (Kern County 2009, KCOG 2022). The Project would be consistent with the KCOG 2022 RTP/SCS by not conflicting with mobility, accessibility, reliability, efficiency, livability, sustainability, and equity pertaining to the circulation system in Kern County.

The Project does not propose the construction of permanent occupiable structures or buildings (i.e., residences). The Project would not include the development of new homes, businesses, or roadways that would be subject to transportation or land use planning strategies. Construction activities and staging would occur within the existing WWTP site and no lane closures would be required. During operations, the Project would require additional chemical deliveries to the site.

The proposed WRRF would require operational and maintenance activities by NORSD staff similar to what is currently occurring at the existing WWTP. Operation of the proposed Project will be similar to the current activities. However, it is anticipated that the deliveries would increase by up to 16 one-way truck trips to and from the Project site (based on eight maintenance bays and two one-way trips per bay per day). Up to 16 new employees are anticipated; however, the additional employees would not result in a substantial number of new passenger vehicle trips from workers resulting from the WRRF expansion. Further, the proposed Project would not alter the local roadway configuration or disrupt transit, roadway, bicycle, or pedestrian facilities.

Based on the above, the Project would not increase traffic congestion along the Project area or other nearby roadways in a manner that would be inconsistent with the goals and policies of the City of Shafter Transportation Program and the KCOG 2022 RTP/SCS. Therefore, Project impacts related to a conflict with a program plan, ordinance or policy addressing the circulation system would be less than significant.

b) **Less than Significant Impact.** In accordance with SB 743, *CEQA Guidelines* section 15064.3, subdivision (b) was adopted in December 2018 by the California Natural Resources Agency. These revisions to the *CEQA Guidelines* criteria for determining the significance of transportation impacts are primarily focused on projects within transit priority areas and shift the focus from driver delay to reduction of greenhouse gas emissions, creation of multimodal networks, and promotion of a mix of land uses. Vehicle miles traveled, or VMT, is a measure of the total number of miles driven to or from a development and is sometimes expressed as an average per trip or per person. Section 15064.3 of the *CEQA Guidelines* suggests that the analysis of VMT impacts applies mainly to land use and transportation projects, and not water infrastructure projects. Furthermore, projects that generate or attract fewer than 110 operational trips per day would generally be exempt from further consideration with respect to VMT. Since the proposed Project is neither a land use nor a transportation project, and is anticipated to generate minimal new operational trips per day beyond what occurs currently, impacts with respect to VMT would be less than significant.

c) **No Impact.** The Project does not include design features that would introduce new hazards in the circulation system, nor would it create incompatible uses with the existing traffic operations at the Project site or region. Construction activities would occur within the existing WWTP site with intermittent trucks entering and existing the property. These truck trips would be temporary in nature and would be consistent with the existing operations of the WWTP, which includes trucks entering and exiting the facility to perform daily operations. Therefore, the Project would not introduce roadway hazards or result in incompatible uses along the Project site or other nearby roadways, and impacts would not occur.

d) **No Impact.** The Project construction activities would not result in any physical changes to the transportation system or traffic operations that would potentially affect emergency access. The Project would continue to be accessed by existing roads. Once construction activities are complete, no long-term sources of Project traffic would occur that would interfere with an emergency access plan or program. Therefore, impacts related to inadequate emergency access would not occur.

References

City of Shafter, 2005. Shafter General Plan, Circulation Element (Transportation Program). Available online; https://www.shafter.com/DocumentCenter/View/5042/Shafter-General-Plan. Accessed June 20, 2024.

Kern County, 2009. General Plan Circulation Element. Adopted September 22, 2009. Available online; https://psbweb.kerncounty.com/planning/pdfs/kcgp/KCGP_Complete.pdf. Accessed June 20, 2024.

Kern Council of Governments (KCOG), 2022. 2022 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS). Available online; https://www.kerncog.org/wp-content/uploads/2022/12/2022_RTP.pdf. Accessed June 20, 2024.

XVIII. Tribal Cultural Resources

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
XVIII. TRIBAL CULTURAL RESOURCES —				
a) Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:				
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	☐	☐	☐	☒
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.	☐	☐	☐	☒

Discussion

The SCCIC records search and a pedestrian survey did not identify potential tribal cultural resources within the Project area. The Native American Heritage Commission (NAHC) Sacred Lands File (SLF) search returned negative results. The District conducted consultation with California Native American tribes pursuant to AB 52 to identify tribal cultural resources in or near the Project Site.

On January 6, 2025, the District sent notification letters via certified mail to the designated representatives of nine California Native American tribes (**Table 2-5/ Appendix F**). The letters provide brief descriptions of the Project and its location, with maps, the lead agency's contact information, and a notification that the tribe has 30 days to request consultation pursuant to Public Resources Code section 21080.3.1. As of the completion of this document, one response was received by the Table Mountain Rancheria confirming that the Project is outside of their area of interest.

TABLE 2-5
SUMMARY OF AB 52 OUTREACH EFFORT

Tribe	Contact/Title	Date Letter Sent	Response
Tejon Indian Tribe	Candice Garza, CRM Scheduler	January 6, 2025	No Response
Kitanemuk & Yowlumne Tejon Indians	Delia Dominguez, Chairperson	January 6, 2025	No Response
Northern Chumash Tribal Council	Violet Walker, Chairperson	January 6, 2025	No Response
Santa Rosa Rancheria Tachi Yokut Tribe	Nichole Escalon, Cultural Specialist I	January 6, 2025	No Response
Santa Rosa Rancheria Tachi Yokut Tribe	Samantha McCarty, Cultural Specialist II	January 6, 2025	No Response
Santa Rosa Rancheria Tachi Yokut Tribe	Shana Powers, THPO	January 6, 2025	No Response
Table Mountain Rancheria	Bob Pennell, Cultural Resource Director	January 6, 2025	The Project is not within their area of interest
Table Mountain Rancheria	Michelle Heredia-Cordova, Chairperson	January 6, 2025	No Response
Tule River Indian Tribe	Joey Garfield, Tribal Archaeologist	January 6, 2025	No Response
Tule River Indian Tribe	Neil Peyron, Chairperson	January 6, 2025	No Response
Tule River Indian Tribe	Kerri Vera, Environmental Department	January 6, 2025	No Response

a.i) **No Impact**. No tribal cultural resources were identified as a result of the outreach letters, and SLF search. Therefore, no tribal cultural resources that are listed in or eligible for listing in the California Register, or in a local register of historical resources as defined in PRC Section 5020.1(k) would be impacted by the Project and no mitigation is required. No impact would occur.

a.ii) **No Impact**. No tribal cultural resources were identified as a result of the outreach letters, and SLF search. Therefore, no tribal cultural resources that have been 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 PRC Section 5024.1, would be impacted by the Project and no mitigation is required. No impact would occur.

XIX. Utilities and Service Systems

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
XIX. UTILITIES AND SERVICE SYSTEMS — 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?	☐	☐	☒	☐
b) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?	☐	☐	☒	☐
c) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	☐	☐	☒	☐
d) Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?	☐	☐	☒	☐
e) Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?	☐	☐	☐	☒

Discussion

a) **Less than Significant Impact.** The proposed Project may require limited use of potable water and/or recycled water during construction activities. Water required for dust suppression would be obtained from a recycled water support truck or from the existing water or recycled water lines located within the WWTP site. New water facilities or expansion of existing facilities would not be required to support this use. Additionally, the proposed Project would not require natural gas or telecommunications facilities. The site is currently being used as a WWTP and once the new facility upgrades are constructed the Project would require additional electrical service; however, the Project would not require the new substation to support the new electrical demand. The Project does not require any new utilities beyond what is currently onsite.

The proposed Project is the construction of a new upgrades to support advanced treatment at the existing WWTP within the same footprint as the current WWTP and approximately 3.44 acres to the north of the WWTP. The Project would not require the construction or expansion of a water or wastewater facility. Further, the proposed Project would not substantially alter the local drainage pattern of the Project site. During operation of the proposed Project's maintenance building would generate minor amounts of wastewater that would be treated at the existing WWTP, and therefore would not exceed wastewater treatment requirements. In addition, surface water generated by storms or by construction activities would be collected by existing and temporary onsite drainage systems and directed to the existing storm drains. Compliance with the permit conditions would ensure that all RWQCB requirements would not be exceeded. Therefore, the implementation of the

proposed Project would not require new or expanded stormwater drainage systems. Less than significant impacts would occur.

b) **Less than Significant Impact.** No new or expanded entitlements are necessary for operation of the Project as the existing WWTP would remain. The current treatment plant water supply is sufficient to serve the new Project improvements. Therefore, Project impacts pertaining to sufficient water supplies available to serve the Project would be less than significant.

c) **Less than Significant Impact.** The proposed Project would result in the generation of wastewater associated with temporary use of portable toilets during construction. During Project implementation, NORSD or the contractor may have portable toilet facilities available onsite temporarily for use by construction workers. Given the relatively small construction workforce for a temporary construction period, this amount of waste would be minimal. Once the construction phase is over, such portable facilities would be removed and the wastewater properly handled and disposed in accordance with all applicable laws and regulations.

During operation of the proposed Project, the Project maintenance building would generate minor amounts of wastewater that would be treated at the upgraded WRRF. Impacts would be less than significant.

d) **Less than Significant Impact.** Solid waste generated during construction would potentially include soils that are suitable for reuse and would be reused on site. Construction debris would also include vegetation from clearing agricultural land for the required WRRF expansion, concrete, and other miscellaneous materials. This solid waste generated from construction of the Project would not be expected to exceed the daily maximum capacity of the Bena Landfill, addressed 2951 Neumarkel Road, Bakersfield CA 93307. Upon Project completion, the Project would generate a minimal amount of solid waste as the Project would not require additional employees beyond those currently working at the existing facility. Therefore, Project impacts pertaining to the generation of solid waste as a result of the Project would be less than significant.

e) **No Impact.** The Project would comply with applicable federal, State, and local management and reduction statutes and regulations related to solid waste. As discussed above, construction waste would be recycled, salvaged, or disposed in accordance with the City of Shafter Municipal Code Chapter 8.16, *Solid Waste, Recyclable Materials and Organic Waste*, and the Kern County Municipal Code Chapter 8.28, *Solid Waste* (Kern County 2024, City of Shafter 2022). Therefore, Project impacts related to a conflict with federal, State, and local management, statutes, and regulations pertaining to solid waste would not occur.

References

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XX. Wildfire

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*
XX. WILDFIRE — If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project:				
a) Substantially impair an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	☒
b) Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?	☐	☐	☐	☒
c) Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?	☐	☐	☐	☒
d) Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?	☐	☐	☐	☒

Discussion

a-d) **No Impact.** The Project consists of the expansion of the existing WWTP and would include a new preliminary and liquid treatment process, solid treatment, an administrative and maintenance building, and miscellaneous site improvements. The Project would be constructed and installed within the existing WWTP footprint and on approximately 3.44 acres of land to the north of the WWTP served by the Kern County Fire Services (KCFS). The Project site is not located in a State Responsibility Area (SRA) or a Very High Fire Hazard Severity Zone (VHFHSZ) (CAL FIRE 2023, 2024). Additionally, the Project site is surrounded by agricultural lands, which are irrigated lands, and the probability of a wildfire in the area is minimal. Therefore, the Project does not include the construction of any buildings or structures intended for human occupancy and would not expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires, and impacts would not occur.

References

California Department of Forestry and Fire Protection (CAL FIRE), 2023. Kern County State Responsibility Area Fire Hazard Severity Zones. September 29, 2023. Available online; 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-2022/fire-hazard-severity-zones-maps-2022-files/fhsz_county_sra_11x17_2022_kern_3.pdf?rev=6a1762dc936a43e3b6cd8a89691aad56&hash=87FB25D33BA10F1DE36F26C5B998B421. Accessed June 20, 2024.

CAL FIRE, 2024. Fire Hazard Severity Zones in State Responsibility Area. Available online; https://calfire-forestry.maps.arcgis.com/apps/webappviewer/index.html?id=988d431a42b242b29d89597ab693d008. Accessed June 20, 2024.

XXI. Mandatory Findings of Significance

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

Discussion

a) **Less than Significant with Mitigation Incorporated.** The construction of the proposed Project does not have the potential to affect state and federally special–status species; however, it does have the potential to affect nesting and foraging activities for common avian species protected under the Migratory Bird Treaty Act. However, implementation of Mitigation Measures BIO-1 would ensure that impacts to biological resources are mitigated to a less than significant level.

As a result of the Cultural Resources Assessment, no archaeological resources were identified as being present within the Project Site. Additionally, the archaeological sensitivity assessment indicates that the Project Site has a low potential for encountering buried archaeological resources. However, since the Project includes ground disturbance up to 26 feet in depth, there remains the possibility that unknown archaeological resources potentially qualifying as historical resources as defined in §15064.5 could be encountered. Therefore, Mitigation Measures CUL-1 through CUL-3 shall be implemented in order to reduce potential impacts to unknown archaeological resources qualifying as historical resources to a less than significant level.

Further, excavation for the Project may impact paleontological resources at depth if excavation exceeds the thickness of the young alluvial fans and intersect underlying very old alluvial fans. Because the depth to the base of the alluvium is unknown, excavation during construction has the potential to impact unknown resources. However, implementation of Mitigation Measures GEO-1 through GEO-4 would reduce any potential impacts to paleontological resources to less than significant.

Mitigation Measures:

Implement Mitigation Measures BIO-1, CUL-1 through CUL-3 and GEO-1 through GEO-4

b) **Less than Significant with Mitigation Incorporated**. A cumulative impact could occur if the proposed Project would result in an incrementally considerable contribution to a significant cumulative impact in consideration of past, present, and reasonably foreseeable future projects for each resource area. No direct significant impacts were identified for the proposed Project that could not be mitigated to a less than significant level. However, when combined with other projects within the vicinity, the proposed Project may contribute to a cumulative impact. However, the Project's contribution would not be cumulatively considerable since the construction efforts would be short term, and the proposed Project would be compatible with surrounding land uses and would not add significant traffic, air emissions, or noise to the area.

The proposed Project would involve the construction of new treatment upgrades to an existing water reclamation plant. The Project is located within unincorporated Kern County. There are no projects currently planned to be constructed concurrently with the Project in the immediate vicinity; however, any project that would be constructed concurrently with the upgrades to the WWTP would be required to mitigate any potential impacts. As a result, implementation of mitigation measures during construction of future concurrent projects are expected to reduce impacts to non-significant levels and therefore, would not be cumulatively considerable.

Mitigation Measures:

Implement Mitigation Measures BIO-1, CUL-1 through CUL-3 and GEO-1 through GEO-4

c) **Less than Significant with Mitigation Incorporated**. Based on the analysis of the Project's impacts in the Responses I thru XXI, there is no indication that this Project could result in substantial adverse effects on human beings. While there would be a variety of effects during construction related to biological resources, cultural and paleontological resources, these impacts would be less than significant based on compliance with applicable regulatory requirements and mitigation measures, where applicable. The Project would not have any long-term impacts. With implementation of mitigation measures included in this IS/MND, the proposed Project would not result in substantial adverse effects to humans, either directly or indirectly.

Mitigation Measures:

Implement Mitigation Measures BIO-1, CUL-1 through CUL-3 and GEO-1 through GEO-4

CHAPTER 3
CEQA Plus Considerations

This IS/MND has been prepared in accordance with the CEQA-Plus requirements of the US Environmental Protection Agency (USEPA) to fulfill the requirement of potential federal funding partners to comply with the National Environmental Policy Act (NEPA). Potential federal funding partners could include US Bureau of Reclamation (USBR) or the State Water Resources Control Board (SWRCB) through the State Revolving Fund (SRF) Loan Program, both of which provide funding for construction of publicly owned treatment facilities and water reclamation projects. This funding for capital improvements to wastewater treatment and water recycling facilities is authorized under the federal Clean Water Act. The CEQA-Plus requirements have been established by the USEPA and are intended to supplement the CEQA Guidelines with specific requirements for environmental documents acceptable to the USBR or SWRCB when reviewing applications for wastewater treatment facility loans. They are not intended to supersede or replace the CEQA Guidelines. In order to qualify for federal loan programs administered by the USBR or the SWRCB, the proposed Project must comply with the following federal cross-cutting regulations:

- Archaeological and Historic Preservation Act
- Clean Air Act
- Coastal Barriers Resources Act
- Coastal Zone Management Act
- Endangered Species Act
- Environmental Justice Executive Order
- Farmland Protection Policy Act
- Fish and Wildlife Conservation Act
- Floodplain Management
- Magnuson-Stevens Fishery Conservation and Management Act
- Migratory Bird Treaty Act
- National Historic Preservation Act
- Protection of Wetlands
- Rivers and Harbors Act
- Safe Drinking Water Act
- Wild and Scenic Rivers Act

Compliance with the federal laws and relevant executive orders are described below in Sections 3.1 and 3.2. In summary, the proposed Project complies with those laws and executive orders, with further evidence provided in other sections of this IS/MND as cross-referenced below.

3.1 Federal Regulations

3.1.1 Archaeological and Historic Preservation Act

The Archaeological and Historic Preservation Act (AHPA) also known as the Archaeological Recovery Act was passed and signed into law in 1974. The AHPA required that Federal agencies provide for "… the preservation of historical and archeological data (including relics and specimens) which might otherwise be irreparably lost or destroyed as the result of … any alteration of the terrain caused as a result of any Federal construction project of federally licensed activity or program (Section 1)" (NPS 2020). The impetus for AHPA was the destruction of archaeological sites throughout the country, frequently by actions funded or otherwise supported by Federal agencies, but not covered by the Reservoir Salvage Act, which required archeological salvage as part of dam projects (NPS 2020). The AHPA built upon the national policy, set out in the Historic Sites Act of 1935, "… to provide for the preservation of historic American sites, buildings, objects, and antiquities of national significance …" The AHPA expanded the policy by focusing attention on significant resources and data, but does not require that they be shown to be of "national" significance. The connection between the 1935 statute and the AHPA is mentioned explicitly in the first section of the statute (NPS 2020).

Compliance with the National Historic Preservation Act (see below), and particularly the implementing regulations for Section 106, as discussed in Section 2 of this IS/MND for *Cultural Resources* and *Tribal Cultural Resources*, fulfill the requirements of the AHPA.

3.1.2 Clean Air Act

The federal Clean Air Act (CAA) requires the USEPA to identify National Ambient Air Quality Standards (NAAQS) to protect public health and welfare. NAAQS have been established for ozone, carbon monoxide, nitrogen dioxide, sulfur dioxide, PM10, PM2.5, and lead. Pursuant to the 1990 FCAA Amendments, the USEPA classifies air basins (or portions thereof) as "attainment" or "nonattainment" for these criteria air pollutants, based on whether or not the NAAQS have been achieved. The CAA requires each state to prepare a State Implementation Plan (SIP), which is an air quality control plan that includes pollution control measures for states that violate the NAAQS. Clean Air Act compliance is described in Section 2 *Air Quality*. CEQA-Plus requirements include a CAA general conformity analysis for projects in a federal nonattainment area or an attainment area subject to a SIP. A conformity determination is required for each criteria pollutant or precursor where the total of direct emissions of the criteria pollutant or precursor in a federal non-attainment or maintenance area would equal or exceed specified annual emission rates, referred to as "de minimis" thresholds. The San Joaquin Valley Air Basin (SJVAB)is designated under federal ambient air quality standards as nonattainment for ozone, PM10, and PM2.5 as explained in Section 2 *Air Quality*. As demonstrated in Section 2, *Air Quality*, Tables 2-1 through 2-3, the proposed Project would not result in emissions that exceed established thresholds for ozone, PM10, and PM2.5. As a

result, a CAA general conformity analysis is not required. All impacts to air quality would be less than significant without the need for mitigation measures.

3.1.3 Coastal Barriers Resources Act

The Coastal Barriers Resources Act (CBRA) was enacted in 1982 to designate relatively undeveloped coastal barriers along the Atlantic, Gulf of Mexico, Great Lakes, US Virgin Islands, and Puerto Rico coasts as part of the John H. Chafee Coastal Barrier Resources System (CBRS). Those areas became ineligible for most new federal expenditures and financial assistance in order to discourage development such as federal flood insurance (USFWS 2019). The goals of the CBRA are to minimize loss of human life by discouraging development in high-risk areas, to reduce wasteful expenditure of federal resources, and to protect the natural resources associated with coastal barriers (USFWS 2020). There are no designated Coastal Barrier Resources System in California. Additionally, the proposed Project does not propose any development associated with coastal barriers. Therefore, this Act is not applicable to the proposed Project, and no impact would occur.

3.1.4 Coastal Zone Management Act

Section 307 of the Coastal Zone Management Act (CZMA) requires activities approved or funded by the federal government that affect any land or water use or natural resource of a state's coastal zone be consistent with the enforceable policies of the state's federally approved coastal management program. California's federally approved coastal management program consists of the California Coastal Act, the McAteer-Petris Act, and the Suisun Marsh Protection Act. The California Coastal Commission (CCC) implements the California Coastal Act and the federal consistency provisions of the CZMA for activities affecting coastal resources outside of San Francisco Bay. The proposed Project does not lie within a State Coastal Zone and would not result in impact to coastal zone natural resources. Therefore, this Act is not applicable to the proposed Project, and no impact would occur.

3.1.5 Endangered Species Act

The purpose of the Endangered Species Act (ESA) is to protect and recover imperiled wildlife and plant species and the habitats/ecosystems upon which they depend for survival. To comply with the ESA, a proposed Project analyzed the project's effects on threatened and endangered species, as well as any critical habitat designated for any of the species. If a listed species may be adversely affected by a project, USBR or SWRCB staff will confer with the USFWS to inform these agencies of project impacts to any federally listed species or critical habitat. If USFWS staff determine the project will adversely impact a federally listed species or designated critical habitat, formal consultation is initiated, where USEPA assumes the role as the lead agency. This IS/MND includes the documentation to disclose the proposed Project's effects on special-status species and compliance with the federal ESA in Section 2, *Biological Resources*.

3.1.6 Farmland Protection Policy Act

The purpose of the Farmland Protection Policy Act (FPPA) is to minimize the extent to which federal programs contribute to the unnecessary and irreversible conversion of farmland to nonagricultural uses. It additionally directs federal programs to be compatible with state and local policies for the protection of farmlands. For the purpose of the FPPA, farmland includes Prime Farmland, Unique Farmland, and Land

of Statewide or Local Importance. Projects are subject to FPPA requirements if they may irreversibly convert farmland (directly or indirectly) to nonagricultural use and are completed by a federal agency or with assistance from a federal agency (NRCS 2020). As discussed in Section 2, Agriculture and Forestry Resources, the Project would result in the conversion of Unique Farmland to non-agricultural use. However, the Project would be on land already in urban development or used for water storage. As such, the project would not be subject to the FPPA.

3.1.7 Fish and Wildlife Conservation Act

The Fish and Wildlife Conservation Act declares that fish and wildlife are of ecological, educational, esthetic, cultural, recreational, economic, and scientific value to the United States. The purposes of this Act are to encourage all federal departments and agencies to utilize their statutory and administrative authority, to the maximum extent practicable and consistent with each agency's statutory responsibilities and to conserve and to promote conservation of non-game fish and wildlife and their habitats. Another purpose is to provide financial and technical assistance to the states for the development, revision, and implementation of conservation plans and programs for nongame fish and wildlife. This IS/MND evaluates any potential for the proposed Project to affect fish and wildlife in Section 2, *Biological Resources*.

3.1.8 Magnuson-Stevens Fishery Conservation and Management Act

The Magnuson-Stevens Fishery Conservation and Management Act (MSA) is the principal law governing marine fisheries in the United States. First enacted in 1976, it was adopted to create a US fishery conservation zone out to 200 nautical miles off the United States coast, to phase out foreign fishing activities within this zone, to prevent overfishing, to allow overfished stocks to recover, and to conserve and manage fishery resources. MSA requires federal agencies to consult with the National Oceanic and Atmospheric Administration (NOAA) Fisheries when their actions or activities may adversely affect habitat identified by federal regional management councils as Essential Fish Habitat (EFH). The MSA defines EFH as “those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity” (NOAA Fisheries 2020). The proposed Project would have no adverse impact on the marine environment or EFH in the Pacific Ocean. Therefore, the MSA is not applicable to the proposed Project, and no impact would occur.

3.1.9 Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) is the domestic law that affirms, or implements, a commitment by the United States to four international conventions (with Canada, Mexico, Japan, and Russia) for the protection of a shared migratory bird resource. The MBTA makes it unlawful at any time, by any means, or in any manner to pursue, hunt, take, capture, or kill migratory birds. The law also applies to the removal of nests occupied by migratory birds during the breeding season. The MBTA makes it unlawful to take, pursue, molest, or disturb these species, their nests, or their eggs anywhere in the United States. This

IS/MND evaluates any potential for the proposed Project to affect migratory birds in Section 2, *Biological Resources*.

3.1.10 National Historic Preservation Act

CEQA-Plus requires compliance with Section 106 of the National Historic Preservation Act (NHPA). Consultation with the State Historic Preservation Officer (SHPO) is required to demonstrate/confirm that Section 106 compliance has been achieved. This IS/MND and the administrative record includes the information and documentation that is required to provide to the SHPO to initiate the Section 106 consultation, including, (1) identification of the proposed project's Area of Potential Effects (APE), (2) cultural records searches for the APE at the appropriate Information Centers, (3) documentation of Native American consultation, (4) cultural resources field surveys of the APE, (5) evaluations of elements of the built environment in and around the APE that are eligible for the National Register of Historic Places, and (6) Determination of Eligibility for any cultural resources that cannot be avoided during project construction. As discussed in Section 2, *Cultural Resources* and *Tribal Cultural Resources,* the proposed Project would not have an adverse effect to historic resources or tribal cultural resources.

3.1.11 Rivers and Harbors Act

Section 9 of the Rivers and Harbors Appropriation Act of 1899 (33 U.S.C. 403; Chapter 425, March 3, 1899; 30 Stat. 1151), commonly known as the Rivers and Harbors Act of 1899, prohibits the construction of any bridge, dam, dike, or causeway over or in navigable waterways of the United States without Congressional approval. Under Section 10 of the Act, the building of any wharfs, piers, jetties, and other structures is prohibited without Congressional approval, and excavation or fill within navigable waters requires the approval of the Chief of Engineers. The proposed Project does not entail the construction of any wharfs, piers, or jetties, nor is the proposed Project located on a federally designated navigable water. As such, this Act is not applicable to the proposed Project, and no impact would occur.

3.1.12 Safe Drinking Water Act

The Safe Drinking Water Act (SDWA) was established to protect the quality of drinking water in the United States. The SDWA focuses on all waters actually or potentially designed for drinking uses, whether from above ground or underground sources. The principal federal agency involved in drinking water regulation is the USEPA. USEPA is responsible for implementing federal drinking water law and setting national drinking water requirements. The proposed Project would upgrade and expand the existing WWTP and would not produce drinking water. Refer to Section 2, *Hydrology and Water Quality* for a discussion on project impacts to surface and groundwater.

3.1.13 Wild and Scenic Rivers Act

The Wild and Scenic Rivers Act was created in 1968 to protect and preserve the special character of certain rivers with outstanding natural, cultural and recreational values and recognize their appropriate use and development. Section 5(d)(1) of the Wild and Scenic Rivers Act lists interim protection measures for eligible or suitable rivers. For a river to be eligible for designation in the National Wild and Scenic River System, it must have one or more outstandingly remarkable river values. There are no Wild and Scenic

Rivers located within the project area (National Wild and Scenic River System 2024). Therefore, this Act is not applicable to the proposed Project, and no impact would occur.

3.2 Executive Orders

3.2.1 Floodplain Management, Executive Order No. 11988

Executive Order 11988 requires federal agencies avoid, to the extent possible, the long and short-term adverse impacts associated with the occupancy and modification of flood plains and to avoid direct and indirect support of floodplain development wherever there is a practicable alternative (FEMA 2020a). The flood zones in the project area are discussed in this IS/MND in Section 2, *Hydrology and Water Quality*.

3.2.2 Protection of Wetlands, Executive Order No. 11990, as Amended by Executive Order No. 12608

Under this Executive Order No. 11990, each Federal agency takes action to minimize the destruction, degradation, or modification of wetlands and enhance the natural and beneficial values of wetlands. The Executive Order also directs the avoidance of direct or indirect support of new construction in wetlands and public involvement throughout the wetlands protection decision-making process (HUD 2020). Impacts to wetlands in the project area are considered in this IS/MND in Section 2, *Biological Resources*.

3.2.3 Environmental Justice, Executive Order No. 12898

Under Executive Order 12898, federal agencies are directed to make achieving environmental justice a part of their mission by identifying and addressing, as appropriate, disproportionately high adverse human health or environmental effects of its activities on minority and low-income populations (FEMA 2020b). Per Executive Order 12898, each Federal agency must make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health, environmental, economic and social effects of its programs, policies, and activities on minority and low-income populations, particularly when such analysis is required by NEPA. The Executive Order emphasizes the importance of NEPA's public participation process, directing that each Federal agency shall provide opportunities for community input in the NEPA process. Agencies are further directed to identify potential effects and mitigation measures in consultation with affected communities.

For the purposes of this EIR and consistency with NEPA and CEQA-Plus Guidelines, applicable local plans, and agency and professional standards, the proposed Project would be considered to have a significant effect on environmental justice if it would affect the health or environment of minority or low-income populations disproportionately. Minority populations are identified where the “total minority population,” which for this analysis is considered to include all residents who reported their race and ethnicity as anything other than non-Hispanic white to the US Census Bureau, is greater than 50 percent, in accordance with the federal Council on Environmental Quality (CEQ) guidelines for environmental justice analyses (CEQ 1997). The CEQ environmental justice guidance encourages agencies to identify low-income populations using the annual statistical poverty thresholds (CEQ 1997). For the City of Shafter census tract, non-Hispanic white accounts for 16.3 percent of the population, making the total minority population over 50 percent (US Census Bureau 2024). For the City of Shafter, approximately 21.3 percent of the population lives below the poverty threshold (US Census Bureau 2024). The proposed Project would

upgrade/modify facilities at the existing WWTP that is isolated and surrounded by agricultural fields. Other than the temporary construction impacts associated with upgrading the facility, no aspect of project construction or operation would directly affect any communities. As explained in Section 2, *Mandatory Findings of Significance*, the proposed Project would not result in adverse effects to humans or their environments. Therefore, the proposed Project would not disproportionately affect the health or environment of any minority or low-income populations.

3.3 References

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Appendix A

Technical Memorandum – Facility Plan

TECHNICAL MEMORANDUM 9

FACILITIES PLAN

Water Resource Recovery Facility Expansion Project Phase 1

Woodard & Curran
530 Technology Drive, Suite 100
Irvine, CA 92618
800.426.4262

woodardcurran.com

0012109.00
North of River Sanitary District
April 2024

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TABLES

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APPENDICES

GLOSSARY OF ABBREVIATIONS

ACI	American Concrete Institute
ADF	Average Daily Flow
BASIN PLAN	Tulare Lake Basin
BOD	Biochemical Oxygen Demand
CARB	California Air Resources Board
CEPT	Chemically-Enhanced Primary Treatment
CEQA	California Environmental Quality Act
CFM	Cubic Feet per Minute
CSA 71	County Service Area 71
CWSRF	Clean Water State Revolving Fund
DAF	Design Average Flow
DDW	Division of Drinking Water
EC	Electrical Conductance
EIR	Environmental Impact Report
EPA	U.S. Environmental Protection Agency
FT/SEC	Feet/Second
FEMA	Federal Emergency Management Agency
GC	General Contractor
GPCD	Gallons per Capita per Day
GPD	Gallons per Day
HDPE	High-Density Polyethylene
H_2S	Hydrogen Sulfide
ISRF	Infrastructure State Revolving Fund
KV	Kilovolt
MBR	Membrane Bioreactors
MCC	Motor Control Center
MG	Million Gallons
MGD	Million Gallons per Day
MG/L	Milligrams per Liter
MLSS	Mixed Liquor Suspended Solids
MM	Millimeter
MW	Megawatts

NEPA	National Environmental Policy Act
NORSD	North of River Sanitary District
NOx	Nitrogen Oxides
NPDES	National Pollutant Discharge Elimination System
OPCC	Opinion of Probable Construction Cost
PFAS	Per- and Polyfluoroalkyl Substances
PFOA	Perfluorooctanoic Acid
PG&E	Pacific Gas and Electric
PLC	Programmable Logic Controllers
PPM	Parts per Million
PV	Photovoltaic
PVC	Polyvinyl Chloride
PVDF	Polyvinylidene Fluoride
RDT	Rotary Drum Thickener
RFP	Request for Proposals
RFQ	Request for Qualifications
ROWD	Report of Waste Discharge
RWQCB	Regional Water Quality Control Board
SB	Senate Bill
SCADA	Supervisory Control and Data Acquisition
SF	Square Foot
SFRE	Single-Family Residential Equivalents
SIP	State Implementation Plan
SJVAPCD	San Joaquin Valley Air Pollution Control District
SSMP	Sanitary Sewer Master Plan
SWRCB	State Water Resources Control Board
TKN	Total Kjeldahl Nitrogen
TM	Technical Memoranda
TN	Total Nitrogen
TPAD	Temperature-Phased Anaerobic Digestion
TSS	Total Suspended Solids
UV	Ultraviolet
VFD	Variable Frequency Drives
V	Volt
VOC	Volatile Organic Compounds

WDR	Waste Discharge Requirement
WIFIA	Water Infrastructure Finance and Innovation Act
WRFP	Water Recycling Funding Program
WRRF	Water Resources Recovery Facility
WWTP	Wastewater Treatment Plant

EXECUTIVE SUMMARY

The North of River Sanitary District (NORSD) provides wastewater collection and treatment for communities north of the Kern River in Kern County, California. The NORSD's wastewater treatment plant (WWTP) has been in operation since 1999. It employs a trickling filter process to produce undisinfected secondary effluent that is used for irrigation of non-human contact crops. Due to growth in the collection system, the WWTP has reached its treatment capacity. NORSD has embarked on the design of an expanded Water Resources Recovery Facility (WRRF) to serve the area's needs through 2050.

Since the fall of 2022, the NORSD has worked with Woodard & Curran to plan the new WRRF. The major components of this effort were organized into seven Technical Memoranda (TM) which are included in Appendix A of this document. This Facilities Plan brings together the recommendations of the previous TMs with additional evaluations and presents a complete 10-percent design and opinion of probable construction cost (OPCC) for the new WRRF.

The new WRRF will be designed to treat the projected 2050 daily average wastewater flow of 10 million gallons per day (MGD) and a peak instantaneous flow of 25 MGD. Though per capita flow rates are forecast to drop over the planning period, the plant will be designed to treat the higher concentrations of pollutants that are anticipated as a result.

The new secondary treatment process will consist of a four-stage biological process coupled with membrane bioreactors to meet the effluent nitrogen limit of 10 milligrams per liter (mg/L) that will come into effect with the new plant expansion. This process will reliably produce a high-quality effluent to facilitate future treatment to California Title 22 reuse standards, allowing for expanded opportunities for beneficial reuse of effluent. In addition, the existing headworks, grit removal, and primary clarifier facilities will be retained and expanded.

Solids generated by the new secondary process will be concentrated using mechanical thickening. Combined primary and secondary solids will be stabilized using single-stage mesophilic digestion, a robust process that is familiar to the current operators and in wide use in California. Screw press dewatering will be retained and expanded, as will the storage beds. The current practice of land application of Class B biosolids on adjacent NORSD-owned land is anticipated to be continued for the foreseeable future.

The new plant will also be designed to take advantage of renewable energy opportunities such as solar photovoltaic (PV) and/or cogeneration using digester gas to offset rising electricity costs.

The new WRRF is anticipated to have a staff level between 14 and 16 full-time employees including operations, maintenance, and lab personnel. These staff will be housed in a new administration building which will include offices, meeting spaces, and an expanded laboratory. A new maintenance facility will also be constructed and the existing administration building will be repurposed for showers and lockers.

The 10-percent cost opinion for the new WRRF is shown in the following table:

10-Percent Opinion of Construction and Project Costs

WRRF Component		$ Millions
1	Preliminary Treatment	13
2	Liquids Treatment	56
3	Solids Treatment	23
4	Admin and Maintenance Buildings	4
5	Misc Site Improvements	11
Construction Subtotal (2023)		**107**
Contingency, Design (20%)		21
Contingency, Construction (10%)		11
Construction Total (2023)		139
Construction Escalation to Mid-Point of Construction (2026, 18%)		25
Construction Total		**164**
Design Engineering Fee (7%)		12
Construction Administration Fee (8%)		13
Permitting, Fees, Other Non-NORSD Admin (1%)		2
Total Estimated Project Costs		**190**
Estimated Project Cost Range (AACE Level 4):		
Low End (-15%)		162
High End (+20%)		228

1. INTRODUCTION AND BACKGROUND

The North of River Sanitary District (NORSD) was created in 1940 to provide wastewater collection and treatment for communities north of the Kern River in Kern County, California. The District currently serves the unincorporated community of Oildale, the City of Shafter, and the northern portion of County Service Area 71 (CSA 71), which includes portions of the City of Bakersfield. The service area is primarily residential and commercial with a few industrial users that produce significant wastewater flows.

The NORSD collection system consists of approximately 174 miles of sewer lines ranging in size from 6 to 54 inches. The collection system also includes a total of five lift stations. Raw wastewater from the service area flows to the NORSD's wastewater treatment plant (WWTP) through an 18-mile-long gravity Outfall Sewer. Capacity agreements give the Shafter the right to 3 of the 12 million gallons per day (MGD) capacity of the lower five miles of Outfall Sewer.

The original NORSD WWTP was located near Oildale and provided secondary treatment and disinfection for an average daily flow (ADF) of 5.5 MGD of wastewater. Treated wastewater was originally used to irrigate surrounding agricultural lands. In 1991 an outfall sewer was constructed to convey effluent to unlined storage ponds and irrigation sites 18 miles west of the City. In 1999 NORSD completed construction of their current WWTP adjacent to the storage ponds. The new plant was rated for 5.88 MGD ADF, the old plant was abandoned. The 1999 construction included a headworks facility with course screening and influent pumping, one primary clarifier, one plastic media trickling filter, one secondary clarifier, two-stage mesophilic digestion, and 14 sludge beds. During irrigation season, treated effluent is pumped from the ponds and applied to 3,490 acres of feed and fodder crops. 640 acres of this are owned by NORSD and the remainder is privately-owned. Sludge is disposed of as Class-B biosolids and is permitted on 450 acres of NORSD-owned land surrounding the WWTP.

The existing WWTP has been upgraded several times since 1999. In 2002, NORSD added a teacup-style grit removal system. In 2005 a cogeneration unit (using microturbines) was installed to utilize the anaerobic digester gas to produce power. The cogeneration unit is not currently operational. In 2006, the existing WWTP was expanded to its current capacity of 7.5 MGD ADF by replacing the influent bar screens, adding a ferric chloride feed system to allow for chemically-enhanced primary treatment (CEPT) and adding a Stamford baffle to the second clarifier. The City of Shafter contributed to the cost of the improvements to maintain their ownership of one-third the capacity of the WWTP. In 2013, a screw press was added to dewater the sludge and three of the beds were lined to provide long-term storage of the dewatered material. The most recent upgrade was in 2017 and included replacement of the trickling filter rotary distributor arm and two influent pumps in the headworks facility.

Due to the increasing population of the service area, the existing plant has reached its capacity and is challenged to treat the incoming biochemical oxygen demand (BOD) load. In order to continue to provide treatment for the growing communities it serves, NORSD has begun planning for a significant upgrade to the plant. The upgrade will be designed for projected growth through 2050. In addition to expanding capacity, the upgrade will also add the ability to remove nitrogen to meet the anticipated permit limit of 10 milligrams per liter (mg/L) total nitrogen that will come into effect when the plant is expanded. NORSD has the following additional goals for the new facility:

- Producing a higher quality effluent to allow for expanded beneficial reuse opportunities in the future, including irrigation of higher value crops,groundwater recharge, or other potential beneficial uses.
- Positioning NORSD to take advantage of renewable energy opportunities such as solar photovoltaic (PV) or cogeneration to offset rising electricity costs.
- Maximizing efficiency of the available workforce through improved personnel facilities and the use of supervisory control and data acquisition (SCADA) and automation.

Since the fall of 2022, the NORSD has worked with Woodard & Curran to plan a new Water Resource Recovery Facility (WRRF) that best meets these goals. The planning/preliminary design efforts to date have been organized into seven Technical Memoranda (TM) which describe the detailed evaluations and recommendations for various aspects of the WRRF. The purpose of each TM is summarized below and included in Appendix A of this report. Note there is no TM#2:

- *TM#1 Flows, Loads, and Effluent Requirements*: Established design basis assumptions for the 10-percent design based on existing information. This TM also proposed additional influent sampling to inform the final design.
- *TM#3 Evaluation of Liquid Treatment Process Alternatives*: Recommended a four-stage activated sludge process with membrane bioreactors to provide reliable secondary treatment, nitrogen removal, and produce a high-quality effluent to prepare NORSD for possible future treatment to meet Title 22 reuse standards.
- *TM#4 Evaluation of Solids Treatment Process Alternatives*: Recommended single-stage mesophilic digestion for solids stabilization as well as separate mechanical thickening for waste-activated sludge. TM#4 also recommend continued use of screw presses, sludge storage in the beds, and land application.
- *TM#5 Energy Master Plan*: Evaluated energy management and generation alternatives and recommended several strategies to carry forward for more detailed evaluation: solar PV with battery storage, beneficial use of biogas for cogeneration or vehicle fueling, co-digestion of high strength wastes to increase biogas production, and energy efficiency and demand management.
- *TM#6 Tertiary and Advanced Treatment Considerations:* Summarized the range of reuse opportunities available to NORSD and treatment requirements to ensure allocation of sufficient space on the WRRF site for future facilities.
- *TM#7 Operations and Staffing Plan:* Proposed a staffing level of 14 to 16 full-time employees including operations, maintenance and lab personnel for the new WRRF.
- *TM#8 Space Planning and Architectural Programming*: Proposed conceptual layouts and sizing for new administration and maintenance buildings.

This Facilities Plan brings together the recommendations of the previous TMs with additional evaluations and presents a complete 10-percent design and opinion of probable construction cost (OPCC) for the new WRRF. This Plan consists of the following sections:

- Section 1: This section presents background information including a summary of related studies and an update to flows and loads information previously presented in TM#1.

- Section 2: This section describes the 10-percent design for treatment processes at the new WRRF. It incorporates recommendations from TM#3 and TM#4, and presents additional recommendations for the headworks, grit removal, primary treatment, and ancillary processes including headworks hydrogen sulfide (H_2S) treatment, chemical feed, and plant drain pumping.
- Section 4: This section presents 10-percent design concepts for supporting engineering disciplines including traffic circulation, stormwater, and electrical distribution.
- Section 5: This section presents the 10-percent OPCC as well as estimated range for the total project cost including engineering and construction services. It also discusses project implementation considerations including construction sequencing, procurement strategies, funding, permitting, and the overall anticipated project schedule.

1.1 Summary of Related Work

There are a number of planning efforts that NORSD has engaged in over recent years that are related to this Facilities Plan. These are summarized below and referenced throughout the various TMs:

- AECOM, *Master Sewer Plan Update*, March 2018. This document performed a high-level evaluation of the collection system and WWTP. It projected a buildout wastewater flow rate of 27.6 MGD for the service area. To keep up with the increasing flow, construction of a new conventional activated sludge plant was recommended. The plant would initially provide 12 MGD of capacity, with subsequent expansions in 6 MGD increments to an ultimate capacity of 30 MGD. The project cost for the initial 12 MGD upgrade was estimated to be $85 million including contingency, engineering, and construction management.
- Provost & Pritchard Consulting Group, *NORSD Recycled Water Study*, December 2019. This study evaluated a broad range of potential end uses for recycled water and developed preliminary cost estimates for plant upgrades (beyond those recommended in the 2018 Master Sewer Plan Update) needed to meet the water quality requirements of each end use. The resulting recommended project was for reuse of disinfected secondary recycled water with nitrogen removal on non-food crops or crops that do not come in direct contact with the recycled water (such as citrus or pistachios). The project cost for the initial 12 MGD upgrade was estimated to be $96 million including contingency, engineering, and construction management. Comparative cost estimates were also developed for reuse of tertiary disinfected recycled water with nitrogen removal on high value food crops (such as almonds). This alternative for the initial 12 MGD upgrade was estimated to be $132 million including contingency, engineering, and construction management.
- AECOM, *Memorandum: NORSD WWTP Capacity Review*, February 2021. This memo examined influent flow and loading conditions and concluded that, while the average influent flow had increased only marginally from 5.6 to 5.8 MGD between 2012 and 2020 and remained well below the theoretical design capacity of 7.5 MGD, the population had increased considerably resulting in loadings that were approaching design conditions. Considering aging equipment and anticipated additional population growth, the memo recommended that NORSD begin planning for expansion of the WWTP.
- Woodard & Curran, *NORSD, Recycled Water Opportunities Study*, January 2022. This study, conducted after adoption of the Groundwater Sustainability Plan, built on the 2019 Recycled Water Study to further define end users and end-use requirements for tertiary disinfected recycled water. The technical feasibility, regulatory permitting requirements, and preliminary cost of both

agricultural irrigation end use and groundwater recharge were evaluated. An initial screening of eight nearby water districts resulted in a short-list of three districts for more detailed analysis. The District held a series of exploratory meetings with Semitropic Water Storage District, Rosedale-Rio Bravo Water Storage District, and Shafter-Wasco Irrigation District to identify current and projected water supply deficits, areas reliant on groundwater for irrigation, and existing conveyance and recharge infrastructure. All three districts expressed interest in a potential water reuse partnership. Concept level project descriptions and preliminary cost estimates were prepared to provide a basis for further discussions.

- Ardurra, *Sanitary Sewer Master Plan Final Draft*, December 2022. The primary focus of the Sanitary Sewer Master Plan (SSMP) was assessing capacity and condition of the NORSD collection system (sewers and pump stations) and developing an updated capital improvement plant. Relevant to the WRRF expansion project, the SSMP estimated future and buildout populations and sewage flows for the service area. The daily average sewage flows in the design year of 2050 were estimated to be between 10.0 and 11.7 MGD depending on water conservation.
- Carollo, *SCADA Master Plan*, 2023. Pending receipt from NORSD.

1.2 Flows & Loads

The draft TM#1 issued in November 2022 summarized available flow and load information and made preliminary estimates of design values which were used to complete the 10-percent design. Since then, additional information has become available:

- Ardurra submitted the final draft of their *Sanitary Sewer Master Plan* (SSMP) in December 2022 including population and flow projections for the NORSD service area through the design year of 2050.
- Historic amounts of rainfall in the Bakersfield area in the winter of 2022-2023 provided an opportunity to further evaluate wet weather peak flow.
- Since September of 2022 NORSD has been regularly collecting and analyzing samples of raw influent to the WWTP and has also taken samples in the collection system. Results from this work provide a more accurate assessment of raw wastewater characteristics.

A full analysis of this information was presented in the final version of TM#1, which was issued in November 2023 and incorporated raw influent sampling data through August 2023. The memo included final flow and load projects to be used as a basis for final design of the new WRRF. The following paragraphs present some initial findings from the new information.

This section provides an update to TM#1 based on this new information. This updated information will be incorporated in the 30-percent design to establish final flows and loads prior to final sizing of treatment processes.

1.2.1 Projected Wastewater Flow Rates

The SSMP includes population projections for the NORSD service area through the WRRF design year of 2050. Based on these projections, the SSMP projected that the average wastewater flow rate would increase from the current value of 5.6 MGD to a design average flow (DAF) of between 10.0 and 11.7 MGD in 2050 depending on water conservation, and roughly double again to between 17.6 and 22.8 MGD at buildout.

This represents a significant drop from the building flow of 27.6 MGD estimated in the 2018 *Master Sewer Plan Update* (AECOM).

Future flows were estimated using the same methodology as past sewer plans: calculating future single-family residential equivalents (SFRE) based on project land use and assigning a wastewater generation rate to new development. This method accounts for flows from residential, commercial, industrial, and institutional sources. To calculate the higher future flow rate scenario, the 2022 SSMP assumed a generation rate of 220 gallons per day (gpd) per SFRE for new development. This is considerably lower than the 300 gpd/SFRE used in the 2013 and 2018 sewer plans (AECOM, 2018), but notably still higher than the current system-wide generation rate of 195 gpd/SFRE. The lower future flow rate scenario assumed that all new development would meet the 2030 target of 42 gallons per capita per day (gpcd) required by California Senate Bill (SB) 1157. Based on an average household size of 3.5 persons/SFRE, the SSMP used 147 gpd/SFRE for new development in the lower-flow scenario.

The projected flows presented above assume that the contribution from Shafter remains capped at 3 MGD, which is the amount of capacity they own in the Outfall Sewer. Any flows in excess of 3 MGD would require construction of additional conveyance capacity at Shafter's expense.

As noted in the 2021 *Capacity Review* (AECOM), average flow to the NORSD WWTP increased only slightly from 5.6 to 5.8 MGD between 2013 and 2020, despite population growth. Woodard & Curran has observed similar treads at other California wastewater utilities. It is anticipated that per-capita wastewater flows will continue to drop in response to ongoing conservation efforts including SB 1157. For this reason, the NORSD Board decided in July 2023 to move forward with the lower projected average flow of 10 MGD as the design basis for the new plant, however the WRRF will be designed to treat the organic load associated with the increased population.

1.2.2 Peak Flow

Peak flow is a critical parameter for sizing hydraulically limited processes on the forward flow path including screens, pumping, and grit removal, as well as hydraulic structures including pipes, channels, and distribution structures. Peak flow is also particularly important for sizing the membrane bioreactors (MBRs), whose peak flux rate represents a hard limit on peak flow that cannot be exceeded.

The draft of TM#1 calculated a current peaking factor of 2.5 for the peak instantaneous flow based on the two highest daily maximum flow readings taken since 2017 and chose a peaking factor of 3.0 as a conservative estimate for design peak wet weather flow.

Historic storm events in the Bakersfield area in the winter of 2022-2023 provided an opportunity to further evaluate wet weather peak flow. During this period, NORSD was able to keep up with influent flows at the maximum pumping rate of 12.4 MGD. During one storm, operators observed that the wetwell level increased from the typical depth of 7.6 feet to 9 feet. Assuming that the level instrument is zeroed properly, this change represents an additional stored volume of only 20,000 gallons in the wetwell and the influent pipe. If this change in level occurred over an hour it would have shaved roughly 0.5 MGD off the peak flow. This is approximately the same as the 0.6 MGD average return flow that should be subtracted from the measured flow to estimate the pumped raw sewage. The stored flow and return flow roughly balance out, so 12.4 MGD seems to be a reasonable estimate of the actual raw sewage flow during the March storm event. This represents a peaking factor of 2.2 over the daily average flow of 5.7 MGD.

Based on this information, Woodard & Curran feels that the peaking factor of 3.0 selected for preliminary design is overly conservative and recommends that a peaking factor of 2.5 be used for final design. A peaking factor of 2.5 still provides some conservativism for changing future conditions, such as less flow attenuation as growth occurs in areas closer to the plant or increasing storm intensity. This is particularly conservative given that peaking factors are generally understood to decrease as average flow, population, and service area increase.

There are several other justifications for using a peaking factor of 2.5 for design peak instantaneous wastewater flow:

- This would yield a design peak instantaneous flow of 25 MGD, which is near the 27 MGD theoretical capacity of the lowest reach of the outfall sewer (AECOM, 2018, Figure 7-2).
- A peaking factor of 2.5 for the WRRF is consistent with the peaking factor of 2.54 assumed for the outfall sewer (AECOM, 2018, p. 7-1). This peaking factor is more conservative than the 2.0 peaking factor that was used in the 1999 design criteria for the plant but is less than the 3.0 peaking factor that is the NORSD design guideline for sewers (AECOM, 2018). It is logical that the peaking factor for the plant would be less than for pipes in smaller catchments higher up in the collection where there is less flow attenuation.
- A peaking factor of 2.5 is consistent with other wastewater references. The *Guides for the Design of Wastewater Treatment Works* (a.k.a. TR-16, NEIWPCC, 2011), a reference standard used in the Northeast, suggests a peaking factor of 2.5 for peak instantaneous flow for a 10 MGD plant. The *Recommended Standards for Wastewater* (a.k.a. 10-State Standards, Health Research Inc., 2014), which is the reference standard in the Midwest, suggests a peaking factor of 2.0 for peak hour flow for plants serving a population of 100,000.

A final note: the discussion so far has considered only peak instantaneous flow. Wastewater treatment plant design criteria often also include a peak hour flow. Because the NORSD peak flow is subject to attenuation and storage in the Outfall Sewer, and without data to justify a lower peak hour flow, it will be assumed that the peak instantaneous flow can be sustained for several hours. The peak hour flow therefore equals the peak instantaneous flow.

1.2.3 Design Basis Flows

Table 1 presents design basis flows based on the 10 MGD design average flow and the wet weather peaking factor of 2.5 discussed above. Minimum and maximum DAFs are based on peaking factors presented in TM#1 which were calculated from current plant data. Note that the inaccuracies in the plant drain flow meter means that all current flow statistics may be high by several tenths of an MGD.

Table 1: Design Basis Flows

	Current	PF	Design	PF
Minimum Day	5.1	0.9	8.9	0.9
Average Day	5.7	1.0	10	1.0

	Current	PF	Design	PF
Maximum Day	7.6	1.3	13	1.3
Peak Hour Flow	No data available		25[1]	2.5
Peak Instantaneous Flow[1]	12.4	2.2	25	2.5

Notes:
1. Because the NORSD peak flow is subject to attenuation and storage in the Outfall Sewer, and without data to justify a lower peak hour flow, it is assumed that the peak hour flow is equal to the peak instantaneous flow.

1.2.4 Wastewater Concentrations

Table 2 provides a summary and update of basic influent wastewater characteristics for NORSD. Data from historic plant influent sample values that were first reported in TM#1 are shown in the left-hand column. As discussed in TM#1, the plant influent sample includes recycle flows from the secondary clarifier and solids handling processes, and therefore may not be representative of actual raw influent. TM#1 also examined influent concentrations from other facilities in the region, and ultimately chose typical values for medium high strength wastewater (shown in the middle column) as the basis for conceptual designs and costs presented in TM#3 and TM#4 and this Facilities Plan.

Table 2: Summary of Influent Concentrations for Basic Constituents

	Plant Influent Sample[1] Median Values	Medium-High Strength Wastewater	Raw Sewage Sample (MH-2875) Median Values[2]
BOD	263 [1]	300	180
TSS	328[1]	300	250
TKN	51.5[2]	66	37

Notes:
1. Plant influent sample includes plant recycle flows. BOD and Total Suspended Solids (TSS) values are median of daily values from 2019 through 2021. Total kjeldahl nitrogen (TKN) is an average of 10 samples collected in the spring of 2022. These values were previously presented in TM#1.
2. Based on 34 composite samples taken from September 23, 2022 through July 21, 2023.

Since the Draft TM#1 was issued in November 2022, NORSD staff have performed additional sampling of actual raw sewage collected from manhole (MH) 2875. MH-2875 is located near the plant but well upstream of the point where plant recycle flows are introduced and is therefore representative of the raw sewage entering the plant. Between September 23, 2022 and July 21, 2023 plant staff have taken a total of 34 24-hour composite samples from this location. The goal has been to sample biweekly on the same days as the influent sample, though there was a period from January through early March when no samples were taken due to changing labs and repairs to the automatic samplers. The right-hand column in Table 2 above shows median values for results from the raw sewage samples.

The raw sewage from the recent MH-2875 sampling has lower median concentrations for all parameters than was observed in the historic plant data. This is likely due to the impact of high strength recycle flows on the historic samples. The median values of the newer data are consistent with typical medium-strength wastewater, though the BOD is relatively low compared with the total suspended solids (TSS) which may be a result of biological growth in the Outfall Sewer converting soluble BOD into biomass TSS.

The concentrations used for the basis of design for TM#3 and TM#4 appear to be conservative, which means that the conceptual size and associated costs of the bioreactors and solids handling equipment are also likely conservative.

The final version of TM#1 was issued in November 2023 and presented raw influent sampling results through August 2023. These data were used to calculate final current and design influent loads to be used for final design of the new WRRF. The final version of TM#1 will also evaluate the detailed wastewater fractionation data collected by NORSD in 2023. These data will be used to calibrate the biological process model that will help inform design of the bioreactors during final design.

1.3 Effluent Requirements

The NORSD WWTP is regulated under Waste Discharge Requirements Order R5-2009-0088 (WDR), administered by the Central Valley Regional Water Quality Control Board (Regional Board). Effluent limitations listed in the WDR are summarized in Table 3. These include a requirement that with the anticipated expansion, the effluent shall meet a monthly average total effluent nitrogen limit of 10 mg/L. The current tricking filter process will not be able to meet this limit reliably. Note that this limit is based on the current disposal method of crop irrigation.

Table 3: WDR Effluent Limits

Constituent	Units	Monthly Average	Daily Maximum
BOD5	mg/L	40	80
	percent removal (min)	80%	NA
TSS	mg/L	40	80
	percent removal (min)	80%	NA
Chloride	mg/L	175	NA
Total Nitrogen (TN)[1]	mg/L	10	NA
Electrical Conductance (EC)	umhos/cm	source water EC + 500 (12-month rolling average basis)	

Notes:
1. This limit applies "after the expansion of the WWTP is complete."

2. WASTEWATER TREATMENT AND SOLIDS HANDLING PROCESSES

This section presents the 10-percent design concept for the treatment process for the new NORSD WRRF. A site plan for the new WRRF is shown in Figure 1. The design assumptions described herein were used to develop the 10-percent OPCC presented in Section 4 and will also be used as a starting point for the 30-percent design.

2.1 Liquid Treatment Process

Liquid treatment at the new WRRF will consist of preliminary treatment (coarse screens, pumping, and grit removal), followed by primary and secondary treatment. The existing preliminary and primary treatment will be expanded to provide additional capacity. Secondary treatment will consist of an entirely new process designed to meet an effluent Total Nitrogen (TN) limit of 10 mg/L (as nitrogen) and also prepare NORSD for expanded effluent reuse options in the future.

An evaluation of secondary treatment options was performed and is presented in TM#3. TM#3 included a detailed evaluation of four short-listed candidate processes: 1) oxidation ditch, 2) conventional activated sludge, 3) MBR, and 4) mobile-organic biofilm. The MBR process was selected over the other processes largely because of its ability to produce a high-quality effluent that can meet California's Title 22 standards for reuse with minimal additional treatment. MBRs can achieve Title 22 standards without additional filtration and with a smaller ultraviolet (UV) disinfection system. Although this process had the highest present worth cost of the four options for disposal only, it had the lowest life cycle cost when the additional treatment costs of Title 22 for unrestricted reuse were considered. MBR is also a mature technology and is used extensively in California, including installations in Visalia and Irvine Ranch. NORSD toured these facilities and were impressed with the MBR process's robustness to varying influent loads and relative ease of operations and maintenance.

The complete liquid treatment train is shown in Figure 2. Upgrades to preliminary and primary treatment processes were not evaluated in TM#3 as they were common to all alternatives and therefore did not impact the decision of the secondary treatment process. These upgrades are therefore described in detail here. The secondary process is also summarized below for reference; the reader is referred to TM#3 for more detailed information.

Figure 1: Conceptual Site Plan

SCALE IN FEET

0 30 60 120

22x34

Woodard & Curran
888 South Figueroa Street, Suite 1700
Los Angeles, California 90017
213.223.9460 | www.woodardcurran.com

NORSD WRRF Expansion Project

PE SEAL:

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CLIENT INFO:

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Figure 2: Liquids Process Flow Diagram

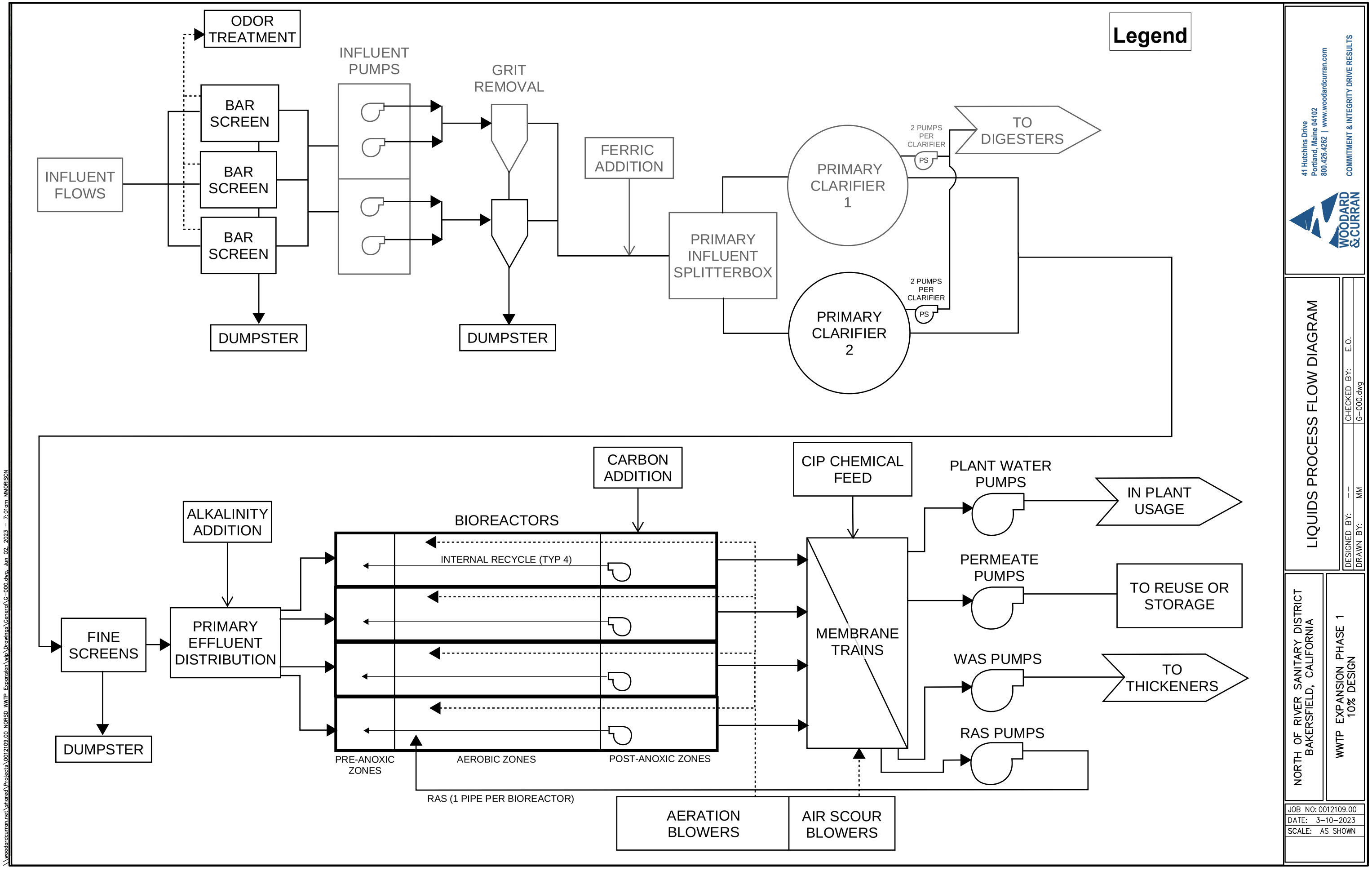


Table 4 summarizes preliminary design data based on conceptual design and preliminary manufacturer information. This information will be revised and finalized during 30-percent design.

Table 4: Liquid Treatment Processes Preliminary Design Data

Coarse Screens	
Type	Mechanical bar screen, multi-rake, front-cleaned with wash-compactor
Quantity	3 new (2 duty + 1 standby)
Bar Opening Size	0.375 in
Unit Width	3 ft (two units) 4 ft (one unit)
Unit Length (Approx.)	34 ft
Influent Pumps	
Type	Non-clog submersible
Flow Capacity, Peak	6,000 gpm (at approx. 50' TDH)
Quantity	4 new (3 duty 1 standby)
Horsepower, Each	110 HP
Discharge Diameter	12 inches
Grit Removal Units	
Type	Vortex
Flow Capacity, Peak	12 MGD
Quantity (Proposed)	2 (1 new, 1 existing)
Grit Removal Performance	95% > 300 microns
Tank Diameter	12 feet
Grit Classifiers	
Quantity	2 (1 new, 1 existing)
Maximum Grit Load	0.47 cubic yards/hour
Primary Clarifiers	
Type	Circular with plow-type sludge collector
Quantity	2 (1 new, 1 existing)
Diameter	100 feet
Surface Overflow Rate At 5.7 mgd Current Average Flow, 1 Units At 10 mgd Design Average Flow, 1 Units At 12.4 mgd Current Peak Flow, 2 Units At 25 mgd Design Peak Flow, 2 Units	 710 gpd/sf 1,580 gpd/sf 640 gpd/sf 1,590 gpd/sf
Fine Screens	
Type	Perforated plate band screen
Quantity	4 (3 duty + 1 standby)
Opening Size	2 mm
Capacity, each	8.4 MGD

Bioreactors	
Type	4-stage Bardenpho
Trains	4
Volume, Each	1.2 MG
Design SRT	8 days
Design MLSS	8,000 mg/L
Mixers	32 (8 per train)
Aeration Diffusers, Type	Fine Bubble
Aeration Blowers	4 (3 duty + 1 standby)
Mixed Liquor Return Pumps	4 (1 per train)
Membranes[1]	
Type	Hollow fiber
Trains	6 (5 duty + 1 standby at design flows)
Racks per Train	26 (plus 3 spare slots)
Modules per Rack	16
Membrane Area Per Module Total Per Tank	 538.2 sqft 223,889 sqft
Membrane Flux Rate, Net (including cleaning time) At 10 MGD Design Average Flow At 25 MGD Design Peak Flow	 8.9 gpd/sf 22.3 gpd/sf
Permeate Pumps	6 (5 duty + 1 standby)
Air Scour Blowers	6 (5 duty + 1 standby)
Return Activated Sludge Pumps	6 (5 duty + 1 standby)
Notes: 1. Membrane data is based on a preliminary proposal from Veolia	

2.1.1 Coarse Screens

The existing headworks include two 3-foot-wide mechanical bar screens and one 4-foot-wide manually cleaned bar rack. Course screening is a critical process for removing trash and debris to protect downstream equipment and will be included in the new WRRF.

Based on a site visit in August 2023 it appears that the bar spacing is approximately 0.5 inches (design data was unavailable). The screens are JWC brand multi-rake, front cleaned with front return, with plastic rakes and linkage-type chains. The screen discharges are equipped with grinders and washer-compactors. Dewatered screenings are deposited in totes which are emptied approximately once per day per screen. The screens were installed as part of the plant expansion in 2006 and NORSD reports that they are approaching the end of their useful life. While on site, it was observed that the screen teeth were not fully engaging with the bars. NORSD reports having to enter the channel and manually clean rags from the screen bars once per year, a procedure that is challenging and requires confined space entry. For the upgrade, NORSD would like to consider a new type of screen with simpler maintenance, including improved cleaning/access for the bars and eliminating the grinders.

The 10% design is based on replacing the existing influent screens with units with a spacing of 0.375 inches which is recommended to remove more material ahead of the fine screens. Preliminary hydraulic modeling indicates that the headworks can accommodate the revised design peak flow of 25 MGD with both mechanical screens on-line. At 25 MGD and a wetwell level of 7.1 feet (the operating level according to the 1999 hydraulic profile) and assuming the screens are 20% blinded, the approach velocity to the screens is estimated to be 2.4 feet per second, which is reasonable. The depth at the end of the Outfall Sewer is below the normal depth, meaning there is no backup into the pipe.

A plant the size of the new WRRF should not rely on manual cleaning for redundancy. Therefore, the manual bar rack will be replaced with a third mechanical screen to provide redundancy at peak flow for this critical process. The third screen is anticipated to be 4-feet wide to make full use of the available channel capacity but could be 3-feet wide to match the other screens if additional clearance is needed. This will be further evaluated as the design progresses.

2.2 Influent Pumps

Influent pumping currently consists of four submersible pumps located in two wetwells. Each wetwell has one 2,500 gpm, 57.6 hp pump and one 4,200 gpm, 75 hp pump. These pumps achieve the current design peak flow of 12 MGD with three pumps running. Operators report that running all four pumps produces a result in a flowrate of roughly 14 MGD.

Replacing the existing pumps with four pumps rated for 6,000 gpm each would achieve the 25 MGD design peak flow with one pump as a standby. Assuming that one pump could turn down to 50% capacity (3000 gpm) this would allow pumping down to 4.3 MGD which is less than the minimum DAF of 5.1 MGD. The plant does not keep records of minimum instantaneous flow.

Figure 3 shows how the proposed larger influent pumps could fit physically into the existing wetwell chambers with minimal modifications, however compliance with hydraulic institute standards and wetwell design practices will need to be evaluated further in 30-percent design. An example submersible pump (in this case a Flygt MP-3315-LT) rated for 6,000 gpm and 50 feet of head is shown to scale and highlighted in yellow in both plan and section view. Note that in the plan view one existing pump is shown for comparison, though the design for the new WRRF includes replacement of both pumps. Pump selection will be further refined in 30-percent design. This will include discussions with manufacturers of the existing pumps to see if there are options for increasing their capacity, such as changing impellers or increasing speed.

Phasing of the pump replacement may better match pumping capacity to the gradual increase in wastewater flow and will be further analyzed during the 30% design phase of the project. Installing just two larger pumps in the current upgrade (one per wetwell) would retain two of the smaller pumps to maintain a greater turndown for low flows. Additional large pumps could be added in the future as peak flows increase.

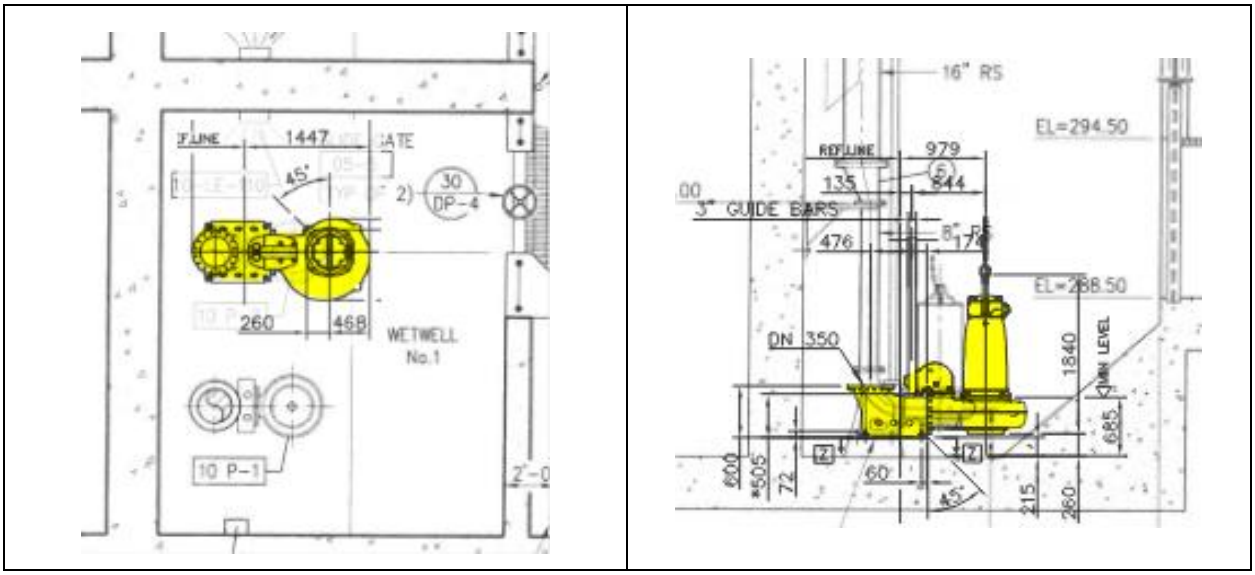
To provide capacity for the design peak flow of 25 MGD, the 10-percent design assumes the addition of a second, parallel influent force main from the influent pumps to the grit removal units. The parallel force main would have its own flow meter. The main reason for this is to maintain reasonable velocities in the pipe. In a single 30-inch force main the velocity at 25 MGD would be 8 feet/second (ft/sec), which is high, although not excessive. However, in the flow meter section it would be nearly 30 ft/sec, which is too high.

While upsizing the flow meter would be an option, a second force main would offer several additional benefits:

- Ability to maintain the existing force main in operation during construction.
- Redundancy in the event that one force main or flow meter needs to be taken off-line for maintenance.
- Ability to dedicate one force main to each grit chamber so that the flow split could be controlled accurately and without additional head loss using the pumps, and also automatically match the number of on-line grit chambers to the flow.
- Improved flow meter accuracy at low flows.

Cross connections would be provided to allow all four pumps and both grit chambers to be served by either if needed on a temporary basis.

Figure 3: Fitting Larger Pumps (Highlighted in Yellow) into the Existing Influent Wetwell



The existing submersible pumps have currently been removed for maintenance using a large gantry crane. Operators would prefer a bridge crane which could also be used for servicing the motors, gearboxes, and other components of the influent screens. Alternatively, a single monorail would also be an option to lift just the pumps. Either of these upgrades would require replacing the shade roof, but the shade roof will require some work regardless. It will need to be at least partially removed to replace the influent screens, and the cover could be extended further east to better shade the screens. Additionally, there is rust on the purlins that should be addressed to maintain its structural integrity.

Control of H_2S to reduce corrosion and safety risks at the headworks will also be included in the project. This will be accomplished by covering channels, providing ventilation, and including H_2S treatment in both the liquid and vapor phases. H_2S control is described in more detail in Section 2.3.

2.2.1 Grit Removal

This process removes grit from the wastewater to reduce both accumulation in downstream tanks and abrasion of downstream equipment and piping. Removing as much grit as possible ahead of the primary clarifiers is particularly important for reducing the amount of grit that eventually makes it to the digesters. Grit that accumulated in the digesters reduces the available volume and eventually impacts capacity and performance. Even with the existing grit system, grit buildup in the digesters still occurs. When the primary digester was cleaned five years ago it was found to be half-full of grit. The secondary digester was recently cleaned and it, too, contained considerable grit. Moving forward, NORSD plans to implement regular digester cleaning on a 3- to 7-year basis.

The existing grit removal system consists of a single tea-cup style grit chamber (Grit King manufactured by Hydro International) rated for up to 12 MGD. This equipment uses the velocity of the incoming wastewater to induce a swirl within the chamber which causes grit to separate from the water and fall to the bottom of the tank. A solenoid valve located in the bottom tank opens to send grit to the classifier, where it is concentrated, drained, and delivered to a container for disposal. A plant water connection is provided to fluidize the grit prior to draining.

The 10% design includes addition of a second teacup-style grit chamber in a similar configuration to what was anticipated in the 1998 upgrade drawings. Though the nominal capacity of the grit units is 12-MGD each, Woodard & Curran has preliminary confirmation from the manufacturer that the two units will be sufficient for the 25 MGD design peak flow.

The 1999 drawings did not indicate how flow would be split between the two units. As discussed previously, the 10-percent OPCC assumes that this will be accomplished with a second force main. Building a splitter structure could also be considered in 30-percent design, but a second force main offers a number of benefits described above.

NORSD has expressed an interest in evaluating stacked-tray grit removal systems which may offer improved grit removal performance versus the existing teacup units. These evaluations can be performed as part of the 30-percent design and may include assessing the particle size distribution of the grit. However, there is also a possibility that the accumulated material in the digester is struvite rather than grit. Such was the case when Encina, CA recently had their digesters cleaned. If the material is struvite, which forms in the digester, and not grit that has escaped the grit removal system, then a higher performing grit removal system may not have the desired benefit. The composition of the material can also be analyzed during 30-percent design.

Ferric chloride is currently added at the grit effluent box for CEPT. Operators have had issues with the ferric corroding the stainless-steel box. The 30% design should consider alternate dosing locations to reduce the potential for corrosion. With the addition of a second grit chamber, the dosing will likely move downstream of the point where the two flows recombine. Operators have dosed ferric to the primary effluent box in the past but dosing at the grit effluent seems to result in better performance. This could be due to better mixing and/or longer contact time.

2.2.2 Primary Clarifiers

The primary clarifiers remove settleable material ahead of the trickling filter. They are also currently used to co-thicken sludge returned from the trickling filter. The combined sludge is pumped directly to the

digesters. In the new plant, the primary clarifiers will be retained to reduce the organic load on the secondary system, and shunt degradable solids directly to the digesters where it can be converted to biogas for potential future beneficial use.

The existing primary clarifier was constructed in 1998. The existing tank and mechanism appear to be in good condition and were recently recoated.

To provide redundancy in the new WRRF a second primary clarifier is recommended. This will also keep overflow rates at design conditions with recommended values of 600 to 1,200 gallons per day per square foot (gpd/sf) at average flow and no more than 3,000 gpd/sf at peak flow.

The existing primary clarifier splitter box was constructed anticipating a second primary clarifier to the north and includes a second drop box with a blind flange 20-inch pipe. During a site visit in August 2023, it was observed that flow through the box was high velocity and turbulent at a flow between 4 and 6 MGD. An accurate flow split typically requires quiescent conditions. While an even flow split is desirable, it may not be essential for primary clarifiers at peak flows. It is required that the box be able to contain the flow without overtopping. At 25 MGD with one primary clarifier on-line depth over the 4-foot-wide weir would be approximately 2 feet (assuming no downstream backup), leaving roughly 6-inches of freeboard below the grating which is low. To be conservative, the 10-percent OPCC assumes replacement of the splitter box with a new, larger structure. The suitability of the existing box will be evaluated further during 30-percent design.

2.2.3 Fine Screening

Fine screens with perforated openings of 2 millimeters (mm) or less (1 mm is preferred) are required ahead of the MBR in order to protect the integrity and performance of the membranes. The fine screens help remove stringy material such as hair. If these materials are not removed, they wrap around the membrane fibers, requiring additional operation and maintenance to remove them and shortening the membrane life.

Fine screens are typically either band screens or drum screens. The screens must remain in service at all times without bypassing, so multiple units with redundancy at peak flow will be required. The 10-percent OPCC is based on four band screens operating in parallel, with three able to pass the peak flow with the fourth screen offline for redundancy. With two screens out of service the plant would still be able to pass the maximum day flow.

The number, type, and configuration of the fine screens will be evaluated further in 30-percent design, and will include consideration of cost, maintenance, reliability, and impacts on the hydraulic profile.

2.2.4 Bioreactors

The bioreactors will be configured for biological nitrogen removal to reliably meet the effluent TN limit of 10 mg/L. The 10-percent OPCC is based on the following conceptual design:

- Four parallel trains with pre- and post-anoxic zones and swing zones for maximum flexibility to adapt to changing influent flows and loads.
- Equipment including fine bubble aeration, blowers, mixers, mixed-liquor return pumps, and slide gates.
- Tanks will be common wall, open top, with walkways for access to equipment and instrumentation.

The 30-percent design will include final determinations of basin configuration, sizing, and equipment. Additionally, the design of the bioreactors will emphasize both the ability to achieve the defined performance over the range of conditions and ease of operation and maintenance. It will consider factors including:

- Using process models with the supplemental wastewater fractionation data that is currently being collected by NORSD to model various conditions to finalize basin sizing.
- Designing structures, pumping systems, such as dedicated return activated sludge (RAS) pumps, and piping to achieve accurate flow splits between the on-line basins.
- Maintaining anoxic conditions in the pre-anoxic zone by minimizing dissolved oxygen introduced by the influent flow and the mixed liquor return pumps, as well as directing RAS from the membrane tanks, which will be high is dissolved oxygen (DO), to the head of the aerobic zones rather than the pre-anoxic zones.
- Providing for foam control and removal from both the MBR and bioreactor tanks including some or all of the following:
    - Submerged baffles to allow foam to pass from zone to zone.
    - Selector zones to discourage problematic filament growth.
    - Ability to chlorinate RAS to control filaments.
    - Ability to waste foam from the surface of the MBR and/or bioreactor tanks.
    - Surface sprayers in strategic locations to break up foam and/or direct it to wasting.
- Right-sizing blowers and other equipment (number and capacity of units) to meet the full range of process demands anticipated from minimum flows and loads at startup though full design flows and loads, rather than just peak design conditions.
- Providing the appropriate level of automation for dissolved oxygen control and other systems that balances treatment performance and maintenance requirements as defined in collaboration with the operations staff.
- Considering maintenance needs such as equipment access and tank isolation and draining.

2.2.5 Membrane System

The membrane system separates solids (activated sludge) from the wastewater and produces a high-quality effluent. Activated sludge is returned to the bioreactors as RAS. The membranes represent a physical barrier that all flow must pass through. Redundancy is therefore critical so the membrane system will be sized to treat the peak design flow of 25 MGD with one train out of service.

Several types of membranes are available. The 10-percent design is based on hollow fiber membranes (Veolia Memcore). Hollow fiber is the most common type of membrane. It is well proven in the marketplace and is offered by several manufacturers. Hollow fiber membranes are typically constructed of polyvinylidene fluoride (PVDF) and have a nominal pore size of 0.04 micrometers. The 30-percent design will evaluate other membrane types including flat plate (Kubota) and ceramic (Ovivo).

Flux rate is one of the key parameters that defines the membrane surface area required and therefore the overall size of the membrane system. Flux depends on factors including wastewater temperature and mixed liquor suspended solids (MLSS) concentration. Membrane manufacturers typically specify both an average flux that can be sustained indefinitely (accounting for cleaning cycles) as well as a peak flux that is allowable for a shorter duration. Flux rates assumed for the 10-percent design are shown in Table 4.

In addition to the membrane modules themselves, other major components of the membrane system include the permeate and RAS pumps, the backwash system and cleaning chemicals, air scour blowers, a crane for membrane removal, and automatic valves, instruments, and controls. These can be included in the membrane suppliers' scope of supply or specified with input from the membrane supplier and procured separately.

2.2.6 Flow Equalization

The 10-percent design is based on liquid treatment equipment having capacity to treat the peak WRRF flow of 25 MGD without bypassing or the need for flow equalization. Equalization of peak flow would need to be after preliminary treatment to avoid excessive buildup of debris and creating nuisance conditions. However, equalization is not recommended or included in the 10% design based on the following considerations:

- Equalization of peak wet weather flow would not reduce the size of the bioreactors, which are sized based on peak loads.
- The membranes have the ability to pass a higher flux rate for a limited time. As a result of this, the preliminary design for the membranes uses the same number of trains at design peak and average flow. In other words, adding equalization will not reduce the number of membrane racks needed.
- Equalization adds another process requiring operation and maintenance.
- Sufficient equalization to reduce the peak flow down to the design maximum day flow of 13 MGD could theoretically eliminate the need for a second grit unit and primary clarifier. However, having multiple grit and primary treatment units is recommended for plants the size of NORSD so maintenance can be performed during dry weather without impacting plant performance.
- Equalization could allow for reduction in the size of the fine screens and the RAS and permeate pumps and allow for a reduction of the diameters of forward flow piping.

Considering all these factors there appears to be only minor benefits of constructing peak flow equalization within the main process flow stream which do not outweigh the added cost and complexity. The 10-percent design is therefore based on the reasonably conservative assumption that the WWTP will be designed to pass the full peak flow.

However, there is potential to use the existing secondary clarifier for temporary storage or waste stream equalization. This tank provides approximately 1 million gallons (MG) of storage that could be used for emergency storage of primary effluent or mixed liquor, or to store stormwater or off-spec final effluent. The 10-percent OPCC assumes that this tank will be retained, though costs for repurposing for these uses have not been included. Potential uses for this tank can be further evaluated in the final design.

2.3 Solids Handling Process

This section summarizes the solid treatment upgrades for NORSD. To meet the needs of the new WRRF, the current solids handling process will need to be rehabilitated and expanded. Solid treatment at the new WRRF will consist of sludge thickening, followed by mesophilic digestion, dewatering, and sludge storage/solar drying. Primary sludge thickening will continue to be with primary clarifiers. WAS thickening will be in a new mechanical thickening system. Figure 4 shows a process flow diagram for the recommended solids handling train.

A detailed evaluation of solids handling processes was performed and is presented in TM#4. TM#4 focused on evaluation of four short-listed sludge stabilization processes: Mesophilic Anaerobic Digestion, Temperature-Phased Anaerobic Digestion (TPAD), Recuperative Thickening (such as Anaergia), and Low Temperature Alkaline Thermal Hydrolysis (Lystek®). Mesophilic Anaerobic Digestion, which is the process that the plant is currently using was selected over the other processes. The results showed life cycle cost differences between the alternatives didn't appear to be substantial at this conceptual level, therefore mesophilic digestion was recommended because it is familiar to NORSD and has worked successfully and it is widely used throughout California. It is a reliable and resilient process with flexibility to be modified as future needs with other processes.

Figure 4: Solids Process Flow Diagram

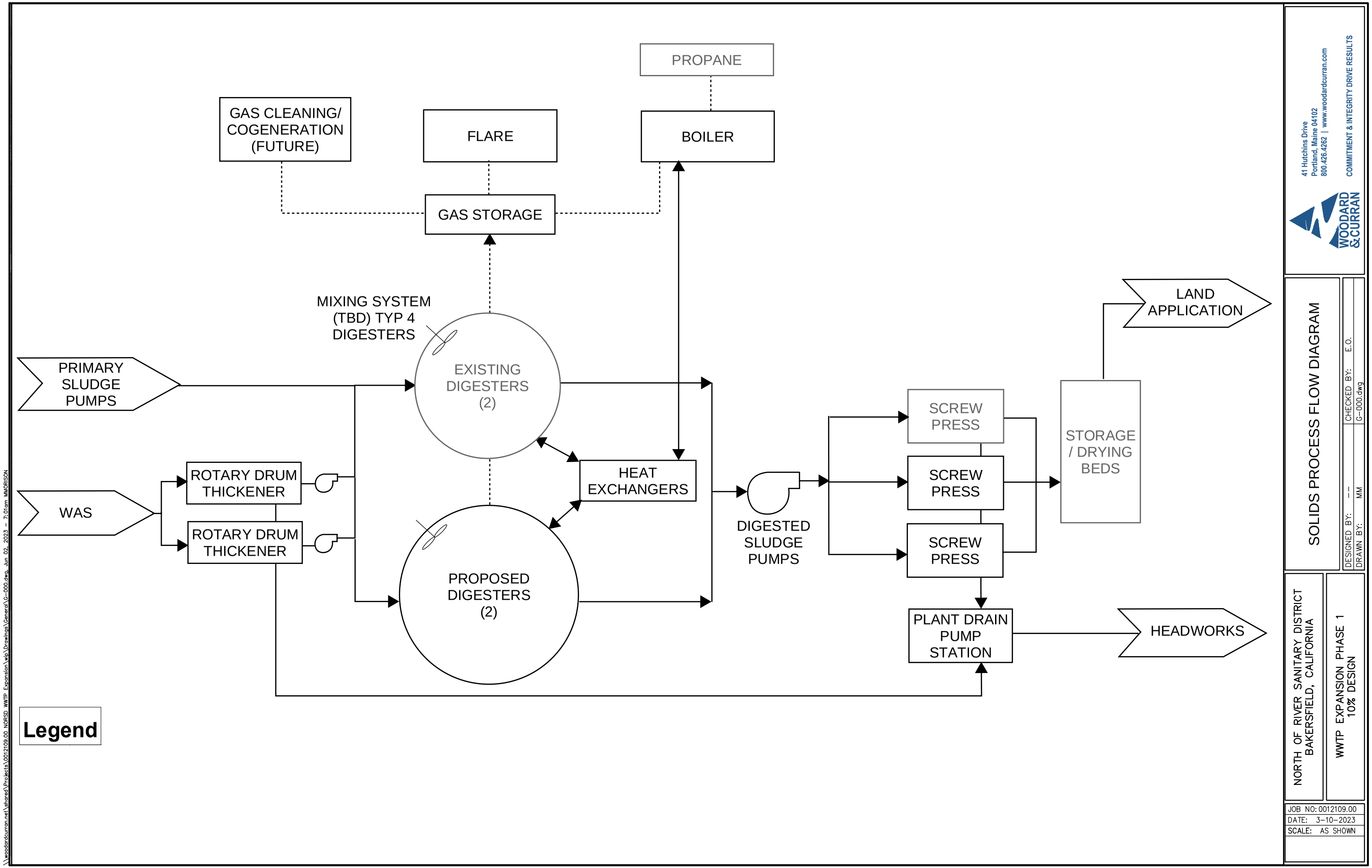


Table 5 summarizes preliminary design data based on conceptual design and preliminary manufacturer information. This information will be revised and finalized during 30-percent design.

Table 5: Solids Handling Processes Preliminary Design Data

WAS Thickener[1]	
Type	Rotary Drum Thickener
Number of units	2 (1 duty + 1 standby)
Max. TSS capacity	3,000 dry lbs/hr
TSS capture rate	95% minimum or 500 mg/L TSS maximum
Thickened solids concentration	5% - 6%
Expected polymer dose (active)	9-10 lbs/dry ton
Drive Unit Rated Power	3.0 HP
Anaerobic Digestion	
Type	Single Stage Mesophilic Digestion
Number of Digesters	2 New + 2 Existing
SRT at MM with one large digester out of service	>20 days
Operating TS	2%-2.5%
Operating Temperature	35°C (95°F)
New Digesters Diameter Working Volume	 80 ft 1.32 MG
New Digesters Mixer[3] Type Number of units, per digester Pump Motor Size, each	 Direct Driven Horizontal Chopper Pump 2 60 HP
New Digesters Heat Exchangers	2 new (1 per digester)
Existing Digesters Diameter Working Volume	 60 ft 0.6 MG
Existing Digester Mixing System[3] Type Number of units, per Digester Pump Motor Size, each	 Direct Driven Horizontal Chopper Pump 2 (existing for digester #2, new for digester #1) 40 HP
Digester Covers	Membrane Gas Storage (2) Fixed Metal (2)

Dewatering System[2]	
Type	Screw Press
Number of units	2 new + 1 existing (2 duty + 1 standby)
Inlet capacity	7.44 dry tons/day
Inlet TS	1.5 % to 2.5 % Total Solids
Outlet consistency	18 to 22% Total Solids (with Polymer)
Screw Press Motor	5 HP
Expected polymer dose (active)	33.8 lbs/dry ton
Drive Unit Rated Power	3.0 HP
Sludge Beds[4]	
Total number of beds remaining after WRRF upgrade	12
Number of lined beds	3 existing + 3 new
Surface Area each	22,500 ft^2

Note:
1. Rotary drum thickener design criteria are based on FKC proposal.
2. Screw press design criteria are based on FKC proposal.
3. Digester Mixing is based on Rotamix proposal by Vaughn proposal.
4. Sludge bed design criteria based on 1998 as-built drawings.

2.3.1 Solids Thickening

The NORSD solids handling process will include thickening to optimize digester performance and minimize the digester volume required.

Thickening of primary sludge will continue to be in the primary clarifiers and pumped directly to the digesters. Currently, the plant is thickening primary sludge up to 4% and this is expected to continue to achieve this concentration with the expansion.

For WAS thickening, new mechanical thickeners will be installed. For 10-percent design, the WAS thickener design criteria are based on rotary drum thickener proposal by FKC. The package includes two rotary drum thickeners (RDT), each with flocculation tank and mixer, polymer in-line injection rings and mixing, polymer make down system, and control panel. Rotary drum thickeners are enclosed, reliable, low-speed machines that perform well. Alternative thickeners such as gravity belt thickener or centrifuge can be evaluated in 30-percent design.

A small amount of storage (four hours) will be provided for thickened sludge in a new thickened WAS wetwell. It is assumed the WAS thickeners will have a column-supported roof structure. This will provide a shaded area for staff to work on the system.

2.3.2 Anaerobic Digestion

Currently, solids are stabilized using two-stage mesophilic anaerobic digestion in two digesters, which operate to produce Class B biosolids. Solid stabilization at the new WRRF will be by single stage mesophilic anaerobic digestion and additional digesters will be built to provide the required capacity.

The new digesters will have more than twice the volume of the existing digesters, which will reduce the number of new digesters required for the plant buildout and result in a smaller overall footprint. The existing digesters could serve as storage in the future. Two additional large digesters will provide sufficient capacity for this design phase. Digested sludge will be stored in the digesters by allowing the liquid level to vary. Biogas will be stored under membrane covers on the new digesters. Biogas will be used for digester heating, and any excess will be flared. Space will be provided for possible future biogas uses such as vehicle fueling or cogeneration.

The existing digesters and equipment will be upgraded as well based on their condition. A new digester cover will be installed on digester #2 which currently has a floating cover. The digester #1 cover is also conservatively assumed to be replaced. Draft tube mixing and heat exchanger in digester #1 will be replaced with pumped mixing.

For 10-percent design, Rotamix by Vaughn, which is the same mixing system used in digester #2, is assumed to be used in all digesters. This is a robust mixing system that is easy to maintain because all moving parts (the pumps) are located external to the digester. Pipes enter through the side of the tank and will not interfere with membrane covers. The main downside of pumped mixing is that it is more energy intensive than other technologies. During 30-percent design, other types of mixers will be evaluated.

2.3.3 Dewatering

NORSD currently uses dewatering to reduce the volume that must be stored and hauled and make the sludge easier to handle. It is recommended that dewatering be included in the new WRRF.

The plant currently has one screw press from FKC for dewatering digested sludge. It is recommended that NORSD continue to use screw presses for dewatering, as this process is familiar, robust, low energy and produces sufficiently dry solids for storage and land application.

The 10-percent design assumes that two new screw presses of identical size as the existing and from the same manufacturer, FKC, will be installed to offer additional capacity to accommodate higher solid loads and provide one redundant unit. The design criteria for the new screw presses is based on a proposal from FKC. The redundant screw press has been included due to the limited down time in the schedule for maintenance in 10 percent design. However, due to reliability of the screw-press, and considering liquid sludge can be applied directly to the beds without dewatering on a temporary basis if a screw press is out of service, a redundant unit may not be required. The need for a redundant screw-press will be reevaluated during the next design phase.

The 10-percent design assumes that a shade roof will be provided over the new and existing screw presses. As described in the Chemical Feed Systems section below, it is assumed that the existing screw press electrical and polymer building can accommodate the additional polymer feed equipment.

2.3.4 Sludge Storage Beds

Currently, dewatered sludge is stored for approximately two years in lined storage beds, and then applied on the surrounding agricultural lands owned by NORSD. Although the beds are not currently managed for drying, the long-term storage does provide additional sludge drying capacity. Retaining the beds is recommended to have the ability to store sludge long term and further dry it to provide additional flexibility to adapt to the ever-changing sludge disposal market.

There are 14 beds at the site, but only three are lined and used for sludge storage. During the plant expansion, three additional beds will be lined to provide additional storage and drying capacity for the sludge production increase at design year. At least two beds will need to be removed to accommodate the new membrane tanks.

The utilization of the beds for Class B sludge storage presents an opportunity to generate Class A dried biosolids. This could potentially be achieved by testing dried sludge to demonstrate compliance with Class A criteria for pathogen and vector attraction reduction. This option would provide further flexibility by opening more local markets. Additionally, per the current regulations, Class A sludge can be hauled at a higher concentration which reduces the hauling costs.

2.3.5 Land application

Currently, dewatered Class-B biosolids are applied to NORSD-owned land surrounding the WWTP. While the current disposal method of land applying Class B solids is anticipated to remain viable for the foreseeable future, the upgraded solids treatment process provides the flexibility to adapt to changing markets and regulations.

The permitted acreage for land application is 425 acres. The 425 acres is approximately 66-percent of the total 640 acres of NORSD-owned land permitted for irrigation with treated effluent.

It is estimated that the increase in solids production in the design year will require 690 acres if applied at the same application rate. This area exceeds the currently permitted acreage (425 acres) and the total acreage owned (640 acres) by NORSD. The total acreage owned by NORSD would therefore require either a higher application rate or expansion of the area permitted for biosolids application. Alternatively, extra sludge can be hauled and disposed of.

2.4 Ancillary Systems

This section discusses ancillary systems that are needed to support the liquid and solids treatment trains. Costs for these systems have been included in the 10-percent OPCC. Detailed design data for these systems will be developed during 30-percent design.

2.4.1 Headworks Hydrogen Sulfide (H_2S) Control

High H_2S concentrations in the influent wastewater have been an ongoing issue for NORSD. The long Outfall Sewer and warm wastewater temperatures provide ample opportunity for H_2S production. The release of dissolved H_2S into the air at the headworks leads to corrosion and potential safety issues for operators. High H_2S concentrations sufficient to trigger personal gas alarms have been observed as far downstream as the primary clarifiers. To help mitigate H_2S, NORSD staff installed a fan and exhaust stack on the influent

manhole to exhaust foul air prior to the headworks. This has been partially beneficial as the prevailing winds generally take the odors east away from the plant.

An H_2S treatment system is recommended for the new WRRF in order to better mitigate potential human health risks from exposure, structure deterioration, corrosion, and noxious odors caused by high H_2S concentrations in and surrounding the headworks facility. The 10-percent design includes covering the channels and wetwells in the headworks and providing ductwork to draw foul air from these spaces and deliver it to a new H_2S treatment system.

Logger data from 2019 to 2023 was provided by NORSD for the influent sewage line at the closest upstream manhole to the plant, Manhole 2909. Readings within the time frame indicate average H_2S concentrations ranging from approximately 20 parts per million (ppm) to 450 ppm and maximum H_2S concentrations ranging from 400 to 840 ppm. An average H_2S concentration of approximately 400 ppm and a maximum concentration of approximately 800 ppm were assumed.

An H_2S control system for this facility was sized according to the amount of available air volume within the influent manhole 2909, which has its dedicated exhaust fan, three covered influent channels and two wetwell enclosures inside the headworks building. Based on an estimate of the volume of the covered spaces in the headworks, and the air drag from the Outfall Sewer, prospective odor control systems were sized for 5000 cubic feet per minute (cfm) capacity.

For H_2S treatment, a biotrickling system was deemed advantageous over carbon-based treatment systems, as activated carbon systems are anticipated to become exhausted more frequently from the adsorption of H_2S at such high concentrations at this site, which would increase the frequency of media changeouts. Activated carbon systems were recommended by some vendors as an additional polishing step following biotrickling system. However, considering there are no sensitive receptors nearby, this was not included in 10 percent design.

A proposal by BioAir Solutions details a treatment system addressing the H_2S concentrations and capacity parameters described. This system includes one biotrickling filter tank 11 feet in diameter and around 27 feet in height, seen in Figure 5. Foul air is blown into the bottom of the tank, and the filter media utilizes microbes to capture and oxidize H_2S in the air as it flows upwards through the tank. Treated air is exhausted from a stack at the top of the tank. BioAir estimates an H_2S concentration reduction of 99% in the treated air, and a filter media life expectancy of 20 years.

Supplemental equipment needed to operate the filter, including a blower fan, nutrient feed system, and electrical and water control panel, fit on an approximately 18 feet by 22 feet equipment pad with the tank. This system fits in the available space outside of the existing headworks facility south of the influent manhole on the site, according to Figure 5. Design criteria for the system are presented in Table 6.

Figure 5: Proposed H_2S Control System Layout and Isometric View

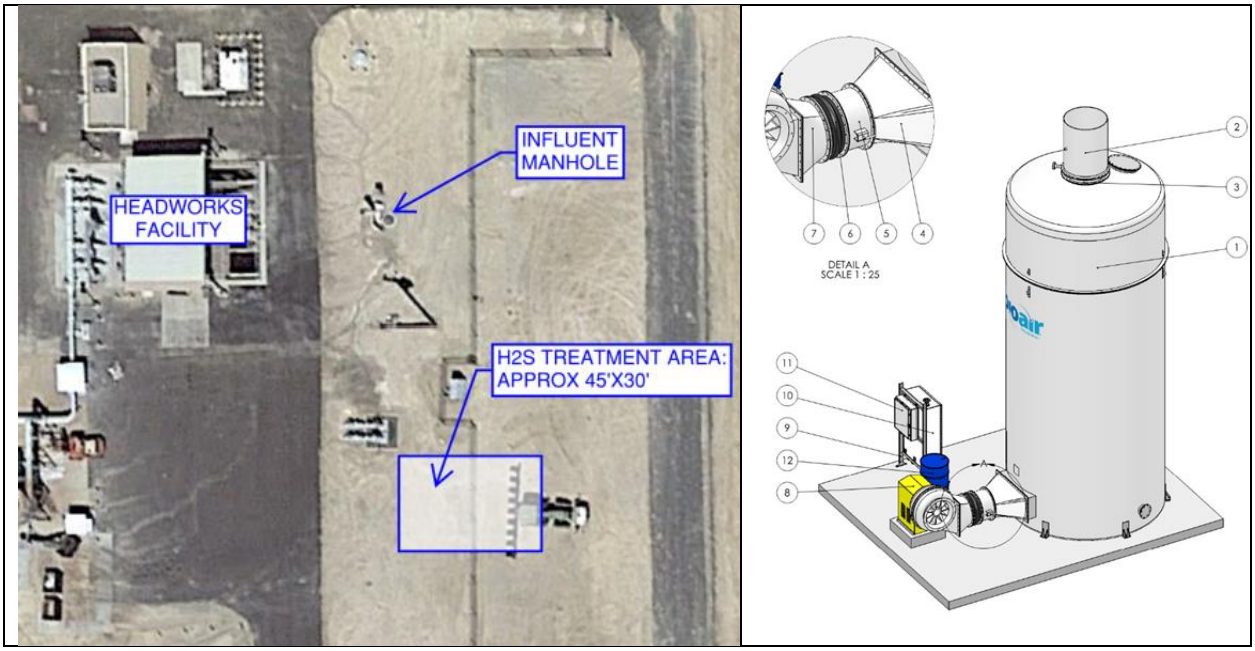


Table 6: Proposed H_2S Control System Design Criteria

Design Element	Value
Air Flow Average	 5000 cfm
Hydrogen Sulfide Concentration Average Maximum	 400 ppm 800 ppm
H2S Removal Performance	99% or < 0.5 ppm
Air Changes Required in Headworks	6 air changes/hour
Biotrickling Filter	
Quantity (Proposed)	1
Diameter	11 ft
Height	27 ft
Equipment Pad Footprint	18' x 22'
Pressure Drop	3.4 in w.c.
Energy Use	152.8 kWh/day
Water use	38,000 gal/day
Filter Media Life Expectancy	20 years

In addition to the treatment system for headspace air, liquid-phase treatment of H_2S may also be beneficial to reduce H_2S release at downstream processes. The 10-percent design includes an additional ferric chloride feed point at the influent manhole to achieve this (refer to the "Chemical Feed" section below). Some of the ferric used to oxidize H_2S would be recovered in the turbulence at the bar screens and would partially offset ferric chloride used downstream for CEPT.

2.4.2 Potable Water

The plant's existing domestic water system was installed as part of the 1999 upgrades and includes a well, reservoir tank, pumps, and expansion tanks. The equipment is nearing the end of its useful life. The well location is now within the expanded biosolids application area that was permitted in 2015. As such it is no longer potable. The 10-percent OPCC is based on providing a new well location and a new reservoir and pumps. The reservoir and pumps will be sized to provide sufficient flow for fire suppression as well as expanded potable water demand at the new facility.

2.4.3 Plant Water (Non-Potable)

Water for non-potable uses within the plant (such as wash water) will be pumped from the MBR permeate. It is assumed that this water will not be disinfected. Uses for plant water include:

- Influent screen wash water
- Grit chamber fluidization water
- Fine screen wash water
- WAS thickening wash water
- Screw press wash water
- Make-down water for polymer
- Carrier water for other chemical systems (as required)
- Scum sprayers for tank surfaces (as required)
- Sludge and scum pipe flushing
- Hydrants for tank and equipment wash-down.

It is anticipated that all pumps on the WWTP site will have mechanical seals without seal water requirements. The MBR process will have its own backwash system independent from the WWTP water system.

2.4.4 Plant Drain

The plant drain system will need to be upgraded as part of the larger project. Currently all in-plant recycle flows return to the headworks by gravity. For the 10-percent design it is assumed that a new plant drain pump station will be constructed to drain tanks on the west side of the plant, including the MBR tanks and possibly the bioreactors as well. The plant drain pump station may also pick up return flows from solids processing including the RDTs and screw presses. Because this flow will be pumped and should not contain significant debris or grit, it has the option of being returned downstream of the headworks, such as to the primary splitter box or fine screen influent channel.

Tanks on the east side of the WWTP, including the primary clarifiers, grit chambers, and possibly the digesters will likely still drain by gravity to the headworks.

As noted in TM#1, the average raw sewage flow is calculated by subtracting the WWTP drain flows from the pumped flow. The capacity of the existing flume which measures the WWTP drain flow is 0.7 MGD and is often exceeded, which impacts the accuracy of this calculation. The upgrade to the WRRF will need to provide accurate measurements of WWTP drain flow.

2.4.5 Chemical Feed Systems

Table 7 lists chemical feed systems that are anticipated for the new WRRF. Chemical feed facilities will consist of concrete pads with containment areas and shade structures. Where possible chemical feed systems will be located on the north sides of structures for further shading.

Some additional considerations for chemical feed include:

- It is assumed that polymer feed for the screw presses can be located in the existing screw press building. This building includes space for a second bulk polymer tank. The ability to fit the additional equipment in the existing building will be confirmed during 30-percent design.
- Operators have expressed an interest in including day tanks in the polymer make-down systems to further optimize performance. This will be incorporated into the final design.
- If CEPT is discontinued in the future, the ferric chloride feed system could get moved to the digester for H_2S control.
- The need for supplemental carbon and alkalinity for the bioreactors will be confirmed during 30-percent design based on process modeling the detailed fractionation data collected by NORSD.

Table 7: Preliminary Chemical Feed Requirements

Storage and Feed Location	Chemical	Purpose	Injection Point
Headworks	Ferric Chloride	Liquid-phase H_2S control	Influent manhole
		CEPT	Grit system discharge piping
	Polymer	CEPT	PC splitter box
Bioreactors	Supplemental Alkalinity	Maintain bioreactor pH if influent alkalinity is insufficient	Bioreactor influent channel
		Maintain digester VFA:Alk ratio	Digester feed
	Supplemental Carbon	Drive denitrification if influent carbon is insufficient	Bioreactor influent channel and/or Post anoxic zone
Membrane Facility	Citric Acid	Membrane cleaning (mineral scaling)	Membrane Backwash

Storage and Feed Location	Chemical	Purpose	Injection Point
	Sodium Hypochlorite	Membrane cleaning (biofouling)	Membrane Backwash
Screw Press Building (existing)	Polymer	Improve dewatering performance	Mixing valve upstream of floc tank
WAS Thickening Area	Polymer	Improve thickening performance	Mixing valve upstream of equipment or floc tank

2.4.6 Samplers

Automatic samplers will be provided at the headworks, primary effluent, and final effluent. Other locations, such as mixed liquor, sludge streams, and solids handling return flows will be provided with convenient locations for grab samples.

3. SUPPORTING DISCIPLINES

This section describes conceptual designs for critical engineering disciplines that will support the treatment process design of the new WRRF.

3.1 Civil

The 10-percent design assumed paved roadways for traffic circulation, with a conceptual configuration shown in the Conceptual Site Plan in Figure 1 above. The roadways will be laid out to allow trucks hauling materials to or from the site to circulate without backing up and without crossing through the center of the site. Truck access to all process areas for maintenance will be provided. The preliminary design assumes roads will be 24 feet wide including 2 feet of gutter on either side. 20-foot bump outs were included in delivery areas so delivery trucks will not block access for fire.

The 10-percent design assumed that the existing trickling filter and pump will be demolished. Much of the excavated material from the bioreactors and other new structures will be used as fill on the north side of the site to raise the grade where the new solids handling facilities will be constructed.

The 10-percent OPCC also includes an allowance for stormwater facilities. Final stormwater design will include grading the site for surface drainage to drop inlets. The road gutters will also be used for routing flow on the surface. Detention ponds will also be constructed as required.

In order to avoid the need for a National Pollutant Discharge Elimination System (NPDES) permit for industrial stormwater discharge, stormwater from process areas that have the potential for spills will be routed to one or more lined storage ponds for retention and fed back to the headworks by gravity or via the plant drain. Layout and grading will be designed to minimize the total volume requiring treatment.

According to Federal Emergency Management Agency's (FEMA's) National Flood Hazard Layer (FIRMette downloaded 10/26/2023) The entire treatment plant site is classified as an "Area of Minimal Flood Hazard (Zone X)."

3.2 Structural

A preliminary geotechnical report has been prepared based on local site knowledge and is included in Appendix B. The 30-percent design will include taking borings at proposed structural locations and finalizing a geotechnical report. A detailed seismic analysis will also be conducted if it is determined that there is potential to reduce the seismic design category from "D" to "C" as this would reduce the construction cost of structural elements.

For the 10-percent design new process tanks are assumed to be cast-in place construction. Prestressed concrete construction was considered but determined not to offer a cost advantage due to the distance to fabrication sites. This and other alternative construction means can be considered further in final design.

Smaller structures such as manholes and valve vaults can likely be precast. This was the assumption for 10-percent design OPCC.

According to the Preliminary Geotechnical Study (included in Appendix B), the soils on site are anticipated to be highly corrosive. Consequently, mitigating exterior corrosion of concrete structures will be a

consideration for the structural design. To reduce the risk of corrosion from sulfates and/or chlorides, the American Concrete Institute (ACI) recommends concrete type, maximum water/cement ratio, and minimum compression strength based on the exposure type and concentration. Exterior corrosion is also a concern for buried ferrous piping and appurtenances. To mitigate this, non-corrosive piping materials such as polyvinyl chloride (PVC) or high-density polyethylene (HDPE) will be considered and any buried ferrous piping will be protected. Wet conditions that can accelerate corrosion are not anticipated to be a significant factor on the NORSD site. Soil corrosivity will be investigated in more detail during 30-percent design.

Internal concrete corrosion can also be a concern in some wastewater process structures due to the presence of sulfates, chlorides, or H_2S. NORSD influent wastewater is known to contain high levels of sulfates, which results in high H_2S concentrations in the headworks and surrounding areas. Sulfide and H_2S corrosion may also be a concern inside the anaerobic digesters. Chloride corrosion may be a concern in processes where ferric chloride and sodium hypochlorite are used.

Corrosion from sulfate and chloride can be mitigated similar to exterior corrosion discussed above. H_2S corrosion will typically be found in the head-space of covered concrete tanks and is mitigated with high quality concrete coatings systems from manufacturers like Tnemec or Carboline. These concrete coatings will be specified for the specific exposure anticipated.

3.3 Architectural

The new facility will require that the size of the NORSD workforce at the WRRF increase to between 14 and 16 employees including operations, maintenance, and lab personnel (refer to TM#7). This will necessitate a new, larger administration building. The administration building will include offices, a new larger lab, meetings rooms, and bathrooms.

The new facility will also have considerably more equipment requiring maintenance. To accommodate this, the new WRRF will include a new larger Maintenance Building. The building will include a crane to facilitate maintenance of heavy equipment, and six truck bays for storage and maintenance of NORSD vehicles. The maintenance building will include a bathroom, but offices will be housed in the administration building to promote the NORSD's goal of fostering communication and collaboration between maintenance and operations staff.

The existing administration building will be repurposed for showers and lockers, as well as additional storage space and/or a redundant server room.

Costs for these facilities are included in the 10-percent OPCC. Conceptual designs for these new personnel spaces are described in more detail in TM#8.

Process buildings on the site will be minimal in terms of architectural design but will include features that are visually consistent with the personnel spaces.

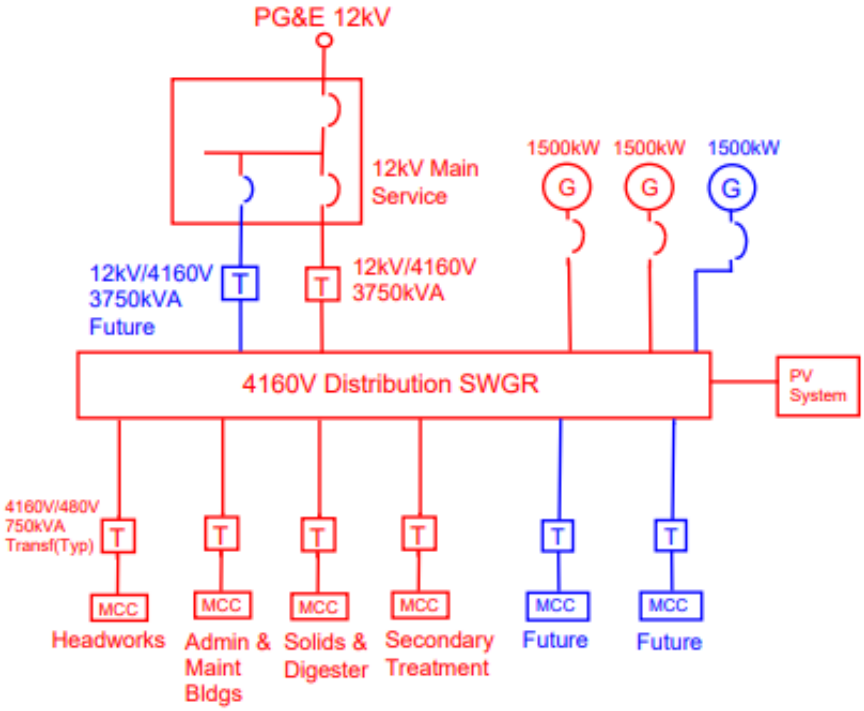
3.4 Electrical

The new WRRF will have considerably more process equipment and a larger energy demand than the existing plant. The preliminary estimate is that initially the demand load of the new plant will be approximately 2.6 megawatts (MW) (includes a 25% contingency). With the addition of the existing load of .2 MW the total demand load is approximately 2.8 MW. Final buildout of the WRRF is expected to increase

the demand load to nearly 6 MW. The increased demand load will require an entirely new electrical distribution system at the WWTP site and will necessitate the need to increase the size of the existing utility service. Woodard & Curran has begun conversations with Pacific Gas and Electric (PG&E) to determine whether an upgraded service to the WWTP will impact PG&E existing distribution system and what changes to the existing infrastructure at the plant will be required to facilitate a new, larger service.

The 10-percent design anticipates a simple radial topology for the new electrical distribution system. A preliminary concept is shown in Figure 6. The proposed distribution system is shown in red, with the final build-out facilities shown in blue.

Figure 6: Electrical Distribution Concept for the New WRRF



Service power will enter the plant at a new main service at 12.47 kilovolt (KV). From there it will be stepped down and distributed at 4160 Volts (V) to several liquid filled transformers located throughout the site which will then step the voltage down to 480V for use by motor control centers (MCCs) to serve the process equipment loads. The transformers will be co-located with the new electrical buildings and near major equipment loads. The transformers will be located outside and provided with shade roofs and/or located on the north side of structures where practical to minimize heat buildup.

An advantage of constructing a new power distribution system is that the existing system can remain online to power the existing plant during construction. The existing electrical buildings serving the headworks and screw press may remain and be re-fed from new MCCs. The existing digester electrical building and electrical switchboard at the existing administration building will likely be demolished and any remaining loads will be re-fed from the new MCCs.

The U.S. Environmental Protection Agency (EPA) requires that wastewater facilities have two reliable sources of power. Woodard & Curran is pursuing the possibility of providing a second power feed with PG&E, however given the remote location of the WRRF this may not be cost effective. The 10-percent design assumes that all duty equipment will be provided with emergency backup power from two 1.5 MW diesel engine generators.

The generators will be fueled from a single 15,000-gallon diesel tank which will provide enough fuel to power the engine generators for approximately 32-hours at 100% load. While both generators will be needed to power the entire plant, if one generator is down at least 50% of the power generator will provide power to at least some critical facilities which can remain operational with manual load-shedding procedures in place. Standby power needs and the ability to shed non-critical loads will be assessed in more detail during 30-percent design.

The 30-percent electrical design will also consider how alternative energy sources such as solar PV, battery storage, and energy generated from biogas could be integrated in the future, including how these could be incorporated into a micro-grid system to allow the opportunity to either export or reduce reliance on utility power.

3.5 SCADA

The new WRRF will include more processes with greater complexity than the existing plant. A SCADA system will be essential to automate routine tasks and provide operators with useful information on how the plant is running. Woodard & Curran's philosophy for SCADA is to design automation to help staff be more effective without adding unnecessary complexity.

Woodard & Curran anticipates the following conceptual SCADA architecture for the new WRRF:

- Two redundant server rooms, located in separate buildings on the WRRF site, including one located in the new Administration Building.
- A dual-star fiber network serving all of the major process areas to provide redundant communications.
- Communication by ethernet within process areas where individual panels are less than 300 feet apart.
- Thin clients will be located in the Administration Building and other specific operating locations in the plant.
- Large flat screen monitors will be mounted on the wall in the Administration Building displaying dashboard information that can be quickly referenced to determine the health of the plant and critical alarms.
- An alarm notification system will be implemented that alerts staff to critical alarms during low staff periods when the Administration Building is unoccupied.
- A secure remote monitoring capability will be implemented, allowing operators to remotely view the treatment plant.

These concepts will be revised as necessary to be consistent with the SCADA master plan once that is available for review. The SCADA architecture will be refined further during 30-percent design.

4. PROJECT COST AND IMPLEMENTATION

4.1 Opinion of Probable Costs

The OPCC for the new WWRF is summarized in Table 8 below. This includes capital costs for the selected secondary and solids treatment trains previously presented in TM#3 and #4. In addition, it includes costs for the additional facilities described in this Facilities Plan that will be needed for the complete WRRF:

- Preliminary Treatment: including upgrades to the headworks, influent pumps, grit removal and primary clarifiers.
- Administration and Maintenance Buildings: including rehab of the existing Administration Building for use as showers and lockers.
- Miscellaneous Site Improvements: including paving, grading stormwater, plant drain, and potable water.

The estimate includes a design contingency of 20-percent to account for details not yet included in this conceptual design. The amount of this contingency will be reduced as the design progresses to zero at bid time. The estimate also includes a 10-percent construction contingency to account for unanticipated conditions during construction. This contingency will remain into the construction phase.

The estimate assumes an average escalation of 6% each year from 2023 to the midpoint of construction in 2026. There is a high level of uncertainty associated with this assumption due to ever changing economic conditions, and it will be reviewed and revised as needed in future updates to the estimate.

Table 8: Opinion of Probable Project Costs

WRRF Component		$ Million
1	Preliminary Treatment	13
2	Liquids Treatment	56
3	Solids Treatment	23
4	Admin and Maintenance Buildings	4
5	Misc Site Improvements	11
Construction Subtotal (2023)		**107**
Contingency, Design (20%)		21
Contingency, Construction (10%)		11
Construction Total (2023)		139
Construction Escalation to Mid-Point of Construction (2026, 18%)		25
Construction Total		**164**
Design Engineering Fee (7%)		12
Construction Administration Fee (8%)		13
Permitting, Fees, Other Non-NORSD Admin (1%)		2
Total Estimated Project Costs		**190**
Estimated Project Cost Range (AACE Level 4):		
Low End (-15%)		162
High End (+20%)		228

Estimated percentages for engineering design, construction administration, permitting and other fees are also included.

Costs do not include the following facilities which may be added in the future: solar PV, cogeneration, high strength waste or septage receiving, disinfection, or tertiary or advanced treatment.

4.2 Construction Considerations

The proposed plant has been laid out to minimize disruption to the existing facilities, allowing them to remain mostly online until the new plant is constructed and started up. An overview of proposed sequencing for each area is as follows:

- The headworks screen channels and wet wells can be isolated allowing new equipment to be installed.
- The new influent force main, grit system, PC distribution box, and PC can be constructed offline, with some shutdowns required to tie the existing equipment in with the new.

- Bioreactors and membrane tanks can be constructed while the existing secondary treatment systems remain online. Some temporary facilities will be required to tie into the existing treated effluent pipe.
- The new digesters will be constructed while the existing remain online. Once the new digesters are started up, rehab work in the existing digesters can begin. Some temporary sludge, gas, and hot water piping will likely be required.
- The new screw presses should be able to be constructed while the existing remains online. Temporary sludge piping and polymer feed may be required.
- Rehab of the existing administration building can begin once the new one is complete.
- The existing electrical distribution system should be able to remain mostly online while the new one is constructed. Outages of existing equipment will need to be coordinated as they are re-fed from new MCCs.

Sequence of construction for maintaining plant operations will be developed further as the design progresses.

4.3 Procurement Strategy

The standard approach for municipal wastewater projects is to open bid the project to a general contractor (GC) who selects and procures materials and equipment in accordance with the specifications. Alternative procurement methods can give NORSD more control over the equipment selected and meeting schedule, but these come at a tradeoff of potentially higher cost for NORSD. Alternative procurement methods can be considered for both the overall project (such as prequalifying GCs) as well as individual pieces of equipment.

Due to the complex nature of the project, the NORSD should prequalify GCs prior to the formal advertisement and bid. The overall schedule for NORSD is long enough that an alternative delivery method for the whole project (such as design build) is not considered to be advantageous. However, there may be advantages to alternative procurement for selected pieces of equipment. Alternative procurement strategies for equipment fall into two broad categories: preselection and prepurchase. In both approaches the intent would be to guarantee a price for the equipment and then either: (1) include the price for the GCs to include in their bids, or (2) NORSD to enter to sign a purchase agreement, then assign that agreement to the GCs once selected. The two approaches are discussed in more detail below.

4.3.1 Equipment Preselection

Drivers for preselection of equipment include:

- Desire to purchase equipment from a specific vendor to match existing equipment or NORSD preferences. This is considered proprietary procurement and funding agencies typically require that the Owner has on file a letter justifying the decision.
- Desire to have control over selection of critical equipment where factors other than capital cost (such as life cycle cost) are important or the choice of equipment may significantly impact the design. This typically involves a request for proposals (RFP) from vendors that includes purchase price as well as other information such as operation and maintenance costs and references. A

scoring system is typically devised and included in the RFP to make the selection process more objective and transparent. The RFP process adds time and cost to the design phase but simplifies the later stages of design by designing around a known make and model of equipment.

- For larger pieces of equipment, the price is agreed-to in advance and guaranteed by the vendor for a certain period of time sufficient for the general contract to be awarded. The Owner typically includes the agreed-to price as a separate line item in the bid.

4.3.2 Equipment Prepurchase

The main driver for prepurchase is a desire to accelerate the procurement schedule. Prepurchase involves the Owner selecting and purchasing equipment prior to the general bid.

- One option is for the Owner to purchase the equipment outright. This is typically done for smaller items such as variable frequency drives (VFDs) or slide gates where the cost is relatively low but the impacts to schedule can be significant or where the Owner desires specific equipment.
- Alternatively, the Owner can agree to purchase the equipment, then transfer the purchase agreement to the Contractor during the award process. This accelerates the schedule and minimizes risk to the Owner. This approach is typically used for larger equipment. The purchase agreement is included in the general bid documents and the transfer is covered by additional front-end language. This often involves the Owner paying for and reviewing shop drawings ahead of the general bid.

4.3.3 Procurement Recommendations

Recommended procurement approaches for specific equipment are listed in Table 9. The standard bid approach is recommended for equipment where there are several manufacturers whose products have sufficient quality and are similar enough to meet the design intent, such as the primary clarifier mechanisms and pumps.

Preselection is recommended for several items, including the grit system and the screw press, where NORSD desires to match existing equipment. It is also recommended for controls hardware (programmable logic controllers [PLC]) so that NORSD can standardize on a single preferred vendor. Preselection may be considered for electrical gear for the same reason, standardization, as well as for the influent screens and digester mixers, depending on the chosen technology.

Preselection is also recommended for the MBR because the choice of manufacturer will significantly impact design. This preselection process for the MBR is estimated to take several months. First a request for qualifications (RFQ) and RFP package must be developed, then bids are solicited (a typical period is 30 days), then up to several weeks may be required for evaluation. For the MBR system, Woodard & Curran suggests NORSD employ a two-step process where suppliers must meet minimum qualification requirements before sealed bids are opened. This two-step process can help to minimize protests.

The preselection process adds additional tasks to the 30-percent design, though these can to some extent progress in parallel with other tasks. However, it is Woodard & Curran's experience that both the additional time and expenditure during the 30-percent design is recouped with more streamlined final design and reduced risk during construction.

Prepurchase of equipment could be considered as a means to accelerate the procurement schedule for critical equipment such as the MBR or generators if long lead times would impact the overall schedule. For example, projects designed by Woodard & Curran have experienced lead times of up to three years for generators recently.

Table 9: Equipment Recommended for Alternative Procurement

Equipment	Pre-Purchase	Pre-Selection
Influent Bar Screens		?
Grit Removal Systems		X
Screw Press		X
GBT or RDT		?
MBR	?	X
Electrical Gear		?
Standby Generators	?	?
Controls Hardware		X

4.4 Funding Strategy and Roadmap

This section provides an overall summary of potential funding sources for the WRRF project and includes brief descriptions of the programs, as well as other considerations including eligibility and timing. Funding sources, finance planning, and preliminary analysis of the impacts to rates will be pursued further with NORSD during 30-percent design.

4.4.1 Clean Water State Revolving Fund (California State Water Resources Control Board)

Description – The Clean Water State Revolving Fund (CWSRF) provides communities with low-interest loans for a wide range of water quality infrastructure projects. The CWSRF is the umbrella program offering loans and grants for wastewater, sewer, and recycled water projects through CWSRF loans, Water Recycling Funding Program (WRFP) grants, and Small Communities Grants. Funding is available for both planning and construction.

Funding Amounts – Currently, there is no cap on the amount of loan financing that may be requested, although the grant portions are normally limited to a maximum of $15 million per project. For applicants benefitting areas classified as disadvantaged communities or severely disadvantaged communities however, the State Water Board may increase grant amounts at its discretion.

Timelines – To be considered in an annual fiscal year plan of fundable projects, complete applications need to be submitted by December 31. Applications need to have concluded the environmental review process and should be at a 90 percent design stage.

Considerations – The CWSRF provides flexibility in both project funding activities and financing. Major and minor elements or proposed project work can be combined into an application and the amount financed can be adjusted. Application and funding approval timelines can be long, often more than 24 months from the start of the application process.

4.4.2 Water Infrastructure Finance and Innovation Act (U.S. Environmental Protection Agency)

Description – The Water Infrastructure Finance and Innovation Act of 2014 (WIFIA) Program accelerates investment in water and wastewater infrastructure of national and regional significance by offering loans to creditworthy borrowers for up to 49 percent of eligible project costs.

Funding Amounts – Project costs must be at least $20 million, but there is no maximum amount.

Timelines – An initial letter of interest can be submitted at any time. Once this is accepted, a full application is prepared and loans can normally be closed in under nine months.

Considerations – Unlike loan programs such as the CWSRF, the WIFIA Program is capped with regard to the percentage of project cost it can finance (49%). WIFIA often is used in collaboration with CWSRF or other funding.

4.4.3 Infrastructure State Revolving Fund (California Infrastructure and Economic Development Bank)

Description – The Infrastructure State Revolving Fund (ISRF) program provides loans for public infrastructure projects including wastewater treatment projects.

Funding Amounts – Financing is available in amounts ranging from $1 million to $65 million per project.

Timelines – Applications can be submitted at any time and loans can normally be closed in nine months.

Considerations – The ISRF can finance similar types of projects as the CWSRF but operates with higher interest rates than that program. The real value in the ISRF is its ability to provide financing in as little as six to nine months. Should project delivery timelines for other funding sources become a constraint, the ISRF could provide an opportunity for additional funding with time certainty.

4.5 Regulatory Strategy and Roadmap

Upgrade and expansion of the NORSD WRRF will be subject to permit conditions that will be adopted by the cognizant state and regional regulatory agencies. The permitting processes and schedules differ from agency to agency and an appropriate level of project definition and design is required to initiate the permitting process. The regulatory strategy to maintain project schedule and minimize changes during construction is early engagement with the regulatory agencies. This will facilitate clear understanding of permit requirements, expectations for agency review and processing time, and effective communications with individual permit writers in each agency.

It is anticipated that the following agencies will issue permits for the design, construction, and operation of the project. Specific permitting requirements and schedules will be defined in the Design Basis Report at the 30% Design level.

4.5.1 Central Valley Regional Water Quality Control Board (RWQCB)

NORSD and the proposed project area is located within the jurisdiction of the Central Valley Regional Water Quality Control Board (RWQCB). Discharge from NORSD's WRRF is currently regulated by WDR Order No. R5-2009-0088, adopted by the Central Valley RWQCB in 2009 and amended in 2010 and 2011. The Order authorizes discharge of up to 7.5 MGD of undisinfected secondary recycled water to approximately 2,500 acres of nearby agricultural land for irrigation of non-food crops. The RWQCB is responsible for protecting water quality to meet the requirements of the Water Quality Control Plan for the Tulare Lake Basin (Basin Plan). The Basin Plan defines the beneficial uses of surface water and groundwater, effluent limits, discharges to land, and wastewater reclamation guidelines to protect the water quality of the basin.

Expansion of the plant to accommodate growth in the service area and upgrades to meet nitrogen discharge limits will require renewal of the WDR. NORSD staff has informed RWQCB staff of the upcoming expansion and upgrade project and RWQCB staff has provided their latest guidance for preparation of the Report of Waste Discharge (ROWD). The ROWD will be prepared after the treatment process, effluent disposal, and solids management parameters have been defined at the 60% to 90% design level. Submittal of the ROWD must be accompanied by a technical report describing the project, an application fee, and a draft or final environmental review document. Based on the ROWD, RWQCB will draft the WDR permit and will then typically provide a copy to the applicant for review and comment prior to releasing the draft WDR for public comment. After the public comment period closes, the RWQCB will address comments received and revise the permit (if applicable) prior to bringing the permit to the Regional Board hearing for adoption.

4.5.2 State Water Resources Control Board (SWRCB) Division of Drinking Water (DDW)

Should NORSD decide to move forward with a beneficial reuse project for recycling of the final effluent, compliance with Title 22 of the California Code of Regulations will be required. The State Water Resources Control Board (SWRCB) – Division of Drinking Water (DDW) develops criteria applicable to a range of reuse scenarios. Effluent water quality requirements are provided for undisinfected secondary, disinfected secondary, and disinfected tertiary and the requirements allow for various non-potable uses depending on the quality of the effluent. The goal of Title 22 requirements is to control pathogens and to prevent recycled water from causing illness in humans through exposures such as contact with effluent via spray irrigation and consumption of crops irrigated with recycled water. For a non-potable reuse project, a Title 22 Engineering Report must be submitted to DDW for review and approval that includes details on the WWTP and proposed reuse sites and how the Title 22 criteria are met. DDW will review and approve the report and provide an approval letter to the RWQCB noting any conditions or limitations that must be included in WDR. DDW also has authority over cross connection control via the regulations in Title 17 of the California Code of Regulations.

In addition to non-potable reuse, Title 22 includes criteria for potable reuse projects such as groundwater recharge via spreading and injection and surface water augmentation. Final groundwater recharge regulations were adopted and went into effect on June 18, 2014. The groundwater recharge regulations are organized by type of project: (1) surface application (surface spreading) and (2) subsurface application (injection or vadose zone wells). Since 2014, only injection projects have been successfully permitted and the two existing spreading projects have not yet come into full compliance with the 2014 regulations. With the requirement for a large supply of diluent water (up to 80% for projects upon initiation) and the new notification levels for per- and polyfluoroalkyl substances (PFAS), such as perfluorooctanoic acid (PFOA),

tertiary spreading of recycled water has become less feasible unless a system is already spreading imported water supply and provides additional treatment beyond tertiary filtration and disinfection.

4.5.3 San Joaquin Valley Air Pollution Control District (SJVAPCD)

The San Joaquin Valley Air Pollution Control District (SJVAPCD) is the local air permitting authority. The EPA sets national standards and oversees state and local actions. The California Air Resources Board (CARB) sets more stringent standards and oversees local actions. EPA and CARB regulations require additional emission control measures in areas where air pollution exceeds ambient air quality standards. The San Joaquin Valley exceeds air quality standards for ozone and fine particulate matter (PM2.5). EPA has classified the SJVAPCD as "Extreme Ozone Nonattainment for Ozone". SJVAPCD is required to meet the EPA ozone standard by 2037 and has developed a State Implementation Plan (SIP) to meet the standard. As part of the SIP, SJVAPCD has adopted rules to reduce ozone pollution including tighter emission requirements for flares, process heaters, boilers, and engines. Projects that have potential emissions of nitrogen oxides (NOx) or volatile organic compounds (VOCs), which are ozone precursors, above 10 tons per year are required to "offset" their emissions.

NORSD currently operates a flare, a digester gas-fired boiler, and a diesel emergency engine under SJVAPCD Permits to Operate. SJVAPCD has also issued an Authority to Construct a second digester gas-fired boiler.

An Authority to Construct will be required prior to the installation of any fuel burning equipment (e.g., flare, engine, turbine, or boiler) or equipment which will generate VOC or air toxic emissions. Depending on emission rates, emission offsets may also be required. Additional requirements may apply if the facility is in a disadvantaged community.

4.5.4 The California Environmental Quality Act (CEQA)

The California Environmental Quality Act (CEQA) requires agencies to consider the environmental consequences of projects before approving plans and policies or committing to a course of action on a project. If an agency determines that a proposed project falls under CEQA, it will usually take the following three steps: (1) determine whether the project falls under a statutory or categorical exemption from CEQA; (2) if the project is not exempt, prepare an initial study to determine whether the project might result in significant environmental effects; and (3) prepare a negative declaration, mitigated negative declaration, or Environmental Impact Report (EIR), depending on the results of the initial study.

The CEQA document will define mitigation measures and a mitigation monitoring program that may impose additional conditions beyond those contained in project permits issued by the RWQCB, SWRCB, or SJVAPCD.

If pursuing State Revolving Fund financing, the project must comply with CEQA and have the completed environmental documents to be included with their financing application. If federal funding is included, the CEQA document needs to address additional considerations that are included in the National Environmental Policy Act (NEPA).

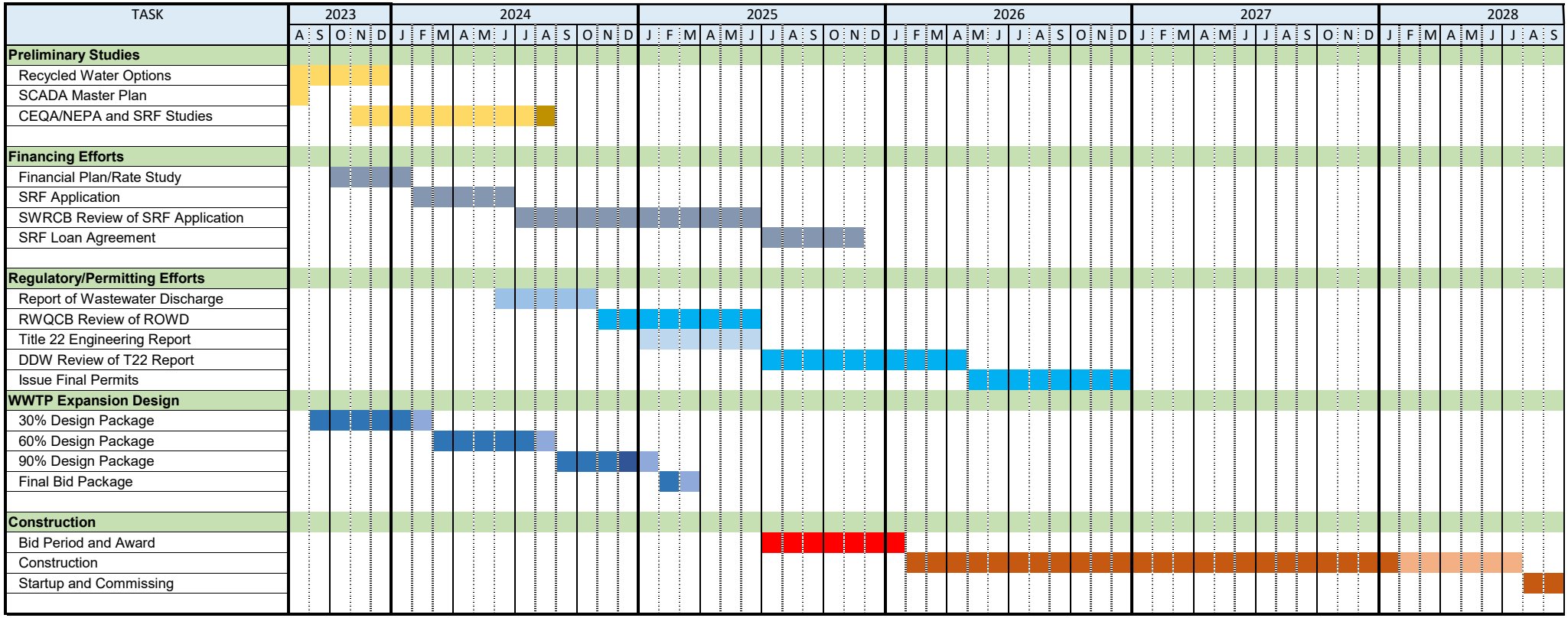
4.6 Implementation Schedule

A schedule of major activities for the NORSD WRRF upgrade project is included in Figure 7 on the following page.

FIGURE 7: NORSD WRRF PROJECT IMPLEMENTATION SCHEDULE

NORTH OF RIVER SANITARY DISTRICT

WASTEWATER TREATMENT PLANT EXPANSION - OVERALL PROJECT SCHEDULE



APPENDIX A: TECHNICAL MEMORANDA *(To be included in Final)*

APPENDIX B: PRELIMINARY GEOTECHNICAL REPORT

Woodard & Curran

woodardcurran.com

Appendix B
AQ/GHG/Energy Calculations

Appendix B
AQ/GHG/Energy Calculations

NORSD
Mobile Air Quality and GHG Assessment
Greenhouse Gas Emissions
Proposed Project Operational Mobile Emissions - HHDT Operational Assumptions

							Criteria Pollutant Emission Factors (lb/mile) - EMFAC2021										GHG Emission Factors (metric tons/mile)			
	Year	Work Days per Year	Max One-Way Trips per Day[1]	Avg VMT per Trip2	Max Daily VMT	Annual VMT	ROG	NOx	CO	SOx	PM10 Road Dust	PM10	PM10 Total	PM2.5 Road Dust	PM2.5	PM2.5 Total	CO2 *1*	CH4 *25*	N2O *298*	CO2e
HHDT	2028	365	16	40.0	640.0	233,600	1.32E-04	5.12E-03	1.87E-03	3.18E-05	6.61E-04	1.38E-04	7.99E-04	1.62E-04	3.12E-04	4.74E-04	1.54E-03	2.26E-08	2.43E-07	1.61E-03

							Criteria Pollutant Emissions (pounds/day)						GHG Emissions (metric tons/day)			
	Year	Work Days per Year	Max One-Way Trips per Day[1]	Avg VMT per Trip2	Max Daily VMT	Annual VMT	ROG	NOx	CO	SOx	PM10 Total	PM2.5 Total	CO2 *1*	CH4 *25*	N2O *298*	CO2e
HHDT	2028	365	16	40.0	640.0	233,600	0.08	3.28	1.20	0.02	0.51	0.30	0.98	0.00	0.00	1.03

Criteria Pollutant Emissions (tons/year)						GHG Emissions (metric tons/year)			
0.02	0.60	0.22	0.00	0.08	0.02	358.7	0.0	0.1	**375.7**

Note:
1. Assumes 16 one-way trips based on 8 vehicle bays from project description and 2 one-way trips per bay per day.
2. Assumes 40 mile per trip are derived from the Southern California Association of Government's (SCAG) estimation of average truck trip length in its 2016 Regional Transportation Plan.. Source: South Coast Air Quality Management District, Preliminary Draft Staff Report: Proposed Rule 2305 – Warehouse Indirect Source Rule – Warehouse Actions and Investments to Reduce Emissions Program.

California institute of technology GINSBURG CENTER FOR QUANTUM PRECISION MEASUREMENT
Road Dust Emission Factors

Paved Road Dust Emission Factors (Assumes No Precipitation)

Formula: $EF_{Dust,P} = (k\ (sL)^{0.91} \times (W)^{1.02})$

Where:

$EF_{Dust,P}$ = Paved Road Dust Emission Factor (having the same units as k)
k = particle size multiplier
sL = road surface silt loading (g/m^2)
W = average fleet vehicle weight (tons) (CARB uses 2.4 tons as a fleet average vehicle weight factor)

	Emission Factor (grams per VMT)	
	PM10	PM2.5
k	0.9979	0.2449
sL	0.1	0.1
W	2.4	2.4
$EF_{Dust,P}$	3.00E-01	7.36E-02

Unpaved Road Dust Emission Factors (Assumes No Precipitation)

Formula: $EF_{Dust,U} = (k\ (\ s / 12)^{1} \times (Sp / 30)^{0.5} / (M / 0.5)^{0.2}) - C)$

Where:

$EF_{Dust,U}$ = Unpaved Road Dust Emission Factor (having the same units as k)
k = particle size multiplier
s = surface material silt content (%)
Sp = mean vehicle speed (mph)
M = surface material moisture content (%)
C = Emission Factor for 1980s vehicle fleet exhaust, brake wear, and tire wear

	Emission Factor (grams per VMT)	
	PM10	PM2.5
k	816.47	81.65
s	4.3%	4.3%
Sp	15	15
M	0.5%	0.5%
C	0.00047	0.00036
$EF_{Dust,U}$	5.20E+00	5.19E-01

Sources:

CalEEMod, Version 2022.1.
CARB, *Entrained Dust from Paved Road Travel: Emission Estimation Methodology Background Document* , (1997).
USEPA, *AP-42* , Fifth Edition, Volume I, Chapter 13.2.1 - Paved Roads, (2011).
ESA, 2023

NORSD Detailed Report

Table of Contents

1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	NORSD
Construction Start Date	1/1/2026
Operational Year	2028
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	2.70
Precipitation (days)	16.2
Location	35.454064342179464, -119.34669071512715
County	Kern-San Joaquin
City	Shafter
Air District	San Joaquin Valley APCD
Air Basin	San Joaquin Valley
TAZ	2940
EDFZ	5
Electric Utility	Pacific Gas & Electric Company
Gas Utility	Southern California Gas
App Version	2022.1.1.28

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description
General Heavy Industry	150	1000sqft	3.44	150,000	0.00	—	—	—

General Office Building	6.00	1000sqft	0.14	6,000	0.00	—	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

No measures selected

2. Emissions Summary

2.1. Construction Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	11.4	11.3	29.2	30.0	0.05	1.24	7.88	9.12	1.14	3.99	5.13	—	5,529	5,529	0.22	0.17	4.45	5,550
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	2.79	2.34	20.7	19.7	0.03	0.84	1.02	1.44	0.78	0.25	0.82	—	4,205	4,205	0.14	0.17	0.13	4,259
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	2.21	2.17	13.7	15.2	0.03	0.56	2.14	2.70	0.52	1.01	1.53	—	3,000	3,000	0.11	0.12	1.37	3,039
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.40	0.40	2.50	2.78	< 0.005	0.10	0.39	0.49	0.09	0.18	0.28	—	497	497	0.02	0.02	0.23	503

2.2. Construction Emissions by Year, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2026	3.83	3.22	29.2	30.0	0.05	1.24	7.88	9.12	1.14	3.99	5.13	—	5,529	5,529	0.22	0.05	0.76	5,550
2027	1.63	1.40	11.3	18.5	0.03	0.38	1.02	1.40	0.35	0.25	0.60	—	4,273	4,273	0.13	0.17	4.45	4,331
2028	11.4	11.3	7.07	11.6	0.02	0.25	0.24	0.50	0.23	0.06	0.29	—	1,852	1,852	0.07	0.02	0.70	1,861
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2026	2.79	2.34	20.7	19.7	0.03	0.84	1.02	1.44	0.78	0.25	0.82	—	4,205	4,205	0.14	0.17	0.13	4,259
2027	1.61	1.37	11.4	17.2	0.03	0.38	1.02	1.40	0.35	0.25	0.60	—	4,171	4,171	0.13	0.17	0.12	4,225
2028	1.54	1.29	10.8	16.9	0.03	0.34	1.02	1.36	0.31	0.25	0.56	—	4,137	4,137	0.13	0.17	0.10	4,191
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2026	1.84	1.55	13.7	15.2	0.03	0.56	2.14	2.70	0.52	1.01	1.53	—	2,945	2,945	0.11	0.05	0.55	2,963
2027	1.15	0.98	8.10	12.4	0.02	0.27	0.72	0.99	0.25	0.18	0.42	—	3,000	3,000	0.09	0.12	1.37	3,039
2028	2.21	2.17	1.57	2.55	< 0.005	0.05	0.08	0.13	0.05	0.02	0.07	—	425	425	0.01	0.01	0.11	428
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2026	0.34	0.28	2.50	2.78	< 0.005	0.10	0.39	0.49	0.09	0.18	0.28	—	488	488	0.02	0.01	0.09	491
2027	0.21	0.18	1.48	2.27	< 0.005	0.05	0.13	0.18	0.05	0.03	0.08	—	497	497	0.02	0.02	0.23	503
2028	0.40	0.40	0.29	0.46	< 0.005	0.01	0.01	0.02	0.01	< 0.005	0.01	—	70.4	70.4	< 0.005	< 0.005	0.02	70.8

2.4. Operations Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	4.93	4.75	1.77	8.23	0.01	0.14	0.00	0.14	0.14	0.00	0.14	172	3,226	3,398	17.7	0.19	39.1	3,938

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	3.73	3.63	1.72	1.44	0.01	0.13	0.00	0.13	0.13	0.00	0.13	172	3,198	3,370	17.7	0.19	39.1	3,910
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	4.32	4.18	1.74	4.79	0.01	0.14	0.00	0.14	0.13	0.00	0.13	172	3,212	3,384	17.7	0.19	39.1	3,923
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.79	0.76	0.32	0.87	< 0.005	0.02	0.00	0.02	0.02	0.00	0.02	28.4	532	560	2.93	0.03	6.47	650

2.5. Operations Emissions by Sector, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Sector	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Area	4.74	4.65	0.06	6.78	< 0.005	0.01	—	0.01	0.01	—	0.01	—	27.9	27.9	< 0.005	< 0.005	—	28.0
Energy	0.19	0.09	1.72	1.44	0.01	0.13	—	0.13	0.13	—	0.13	—	3,120	3,120	0.35	0.02	—	3,136
Water	—	—	—	—	—	—	—	—	—	—	—	68.5	78.7	147	7.04	0.17	—	373
Waste	—	—	—	—	—	—	—	—	—	—	—	103	0.00	103	10.3	0.00	—	361
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	39.1	39.1
Total	4.93	4.75	1.77	8.23	0.01	0.14	0.00	0.14	0.14	0.00	0.14	172	3,226	3,398	17.7	0.19	39.1	3,938
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Area	3.54	3.54	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Energy	0.19	0.09	1.72	1.44	0.01	0.13	—	0.13	0.13	—	0.13	—	3,120	3,120	0.35	0.02	—	3,136

Water	—	—	—	—	—	—	—	—	—	—	—	68.5	78.7	147	7.04	0.17	—	373
Waste	—	—	—	—	—	—	—	—	—	—	—	103	0.00	103	10.3	0.00	—	361
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	39.1	39.1
Total	3.73	3.63	1.72	1.44	0.01	0.13	0.00	0.13	0.13	0.00	0.13	172	3,198	3,370	17.7	0.19	39.1	3,910
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Area	4.13	4.09	0.03	3.35	< 0.005	0.01	—	0.01	< 0.005	—	< 0.005	—	13.8	13.8	< 0.005	< 0.005	—	13.8
Energy	0.19	0.09	1.72	1.44	0.01	0.13	—	0.13	0.13	—	0.13	—	3,120	3,120	0.35	0.02	—	3,136
Water	—	—	—	—	—	—	—	—	—	—	—	68.5	78.7	147	7.04	0.17	—	373
Waste	—	—	—	—	—	—	—	—	—	—	—	103	0.00	103	10.3	0.00	—	361
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	39.1	39.1
Total	4.32	4.18	1.74	4.79	0.01	0.14	0.00	0.14	0.13	0.00	0.13	172	3,212	3,384	17.7	0.19	39.1	3,923
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Area	0.75	0.75	0.01	0.61	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	2.28	2.28	< 0.005	< 0.005	—	2.29
Energy	0.03	0.02	0.31	0.26	< 0.005	0.02	—	0.02	0.02	—	0.02	—	516	516	0.06	< 0.005	—	519
Water	—	—	—	—	—	—	—	—	—	—	—	11.3	13.0	24.4	1.17	0.03	—	61.8
Waste	—	—	—	—	—	—	—	—	—	—	—	17.1	0.00	17.1	1.71	0.00	—	59.8
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	6.47	6.47
Total	0.79	0.76	0.32	0.87	< 0.005	0.02	0.00	0.02	0.02	0.00	0.02	28.4	532	560	2.93	0.03	6.47	650

3. Construction Emissions Details

3.1. Demolition (2026) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.72	2.29	20.7	19.0	0.03	0.84	—	0.84	0.78	—	0.78	—	3,427	3,427	0.14	0.03	—	3,438
Demolition	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.72	2.29	20.7	19.0	0.03	0.84	—	0.84	0.78	—	0.78	—	3,427	3,427	0.14	0.03	—	3,438
Demolition	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.49	0.41	3.68	3.38	0.01	0.15	—	0.15	0.14	—	0.14	—	610	610	0.02	< 0.005	—	612
Demolition	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.09	0.07	0.67	0.62	< 0.005	0.03	—	0.03	0.03	—	0.03	—	101	101	< 0.005	< 0.005	—	101

Demoliti	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.07	0.06	1.04	0.00	0.00	0.18	0.18	0.00	0.04	0.04	—	198	198	< 0.005	0.01	0.65	201
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.06	0.07	0.71	0.00	0.00	0.18	0.18	0.00	0.04	0.04	—	174	174	< 0.005	0.01	0.02	176
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.14	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	32.1	32.1	< 0.005	< 0.005	0.05	32.6
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.03	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	5.32	5.32	< 0.005	< 0.005	0.01	5.39
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.3. Site Preparation (2026) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
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	—	5,298	5,298	0.21	0.04	—	5,316
Dust From Material Movement	—	—	—	—	—	—	7.67	7.67	—	3.94	3.94	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.67	0.56	5.19	5.13	0.01	0.22	—	0.22	0.20	—	0.20	—	943	943	0.04	0.01	—	947
Dust From Material Movement	—	—	—	—	—	—	1.37	1.37	—	0.70	0.70	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.12	0.10	0.95	0.94	< 0.005	0.04	—	0.04	0.04	—	0.04	—	156	156	0.01	< 0.005	—	157
Dust From Material Movement	—	—	—	—	—	—	0.25	0.25	—	0.13	0.13	—	—	—	—	—	—	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.08	0.08	0.07	1.21	0.00	0.00	0.21	0.21	0.00	0.05	0.05	—	231	231	< 0.005	0.01	0.76	234
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.16	0.00	0.00	0.04	0.04	0.00	0.01	0.01	—	37.5	37.5	< 0.005	< 0.005	0.06	38.0
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.03	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	6.21	6.21	< 0.005	< 0.005	0.01	6.29
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.5. Grading (2026) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	1.96	1.65	15.0	17.4	0.03	0.65	—	0.65	0.59	—	0.59	—	2,960	2,960	0.12	0.02	—	2,970
Dust From Material Movement	—	—	—	—	—	—	2.76	2.76	—	1.34	1.34	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.35	0.29	2.67	3.11	< 0.005	0.12	—	0.12	0.11	—	0.11	—	527	527	0.02	< 0.005	—	529
Dust From Material Movement	—	—	—	—	—	—	0.49	0.49	—	0.24	0.24	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.06	0.05	0.49	0.57	< 0.005	0.02	—	0.02	0.02	—	0.02	—	87.3	87.3	< 0.005	< 0.005	—	87.6
Dust From Material Movement	—	—	—	—	—	—	0.09	0.09	—	0.04	0.04	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.07	0.06	1.04	0.00	0.00	0.18	0.18	0.00	0.04	0.04	—	198	198	< 0.005	0.01	0.65	201
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.14	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	32.1	32.1	< 0.005	< 0.005	0.05	32.6
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.03	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	5.32	5.32	< 0.005	< 0.005	0.01	5.39
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.7. Building Construction (2026) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	1.38	1.16	10.7	14.1	0.03	0.41	—	0.41	0.38	—	0.38	—	2,630	2,630	0.11	0.02	—	2,639
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.25	0.21	1.92	2.53	< 0.005	0.07	—	0.07	0.07	—	0.07	—	473	473	0.02	< 0.005	—	475
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.05	0.04	0.35	0.46	< 0.005	0.01	—	0.01	0.01	—	0.01	—	78.4	78.4	< 0.005	< 0.005	—	78.7
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.28	0.25	0.30	3.08	0.00	0.00	0.79	0.79	0.00	0.19	0.19	—	752	752	0.01	0.03	0.07	761
Vendor	0.03	0.02	0.98	0.31	0.01	0.01	0.23	0.24	0.01	0.06	0.07	—	823	823	0.01	0.12	0.06	859
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.05	0.05	0.60	0.00	0.00	0.14	0.14	0.00	0.03	0.03	—	141	141	< 0.005	0.01	0.22	143
Vendor	0.01	< 0.005	0.17	0.05	< 0.005	< 0.005	0.04	0.04	< 0.005	0.01	0.01	—	148	148	< 0.005	0.02	0.17	155

Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.11	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	23.3	23.3	< 0.005	< 0.005	0.04	23.6
Vendor	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	24.5	24.5	< 0.005	< 0.005	0.03	25.6
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.9. Building Construction (2027) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.33	1.11	10.2	14.0	0.03	0.36	—	0.36	0.34	—	0.34	—	2,630	2,630	0.11	0.02	—	2,639
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.33	1.11	10.2	14.0	0.03	0.36	—	0.36	0.34	—	0.34	—	2,630	2,630	0.11	0.02	—	2,639
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.95	0.79	7.27	10.0	0.02	0.26	—	0.26	0.24	—	0.24	—	1,878	1,878	0.08	0.02	—	1,885

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.17	0.14	1.33	1.83	< 0.005	0.05	—	0.05	0.04	—	0.04	—	311	311	0.01	< 0.005	—	312
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.27	0.27	0.21	4.15	0.00	0.00	0.79	0.79	0.00	0.19	0.19	—	840	840	0.01	0.03	2.54	851
Vendor	0.04	0.03	0.88	0.28	0.01	0.01	0.23	0.24	0.01	0.06	0.07	—	804	804	0.01	0.12	1.91	841
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.24	0.24	0.27	2.83	0.00	0.00	0.79	0.79	0.00	0.19	0.19	—	737	737	0.01	0.03	0.07	746
Vendor	0.03	0.02	0.94	0.29	0.01	0.01	0.23	0.24	0.01	0.06	0.07	—	805	805	0.01	0.12	0.05	840
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.18	0.17	0.17	2.21	0.00	0.00	0.56	0.56	0.00	0.13	0.13	—	547	547	0.01	0.02	0.78	554
Vendor	0.02	0.02	0.66	0.20	< 0.005	0.01	0.16	0.17	0.01	0.04	0.05	—	575	575	0.01	0.08	0.59	600
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.03	0.40	0.00	0.00	0.10	0.10	0.00	0.02	0.02	—	90.5	90.5	< 0.005	< 0.005	0.13	91.7
Vendor	< 0.005	< 0.005	0.12	0.04	< 0.005	< 0.005	0.03	0.03	< 0.005	0.01	0.01	—	95.1	95.1	< 0.005	0.01	0.10	99.4
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.11. Building Construction (2028) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.28	1.07	9.66	14.0	0.03	0.33	—	0.33	0.30	—	0.30	—	2,630	2,630	0.11	0.02	—	2,639
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.09	0.14	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	25.7	25.7	< 0.005	< 0.005	—	25.8
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.02	0.03	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	4.26	4.26	< 0.005	< 0.005	—	4.28
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.23	0.20	0.24	2.63	0.00	0.00	0.79	0.79	0.00	0.19	0.19	—	723	723	0.01	0.03	0.06	732
Vendor	0.03	0.02	0.91	0.28	0.01	0.01	0.23	0.24	0.01	0.06	0.07	—	784	784	0.01	0.12	0.04	819
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.03	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	7.34	7.34	< 0.005	< 0.005	0.01	7.44
Vendor	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	7.67	7.67	< 0.005	< 0.005	0.01	8.02
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.22	1.22	< 0.005	< 0.005	< 0.005	1.23
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	1.27	1.27	< 0.005	< 0.005	< 0.005	1.33
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.13. Paving (2028) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.91	0.76	7.01	10.4	0.02	0.25	—	0.25	0.23	—	0.23	—	1,598	1,598	0.06	0.01	—	1,604
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.91	0.76	7.01	10.4	0.02	0.25	—	0.25	0.23	—	0.23	—	1,598	1,598	0.06	0.01	—	1,604
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.16	0.14	1.25	1.85	< 0.005	0.04	—	0.04	0.04	—	0.04	—	285	285	0.01	< 0.005	—	286
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.03	0.02	0.23	0.34	< 0.005	0.01	—	0.01	0.01	—	0.01	—	47.1	47.1	< 0.005	< 0.005	—	47.3
Paving	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.08	0.08	0.06	1.19	0.00	0.00	0.24	0.24	0.00	0.06	0.06	—	254	254	< 0.005	0.01	0.70	257
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.06	0.08	0.81	0.00	0.00	0.24	0.24	0.00	0.06	0.06	—	223	223	< 0.005	0.01	0.02	226
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.16	0.00	0.00	0.04	0.04	0.00	0.01	0.01	—	41.2	41.2	< 0.005	< 0.005	0.05	41.7
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.03	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	6.82	6.82	< 0.005	< 0.005	0.01	6.91
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.15. Architectural Coating (2028) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.17	0.14	1.08	1.49	< 0.005	0.02	—	0.02	0.02	—	0.02	—	178	178	0.01	< 0.005	—	179
Architectural Coatings	11.1	11.1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.03	0.03	0.19	0.27	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	31.7	31.7	< 0.005	< 0.005	—	31.8
Architectural Coatings	1.98	1.98	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	< 0.005	0.04	0.05	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	5.25	5.25	< 0.005	< 0.005	—	5.27
Architectural Coatings	0.36	0.36	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.05	0.04	0.77	0.00	0.00	0.16	0.16	0.00	0.04	0.04	—	165	165	< 0.005	0.01	0.45	167
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.10	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	26.7	26.7	< 0.005	< 0.005	0.03	27.1
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.02	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	4.43	4.43	< 0.005	< 0.005	0.01	4.48
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

4. Operations Emissions Details

4.1. Mobile Emissions by Land Use

4.1.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
General Office Building	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
General Office Building	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
General Office Building	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

4.2. Energy

4.2.1. Electricity Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	—	—	995	995	0.16	0.02	—	1,004
General Office Building	—	—	—	—	—	—	—	—	—	—	—	—	78.6	78.6	0.01	< 0.005	—	79.4
Total	—	—	—	—	—	—	—	—	—	—	—	—	1,073	1,073	0.17	0.02	—	1,084

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	—	—	995	995	0.16	0.02	—	1,004
General Office Building	—	—	—	—	—	—	—	—	—	—	—	—	78.6	78.6	0.01	< 0.005	—	79.4
Total	—	—	—	—	—	—	—	—	—	—	—	—	1,073	1,073	0.17	0.02	—	1,084
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	—	—	165	165	0.03	< 0.005	—	166
General Office Building	—	—	—	—	—	—	—	—	—	—	—	—	13.0	13.0	< 0.005	< 0.005	—	13.1
Total	—	—	—	—	—	—	—	—	—	—	—	—	178	178	0.03	< 0.005	—	179

4.2.3. Natural Gas Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	0.18	0.09	1.65	1.39	0.01	0.13	—	0.13	0.13	—	0.13	—	1,970	1,970	0.17	< 0.005	—	1,975
General Office Building	0.01	< 0.005	0.06	0.05	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	76.8	76.8	0.01	< 0.005	—	77.0
Total	0.19	0.09	1.72	1.44	0.01	0.13	—	0.13	0.13	—	0.13	—	2,046	2,046	0.18	< 0.005	—	2,052

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	0.18	0.09	1.65	1.39	0.01	0.13	—	0.13	0.13	—	0.13	—	1,970	1,970	0.17	< 0.005	—	1,975
General Office Building	0.01	< 0.005	0.06	0.05	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	76.8	76.8	0.01	< 0.005	—	77.0
Total	0.19	0.09	1.72	1.44	0.01	0.13	—	0.13	0.13	—	0.13	—	2,046	2,046	0.18	< 0.005	—	2,052
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	0.03	0.02	0.30	0.25	< 0.005	0.02	—	0.02	0.02	—	0.02	—	326	326	0.03	< 0.005	—	327
General Office Building	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	12.7	12.7	< 0.005	< 0.005	—	12.8
Total	0.03	0.02	0.31	0.26	< 0.005	0.02	—	0.02	0.02	—	0.02	—	339	339	0.03	< 0.005	—	340

4.3. Area Emissions by Source

4.3.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Source	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	3.34	3.34	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.20	0.20	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Landsca Equipment	1.21	1.11	0.06	6.78	< 0.005	0.01	—	0.01	0.01	—	0.01	—	27.9	27.9	< 0.005	< 0.005	—	28.0
Total	4.74	4.65	0.06	6.78	< 0.005	0.01	—	0.01	0.01	—	0.01	—	27.9	27.9	< 0.005	< 0.005	—	28.0
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	3.34	3.34	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.20	0.20	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	3.54	3.54	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	0.61	0.61	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.04	0.04	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.11	0.10	0.01	0.61	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	2.28	2.28	< 0.005	< 0.005	—	2.29
Total	0.75	0.75	0.01	0.61	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	2.28	2.28	< 0.005	< 0.005	—	2.29

4.4. Water Emissions by Land Use

4.4.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	—	66.5	76.4	143	6.83	0.16	—	362
General Office Building	—	—	—	—	—	—	—	—	—	—	—	2.04	2.35	4.39	0.21	0.01	—	11.1
Total	—	—	—	—	—	—	—	—	—	—	—	68.5	78.7	147	7.04	0.17	—	373
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	—	66.5	76.4	143	6.83	0.16	—	362
General Office Building	—	—	—	—	—	—	—	—	—	—	—	2.04	2.35	4.39	0.21	0.01	—	11.1
Total	—	—	—	—	—	—	—	—	—	—	—	68.5	78.7	147	7.04	0.17	—	373
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	—	11.0	12.6	23.6	1.13	0.03	—	60.0
General Office Building	—	—	—	—	—	—	—	—	—	—	—	0.34	0.39	0.73	0.03	< 0.005	—	1.84
Total	—	—	—	—	—	—	—	—	—	—	—	11.3	13.0	24.4	1.17	0.03	—	61.8

4.5. Waste Emissions by Land Use

4.5.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	—	100	0.00	100	10.0	0.00	—	351
General Office Building	—	—	—	—	—	—	—	—	—	—	—	3.01	0.00	3.01	0.30	0.00	—	10.5
Total	—	—	—	—	—	—	—	—	—	—	—	103	0.00	103	10.3	0.00	—	361
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	—	100	0.00	100	10.0	0.00	—	351
General Office Building	—	—	—	—	—	—	—	—	—	—	—	3.01	0.00	3.01	0.30	0.00	—	10.5
Total	—	—	—	—	—	—	—	—	—	—	—	103	0.00	103	10.3	0.00	—	361
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	—	16.6	0.00	16.6	1.66	0.00	—	58.1
General Office Building	—	—	—	—	—	—	—	—	—	—	—	0.50	0.00	0.50	0.05	0.00	—	1.74
Total	—	—	—	—	—	—	—	—	—	—	—	17.1	0.00	17.1	1.71	0.00	—	59.8

4.6. Refrigerant Emissions by Land Use

4.6.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	39.0	39.0
General Office Building	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.01	0.01
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	39.1	39.1
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	39.0	39.0
General Office Building	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.01	0.01
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	39.1	39.1
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	6.46	6.46
General Office Building	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	< 0.005	< 0.005
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	6.47	6.47

4.7. Offroad Emissions By Equipment Type

4.7.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipm Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.8. Stationary Emissions By Equipment Type

4.8.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.9. User Defined Emissions By Equipment Type

4.9.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

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

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

5. Activity Data

5.1. Construction Schedule

Phase Name	Phase Type	Start Date	End Date	Days Per Week	Work Days per Phase	Phase Description
Demolition	Demolition	1/1/2026	4/1/2026	5.00	65.0	—
Site Preparation	Site Preparation	4/2/2026	7/1/2026	5.00	65.0	—
Grading	Grading	7/2/2026	9/30/2026	5.00	65.0	—

Building Construction	Building Construction	10/1/2026	1/5/2028	5.00	330	—
Paving	Paving	1/6/2028	4/5/2028	5.00	65.0	—
Architectural Coating	Architectural Coating	4/6/2028	7/5/2028	5.00	65.0	—

5.2. Off-Road Equipment

5.2.1. Unmitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Demolition	Concrete/Industrial Saws	Diesel	Average	1.00	8.00	33.0	0.73
Demolition	Excavators	Diesel	Average	3.00	8.00	36.0	0.38
Demolition	Rubber Tired Dozers	Diesel	Average	2.00	8.00	367	0.40
Site Preparation	Rubber Tired Dozers	Diesel	Average	3.00	8.00	367	0.40
Site Preparation	Tractors/Loaders/Backhoes	Diesel	Average	4.00	8.00	84.0	0.37
Grading	Excavators	Diesel	Average	1.00	8.00	36.0	0.38
Grading	Graders	Diesel	Average	1.00	8.00	148	0.41
Grading	Rubber Tired Dozers	Diesel	Average	1.00	8.00	367	0.40
Grading	Tractors/Loaders/Backhoes	Diesel	Average	3.00	8.00	84.0	0.37
Building Construction	Cranes	Diesel	Average	1.00	8.00	367	0.29
Building Construction	Tractors/Loaders/Backhoes	Diesel	Average	3.00	8.00	84.0	0.37
Building Construction	Forklifts	Diesel	Average	3.00	8.00	82.0	0.20
Building Construction	Generator Sets	Diesel	Average	1.00	8.00	14.0	0.74
Building Construction	Welders	Diesel	Average	1.00	8.00	46.0	0.45
Paving	Cement and Mortar Mixers	Diesel	Average	2.00	8.00	10.0	0.56
Paving	Paving Equipment	Diesel	Average	2.00	8.00	89.0	0.36
Paving	Rollers	Diesel	Average	2.00	8.00	36.0	0.38

Paving	Pavers	Diesel	Average	1.00	8.00	81.0	0.42
Paving	Tractors/Loaders/Backhoes	Diesel	Average	1.00	8.00	84.0	0.37
Architectural Coating	Air Compressors	Diesel	Average	1.00	8.00	37.0	0.48

5.3. Construction Vehicles

5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Demolition	—	—	—	—
Demolition	Worker	15.0	17.3	LDA,LDT1,LDT2
Demolition	Vendor	—	10.6	HHDT,MHDT
Demolition	Hauling	0.00	20.0	HHDT
Demolition	Onsite truck	—	—	HHDT
Site Preparation	—	—	—	—
Site Preparation	Worker	17.5	17.3	LDA,LDT1,LDT2
Site Preparation	Vendor	—	10.6	HHDT,MHDT
Site Preparation	Hauling	0.00	20.0	HHDT
Site Preparation	Onsite truck	—	—	HHDT
Grading	—	—	—	—
Grading	Worker	15.0	17.3	LDA,LDT1,LDT2
Grading	Vendor	—	10.6	HHDT,MHDT
Grading	Hauling	0.00	20.0	HHDT
Grading	Onsite truck	—	—	HHDT
Building Construction	—	—	—	—
Building Construction	Worker	64.9	17.3	LDA,LDT1,LDT2
Building Construction	Vendor	25.6	10.6	HHDT,MHDT
Building Construction	Hauling	0.00	20.0	HHDT
Building Construction	Onsite truck	—	—	HHDT

Paving	—	—	—	—
Paving	Worker	20.0	17.3	LDA,LDT1,LDT2
Paving	Vendor	—	10.6	HHDT,MHDT
Paving	Hauling	0.00	20.0	HHDT
Paving	Onsite truck	—	—	HHDT
Architectural Coating	—	—	—	—
Architectural Coating	Worker	13.0	17.3	LDA,LDT1,LDT2
Architectural Coating	Vendor	—	10.6	HHDT,MHDT
Architectural Coating	Hauling	0.00	20.0	HHDT
Architectural Coating	Onsite truck	—	—	HHDT

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

Non-applicable. No control strategies activated by user.

5.5. Architectural Coatings

Phase Name	Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
Architectural Coating	0.00	0.00	234,000	78,000	—

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

Phase Name	Material Imported (cy)	Material Exported (cy)	Acres Graded (acres)	Material Demolished (sq. ft.)	Acres Paved (acres)
Demolition	0.00	0.00	0.00	—	—
Site Preparation	—	—	97.5	0.00	—
Grading	—	—	65.0	0.00	—
Paving	0.00	0.00	0.00	0.00	0.00

5.6.2. Construction Earthmoving Control Strategies

Control Strategies Applied	Frequency (per day)	PM10 Reduction	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
General Heavy Industry	0.00	0%
General Office Building	0.00	0%

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2026	0.00	204	0.03	< 0.005
2027	0.00	204	0.03	< 0.005
2028	0.00	204	0.03	< 0.005

5.9. Operational Mobile Sources

5.9.1. Unmitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
General Heavy Industry	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
General Office Building	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

5.10. Operational Area Sources

5.10.1. Hearths

5.10.1.1. Unmitigated

5.10.2. Architectural Coatings

Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
0	0.00	234,000	78,000	—

5.10.3. Landscape Equipment

Season	Unit	Value
Snow Days	day/yr	0.00
Summer Days	day/yr	180

5.11. Operational Energy Consumption

5.11.1. Unmitigated

Electricity (kWh/yr) and CO2 and CH4 and N2O and Natural Gas (kBTU/yr)

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)
General Heavy Industry	1,779,620	204	0.0330	0.0040	6,145,848
General Office Building	140,678	204	0.0330	0.0040	239,635

5.12. Operational Water and Wastewater Consumption

5.12.1. Unmitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
General Heavy Industry	34,687,500	0.00
General Office Building	1,066,402	0.00

5.13. Operational Waste Generation

5.13.1. Unmitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
General Heavy Industry	186	—
General Office Building	5.58	—

5.14. Operational Refrigeration and Air Conditioning Equipment

5.14.1. Unmitigated

Land Use Type	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced
General Heavy Industry	Other commercial A/C and heat pumps	R-410A	2,088	0.30	4.00	4.00	18.0
General Office Building	Household refrigerators and/or freezers	R-134a	1,430	0.02	0.60	0.00	1.00
General Office Building	Other commercial A/C and heat pumps	R-410A	2,088	< 0.005	4.00	4.00	18.0

5.15. Operational Off-Road Equipment

5.15.1. Unmitigated

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

5.16. Stationary Sources

5.16.1. Emergency Generators and Fire Pumps

Equipment Type	Fuel Type	Number per Day	Hours per Day	Hours per Year	Horsepower	Load Factor

5.16.2. Process Boilers

Equipment Type	Fuel Type	Number	Boiler Rating (MMBtu/hr)	Daily Heat Input (MMBtu/day)	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 Type	Initial Acres	Final Acres

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.2. Sequestration

5.18.2.1. Unmitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

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

Climate Hazard	Result for Project Location	Unit
Temperature and Extreme Heat	24.0	annual days of extreme heat
Extreme Precipitation	0.00	annual days with precipitation above 20 mm
Sea Level Rise	—	meters of inundation depth
Wildfire	0.00	annual hectares burned

Temperature and Extreme Heat data are for grid cell in which your project are located. The projection is based on the 98th historical percentile of daily maximum/minimum temperatures from observed historical data (32 climate model ensemble from Cal-Adapt, 2040–2059 average under RCP 8.5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Extreme Precipitation data are for the grid cell in which your project are located. The threshold of 20 mm is equivalent to about ¾ an inch of rain, which would be light to moderate rainfall if received over a full day or heavy rain if received over a period of 2 to 4 hours. Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Sea Level Rise data are for the grid cell in which your project are located. The projections are from Radke et al. (2017), as reported in Cal-Adapt (Radke et al., 2017, CEC-500-2017-008), and consider inundation location and depth for the San Francisco Bay, the Sacramento-San Joaquin River Delta and California coast resulting different increments of sea level rise coupled with extreme storm events. Users may select from four scenarios to view the range in potential inundation depth for the grid cell. The four scenarios are: No rise, 0.5 meter, 1.0 meter, 1.41 meters
Wildfire data are for the grid cell in which your project are located. The projections are from UC Davis, as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider historical data of climate, vegetation, population density, and large (> 400 ha) fire history. Users may select from four model simulations to view the range in potential wildfire probabilities for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

6.2. Initial Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	1	0	0	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	0	0	0	N/A
Drought	0	0	0	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	0	0	0	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores do not include implementation of climate risk reduction measures.

6.3. Adjusted Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	1	1	1	2
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	1	1	1	2
Drought	1	1	1	2
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	1	1	1	2

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	82.5
AQ-PM	95.4
AQ-DPM	5.76
Drinking Water	96.1
Lead Risk Housing	81.4

Pesticides	94.1
Toxic Releases	50.9
Traffic	0.71
Effect Indicators	—
CleanUp Sites	7.71
Groundwater	85.3
Haz Waste Facilities/Generators	67.6
Impaired Water Bodies	0.00
Solid Waste	86.5
Sensitive Population	—
Asthma	42.4
Cardio-vascular	67.5
Low Birth Weights	15.4
Socioeconomic Factor Indicators	—
Education	86.9
Housing	79.3
Linguistic	95.6
Poverty	87.8
Unemployment	61.5

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	—
Employed	—
Median HI	—
Education	—

Bachelor's or higher	—
High school enrollment	—
Preschool enrollment	—
Transportation	—
Auto Access	—
Active commuting	—
Social	—
2-parent households	—
Voting	—
Neighborhood	—
Alcohol availability	—
Park access	—
Retail density	—
Supermarket access	—
Tree canopy	—
Housing	—
Homeownership	—
Housing habitability	—
Low-inc homeowner severe housing cost burden	—
Low-inc renter severe housing cost burden	—
Uncrowded housing	—
Health Outcomes	—
Insured adults	—
Arthritis	0.0
Asthma ER Admissions	55.4
High Blood Pressure	0.0
Cancer (excluding skin)	0.0
Asthma	0.0

Coronary Heart Disease	0.0
Chronic Obstructive Pulmonary Disease	0.0
Diagnosed Diabetes	0.0
Life Expectancy at Birth	0.0
Cognitively Disabled	64.4
Physically Disabled	74.5
Heart Attack ER Admissions	23.2
Mental Health Not Good	0.0
Chronic Kidney Disease	0.0
Obesity	0.0
Pedestrian Injuries	0.0
Physical Health Not Good	0.0
Stroke	0.0
Health Risk Behaviors	—
Binge Drinking	0.0
Current Smoker	0.0
No Leisure Time for Physical Activity	0.0
Climate Change Exposures	—
Wildfire Risk	0.0
SLR Inundation Area	0.0
Children	65.5
Elderly	68.4
English Speaking	0.0
Foreign-born	0.0
Outdoor Workers	1.8
Climate Change Adaptive Capacity	—
Impervious Surface Cover	96.4
Traffic Density	0.0

Traffic Access	0.0
Other Indices	—
Hardship	0.0
Other Decision Support	—
2016 Voting	0.0

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	83.0
Healthy Places Index Score for Project Location (b)	—
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	Yes
Project Located in a Low-Income Community (Assembly Bill 1550)	Yes
Project Located in a Community Air Protection Program Community (Assembly Bill 617)	No

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

7.4. Health & Equity Measures

No Health & Equity Measures selected.

7.5. Evaluation Scorecard

Health & Equity Evaluation Scorecard not completed.

7.6. Health & Equity Custom Measures

No Health & Equity Custom Measures created.

8. User Changes to Default Data

Screen	Justification
Construction: Off-Road Equipment	Conservatively assumed equipment runs for the full work day of 8 hours
Construction: Construction Phases	Project starts first quarter of 2026 and is completed by the third quarter of 2028 (approximately 2.5 years). Information provided by applicant

Operations: Vehicle Data	Mobile trips calculated off model using EMFAC 2021.

Appendix C

Biological Resources Support Documents

Appendix C
Representative Photographs

Photo 1 (N). Photo depicts recently planted corn field, south of wastewater facility.

Photo 2 (W). Photo depicts areas between wastewater basins, mostly devoid of vegetation.

Photo 3 (S). Photo depicts the wastewater facility in the background with dense corn fields north of the facility in the foreground.

Photo 4 (S). Photo depicts the northwest corner of the project site, including corn fields located north of the wastewater facility.

Appendix C
Floral and Faunal Compendia

FLORA

EUDICOTS

Scientific Name	Common Name
Fabaceae	**Legume Family**
Medicago sativa	Alfalfa
Poaceae	**Grass Family**
Zea sp.	maize

FAUNA

REPTILES

Scientific Name	Common Name
Accipitridae	**Hawks**
Buteo jamaicensis	red-tailed hawk
Tyrannidae	**Tyrant Flycatchers**
Tyrannus vociferans	Cassin's kingbird

IPaC **U.S. Fish & Wildlife Service**

IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

Location

Kern County, California

Local office

Sacramento Fish And Wildlife Office

(916) 414-6600
(916) 414-6713

Federal Building
2800 Cottage Way, Room W-2605
Sacramento, CA 95825-1846

Endangered species

This resource list is for informational purposes only and does not constitute an analysis of project level impacts.

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Draw the project location and click CONTINUE.
2. Click DEFINE PROJECT.
3. Log in (if directed to do so).
4. Provide a name and description for your project.
5. Click REQUEST SPECIES LIST.

Listed species[1] and their critical habitats are managed by the Ecological Services Program of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries[2]).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact NOAA Fisheries for species under their jurisdiction.

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1. Species listed under the Endangered Species Act are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the listing status page for more information. IPaC only shows species that are regulated by USFWS (see FAQ).

2. 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.

The following species are potentially affected by activities in this location:

Mammals

NAME	STATUS
Buena Vista Lake Ornate Shrew Sorex ornatus relictus Wherever found There is **final** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/1610	Endangered
Giant Kangaroo Rat Dipodomys ingens Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/6051	Endangered
San Joaquin Kit Fox Vulpes macrotis mutica Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/2873	Endangered
Tipton Kangaroo Rat Dipodomys nitratoides nitratoides Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/7247	Endangered

Birds

NAME	STATUS
California Condor Gymnogyps californianus There is **final** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/8193	Endangered

Reptiles

NAME	STATUS

Blunt-nosed Leopard Lizard Gambelia silus — Endangered
Wherever found
No critical habitat has been designated for this species.
https://ecos.fws.gov/ecp/species/625

Northwestern Pond Turtle Actinemys marmorata — Proposed Threatened
Wherever found
No critical habitat has been designated for this species.
https://ecos.fws.gov/ecp/species/1111

Amphibians

NAME	STATUS

Western Spadefoot Spea hammondii — Proposed Threatened
Wherever found
No critical habitat has been designated for this species.
https://ecos.fws.gov/ecp/species/5425

Insects

NAME	STATUS

Monarch Butterfly Danaus plexippus — Candidate
Wherever found
No critical habitat has been designated for this species.
https://ecos.fws.gov/ecp/species/9743

Crustaceans

NAME	STATUS

Vernal Pool Fairy Shrimp Branchinecta lynchi — Threatened
Wherever found
There is **final** critical habitat for this species. Your location does not overlap the critical habitat.
https://ecos.fws.gov/ecp/species/498

Flowering Plants

NAME	STATUS

Kern Mallow Eremalche kernensis — Endangered
Wherever found
No critical habitat has been designated for this species.
https://ecos.fws.gov/ecp/species/1731

Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

There are no critical habitats at this location.

You are still required to determine if your project(s) may have effects on all above listed species.

Bald & Golden Eagles

There are no documented cases of eagles being present at this location. However, if you believe eagles may be using your site, please reach out to the local Fish and Wildlife Service office.

Additional information can be found using the following links:

- Eagle Management https://www.fws.gov/program/eagle-management
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide conservation measures for birds https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf
- Supplemental Information for Migratory Birds and Eagles in IPaC https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action

What does IPaC use to generate the potential presence of bald and golden eagles in my specified location?

The potential for eagle presence is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply). To see a list of all birds potentially present in your project area, please visit the Rapid Avian Information Locator (RAIL) Tool.

What does IPaC use to generate the probability of presence graphs of bald and golden eagles in my specified location?

The Migratory Bird Resource List is comprised of USFWS Birds of Conservation Concern (BCC) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the Rapid Avian Information Locator (RAIL) Tool.

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to obtain a permit to avoid violating the Eagle Act should such impacts occur. Please contact your local Fish and Wildlife Service Field Office if you have questions.

Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act[1] and the Bald and Golden Eagle Protection Act[2].

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats[3] should follow appropriate regulations and consider implementing appropriate conservation measures, as described in the links below. Specifically, please review the "Supplemental Information on Migratory Birds and Eagles".

1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.

Additional information can be found using the following links:

- Eagle Management https://www.fws.gov/program/eagle-management
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide conservation measures for birds https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf
- Supplemental Information for Migratory Birds and Eagles in IPaC https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action

The birds listed below are birds of particular concern either because they occur on the USFWS Birds of Conservation Concern (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ below. This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the E-bird data mapping tool (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found below.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, see the PROBABILITY OF PRESENCE SUMMARY below to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
Belding's Savannah Sparrow *Passerculus sandwichensis beldingi* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/8	Breeds Apr 1 to Aug 15
Bullock's Oriole *Icterus bullockii* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA	Breeds Mar 21 to Jul 25
Northern Harrier *Circus hudsonius* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/8350	Breeds Apr 1 to Sep 15
Tricolored Blackbird *Agelaius tricolor* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/3910	Breeds Mar 15 to Aug 10

Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read "Supplemental Information on Migratory Birds and Eagles", specifically the FAQ section titled "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (▪)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

Breeding Season (▪)

Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

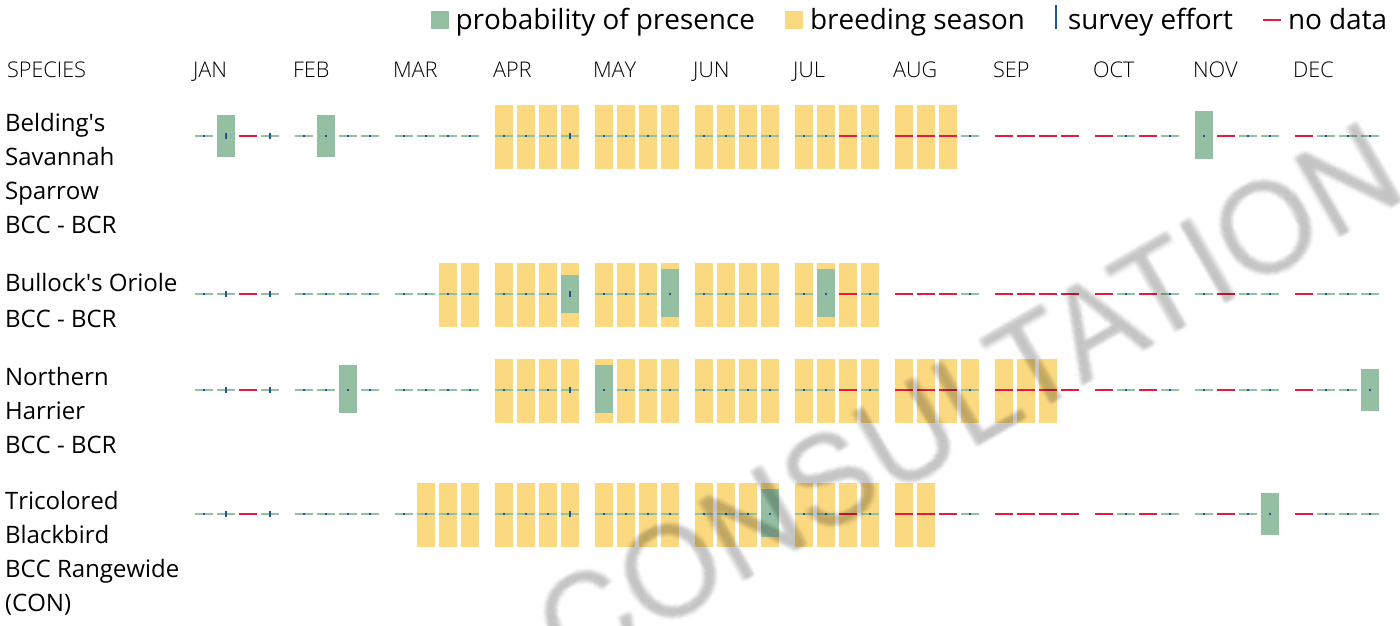
Survey Effort (|)

Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

To see a bar's survey effort range, simply hover your mouse cursor over the bar.

No Data (–)
A week is marked as having no data if there were no survey events for that week.

Survey Timeframe
Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.



Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

Nationwide Conservation Measures describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. Additional measures or permits may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the list of migratory birds that potentially occur in my specified location?

The Migratory Bird Resource List is comprised of USFWS Birds of Conservation Concern (BCC) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid

cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the Rapid Avian Information Locator (RAIL) Tool.

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the Avian Knowledge Network (AKN). This data is derived from a growing collection of survey, banding, and citizen science datasets.

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering or migrating in my area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may query your location using the RAIL Tool and look at the range maps provided for birds in your area at the bottom of the profiles provided for each bird in your results. If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are Birds of Conservation Concern (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the Eagle Act requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the Northeast Ocean Data Portal. The Portal also offers data and information about other taxa besides birds that may be helpful to

you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the Diving Bird Study and the nanotag studies or contact Caleb Spiegel or Pam Loring.

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to obtain a permit to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

Facilities

National Wildlife Refuge lands

Any activity proposed on lands managed by the National Wildlife Refuge system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

There are no refuge lands at this location.

Fish hatcheries

There are no fish hatcheries at this location.

Wetlands in the National Wetlands Inventory (NWI)

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

This location did not intersect any wetlands mapped by NWI.

NOTE: This initial screening does **not** replace an on-site delineation to determine whether wetlands occur. Additional information on the NWI data is provided below.

Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tuberficid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

Data precautions

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate Federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

Selected Elements by Scientific Name

California Department of Fish and Wildlife

California Natural Diversity Database

Query Criteria: Quad IS (East Elk Hills (3511934) OR Wasco SW (3511954) OR Wasco (3511953) OR Buttonwillow (3511944) OR Famoso (3511952) OR Rosedale (3511942) OR Tupman (3511933) OR Rio Bravo (3511943) OR Stevens (3511932))

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Agelaius tricolor tricolored blackbird	ABPBXB0020	None	Threatened	G1G2	S2	SSC
Ammospermophilus nelsoni Nelson's (=San Joaquin) antelope squirrel	AMAFB04040	None	Threatened	G2G3	S3	
Anniella grinnelli Bakersfield legless lizard	ARACC01050	None	None	G2G3	S2S3	SSC
Arizona elegans occidentalis California glossy snake	ARADB01017	None	None	G5T2	S2	SSC
Astragalus hornii var. hornii Horn's milk-vetch	PDFAB0F421	None	None	GUT1	S1	1B.1
Athene cunicularia burrowing owl	ABNSB10010	None	None	G4	S2	SSC
Atriplex cordulata var. cordulata heartscale	PDCHE040B0	None	None	G3T2	S2	1B.2
Atriplex cordulata var. erecticaulis Earlimart orache	PDCHE042V0	None	None	G3T1	S1	1B.2
Atriplex coronata var. vallicola Lost Hills crownscale	PDCHE04371	None	None	G4T3	S3	1B.2
Atriplex minuscula lesser saltscale	PDCHE042M0	None	None	G2	S2	1B.1
Atriplex subtilis subtle orache	PDCHE042T0	None	None	G1	S1	1B.2
Bombus crotchii Crotch's bumble bee	IIHYM24480	None	Candidate Endangered	G2	S2	
Buteo swainsoni Swainson's hawk	ABNKC19070	None	Threatened	G5	S4	
Calochortus striatus alkali mariposa-lily	PMLIL0D190	None	None	G3	S2S3	1B.2
Caulanthus californicus California jewelflower	PDBRA31010	Endangered	Endangered	G1	S1	1B.1
Charadrius montanus mountain plover	ABNNB03100	None	None	G3	S2	SSC
Cirsium crassicaule slough thistle	PDAST2E0U0	None	None	G1	S1	1B.1
Delphinium recurvatum recurved larkspur	PDRAN0B1J0	None	None	G2?	S2	1B.2
Dipodomys ingens giant kangaroo rat	AMAFD03080	Endangered	Endangered	G1G2	S2	

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Dipodomys nitratoides brevinasus short-nosed kangaroo rat	AMAFD03153	None	None	G3T1T2	S1S2	SSC
Dipodomys nitratoides nitratoides Tipton kangaroo rat	AMAFD03152	Endangered	Endangered	G3T1T2	S2	
Elanus leucurus white-tailed kite	ABNKC06010	None	None	G5	S3S4	FP
Emys marmorata western pond turtle	ARAAD02030	Proposed Threatened	None	G3G4	S3	SSC
Eremalche parryi ssp. kernensis Kern mallow	PDMAL0C031	Endangered	None	G3G4T3	S3	1B.2
Eremophila alpestris actia California horned lark	ABPAT02011	None	None	G5T4Q	S4	WL
Eriastrum hooveri Hoover's eriastrum	PDPLM03070	Delisted	None	G3	S3	4.2
Eschscholzia lemmonii ssp. kernensis Tejon poppy	PDPAP0A071	None	None	G5T2	S2	1B.1
Eumops perotis californicus western mastiff bat	AMACD02011	None	None	G4G5T4	S3S4	SSC
Gambelia sila blunt-nosed leopard lizard	ARACF07010	Endangered	Endangered	G1	S2	FP
Great Valley Cottonwood Riparian Forest Great Valley Cottonwood Riparian Forest	CTT61410CA	None	None	G2	S2.1	
Great Valley Mesquite Scrub Great Valley Mesquite Scrub	CTT63420CA	None	None	G1	S1.1	
Lasthenia chrysantha alkali-sink goldfields	PDAST5L030	None	None	G2	S2	1B.1
Masticophis flagellum ruddocki San Joaquin coachwhip	ARADB21021	None	None	G5T2T3	S3	SSC
Monolopia congdonii San Joaquin woollythreads	PDASTA8010	Endangered	None	G2	S2	1B.2
Onychomys torridus tularensis Tulare grasshopper mouse	AMAFF06021	None	None	G5T1T2	S1S2	SSC
Perognathus inornatus San Joaquin pocket mouse	AMAFD01060	None	None	G2G3	S2S3	
Phrynosoma blainvillii coast horned lizard	ARACF12100	None	None	G4	S4	SSC
Sorex ornatus relictus Buena Vista Lake ornate shrew	AMABA01102	Endangered	None	G5T1	S1	SSC
Spea hammondii western spadefoot	AAABF02020	Proposed Threatened	None	G2G3	S3S4	SSC
Stylocline citroleum oil neststraw	PDAST8Y070	None	None	G3	S3	1B.1

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Stylocline masonii Mason's neststraw	PDAST8Y080	None	None	G1	S1	1B.1
Taxidea taxus American badger	AMAJF04010	None	None	G5	S3	SSC
Thamnophis gigas giant gartersnake	ARADB36150	Threatened	Threatened	G2	S2	
Toxostoma lecontei Le Conte's thrasher	ABPBK06100	None	None	G4	S3	SSC
Valley Saltbush Scrub Valley Saltbush Scrub	CTT36220CA	None	None	G2	S2.1	
Valley Sink Scrub Valley Sink Scrub	CTT36210CA	None	None	G1	S1.1	
Vireo bellii pusillus least Bell's vireo	ABPBW01114	Endangered	Endangered	G5T2	S3	
Vulpes macrotis mutica San Joaquin kit fox	AMAJA03041	Endangered	Threatened	G4T2	S3	

Record Count: 48

CALIFORNIA NATIVE PLANT SOCIETY

CNPS Rare Plant Inventory

Search Results

24 matches found. Click on scientific name for details

Search Criteria: 9-Quad include [3511934:3511953:3511944:3511952:3511954:3511942:3511933:3511943:3511932]

▲ 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
Astragalus hornii var. *hornii*	Horn's milk-vetch	Fabaceae	annual herb	May-Oct	None	None	GUT1	S1	1B.1		2006-12-01	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 cordulata var. *erecticaulis*	Earlimart orache	Chenopodiaceae	annual herb	Aug-Sep(Nov)	None	None	G3T1	S1	1B.2	Yes	2001-01-01	 © 2009 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 coronata var. *vallicola*	Lost Hills crownscale	Chenopodiaceae	annual herb	Apr-Sep	None	None	G4T3	S3	1B.2	Yes	1974-01-01	No Photo Available
Atriplex minuscula	lesser saltscale	Chenopodiaceae	annual herb	May-Oct	None	None	G2	S2	1B.1	Yes	1994-01-01	 © 2000 Robert E. Preston, Ph.D.

Atriplex subtilis	subtle orache	Chenopodiaceae	annual herb	(Apr)Jun-Sep(Oct)	None	None	G1	S1	1B.2	Yes	1994-01-01	 © 2000 Robert E. Preston, Ph.D.
Azolla microphylla	Mexican mosquito fern	Azollaceae	annual/perennial herb	Aug	None	None	G5	S4	4.2		1994-01-01	No Photo Available
Calochortus striatus	alkali mariposa-lily	Liliaceae	perennial bulbiferous herb	Apr-Jun	None	None	G3	S2S3	1B.2		1974-01-01	No Photo Available
Caulanthus californicus	California jewelflower	Brassicaceae	annual herb	Feb-May	FE	CE	G1	S1	1B.1	Yes	1984-01-01	No Photo Available
Cirsium crassicaule	slough thistle	Asteraceae	annual/perennial herb	May-Aug	None	None	G1	S1	1B.1	Yes	1974-01-01	No Photo Available
Delphinium recurvatum	recurved larkspur	Ranunculaceae	perennial herb	Mar-Jun	None	None	G2?	S2	1B.2	Yes	1988-01-01	No Photo Available
Eremalche parryi ssp. *kernensis*	Kern mallow	Malvaceae	annual herb	Jan(Feb)Mar-May	FE	None	G3G4T3	S3	1B.2	Yes	1974-01-01	No Photo Available
Eriastrum hooveri	Hoover's eriastrum	Polemoniaceae	annual herb	Mar-Jul	FD	None	G3	S3	4.2	Yes	1974-01-01	 © 2011 Chris Winchell
Eriogonum gossypinum	cottony buckwheat	Polygonaceae	annual herb	Mar-Sep	None	None	G3G4	S3S4	4.2	Yes	1974-01-01	No Photo Available
Eschscholzia lemmonii ssp. *kernensis*	Tejon poppy	Papaveraceae	annual herb	(Feb)Mar-May	None	None	G5T2	S2	1B.1	Yes	1994-01-01	No Photo Available
Goodmania luteola	golden goodmania	Polygonaceae	annual herb	Apr-Aug	None	None	G3	S3	4.2		1994-01-01	 © 2007 Steve Matson
Hordeum intercedens	vernal barley	Poaceae	annual herb	Mar-Jun	None	None	G3G4	S3S4	3.2		1994-01-01	No Photo Available

Lasthenia chrysantha	alkali-sink goldfields	Asteraceae	annual herb	Feb-Apr	None	None	G2	S2	1B.1	Yes	2019-09-30	 © 2009 California State University, Stanislaus
Lasthenia ferrisiae	Ferris' goldfields	Asteraceae	annual herb	Feb-May	None	None	G3	S3	4.2	Yes	2001-01-01	 © 2009 Zoya Akulova
Monolopia congdonii	San Joaquin woollythreads	Asteraceae	annual herb	Feb-May	FE	None	G2	S2	1B.2	Yes	1988-01-01	No Photo Available
Stylocline citroleum	oil neststraw	Asteraceae	annual herb	Mar-Apr	None	None	G3	S3	1B.1	Yes	1994-01-01	No Photo Available
Stylocline masonii	Mason's neststraw	Asteraceae	annual herb	Mar-May	None	None	G1	S1	1B.1	Yes	1994-01-01	No Photo Available
Trichostema ovatum	San Joaquin bluecurls	Lamiaceae	annual herb	(Apr-Jun)Jul-Oct	None	None	G3	S3	4.2	Yes	1974-01-01	No Photo Available

Showing 1 to 24 of 24 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 25 June 2024].

Scientific Name	Common Name	Flowering Period	CNPS	State	Federal	Preferred Habitat	Potential to Occur
Angiosperms (Dicotyledons)							
Eremalche parryi ssp. *kernensis*	Kern mallow	Jan(Feb)Mar–May	1B.2	None	FE	Sometimes clay or sandy dry openings within chenopod scrub and often at the edge of balds, pinyon and juniper woodland, Valley and foothill grassland. Elevation range: 230–4,230. (CNDDB 2024; CNPS 2024)	**Low.** This species lacks suitable chenopod scrub habitat. The species was observed in 2015 within 3 miles of the study area (CNDDB 2024).
Eriastrum hooveri	Hoover's eriastrum	Mar–Jul	4.2	None	FD	Sometimes gravelly soils in chenopod scrub, pinyon and juniper woodland, Valley and foothill grassland Elevation range: 165–3,000 feet. (CNPS 2024)	**Low.** Suitable alkaline and/or sandy soils among valley chenopod scrub, pinyon and juniper woodland, and grasslands are not present within the study area. The species was observed within 1 mile of the project site in 1986 (CNDDB 2024).
Ferns							
Azolla microphylla	Mexican mosquito fern	Aug	4.2	None	None	Marshes and swamps (ponds, slow water). Elevation range: 100–330 feet. (CNPS 2024)	**Low.** Suitable ponded waters are seasonally present within the water treatment ponds. The site lacks naturally occurring marshes and ponded waters that are typical of the habitat associated with this species. Species is likely more common than currently noted and requires further research to reassess rarity. The species is not known to occur within 5 miles of the study area (CNDDB 2024, iNaturalist 2024).

SOURCE: ESA 2024

KEY TO SPECIES LISTING STATUS CODES

FE	Federally Endangered	FPE	Federally Proposed as Endangered	FD	Federally Delisted	SCE	State Candidate for Endangered
FT	Federally Threatened	FPT	Federally Proposed as Threatened	SE	State Listed as Endangered	SCT	State Candidate for Threatened
FC	Federal Candidate	FPD	Federally Proposed for Delisting	ST	State Listed as Threatened	SFP	State Fully Protected

California Native Plant Society (CNPS)

Rank 1A: Presumed extirpated in California and either Rare or Extinct elsewhere.
Rank 1B: Rare, threatened, or endangered throughout their range.
Rank 2A: Presumed extirpated in California, but more common elsewhere.
Rank 2B: Rare, threatened, or endangered in California, but more common in other states.
Rank 3: Plant species for which additional information is needed before rarity can be determined.
Rank 4: Species of limited distribution in California (i.e., naturally rare in the wild), but whose existence does not appear to be susceptible to threat.

New Threat Code extensions and their meanings:

1 Seriously endangered in California (over 80% of occurrences threatened / high degree and immediacy of threat)
2 Fairly endangered in California (20-80% occurrences threatened
3 Not very endangered in California (<20% of occurrences threatened or no current threats known)

Common Name *Scientific Name*	Sensitivity Status	Preferred Habitat/Known Elevational Range	Presence/Potential to Occur within Biological Study Area
Insects			
Amphibians			
western spadefoot *Spea hammondii*	FCT/SSC	Mixed woodland, grasslands, chaparral, sandy washes, lowlands, river floodplains, alluvial fans, playas, alkali flats, foothills, and mountains. Prefers washes and other sandy areas with patches of brush and rocks. Rain pools or shallow temporary pools, which do not contain bullfrogs, fish, or crayfish are necessary for breeding. Perennial plants necessary for its major food-termites.	**Low.** No suitable sandy wash habitat is present within the study area. The species was observed within 2 miles of the study area in 2019 in suitable natural habitat (CNNDB 2024).
Reptiles			
blunt-nosed leopard lizard *Gambelia sila*	--/SSC	Scattered in undeveloped lands of the San Joaquin Valley and Coast Range foothills. This species prefers to inhabit open, sparsely vegetated areas of low relief on the San Joaquin Valley floor. The most important aspect of any potential habitat is sparse vegetation. Found in association with other burrowing animals. Known to occur in valley and foothill grassland, chenopod scrub, iodine bush grassland and flats.	**Low** No suitable grassland, chenopod scrub, and iodine bush grassland is present within the study area. This species was observed in 1977 within suitable natural habitat within 1 mile of the project. Other observations of the species within current agricultural fields—similar to those of the project site--are believed to be extirpated (CNDDB 2024).
coast horned lizard *Phrynosoma blainvillii*	--/SSC	Prefers sandy riparian and sage scrub habitats but also occurs in valley-foothill hardwood, conifer, pine-cypress, juniper and annual grassland habitats below 6,000 feet, open country, especially sandy areas, washes, flood plains, and windblown deposits. Requires open areas for sunning, bushes and loose soil for cover and abundant supply of harvester ants.	**Low.** No suitable open scrub and grassland habitat is present within the study area. The species was observed in 2007 within 2 miles of the study area, but in suitable natural habitat (CNDDB 2024).
Birds			
tricolored blackbird *Agelaius tricolor*	ST/SSC	Known to occur in freshwater marsh, marsh, swap, and wetland. Highly colonial species, most numerous in Central Valley and vicinity. Requires open water, protected nesting substrate, and foraging area with insect prey within a few kilometers of the colony.	**Low.** Suitable foraging areas within corn and alfalfa fields is present, but no freshwater marshes in the vicinity of the study area are present. It is not known to occur within 5 miles of the study area (iNaturalist 2024, iNaturalist 2024).
burrowing owl *Athene cunicularia*	BCC/SSC	Inhabits coastal prairie, coastal scrub, Great Basin scrub, Mojavean desert scrub, Sonoran desert scrub, annual and perennial grasslands, bare ground, and disturbed habitats characterized by low-growing vegetation. A subterranean nester dependent upon burrowing mammals, particularly the California ground squirrel.	**Low.** Suitable habitat and burrows were not identified during biological surveys within the study area. The species was observed in 2016 within an area of suitable natural habitat within 1 mile of the project (CNDDB 2024).

Common Name *Scientific Name*	Sensitivity Status	Preferred Habitat/Known Elevational Range	Presence/Potential to Occur within Biological Study Area
Swainson's hawk *Buteo swainsoni*	BCC/ST	Migrant that breeds in North America and winters in South America. Nests in large trees, often in riparian habitat, and adjacent to open habitat. Forages in open grasslands, agricultural areas, sparse shrublands, and small open woodlands. During breeding season, eats mammals, birds, and reptiles. The rest of the year it eats insects, especially grasshoppers and dragonflies. Breeding pairs are only sparsely distributed in western Kern County.	**Low.** Limited suitable foraging habitat is located within the agricultural areas within the study area. However, suitable nesting habitat is not present. It has been known to occur within 5 miles of the study area (iNaturalist 2024).
mountain plover *Charadrius montanus*	---/SSC	Found in chenopod scrub, valley and foothill grassland. Occupies short grasslands, freshly plowed fields, newly sprouting grain fields, and sometimes sod farms. Short vegetation, bare ground, and flat topography. Prefers grazed areas and areas with burrowing rodents.	**Low.** Limited suitable field habitat is present within alfalfa fields and corn fields (when freshly plowed). It is not known to occur within 5 miles of the study area (iNaturalist 2024, CNDDB 2024).
white-tailed kite *Elanus leucurus*	---/FP	Rolling foothills and valley margins with scattered oaks and river bottomlands or marshes nest to deciduous woodland. Open grasslands, meadows, or marshes for foraging close to isolated, dense-topped trees for nesting and perching.	**Low.** Limited suitable foraging habitat is located within the agricultural areas within the study area. However, suitable nesting habitat is not present. The species is not known to occur within 5 miles of the study area (iNaturalist 2024, CNDDB 2024).
Mammals			
Nelson's antelope squirrel *Ammospermophilus nelsoni*	--/ST	Also known as the San Joaquin antelope squirrel, this species occupies arid grassland, shrubland, and alkali sink habitats. Green vegetation is an important food source, especially Mormon tea. Also eats seeds, insects, and small mammals.	**Low**. No suitable grassland and shrubland habitats are present in the study area. The species has been observed in natural suitable habitat within 2 miles of the study area in 2006 (CNNDB 2024).
Tipton kangaroo rat *Dipodomys nitratoides nitratoides*	FE/SE	Inhabits low, open scrub habitats. This species favors compact soils with a sparse growth of perennial grasses. This species digs burrows in elevated soil mounds often at the bases of shrubs.	**Low.** Suitable scrub and grassland habitat with fine sandy loam soils are not present within the study area. There is a small area of suitable habitat within 1 mile of the project, where the species was last observed in 1985 (CNDDB 2024).
Tulare grasshopper mouse *Onychomys torridus tularensis*	--/SSC	Found on compact soils with a sparse growth of perennial grasses in desert scrub associations composed of grasses and shrubs such as Atriplex.	**Low.** No suitable habitat within the study area. It was observed in suitable desert scrub habitat within 4 miles of the study area in 1999 (CNDDB 2024).
San Joaquin pocket mouse *Perognathus inornatus*	--/--/BLMS	Found on flat ground and low hills. Seeds of Atriplex and Artemisia are primary foods of this species. Also eats soft-bodies insects.	**Low.** No suitable habitat is present within the study area, including preferred seed sources. The species was observed in 2013 within 2 miles of the study area, but in suitable natural habitat (CNDDB 2024).

Common Name *Scientific Name*	Sensitivity Status	Preferred Habitat/Known Elevational Range	Presence/Potential to Occur within Biological Study Area
San Joaquin kit fox *Vulpes macrotis mutica*	FE/ST	San Joaquin kit foxes occur in several San Joaquin Valley native plant communities. In the southernmost portion of the range, these communities include valley sink scrub, valley saltbush scrub, upper Sonoran subshrub scrub, and annual grassland.	**Low.** No suitable native San Joaquin Valley plant communities are present within the study area. There is one occurrence within the study area, but it was last observed in the vicinity in 1989 (CNDDB 2024)..

Key:

Federal Listings

FE = Listed as endangered under the FESA

FT = Listed as threatened under the FESA

FCT = Candidate for threatened listing under the FESA

BCC = Birds of Conservation Concern (USFWS)

State Listings

SE = Listed as endangered under the CESA

ST= Listed as threatened under the CESA

SCE = Candidate for endangered listing under the CESASSC = Species of Special Concern (CDFW)

WL = Watch List (CDFW)

CNDDB Element Rankings

S1 = Less than 6 element occurrences (EOs) or 1,000 individuals or less than 2,000 acres (S1.1 very threatened, S1.2 threatened, S1.3 no current threats known)

S2 = 6-20 EOs or 1,000-3,000 individuals or 2,000-10,000 acres (S2.1 very threatened, S2.2 threatened, S2.3 no current threats known)

S3 = 21-100 EOs or 3,000-10,000 individuals or 10,000-50,000 acres (S3.1 very threatened, S3.2 threatened, S3.3 no current threats known)

S4 = Apparently secure; this rank is clearly lower than S3 but factors exist to cause some concerns; i.e., there is some threat, or somewhat narrow habitat.

? = indicates some uncertainty.

NOTE:

a Table footnote text.

SOURCE: CNDDB 2024

Appendix D

Cultural Resources Assessment – ***Confidential***

Appendix E

Paleontological Resources Assessment – *Confidential*

Appendix F
AB 52 Consultation Letter

NORTH OF RIVER SANITARY DISTRICT

Gary McKibbin, President
Fred Kloepper, Vice President
Steven Ruettgers, Director
Sandra Murphy, Director
Matthew Hooker, Director

January 6, 2025

Delia Dominguez, Chairperson
Kitanemuk & Yowlumne Tejon Indians
115 Radio Street
Bakersfield, CA, 93305
2deedominguez@gmail.com

Subject: **North of River Sanitary District Water Resource Recovery Facility Project, Kern County, California, Tribal Cultural Resources under the California Environmental Quality Act, AB 52 Formal Notification of Decision to Undertake a Project and Notification of Consultation Opportunity Pursuant to Public Resources Code Section 21080.3.1**

Dear Chairperson Dominguez,

As the Lead Agency under the California Environmental Quality Act Review (CEQA), the North of River Sanitary District (NORSD) has decided to undertake the proposed North of River Sanitary District Water Resource Recovery Facility (WRRF) Project (Project). Please find below a description of the proposed Project and the name of our Project point of contact, pursuant to Public Resources Code 21080.3.1 (d). Figures showing the proposed Project vicinity and location (Figures 1 and 2) and Area of Potential Effect (Figure 3) are attached.

Project Description

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The Project will be seeking State Revolving Funds (SRF) from the State Water Resources Control Board (State Water Board) to assist in financing the Project. The State Water Board, Division of Financial Assistance, administers the State Revolving Fund (SRF) Program pursuant to 40 CFR Part 35. The SRF Program is partially funded by the United States Environmental Protection Agency (USEPA). Issuance of SRF funds by the State Water Board is considered equivalent to a federal action, thereby necessitating compliance with Section 106 of the National Historic Preservation Act (Section 106). The USEPA has delegated lead agency responsibility to the State Water Board for carrying out the requirements of Section 106.

Project Contact Information and to Request Consultation

Pursuant to California Public Resources Code Section 21080.3, you have 30 days from the receipt of this letter to request, in writing, a consultation with NORSD. Should the Kitanemuk & Yowlumne Tejon Indians ask for a consultation, NORSD will begin the process within 30 days of receiving your request.

To request consultation under AB 52 for the proposed Project, please submit your letter to:

Patrick Ostly
General Manager
North of River Sanitary District
Bakersfield, CA 93308
meganlee@norsd.com

We understand that consultation is a private and ongoing process; we would appreciate any input the Kitanemuk & Yowlumne Tejon Indians may have on the proposed Project.

Very Respectfully,

Patrick Ostly
General Manager
North of River Sanitary District

Attachment: Figures 1 – 3

NORTH OF RIVER SANITARY DISTRICT

Gary McKibbin, President
Fred Kloepper, Vice President
Steven Ruettgers, Director
Sandra Murphy, Director
Matthew Hooker, Director

January 6, 2025

Candice Garza, CRM Scheduler
Tejon Indian Tribe
4941 David Road
Bakersfield, CA, 93307
cgarza@tejonindiantribe-nsn.gov

Subject: **North of River Sanitary District Water Resource Recovery Facility Project, Kern County, California, Tribal Cultural Resources under the California Environmental Quality Act, AB 52 Formal Notification of Decision to Undertake a Project and Notification of Consultation Opportunity Pursuant to Public Resources Code Section 21080.3.1**

Dear CRM Scheduler Candice Garza,

As the Lead Agency under the California Environmental Quality Act Review (CEQA), the North of River Sanitary District (NORSD) has decided to undertake the proposed North of River Sanitary District Water Resource Recovery Facility (WRRF) Project (Project). Please find below a description of the proposed Project and the name of our Project point of contact, pursuant to Public Resources Code 21080.3.1 (d). Figures showing the proposed Project vicinity and location (Figures 1 and 2) and Area of Potential Effect (Figure 3) are attached.

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Project Contact Information and to Request Consultation

Pursuant to California Public Resources Code Section 21080.3, you have 30 days from the receipt of this letter to request, in writing, a consultation with NORSD. Should the Tejon Indian Tribe ask for a consultation, NORSD will begin the process within 30 days of receiving your request.

To request consultation under AB 52 for the proposed Project, please submit your letter to:

Patrick Ostly
General Manager
North of River Sanitary District
Bakersfield, CA 93308
meganlee@norsd.com

We understand that consultation is a private and ongoing process; we would appreciate any input the Tejon Indian Tribe may have on the proposed Project.

Very Respectfully,

Patrick Ostly
General Manager
North of River Sanitary District

Attachment: Figures 1 – 3

NORTH OF RIVER SANITARY DISTRICT

Gary McKibbin, President
Fred Kloepper, Vice President
Steven Ruettgers, Director
Sandra Murphy, Director
Matthew Hooker, Director

January 6, 2025

Violet Walker, Chairperson
Northern Chumash Tribal Council
P.O. Box 6533
Los Osos, CA, 93412
violetsagewalker@gmail.com

Subject: **North of River Sanitary District Water Resource Recovery Facility Project, Kern County, California, Tribal Cultural Resources under the California Environmental Quality Act, AB 52 Formal Notification of Decision to Undertake a Project and Notification of Consultation Opportunity Pursuant to Public Resources Code Section 21080.3.1**

Dear Chairperson Violet Walker,

As the Lead Agency under the California Environmental Quality Act Review (CEQA), the North of River Sanitary District (NORSD) has decided to undertake the proposed North of River Sanitary District Water Resource Recovery Facility (WRRF) Project (Project). Please find below a description of the proposed Project and the name of our Project point of contact, pursuant to Public Resources Code 21080.3.1 (d). Figures showing the proposed Project vicinity and location (Figures 1 and 2) and Area of Potential Effect (Figure 3) are attached.

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Project Contact Information and to Request Consultation

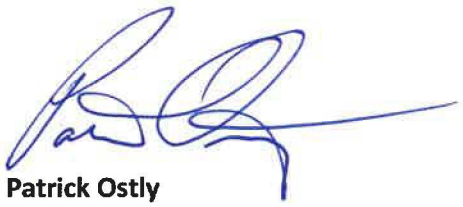
Pursuant to California Public Resources Code Section 21080.3, you have 30 days from the receipt of this letter to request, in writing, a consultation with NORSD. Should the Northern Chumash Tribal Council ask for a consultation, NORSD will begin the process within 30 days of receiving your request.

To request consultation under AB 52 for the proposed Project, please submit your letter to:

Patrick Ostly
General Manager
North of River Sanitary District
Bakersfield, CA 93308
meganlee@norsd.com

We understand that consultation is a private and ongoing process; we would appreciate any input the Northern Chumash Tribal Council may have on the proposed Project.

Very Respectfully,



Patrick Ostly
General Manager
North of River Sanitary District

Attachment: Figures 1 – 3

NORTH OF RIVER SANITARY DISTRICT

Gary McKibbin, President
Fred Kloepper, Vice President
Steven Ruettgers, Director
Sandra Murphy, Director
Matthew Hooker, Director

January 6, 2025

Nichole Escalon, Cultural Specialist I
Santa Rosa Rancheria Tachi Yokut Tribe
P.O. Box 8
Lemoore, CA, 93245
nescalon@tachi-yokut-nsn.gov

Subject: **North of River Sanitary District Water Resource Recovery Facility Project, Kern County, California, Tribal Cultural Resources under the California Environmental Quality Act, AB 52 Formal Notification of Decision to Undertake a Project and Notification of Consultation Opportunity Pursuant to Public Resources Code Section 21080.3.1**

Dear Cultural Resource Specialist Nichole Escalon,

As the Lead Agency under the California Environmental Quality Act Review (CEQA), the North of River Sanitary District (NORSD) has decided to undertake the proposed North of River Sanitary District Water Resource Recovery Facility (WRRF) Project (Project). Please find below a description of the proposed Project and the name of our Project point of contact, pursuant to Public Resources Code 21080.3.1 (d). Figures showing the proposed Project vicinity and location (Figures 1 and 2) and Area of Potential Effect (Figure 3) are attached.

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Project Contact Information and to Request Consultation

Pursuant to California Public Resources Code Section 21080.3, you have 30 days from the receipt of this letter to request, in writing, a consultation with NORSD. Should the Santa Rosa Rancheria Tachi Yokut Tribe ask for a consultation, NORSD will begin the process within 30 days of receiving your request.

To request consultation under AB 52 for the proposed Project, please submit your letter to:

Patrick Ostly
General Manager
North of River Sanitary District
Bakersfield, CA 93308
meganlee@norsd.com

We understand that consultation is a private and ongoing process; we would appreciate any input the Santa Rosa Rancheria Tachi Yokut Tribe may have on the proposed Project.

Very Respectfully,

Patrick Ostly
General Manager
North of River Sanitary District

Attachment: Figures 1 – 3

NORTH OF RIVER SANITARY DISTRICT

Gary McKibbin, President
Fred Kloepper, Vice President
Steven Ruettgers, Director
Sandra Murphy, Director
Matthew Hooker, Director

January 6, 2025

Samantha McCarty, Cultural Specialist II
Santa Rosa Rancheria Tachi Yokut Tribe
P.O. Box 8
Lemoore, CA, 93245
smccarty@tachi-yokut-nsn.gov

Subject: **North of River Sanitary District Water Resource Recovery Facility Project, Kern County, California, Tribal Cultural Resources under the California Environmental Quality Act, AB 52 Formal Notification of Decision to Undertake a Project and Notification of Consultation Opportunity Pursuant to Public Resources Code Section 21080.3.1**

Dear Cultural Resource Specialist Samantha McCarty,

As the Lead Agency under the California Environmental Quality Act Review (CEQA), the North of River Sanitary District (NORSD) has decided to undertake the proposed North of River Sanitary District Water Resource Recovery Facility (WRRF) Project (Project). Please find below a description of the proposed Project and the name of our Project point of contact, pursuant to Public Resources Code 21080.3.1 (d). Figures showing the proposed Project vicinity and location (Figures 1 and 2) and Area of Potential Effect (Figure 3) are attached.

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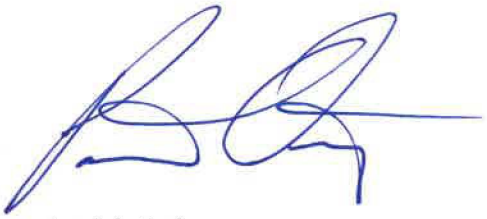
Patrick Ostly
General Manager
North of River Sanitary District
Bakersfield, CA 93308
meganlee@norsd.com

We understand that consultation is a private and ongoing process; we would appreciate any input the Santa Rosa Rancheria Tachi Yokut Tribe may have on the proposed Project.

Very Respectfully,



Patrick Ostly
General Manager
North of River Sanitary District

Attachment: Figures 1 – 3

NORTH OF RIVER SANITARY DISTRICT

Gary McKibbin, President
Fred Kloepper, Vice President
Steven Ruettgers, Director
Sandra Murphy, Director
Matthew Hooker, Director

January 6, 2025

Shana Powers, THPO
Santa Rosa Rancheria Tachi Yokut Tribe
P.O. Box 8
Lemoore, CA, 93245
spowers@tachi-yokut-nsn.gov

Subject: **North of River Sanitary District Water Resource Recovery Facility Project, Kern County, California, Tribal Cultural Resources under the California Environmental Quality Act, AB 52 Formal Notification of Decision to Undertake a Project and Notification of Consultation Opportunity Pursuant to Public Resources Code Section 21080.3.1**

Dear THPO Shana Powers,

As the Lead Agency under the California Environmental Quality Act Review (CEQA), the North of River Sanitary District (NORSD) has decided to undertake the proposed North of River Sanitary District Water Resource Recovery Facility (WRRF) Project (Project). Please find below a description of the proposed Project and the name of our Project point of contact, pursuant to Public Resources Code 21080.3.1 (d). Figures showing the proposed Project vicinity and location (Figures 1 and 2) and Area of Potential Effect (Figure 3) are attached.

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To request consultation under AB 52 for the proposed Project, please submit your letter to:

Patrick Ostly
General Manager
North of River Sanitary District
Bakersfield, CA 93308
meganlee@norsd.com

We understand that consultation is a private and ongoing process; we would appreciate any input the Santa Rosa Rancheria Tachi Yokut Tribe may have on the proposed Project.

Very Respectfully,

Patrick Ostly
General Manager
North of River Sanitary District

Attachment: Figures 1 – 3

NORTH OF RIVER SANITARY DISTRICT

Gary McKibbin, President
Fred Kloepper, Vice President
Steven Ruettgers, Director
Sandra Murphy, Director
Matthew Hooker, Director

January 6, 2025

Bob Pennell, Cultural Resource Director
Table Mountain Rancheria
P.O. Box 410
Friant, CA, 93626
rpennell@tmr.org

Subject: **North of River Sanitary District Water Resource Recovery Facility Project, Kern County, California, Tribal Cultural Resources under the California Environmental Quality Act, AB 52 Formal Notification of Decision to Undertake a Project and Notification of Consultation Opportunity Pursuant to Public Resources Code Section 21080.3.1**

Dear Cultural Resource Director Bob Pennell,

As the Lead Agency under the California Environmental Quality Act Review (CEQA), the North of River Sanitary District (NORSD) has decided to undertake the proposed North of River Sanitary District Water Resource Recovery Facility (WRRF) Project (Project). Please find below a description of the proposed Project and the name of our Project point of contact, pursuant to Public Resources Code 21080.3.1 (d). Figures showing the proposed Project vicinity and location (Figures 1 and 2) and Area of Potential Effect (Figure 3) are attached.

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Project Contact Information and to Request Consultation

Pursuant to California Public Resources Code Section 21080.3, you have 30 days from the receipt of this letter to request, in writing, a consultation with NORSD. Should the Table Mountain Rancheria ask for a consultation, NORSD will begin the process within 30 days of receiving your request.

To request consultation under AB 52 for the proposed Project, please submit your letter to:

Patrick Ostly
General Manager
North of River Sanitary District
Bakersfield, CA 93308
meganlee@norsd.com

We understand that consultation is a private and ongoing process; we would appreciate any input the Table Mountain Rancheria may have on the proposed Project.

Very Respectfully,

Patrick Ostly
General Manager
North of River Sanitary District

Attachment: Figures 1 – 3

NORTH OF RIVER SANITARY DISTRICT

Gary McKibbin, President
Fred Kloepper, Vice President
Steven Ruettgers, Director
Sandra Murphy, Director
Matthew Hooker, Director

January 6, 2025

Joey Garfield, Tribal Archaeologist
Tule River Indian Tribe
P. O. Box 589
Porterville, CA, 93258
joey.garfield@tulerivertribe-nsn.gov

Subject: **North of River Sanitary District Water Resource Recovery Facility Project, Kern County, California, Tribal Cultural Resources under the California Environmental Quality Act, AB 52 Formal Notification of Decision to Undertake a Project and Notification of Consultation Opportunity Pursuant to Public Resources Code Section 21080.3.1**

Dear Tribal Archaeologist Joey Garfield,

As the Lead Agency under the California Environmental Quality Act Review (CEQA), the North of River Sanitary District (NORSD) has decided to undertake the proposed North of River Sanitary District Water Resource Recovery Facility (WRRF) Project (Project). Please find below a description of the proposed Project and the name of our Project point of contact, pursuant to Public Resources Code 21080.3.1 (d). Figures showing the proposed Project vicinity and location (Figures 1 and 2) and Area of Potential Effect (Figure 3) are attached.

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Project Contact Information and to Request Consultation

Pursuant to California Public Resources Code Section 21080.3, you have 30 days from the receipt of this letter to request, in writing, a consultation with NORSD. Should the Tule River Indian Tribe ask for a consultation, NORSD will begin the process within 30 days of receiving your request.

To request consultation under AB 52 for the proposed Project, please submit your letter to:

Patrick Ostly
General Manager
North of River Sanitary District
Bakersfield, CA 93308
meganlee@norsd.com

We understand that consultation is a private and ongoing process; we would appreciate any input the Tule River Indian Tribe may have on the proposed Project.

Very Respectfully,

Patrick Ostly
General Manager
North of River Sanitary District

Attachment: Figures 1 – 3

NORTH OF RIVER SANITARY DISTRICT

Gary McKibbin, President
Fred Kloepper, Vice President
Steven Ruettgers, Director
Sandra Murphy, Director
Matthew Hooker, Director

January 6, 2025

Kerri Vera, Environmental Department
Tule River Indian Tribe
P. O. Box 589
Porterville, CA, 93258
kerri.vera@tulerivertribe-nsn.gov

Subject: **North of River Sanitary District Water Resource Recovery Facility Project, Kern County, California, Tribal Cultural Resources under the California Environmental Quality Act, AB 52 Formal Notification of Decision to Undertake a Project and Notification of Consultation Opportunity Pursuant to Public Resources Code Section 21080.3.1**

Dear Kerri Vera,

As the Lead Agency under the California Environmental Quality Act Review (CEQA), the North of River Sanitary District (NORSD) has decided to undertake the proposed North of River Sanitary District Water Resource Recovery Facility (WRRF) Project (Project). Please find below a description of the proposed Project and the name of our Project point of contact, pursuant to Public Resources Code 21080.3.1 (d). Figures showing the proposed Project vicinity and location (Figures 1 and 2) and Area of Potential Effect (Figure 3) are attached.

Project Description

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The Project will be seeking State Revolving Funds (SRF) from the State Water Resources Control Board (State Water Board) to assist in financing the Project. The State Water Board, Division of Financial Assistance, administers the State Revolving Fund (SRF) Program pursuant to 40 CFR Part 35. The SRF Program is partially funded by the United States Environmental Protection Agency (USEPA). Issuance of SRF funds by the State Water Board is considered equivalent to a federal action, thereby necessitating compliance with Section 106 of the National Historic Preservation Act (Section 106). The USEPA has delegated lead agency responsibility to the State Water Board for carrying out the requirements of Section 106.

Project Contact Information and to Request Consultation

Pursuant to California Public Resources Code Section 21080.3, you have 30 days from the receipt of this letter to request, in writing, a consultation with NORSD. Should the Tule River Indian Tribe ask for a consultation, NORSD will begin the process within 30 days of receiving your request.

To request consultation under AB 52 for the proposed Project, please submit your letter to:

Patrick Ostly
General Manager
North of River Sanitary District
Bakersfield, CA 93308
meganlee@norsd.com

We understand that consultation is a private and ongoing process; we would appreciate any input the Tule River Indian Tribe may have on the proposed Project.

Very Respectfully,

Patrick Ostly
General Manager
North of River Sanitary District

Attachment: Figures 1 – 3

NORTH OF RIVER SANITARY DISTRICT

Gary McKibbin, President
Fred Kloepper, Vice President
Steven Ruettgers, Director
Sandra Murphy, Director
Matthew Hooker, Director

January 6, 2025

Michelle Heredia-Cordova, Chairperson
Table Mountain Rancheria
P.O. Box 410
Friant, CA, 93626
mhcordova@tmr.org

Subject: **North of River Sanitary District Water Resource Recovery Facility Project, Kern County, California, Tribal Cultural Resources under the California Environmental Quality Act, AB 52 Formal Notification of Decision to Undertake a Project and Notification of Consultation Opportunity Pursuant to Public Resources Code Section 21080.3.1**

Dear Chairperson Michelle Heredia-Cordova,

As the Lead Agency under the California Environmental Quality Act Review (CEQA), the North of River Sanitary District (NORSD) has decided to undertake the proposed North of River Sanitary District Water Resource Recovery Facility (WRRF) Project (Project). Please find below a description of the proposed Project and the name of our Project point of contact, pursuant to Public Resources Code 21080.3.1 (d). Figures showing the proposed Project vicinity and location (Figures 1 and 2) and Area of Potential Effect (Figure 3) are attached.

Project Description

The NORSD was created in 1940 to provide wastewater collection and treatment for communities north of the Kern River in Kern County, California. The WRRF was constructed in 1999 and has undergone several improvements since that time. The NORSD currently serves approximately 62,000 people and the unincorporated community of Oildale, the City of Shafter, and the northern portion of CSA-71, which includes portions of the City of Bakersfield. The service area is primarily residential and commercial with a few industrial users that produce significant wastewater flows. Due to the increasing population of the service area, the existing plant has reached its capacity. In order to continue to provide treatment for the growing communities it serves, The NORSD is proposing the expansion of the existing WRRF in order to effectively serve its existing and planned population through 2050. The Project consists of a new preliminary and liquid treatment process, solid treatment, an administrative and maintenance building, and miscellaneous site improvements.

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Project Contact Information and to Request Consultation

Pursuant to California Public Resources Code Section 21080.3, you have 30 days from the receipt of this letter to request, in writing, a consultation with NORSD. Should the Table Mountain Rancheria ask for a consultation, NORSD will begin the process within 30 days of receiving your request.

To request consultation under AB 52 for the proposed Project, please submit your letter to:

Patrick Ostly
General Manager
North of River Sanitary District
Bakersfield, CA 93308
meganlee@norsd.com

We understand that consultation is a private and ongoing process; we would appreciate any input the Table Mountain Rancheria may have on the proposed Project.

Very Respectfully,

Patrick Ostly
General Manager
North of River Sanitary District

Attachment: Figures 1 – 3

NORTH OF RIVER SANITARY DISTRICT

Gary McKibbin, President
Fred Kloepper, Vice President
Steven Ruettgers, Director
Sandra Murphy, Director
Matthew Hooker, Director

January 6, 2025

Neil Peyron, Chairperson
Tule River Indian Tribe
P. O. Box 589
Porterville, CA, 93258
neil.peyron@tulerivertribe-nsn.gov

Subject: **North of River Sanitary District Water Resource Recovery Facility Project, Kern County, California, Tribal Cultural Resources under the California Environmental Quality Act, AB 52 Formal Notification of Decision to Undertake a Project and Notification of Consultation Opportunity Pursuant to Public Resources Code Section 21080.3.1**

Dear Chairperson Neil Peyron,

As the Lead Agency under the California Environmental Quality Act Review (CEQA), the North of River Sanitary District (NORSD) has decided to undertake the proposed North of River Sanitary District Water Resource Recovery Facility (WRRF) Project (Project). Please find below a description of the proposed Project and the name of our Project point of contact, pursuant to Public Resources Code 21080.3.1 (d). Figures showing the proposed Project vicinity and location (Figures 1 and 2) and Area of Potential Effect (Figure 3) are attached.

Project Description

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Project Contact Information and to Request Consultation

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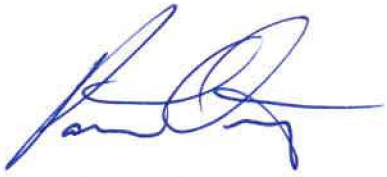
To request consultation under AB 52 for the proposed Project, please submit your letter to:

Patrick Ostly
General Manager
North of River Sanitary District
Bakersfield, CA 93308
meganlee@norsd.com

We understand that consultation is a private and ongoing process; we would appreciate any input the Tule River Indian Tribe may have on the proposed Project.

Very Respectfully,



Patrick Ostly
General Manager
North of River Sanitary District

Attachment: Figures 1 – 3