PARSONS

Draft
Initial Study/Mitigated Negative Declaration for the Proposed Upgrade of the City of Redlands Wastewater Treatment Plant Redlands, California

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ACRONYMS AND ABBREVIATIONS

AB	Assembly Bill
ADWF	annual dry weather flow
AICP	American Institute of Certified Planners
AQCR	Air Quality Control Region
ARB	California Air Resources Board
BACT	Best Available Control Technology
BCEE	Board Certified Environmental Engineer
bgs	below ground surface
BUOW	burrowing owl
CAA	Clean Air Act
CAAQS	California Ambient Air Quality Standards
CAS	conventional activated sludge
CalEEMod	California Emissions Estimator Model
CALFIRE	California Department of Forestry and Fire Resources
CBC	California Building Code
CCAA	California Clean Air Act
CCH	Consortium of California Herberia
CDFW	California Department of Fish and Wildlife
CDOC	California Department of Conservation
CEC	California Energy Commission
CEQ	Council on Environmental Quality
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
CH_4	methane
City	City of Redlands
CNDDB	California Natural Diversity Database
CNEL	community noise equivalent level
CNPS	California Native Plant Society
CO	carbon monoxide
CO_2	carbon dioxide
CO_2e	CO_2 equivalent
CRHR	California Register of Historic Resources
CSS	coastal sage scrub
DAFT	dissolved air flotation thickener
dB	decibel
dBA	A-weighted decibel
DBCP	1,2-dibromo-3-chloropropane
DLR	device level ring
DOGGR	California Department of Oil, Gas, and Geothermal Resources
DTSC	Department of Toxic Substances Control
EIR	Environmental Impact Report
EO	Executive Order
EPA	United States Environmental Protection Agency
ESA	Endangered Species Act
EVPI	Public/Institutional
FAA	Federal Aviation Administration
FAR	Federal Aviation Regulation
FEMA	Federal Emergency Management Agency
FR	Federal Register
FTA	Federal Transit Authority
GHG	greenhouse gas
GIS	geographic information system
GWP	global warming potential
H_2S	hydrogen sulfide
HCP	Habitat Conservation Plan
HP	horsepower
HVAC	heating, ventilation, and air conditioning
I&C	instrument and control
I-10	Interstate 10
IPaC	Information Planning and Consultation
IS	Initial Study

kWh	kilowatt hour
LCFS	Low carbon fuel standard
LUST	leaking underground storage tank
MBR	membrane bioreactor
MBTA	Migratory Bird Treaty Act
MCC	motor control center
MDT	mass daily threshold
mg/L	milligrams per liter
MGD	million gallons per day
mL	milliliter
MLD	most likely descendant
MLSS	mixed liquor suspended solids
MMRP	Mitigation Monitoring and Reporting Program
MND	Mitigated Negative Declaration
MRZ	Mineral Resource Zone
$MTCO_2e$	metric tons of carbon dioxide equivalent
N_2O	nitrous oxide
NAAQS	National Ambient Air Quality Standards
NAHC	Native American Heritage Commission
NEC	National Electrical Code
NFPA	National Fire Protection Association
NHPA	National Historic Preservation Act
NO_2	nitrogen dioxide
NOAA	National Oceanic and Atmospheric Administration
NO_X	nitrogen oxides
NPDES	National Pollutant Discharge Elimination System
NRHP	National Register of Historic Places
NSR	New Source Review
NTU	nephelometric turbidity units
O_3	ozone
PCE	tetrachloroethene
P&IDs	piping and instrumentation diagrams
PLC	programmable logic controller
PM	particulate matter
PM_{10}	particulate matter less than or equal to 10 microns in aerodynamic diameter (coarse particulates)
$PM_{2.5}$	particulate matter less than or equal to 2.5 microns in aerodynamic diameter (fine particulates)
ppm	parts per million
PRC	Public Resources Code
RAS	return activated sludge
RCRA	Resource Conservation and Recovery Act
RCSP	Redlands Community Sustainability Plan
ROI	Region of Influence
RPA	Registered Professional Archaeologist
RPS	Renewables Portfolio Standard
RWQCB	Regional Water Quality Control Board
SB	Senate Bill
SCADA	Supervisory Control and Data Acquisition
SCAG	Southern California Association of Governments
SCAQMD	South Coast Air Quality Management District
SCE	Southern California Edison
SCG	Southern California Gas Company
SDWA	Safe Drinking Water Act
SHPO	State Historic Preservation Officer
SIP	State Implementation Plan
SMBMI	San Manuel Band of Mission Indians
SR	State Route

SRF	State Revolving Fund
SSA	Sole Source Aquifer
SWRCB	State Water Resources Control Board
TCE	trichloroethene
TIN	total inorganic nitrogen
tpy	tons per year
TWAS	thickened waste activated sludge
USDA	United States Department of Agriculture

USFWS	United States Fish and Wildlife Service
USGS	U.S. Geologic Survey
UST	underground storage tank
VdB	velocity level in decibels
VOC	volatile organic compounds
WAS	waste activated sludge
WDR	Waste Discharge Requirement
WWTP	Wastewater Treatment Plant

1.0 Project and Agency Information

The City of Redlands (City) proposes the upgrade and modernization of its Wastewater Treatment Plant (WWTP), located at the northwestern section of Redlands. The proposed upgrades include improvements to the headworks, clarifiers, peak storage ponds, pump stations, membrane bioreactor (MBR) system, aeration basins and blowers, supernatant ponds, thickening system, digestion system, dewatering system, electrical system, redundant pipelines, landscaping, and other plant systems. However, there would be no expansion of the WWTP's existing design capacity of 9.5 million gallons per day (MGD) as a result of this upgrade.

The California Environmental Quality Act (CEQA), Public Resources Code (PRC) §§ 21000 *et seq.*, requires that the environmental implications of an action by a local agency be analyzed and evaluated before project approval. This Initial Study has been prepared in accordance with Section 15365 of CEQA Guidelines (14 Cal. Code Reg. 1500 *et seq.*). This Initial Study (IS) provides the assessment for a determination of whether the project may have a significant effect on the environment.

1.1 Project Title and Lead Agency

Project Title	Upgrade of the City of Redlands Wastewater Treatment Plant
Lead Agency Name and Address	City of Redlands Municipal Utilities and Engineering Department 35 Cajon Street, Suite 15A Redlands, California 92373
Contact Person and Phone Number	Mr. Goutam K. Dobey, PE Engineering Manager (909) 798-7584, Ext. 2
Project Sponsor's Name and Address	City of Redlands Municipal Utilities and Engineering Department 35 Cajon Street, Suite 15A Redlands, California 92373
General Plan Designation	Public/Institutional and Linear Park
Zoning	Open Space and Public/Institutional
State Clearinghouse Number	(to be assigned)

1.2 Project Location

Redlands is located at the base of the San Bernardino Mountains in San Bernardino County, 60 miles northeast of Los Angeles and 45 miles west of Palm Springs. Redlands lies along the Interstate 10 (I-10) freeway corridor, which links Redlands with the cities of San Bernardino, Ontario, and Los Angeles to the west and Palm Springs and the Coachella Valley to the east. State Route (SR) 210 or the Foothill Freeway originates in Redlands, runs north at the northwestern part of Redlands, and heads west towards Pasadena.

The City owns and operates the Redlands WWTP, which includes the treatment plant facility south of the Santa Ana River, east of Nevada Street, and west of Alabama Street and the percolation ponds south of the Santa Ana River and east of Alabama Street. The WWTP is approximately 1.6 miles north of I-10 and just west of SR-210, at an elevation of 1,213 feet

above mean sea level. The facility is bounded by the Santa Ana River to the north, the City's California Landfill to the west, and vacant land and a distribution center to the south (Figure 1). The 41-acre main treatment facility is located at 1950 Nevada Street (at the northern end of Nevada Street), and the 40-acre percolation pond area is east of Alabama Street, just south of the Santa Ana River. These areas are connected by a force main pipeline that runs from the eastern edge of the plant southeasterly and easterly, across Alabama Street, and tying to the southwestern corner of the percolation ponds.

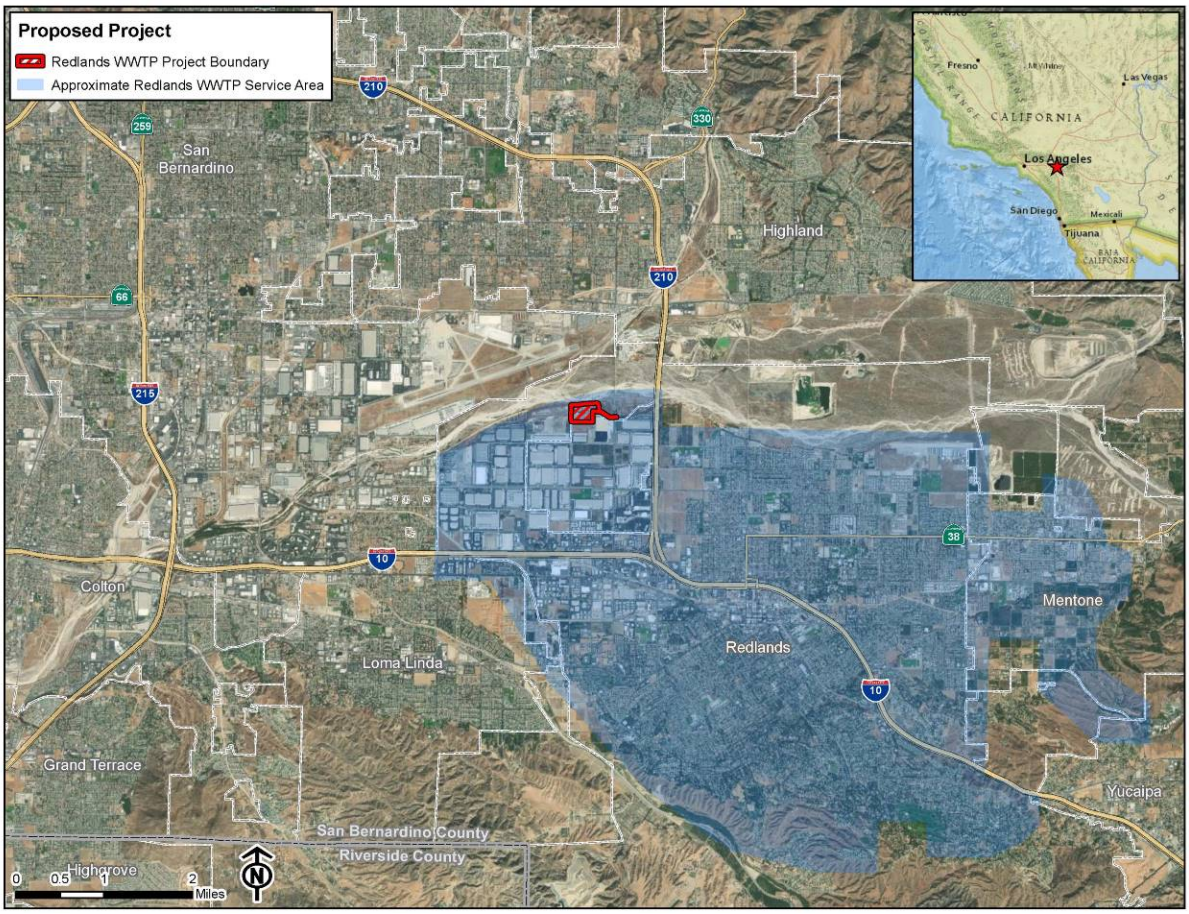

Figure 1. Regional Location and WWTP Service Area

The approximate location of the project site is Section 17 of Township 1 South, Range 3 West, San Bernardino Base and Meridian on the Redlands, CA United States Geological Survey (USGS) topographic quadrangle (latitude 34.089936°N and longitude -117.215112°W).

1.3 Background

Since 1962, the City has owned and operated the City of Redlands WWTP. The facility's treatment process consisted of primary sedimentation, secondary treatment by activated sludge, and disinfection prior to discharging treated effluent into the Santa Ana River. Biosolids were anaerobically digested and distributed to sand drying beds. The facility was designed to treat peak flows of 5.0 MGD with average daily flows of 2.4 MGD (City of Redlands, 2018).

In 1971, the Santa Ana Regional Water Quality Control Board (RWQCB) instituted new discharge requirements. The WWTP underwent extensive expansion and modification. This included a new headworks facility incorporating bar screens and a grit removal system, primary sedimentation tank, trickling filter with clarifier, and a peak storage pond. New aeration basins with activated sludge pumping stations, sludge thickener, and nitrification clarifiers were constructed. A new effluent pump station transferred tertiary effluent to percolation ponds located east of the WWTP for groundwater recharge. A second anaerobic digester was built to treat the additional biosolids. At the end of construction, the design capacity of the plant was 6.0 MGD.

In 1987, under the Immediate Expansion Project, the WWTP received an additional primary sedimentation tank, trickling filter clarifier, peak storage pond, nitrification clarifier, and second sludge thickener. A third anaerobic digester was constructed and supported by additional sand drying beds. These improvements increased the plant's capacity to 9.0 MGD.

In 2000, concerns over strained groundwater resources prompted the City to examine new technologies that could produce recycled water that exceeded California Code of Regulations Title 22 requirements. By 2004, construction and implementation of an MBR filtration complex and chlorine contact chamber were completed. A chemical storage and distribution complex was also built. The plant's aeration basins were modified to treat for both the MBR and conventional activated sludge (CAS) process, creating parallel treatment trains within the WWTP. The design flow to the MBR was 6.0 MGD, leaving 3.5 MGD for the conventional treatment side of the WWTP, for a total of 9.5 MGD. The City delivers recycled water to the Mountainview Power Plant for cooling and numerous irrigation users. In 2010, the plant constructed a biosolids handling facility utilizing a centrifuge solids dewatering system.

In 2020, breakdowns of various facilities at the WWTP required the replacement of membranes and air scour blowers in the MBR, boilers/heat exchangers for the digesters, and the fine screens. In addition, new gas conditioning equipment was installed. These replacements and equipment provided the WWTP with the required operating capacity to serve existing loads, as well as improve system reliability and efficiency while avoiding a potential shutdown of the facility.

1.4 Existing Facility

The existing WWTP is a Class V WWTP that consists of 6.0-MGD MBR and 3.5-MGD conventional CAS treatment processes which produces high-quality chlorinated recycled water that meets Title 22 requirements. The WWTP operates on two separate but adjacent locations, with the main office facility and operations area on a large parcel at 1950 Nevada Street and the percolation ponds on three parcels on Alabama Street, east of the main facility. A force main pipeline conveys treated wastewater from the plant to the percolation ponds. Figure 2 shows an aerial view of the existing WWTP, including the force main pipeline.

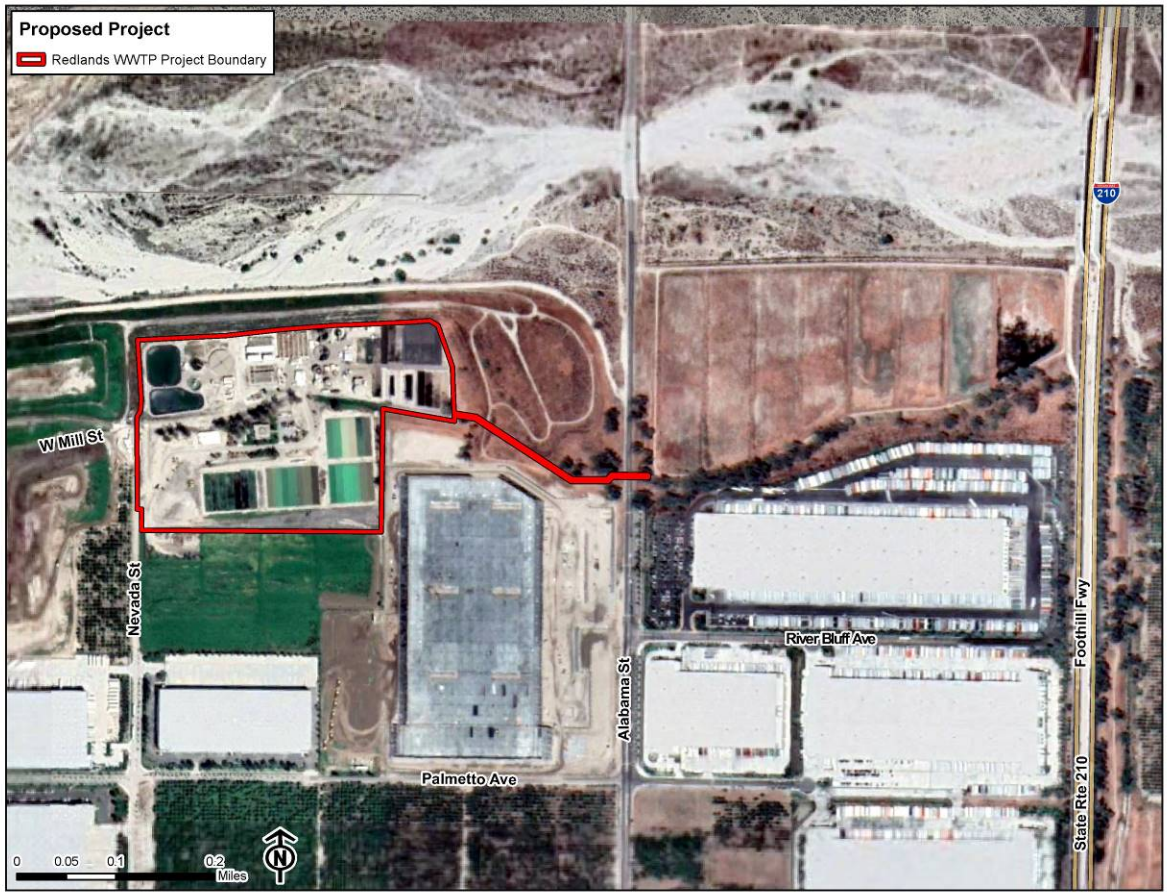

Figure 2. Aerial Photograph of Existing WWTP

At the WWTP, sewer collections are first fed into the headworks and then pumped through primary clarifiers and into peak ponds. Peak ponds serve as equalization tanks at the facility. From the peak ponds, primary effluent is pumped to the CAS and MBR. Typically, approximately 20 to 40 percent of primary effluent is fed into the CAS, and the remaining flow is fed into the MBR.

Four 200-horsepower (HP) motor-operated centrifugal blowers supply process air to three MBR and three CAS aeration tanks. Mostly, two of the four blowers are continuously in operation to suffice oxygen demand. Additionally, there are three high-speed turbo blowers for MBR membrane scouring, and two out of the three blowers are continuously in operation. The operation is cycled between the three blowers to ensure even wear of the equipment.

MBR permeate is then pumped to the plant's chlorine contact tanks for disinfection. This disinfected recycled water is used at Edison's Mountainview Power Plant (Mountainview) cooling towers, the City's landfill (west of the WWTP site), and other approved industrial landscape sites. After secondary clarifiers, CAS secondary effluent goes to the secondary effluent pump station and is then pumped to eight percolation ponds. If the demand at Mountainview is not that high, disinfected recycled water also overflows to the CAS secondary effluent pump station.

Solids from the primary and secondary treatment processes are pumped to the solids handling part of the facility. This facility includes two dissolved air floatation tanks, three anaerobic digesters, one digested sludge storage tank, and two centrifuges. Anaerobically digested sludge is dewatered by centrifuge. Cake generated from centrifuges is classified as Class B biosolids. The cake is hauled to a local composting facility and the City's landfill when necessary. Lastly, the digester gas containing 64 percent methane is used in boilers/heat exchangers to heat the digesters; the excess is flared off. Figure 3 shows the location of existing treatment facilities.

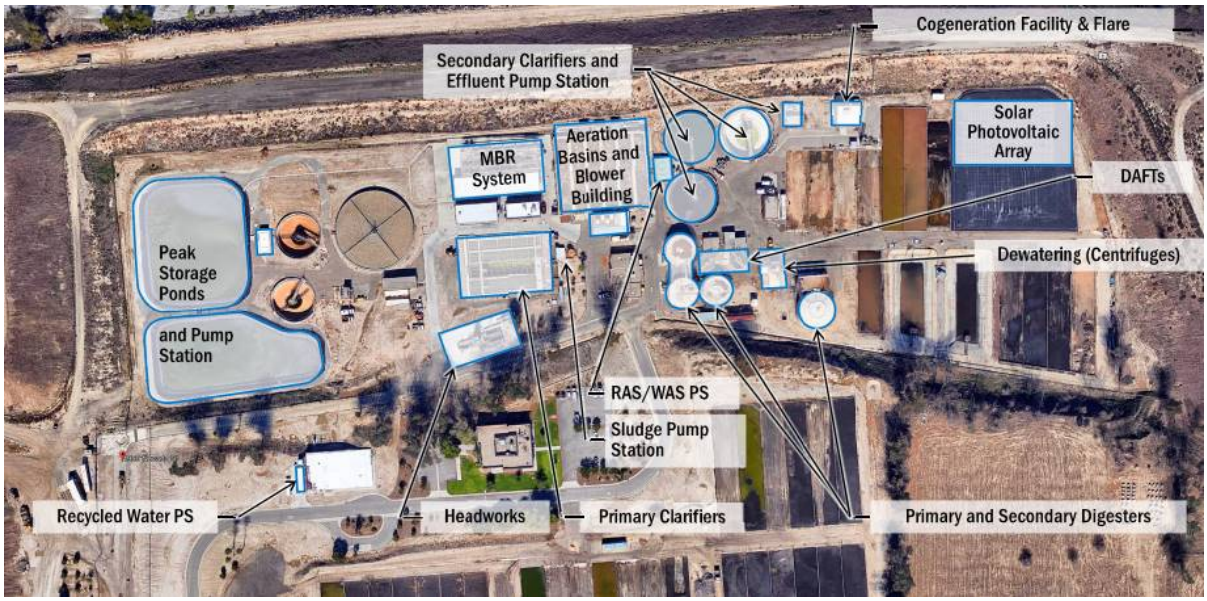

Figure 3. Existing WWTP Facilities

1.5 Purpose of the Project

The purpose of the proposed project is to upgrade the wastewater treatment process components, including improvements and/or repairs necessary to handle existing and projected inflow and improve system reliability and redundancy, while maintaining the WWTP's current capacity and allowing the City to forgo future improvements for the next 20 to 30 years.

1.6 Description of the Proposed Project

The WWTP has a design capacity of 9.5 MGD and currently treats an average flow of 5.8 MGD. Approximately 6.0 MGD of the design capacity are in an MBR system; the remaining 3.5 MGD are in a CAS. Of the current 5.8 MGD annual average flow received at the WWTP, approximately 4.0 MGD are treated through the MBR system, and the rest are treated through CAS.

Considering the projected 0.8 percent annual population growth rate anticipated in Redlands (per the Redlands General Plan 2035), the wastewater flows by 2030 are expected to be well below the WWTP's rated treatment capacity of 9.5 MGD; thus, an increase in the WWTP's design capacity would not be required and is not proposed. Rather, the proposed project would install a state-of-the-art 9.5-MGD MBR system, eliminate the CAS system, and include other necessary improvements for improved efficiency and reliability. The proposed physical changes to the WWTP are shown in Figure 4 and include:

Figure 4. Proposed Modifications to the Existing WWTP

1. **Headworks.** In the motor control center (MCC), a new gas detection system and alarms are proposed. The air compressor in front of the MCC enclosure would be relocated to comply with work space code compliance. A supervisory control and data acquisition (SCADA) interface for headworks equipment would be provided. The current headworks MCC and deteriorated concrete at beam pockets would be replaced. A new biotrickling filter odor control system, along with two washer-compactors for screenings and two washer/classifiers for grit, would be installed. The Parshall Flume and raw sewage pumps would also be replaced, and a new prefabricated building on a 400-square-foot slab on grade for the MCC would be constructed.

2. **Primary Clarification and Pumping.** A new ferric chloride dosing pump for flow/load proportional control to avoid excessive corrosion would be installed. A new SCADA interface for the primary clarifiers would also be installed. Replacement of the chain and flight mechanism for Clarifier #2 would be completed to enable the clarifier to be put back into service. The sludge pumps, collectors and drives, and equipment (including MCC) would be replaced. In addition, a new ferric chloride storage tank would be provided, along with the recoating of the concrete ferric chloride containment area, ventilation of the primary sludge pump room, and construction of a new prefabricated building on a 400-square-foot slab on grade.

3. **Peak Storage Ponds and Pump Station.** A new mixing system would maintain a uniform mixture of contents in the ponds, and the oldest pumps would be replaced. Proper pedestrian access (ingress/egress) to the bottom of the peak storage ponds would be constructed to alleviate safety concerns for maintenance staff. The MCC in the peak pond pump station would be replaced and the control strategy updated to add status and alarm signals to the SCADA. A new prefabricated building on a 400-square-foot slab on grade would also be constructed.

4. **MBR and Aeration Basins.** The existing 6-MGD MBR system and the existing 3.5-MGD activated sludge system would be upgraded to operate as one single 9.5-MGD state-of-the-art MBR system to comply with the following effluent quality requirements:

   - Turbidity:
     - 0.2 Nephelometric Turbidity Units (NTU) or less 95 percent of the time
     - 0.5 NTU or less 100 percent of the time
   - Total Coliform:
     - 2.2/100 milliliters (mL) 7-day median
     - Not to exceed 23/100 mL more than once in 30 days
     - Not to exceed 200/100 mL at any time
   - Total Inorganic Nitrogen (TIN) $\leq$ 10 milligrams per liter (mg/L)
   - Phosphorous $\leq$ 4 mg/L

   This 9.5-MGD MBR system conversion includes the following major facility upgrades:

a. Upgrade of Aeration Basins and Blowers
   - Three CAS aeration basins would be converted to serve as pre-aeration tanks for the MBR system to operate at higher mixed liquor suspended solids (MLSS) (8,000 mg/L) and to provide nitrogen removal to meet the TIN – 10 mg/L or less criteria.
   - New baffles would be installed/configured.
   - Return activated sludge (RAS) pumps would be upgraded to provide additional capacity for 9.5-MGD MBR
   - New mixed liquor return pumps would be installed for the nitrate return and anoxic mixers.
   - Diffusers in the aeration basins would be replaced to suit higher oxygen transfer.
   - Upgrades to the blower building to meet code compliance; installation of panic bars on doors; and modification of the heating, ventilation, and air conditioning (HVAC) system would also be completed.
   - Piping for aeration blowers would be replaced on the existing CAS train.
   - New mud valves would be provided for aeration basins.
   - The equipment pad located in the northeast corner of the aeration basins has exposed bottom of the concrete pad. The contractor would fill in the footing cavity with concrete and construct concrete curb around the pad to shore the equipment pad.

b. Expand MBR System
   - Additional membranes/cassettes would be installed.
   - Membrane basins would be modified to hold preselected membranes in the existing basins for up to 9.5 MGD annual dry weather flow (ADWF).
   - Permeate pumps would be replaced to support larger treated flows from MBR.
   - Existing backpulse pumps and permeate lines would be modified (Note: MBR system has been sized to handle 13.3-MGD peak flow with one train offline. MBR permeate pumps would be sized to handle 13.3-MGD peak flow with five duty pumps [one standby pump]).

5. **Effluent Pump Station Upgrade.** The effluent pump station would be upgraded to include SCADA interface for process analyzers for monitoring and recording. In addition, effluent pump No. 3 and MCC would be replaced, a parallel pipeline to the percolation ponds would be provided, and a new prefabricated building on a 400-square-foot slab on grade would be constructed.

6. **Impure Water Pumps.** The impure water pumps below the chlorine contact tanks would be used to deliver water for fine screens cleaning. These pumps may be upgraded to ensure future requirements for washwater/fine screens cleaning are met. In addition, SCADA interface would be provided for the impure water pumps.

7. **Supernatant Ponds.** The MCC would be replaced; struvite management would be improved; and a centrate equalization tank, pumping station, and glass-lined piping to the fine screens would be provided. The supernatant pond lining would also be replaced.

8. **Thickening System Upgrade**. The thickened waste activated sludge (TWAS) pumps Nos. 1-4 and dissolved air floatation thickener (DAFT) recycle pump No. 1 would be replaced. In

addition, the proposed project would overhaul/replace the internal mechanism for the DAFT No. 1, and SCADA interfaces would be provided for all DAFTs. A new prefabricated building on a 400-square-foot slab on grade would also be constructed.

9. **Digestion System Upgrade.** Upgrades to the digestion system include the addition of a new digester and replacement of the boiler/heat exchanger at each digester to provide consistent heating of digesters. SCADA interfaces would be provided for all digesters as well.

10. **Recycled Water Pump Station.** Recycled water pump No. 1 would be replaced.

11. **Dewatering System.** A new silo and sludge conveyor system for transferring dewatered sludge from the centrifuges for direct loading onto sludge hauling trailers/trucks would be provided, and the dewatering sludge feed pump No. 1 and dewatering grinder No. 1 would be replaced. The small centrifuge would also be replaced to match large centrifuge capacity, and SCADA interfaces for centrifuges would be installed.

12. **Plantwide Instrument and Control (I&C) and SCADA System Upgrades.**

    a. The existing SCADA system would be upgraded and expanded to include the following plant processes that are currently not interfaced with SCADA:

        - Headworks equipment
        - Primary clarifiers and sludge pumps
        - Fine screens
        - DAFTs
        - Primary and secondary digesters
        - Dewatering centrifuges
        - Impure water pumps
        - Waste gas flare
        - Gas conditioning system

    b. Process area status and alarms would be added on plant SCADA for the headworks, peak pond pumps, aeration basin mixers, RAS and waste activated sludge (WAS) pumps, secondary clarifiers, effluent pumps, recycled water pumps and SCADA communication health. The programmable logic controller (PLC)/SCADA communication network cables would be converted to Device Level Ring (DLR) topology, with the latest controllers and communications throughout the plant.

    c. Existing plant control strategies would be modified and optimized to meet the City's operational requirements.

    d. Existing piping and instrumentation diagrams (P&IDs) for facilities being modified would be updated.

    e. Calibration stickers on all instruments would be updated or provided.

13. **Plantwide Electrical System Upgrades.** The proposed project would replace the following electrical equipment:

a. Switchboard M replacement
b. MCC replacements
c. Additional modifications/changes to existing MCCs:
    - Headworks equipment
    - Primary clarifiers and sludge pumps
    - Primary clarifier sludge pump room ventilation
    - Process equipment replacement

14. **Redundant Pipelines**. To increase system reliability, new/redundant pipelines would be constructed for the following key critical pipelines:

- An approximately 300-foot-long pipe from the headworks at the center of the plant, running northeasterly and then northerly to tie to the primary clarifiers.
- A new 375-foot-long pipe generally extending westerly from the primary clarifiers to the peak storage ponds at the northwestern section of the plant.
- A 220-foot-long pipe along the northern edge of the plant from aeration basins to membrane basins to accommodate increased flows to the MBR process.
- An approximately 1,200-foot-long, 27-inch-diameter force main pipeline from the effluent pump station southerly and then easterly (south of the digesters) through the drying ponds approximately 10 feet from and roughly parallel to the existing pipeline and across Alabama Street to the southwest corner of the percolation ponds. The new pipeline would end in a valve vault with a tee between the two pipelines before the first percolation pond.

Trenching for these pipelines would be a maximum of approximately 15 feet wide and 15 feet deep.

15. **Landscape Architecture.** Demolition plans, as well as new construction, planting, and irrigation plans, would be included in the proposed project for landscaping and site improvements. Landscaping would include approximately 50 trees along the east side of the frontage road and along the southern and eastern perimeter of the facility. Beautification and an entry monument are proposed at the Nevada Street entrance. Other site improvements include general landscaping along the existing access road off Nevada Street; walkway and patio improvements, along with informational exhibits; and another small access road west of the main operations building. Approximately 4,000 linear feet of trenching for utilities (i.e., irrigation systems) would be required at a maximum depth of 5 feet.

1.6.1 Construction

The proposed upgrades and improvements to the WWTP would require construction (i.e., demolition, excavation, and grading) within the existing plant boundaries and along the alignment of the existing force main to install a redundant pipeline from the WWTP to the percolation ponds. Construction vehicles, equipment, and materials would be staged at the WWTP and would require road closure for installation of the redundant pipeline across Alabama Street.

Construction of the upgrades and improvements is estimated to require approximately 24 months and would include earthwork on approximately 75,000 square feet. Project construction would require approximately 6,500 linear feet of utility trenching. Utility work would typically include trenching to a maximum depth of 15 feet in a corridor approximately 15 feet wide. Five new prefabricated buildings would be installed, each of which would be approximately 400 square feet in area. Excavations of up to 2 feet would be required for foundation work.

1.6.2 Operation

Operation of the WWTP would continue to be managed by the City. The facility currently employs a staff of 23 individuals plus 6 operator-in-training volunteers and operates on a continuous basis – 24 hours per day, 7 days per week (City of Redlands, 2019a). No additional personnel are anticipated to be required to support the proposed project.

1.7 Surrounding Land Uses and Setting

The WWTP site is located at the northwestern section of Redlands. This area is generally developed with industrial land uses, along with vacant land/agricultural fields. The WWTP site consists of two locations immediately south of the Santa Ana River, which runs along the northern boundary of Redlands. The main office and operations area of the WWTP occupy approximately 41 acres at the northern end of Nevada Street. This facility is bounded by Nevada Street and the Redlands California Landfill to the west, the Santa Ana River to the north, and vacant land and fallow fields (with evident disking and mowing) to the east and south. This area is surrounded by a chain-link fence. The WWTP percolation ponds are located to the east of the main facility and encompass approximately 40 acres. The ponds are bounded by the Santa Ana River to the north, Alabama Street and vacant land to the west (with the WWTP main facility farther west), SR-210 to the east, and the Home Depot Distribution Center to the south. The ponds are also surrounded by a chain-link fence. A force main pipeline runs from the WWTP to the percolation ponds through the drying ponds at the eastern section of the plant site and across Alabama Street. The pipeline alignment is bounded by undeveloped land.

1.8 Related Projects

CEQA Guidelines Section 15130 requires an analysis of the significant cumulative impacts of a proposed project. Cumulative impact is referred to as “two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts” (CEQA Guidelines Section 15355).

The May 2021 listing of major projects in Redlands was reviewed to identify projects that are ongoing, planned, approved, or under construction near the project site. Projects within 1 mile of the WWTP include:

- **Bergamot Specific Plan (TTM 20336)** – Subdivision of 58 acres on the north side of Domestic Avenue, west of Texas Street, and east of SR-210 into 317 single-family lots with 10 acres for parks, roadways, and infrastructure. This project is in process.

- **Heritage Specific Plan (TTM 20257)** – Subdivision of 37 acres on the west side of Texas Street, north of San Bernardino Avenue, and south of Pioneer Avenue into 207 single-family lots. This project is under construction.

- **Starlite Management-17 (Tract 17022)** – Subdivision of 4.3 acres on the northeast corner of West Pioneer Avenue and Texas Street into 12 residential lots for single-family residences. This project is in process.

1.9 Other Agencies Whose Approval is Required

The planning and regulatory agencies shown in Table 1 have potential permit or approval authority for the proposed project.

Table 1. Planning and Regulatory Agencies with Permit or Approval Authority

AGENCY	PERMIT OR APPROVAL AUTHORITY
California Department of Transportation, Transportation Permits Issuance Branch	Permit for transport of heavy construction vehicles on State Highways
State Water Resources Control Board	State Revolving Fund Loan Review and Approval
Santa Ana Regional Water Quality Control Board	National Pollutant Discharge Elimination System Permit and Waste Discharge Requirements
City of Redlands Building & Safety Division	Building Permits
South Coast Air Quality Management District	Permit to Construct; Permit to Operate (new equipment including MBR process and boilers/heat exchangers)

1.10 Tribal Consultations

California Native American tribes traditionally and culturally affiliated with the project area have been offered the opportunity to consult pursuant to Assembly Bill (AB) 52 – PRC Section 21080.3.1. This is discussed further in Section 2.3.XVIII below.

1.11 State Revolving Fund Loan

The City would apply for a Clean Water State Revolving Fund (SRF) loan from the State Water Resources Control Board (SWRCB) to fund the project. The SRF Loan Program is partially funded by United States Environmental Protection Agency (EPA) and subject to federal environmental regulations, including the Endangered Species Act (ESA), the National Historic Preservation Act (NHPA), and the General Conformity Rule for the Clean Air Act (CAA). EPA has chosen to use CEQA as the compliance base for California's SRF Loan Program, in addition to compliance with the ESA, NHPA, and CAA. The SWRCB calls these requirements CEQA-Plus.

The SWRCB Division of Financial Assistance is a Responsible Agency that would act on behalf of EPA to review and consider the CEQA document before approving the project's funding. The SWRCB would determine the adequacy of the CEQA document and seek concurrence from federal agencies on compliance with federal crosscutting regulations. The CEQA document is also transmitted to the State Clearinghouse for State agency review before the SWRCB begins consultation with federal agencies for concurrence.

Additional environmental analyses are required for federal compliance associated with the CEQA-Plus process for the SRF loan application for the proposed upgrade of the Redlands WWTP. The environmental analyses for applicable federal consultation processes are underway and would be included in the CEQA-Plus documentation that would accompany the SRF loan application. Supporting information for federal requirements is provided in Table 2.

Table 2. Federal Environmental Requirements for SRF Loan Application Review

SRF APPLICATION FORM ATTACHMENT	FEDERAL REGULATION/SUBJECT	INITIAL STUDY SECTION
E2.2	EPA Clean Air Act General Conformity Analysis	2.3.III (b)
E2.3	Federal Endangered Species Act (Section 7)	2.3.IV (a)
E2.3	Migratory Bird Treaty Act	2.3.IV (a, d)
E2.3	Protection of Wetlands (Executive Order 11990)	2.3.IV (c)
E2.5	National Historic Preservation Act (Section 106)	2.3.V (a)
E2.5	Native American Consultation	2.3.XVIII (b)
E2.5	Archaeological and Historic Preservation Act	2.3.V (b)
(not applicable)	Magnuson-Stevens Fishery Conservation and Management Act	2.3.IV (a)
(not applicable)	Fish and Wildlife Coordination Act	2.3.IV (c, d)
(not applicable)	Rivers and Harbors Act, Section 10	2.3.IV (c, d)
(not applicable)	Flood Plain Management (Executive Orders 11988, 12148, and 13690)	2.3.X (c)
(not applicable)	Wild and Scenic Rivers Act	2.3.I (a)
(not applicable)	Coastal Barriers Resources Act	2.3.X (d)
(not applicable)	Coastal Zone Management Act	2.3.X (d)
(not applicable)	Safe Drinking Water Act – Sole Source Aquifer Protection	2.3.X (b)
(not applicable)	Farmland Protection Policy Act	2.3.II (a)
(not applicable)	Socioeconomic Impact Analysis	2.3.XXII
(not applicable)	Environmental Justice	2.3.XXIII

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2.0 ENVIRONMENTAL ANALYSIS

The CEQA Environmental Checklist and discussion of potential environmental effects in Section 2.3 below were completed in accordance with Section 15063(d)3 of the CEQA Guidelines to determine if the proposed project may have any significant impacts on the environment.

2.1 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	☐ Agricultural and Forestry Resources	☐ Air Quality
☑ Biological Resources	☑ Cultural Resources	☐ Energy
☑ Geology/Soils	☐ Greenhouse Gas Emissions	☐ Hazards and 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

2.2 Determination

On the basis of this initial evaluation:

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

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

☐ I find that the proposed 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
_____	_____
Printed Name	For

2.2.1 Evaluation of Environmental Impacts:

1. A brief explanation is required for all answers except "No Impact" answers that are adequately supported by the information sources a lead agency cites in the parentheses following each question. A "No Impact" answer is adequately supported if the referenced information sources show that the impact simply does not apply to projects like the one involved (e.g., the project falls outside a fault rupture zone). A "No Impact" answer should be explained where it is based on project-specific factors as well as general standards (e.g., the project would not expose sensitive receptors to pollutants, based on a project-specific screening analysis).

2. All answers must take account of the whole action involved, including offsite as well as onsite, cumulative as well as project-level, indirect as well as direct, and construction as well as operational impacts.

3. Once the lead agency has determined that a particular physical impact may occur, then the checklist answers must indicate whether the impact is potentially significant, less than significant with mitigation, or less than significant. "Potentially Significant Impact" is appropriate if there is substantial evidence that an effect may be significant. If there are one or more "Potentially Significant Impact" entries when the determination is made, an Environmental Impact Report (EIR) is required.

4. "Negative Declaration: Less Than Significant With Mitigation Incorporated" applies where the incorporation of mitigation measures has reduced an effect from "Potentially Significant Impact" to a "Less Than Significant Impact." The lead agency must describe the mitigation measures, and briefly explain how they reduce the effect to a less than significant level (mitigation measures from "Earlier Analyses," as described in (5) below, may be cross-referenced).

5. Earlier analyses may be used where, pursuant to the tiering, program EIR, or other CEQA process, an effect has been adequately analyzed in an earlier EIR or negative declaration. Section 15063(c)(3)(D). In this case, a brief discussion should identify the following:

    a. Earlier Analysis Used. Identify and state where they are available for review.

    b. Impacts Adequately Addressed. Identify which effects from the above checklist were within the scope of and adequately analyzed in an earlier document pursuant to applicable legal standards, and state whether such effects were addressed by mitigation measures based on the earlier analysis.

    c. Mitigation Measures. For effects that are "Less than Significant with Mitigation Measures Incorporated," describe the mitigation measures that were incorporated or refined from the earlier document and the extent to which they address site-specific conditions for the project.

6. Lead agencies are encouraged to incorporate into the checklist references to information sources for potential impacts (e.g., general plans, zoning ordinances). Reference to a previously prepared or outside document should, where appropriate, include a reference to the page or pages where the statement is substantiated.

7. Supporting Information Sources: A source list should be attached, and other sources used or individuals contacted should be cited in the discussion.

8. This is only a suggested form, and lead agencies are free to use different formats; however, lead agencies should normally address the questions from this checklist that are relevant to a project's environmental effects in whatever format is selected.

9. The explanation of each issue should identify:

    a. The significance criteria or threshold, if any, used to evaluate each question; and

    b. The mitigation measure identified, if any, to reduce the impact to less than significance.

2.3 CEQA Environmental Checklist

A brief explanation is provided for all determinations. A "No Impact" or "Less Than Significant Impact" determination is made when the project would not have any impact or would not have a significant effect on the environment for that issue area, respectively, based on a project-specific analysis.

I. Aesthetics
Would the project:

Potential Impacts	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Have a substantial adverse effect on a scenic vista?			X	

The Redlands General Plan 2035 identifies several historic and scenic districts in Redlands, south of I-10. The project site is located more than 2 miles from these districts; therefore, the proposed improvements would not be located in nor be visible from these historic and scenic districts. While the General Plan states that views of the Santa Ana River wash and mountains in the background are considered scenic views, as seen from Riverview Drive, the site is not located near Riverview Drive and would not affect views of the river and distant mountains. Under the Wild and Scenic Rivers Act, the Santa Ana River north of the site is not designated as a wild and scenic river.

The project site is in a predominantly industrial area, with some vacant lands and agricultural fields. The WWTP site presents an industrial view, as seen from the cul-de-sac of Nevada Street. The site of the pipeline alignment presents a view of vacant land from Alabama Street. Earthen berms block views of this area from Alabama Street, the Santa Ana River, and areas farther north. Thus, public views would not change with the proposed project. The proposed structures at the main facility would intensify the industrial setting of the site and surrounding area, but proposed trees and landscaping would soften the views. The force main pipeline would be underground and would not change public views. The project would not adversely affect any scenic views. The effect of the project on scenic vistas would be considered less than significant.

Potential Impacts	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?				X

There is no officially-designated State Scenic Highway near the WWTP site. The portion of I-10 from SR-38 to SR-62 near Whitewater and the portion of SR-210 from SR-330 to I-10 are eligible State Scenic Highways but are located 2.2 and 2.4 miles from the WWTP, respectively. The WWTP is not visible from these freeway segments. As such, the proposed WWTP improvements

would not affect views from eligible State Scenic Highways. The City has designated several streets as scenic highways, drives, and historic streets. The WWTP is not located near any of these scenic highways, drives, or streets. Also, the site is not visible from the Emerald Necklace Trail and Scenic Route that passes through Pioneer Avenue at the northern section and on various streets at the eastern section of Redlands. No impact on scenic resources along a Scenic Highway would occur with the project.

Potential Impacts	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
c) Substantially degrade the existing visual character or quality of public views of the site and its surroundings? If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?			X	

The project site is currently defined by equipment and structures that present an industrial view, along with several aeration, drying, peak, and percolation ponds used for wastewater treatment. The proposed project would introduce the same types of structures and equipment; therefore, it would reflect the same industrial use and public views from Nevada Street, but it would not be visible from Alabama Street. The main facility has digesters that are approximately 25 feet tall. The proposed equipment and structures would be lower or at the same height as these digesters. An intensified view of the industrial operations would only be visible from the cul-de-sac of Nevada Street. The earthen berms at the northern boundary of the site would continue to block views of the WWTP from the Santa Ana River and areas farther north. Similarly, earthen berms along Alabama Street block views of the main WWTP site. Because the project site has limited visibility from public roadways, it would not result in substantial degradation of the visual quality of the site or the surrounding area. Construction of the project may temporarily degrade the visual quality of the site during construction activities, but this would be temporary and only visible from Nevada Street. Impacts would be considered less than significant.

The project would not result in any conflicts with City plans and policies for the preservation of open space and the protection of scenic views. It would not adversely impact the visual character or quality of the site or project area. Impacts on the visual character or quality of the area would be considered less than significant.

Potential Impacts	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
d) Create a new source of substantial light or glare, which would adversely affect day or nighttime views in the area?			X	

The WWTP site has limited sources of light and glare, and the area surrounding the site consists of industrial uses, agricultural fields, and vacant land that are not sensitive to light and glare.

There are no residences near the site, with the nearest residence located approximately 0.7 mile to the southeast. Construction activities would occur primarily during daylight hours; therefore, no new sources of artificial lighting would be created during construction at the WWTP site. The proposed improvements would include artificial lighting for security purposes. This new lighting would be focused inward onto the site and would not adversely affect day or nighttime views in the area. The proposed buildings, facilities, equipment, and pump stations would not have glass, mirror, or other glazed surfaces that may create glare in the area. New pipelines would be underground. Therefore, impacts from light and glare would be considered less than significant.

II. Agriculture and Forestry Resources

In determining whether impacts to agriculture resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Department 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:

Potential Impacts	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?				X

The project area has historically been in agricultural use, mainly as citrus orchards, but in recent decades, the land has been developed with industrial warehouses; however, the WWTP has been in operation at the site since 1962.

The State of California Department of Conservation Division of Land Resources monitors farmland as part of its Farmland Mapping and Monitoring Program. The project site is classified as Urban and Built-up Land, with the Santa Ana River to the north classified as Grazing Land and areas to the south classified as Urban and Built-up Land, Grazing Land, and Farmland of Statewide Importance. The proposed improvements at the WWTP site would not be located on areas designated as Farmland of Statewide Importance nor would the project result in conversion of farmland to nonagricultural use. There would be no impacts to Farmland.

Potential Impacts	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?				X

The project site is not in agricultural use and is not under a Williamson Act contract. Adjacent areas that are in agricultural use are classified as Non-Enrolled Land. The site is not within the agricultural zoning districts (i.e., A-1, A-1-20, A-2) of the City's Zoning Ordinance. The WWTP is zoned as Open Space and Public/Institutional, which allows agricultural uses. However, the site is developed with the WWTP facilities, and the project would not change the land use of the site. Thus, the project would not conflict with existing zoning or any Williamson Act contract. No impact would occur.

Potential Impacts	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?				X

The WWTP site is not part of a forest and is not located near a forest. The nearest forest is the San Bernardino National Forest, which is approximately 3.6 miles to the north. The site is not used as timberland or for timberland production. Therefore, the project would not result in a conflict with existing zoning or cause rezoning of any forest land. Impacts to forest land or timberland would not occur.

Potential Impacts	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
d) Result in the loss of forest land or conversion of forest land to non-forest use?				X

There is no forest land on or near the site; therefore, the project would not result in the conversion of any forest land to non-forest use. There would be no impact on forest land with implementation of the project.

Potential Impacts	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
e) Involve other changes in the existing environment that, due to their location or nature, could result in conversion of Farmland, to non-agricultural use?				X

The proposed WWTP improvements would retain the public facility use of the site and would not extend beyond the site boundaries. The proposed trees along the southern boundary of the site near the crop fields, which appear fallow, and citrus orchards to the southwest would not result in nor promote the conversion of Farmland into nonagricultural uses. There would be no impact on Farmland as a result of implementation of the project.

III. Air Quality

Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations.

Would the project:

Potential Impacts	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Conflict with or obstruct implementation of the applicable air quality plan?			X	

A CAA General Conformity Analysis was prepared for the project and is provided in Appendix A. The findings of the analysis are summarized below.

Under the CAA, California is divided into several Air Quality Control Regions (AQCRs) that, for the most part, represent separate air basins. The project site is in the Metropolitan Los Angeles AQCR (also known as the South Coast Air Basin), which encompasses the counties of Ventura and Orange, and portions of the counties of Los Angeles, Riverside, and San Bernardino. Designated by EPA as AQCR 24, this area is under jurisdiction of the South Coast Air Quality Management District (SCAQMD).

Air basins are designated as being either in “attainment” or in “nonattainment” of the National Ambient Air Quality Standards (NAAQS) and California Ambient Air Quality Standards (CAAQS), respectively. These designations determine which provisions of the CAA and California Clean Air Act (CCAA) apply to the air basin and how air quality in the region is managed. For attainment areas, the goal is to avoid air quality degradation while accommodating regional development. For nonattainment areas, the goal is to attain and maintain the standards. *De minimis* rates of air pollutant emissions were established in the Final Rule for Determining Conformity of General Federal Actions to State or Federal Implementation Plans to focus conformity requirements on projects with the potential for significant air quality impacts. Except for lead, the *de minimis* levels are based on the CAA’s major stationary source definitions for criteria air pollutants (and their precursors) and vary by the severity of the nonattainment area.

The South Coast Air Basin, which includes the project site, is in extreme nonattainment of the 8-hour ozone (O_3) standard; is designated a maintenance area for coarse particulate matter (PM_{10}) and nitrogen dioxide (NO_2); and is in nonattainment for fine particulate matter ($PM_{2.5}$). Consequently, direct and indirect emissions of volatile organic compounds (VOC) and nitrogen oxides (NO_X) (which are precursors to O_3), as well as emissions of PM_{10} and $PM_{2.5}$, resulting from the proposed project, would add to existing air pollution levels in the South Coast Air Basin; thus, the project is subject to a conformity determination. To determine whether a full General Conformity determination is necessary, construction and operational emissions are compared to General Conformity *de minimis* thresholds. A project conforms to the applicable State Implementation Plan (SIP) when criteria pollutants do not exceed their respective *de minimis* thresholds of 100 tons per year (tpy) for carbon monoxide (CO), PM_{10}, and $PM_{2.5}$ and 10 tpy for VOC and NO_X.

Construction

Air pollutant emissions from construction of the proposed project are estimated in Table 3 below. These emissions would be temporary and would not have adverse, long-term effects on air quality. As shown, the project would not exceed *de minimis* thresholds, nor would it exceed SCAQMD thresholds during construction.

Operations

After the proposed WWTP upgrade and modernization is completed, the design capacity and flows at the WWTP would remain the same, so there would not be any change in operational emissions. The number of personnel operating the WWTP and chemical truck deliveries would also remain the same after completion of construction. Therefore, there would be no combustion or particulate matter emissions that would be associated with additional personnel and delivery trucks traveling to the upgraded WWTP during operations. Operational emissions from the three digester gas-fired boilers/heat exchangers have not been included because they would be subject to SCAQMD Regulation XIII – New Source Review (NSR). The goal of this regulation is to achieve no net emission increases from new or modified permitted sources of nonattainment air contaminants or their precursors. Rule 1303 (part of Regulation XIII) requires any new or modified source of emissions of a non-attainment contaminant or of ammonia to install Best Available Control Technology (BACT) to obtain a Permit to Construct. As a modified source of VOCs, an O_3 precursor, and of ammonia, the project would be subject to the NSR permitting requirements. Because the proposed newer boilers/heat exchangers would have to comply with SCAQMD BACT requirements, their emissions would be lower than those of the existing boilers/heat exchangers.

Emissions from the proposed project would not exceed their respective *de minimis* thresholds; therefore, the project would not conflict with the Air Quality Management Plan for the South Coast Air Basin nor obstruct with the objectives or the implementation of applicable portions of SCAQMD's attainment and maintenance plans. Impacts would be less than significant.

Potential Impacts	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
b) Violate any air quality standard or result in a cumulatively considerable net increase in an existing or projected air quality violation?			X	

The proposed project would occur in an area designated as maintenance (redesignated from nonattainment after meeting the applicable NAAQS) for PM_{10} and NO_2, as extreme nonattainment for 8-hour O_3, and as nonattainment for $PM_{2.5}$. Emissions from project construction and operations would add to existing air quality violations.

Construction

The proposed project would emit air pollutants during construction. Construction emissions were calculated using SCAQMD's California Emissions Estimator Model, version 2016.3.2 (CalEEMod) and are provided in Table 3. These emissions would be temporary and generated over a period of 24 months. As shown, construction emissions would not exceed the *de minimis* thresholds and SCAQMD's mass daily thresholds (MDT). Thus, short-term impacts on air quality would be less than significant.

Table 3. Estimated Air Pollutant Emissions during Construction

EMISSIONS SOURCE, METRIC	EMISSIONS BY CRITERIA POLLUTANT OR PRECURSOR					
	CO	NO_X	VOC	SO_X	PM_{10}	$PM_{2.5}$
2022 (tons)	0.58	0.65	0.07	0.00	0.07	0.05
2023 (tons)	1.75	1.60	0.22	0.00	0.07	0.07
2024 (tons)	0.63	0.63	0.07	0.00	0.02	0.02
Total Construction, tons	**2.96**	**2.81**	**0.36**	**0.00**	**0.16**	**0.14**
de minimis Threshold, TPY	100	10	10	NA	100	100
Exceed *de minimis* Threshold?	No	No	No	NA	No	No
Average, pounds per day	**33.4**	**43.4**	**4.5**	**0.06**	**13.2**	**7.4**
SCAQMD MDT, pounds per day	550	100	75	150	150	75
Exceed MDT?	No	No	No	No	No	No

CO = carbon monoxide
NO_X = nitrogen oxides
SO_X = sulfur oxides
VOC = volatile organic compounds
PM_{10} and $PM_{2.5}$ = particulate matter less than or equal to 10 microns and 2.5 microns in diameter, respectively
TPY = tons per year
MDT = SCAQMD Mass Daily Thresholds for construction, intended to determine whether project impacts are regionally significant.

Source: Clean Air Act General Conformity Applicability Analysis for Proposed Upgrade of the City of Redlands Wastewater Treatment Plant, 2021.

While impacts on air quality during construction would be less than significant, particulate matter (PM) emissions could be reduced by approximately 50 percent by watering for dust control (as required by SCAQMD Rule 403 and as standard construction practice).

Operations

As discussed above, after the proposed WWTP upgrade and modernization is completed, the design flow at the WWTP would remain the same, so there would not be any change in operational emissions. The number of personnel operating the WWTP and chemical truck deliveries would also remain the same after completion of project construction. No emissions associated with additional personnel and delivery trucks traveling to the project site would occur during operation.

The project would apply to SCAQMD for a Permit to Construct and a Permit to Operate and would comply with permit conditions. The proposed boilers/heat exchangers would be subject to SCAQMD BACT requirements; therefore, their emissions would be lower than those of the existing boilers/heat exchangers to be replaced. The SCAQMD permit conditions are designed to assure compliance with air quality standards; therefore, the project would not violate any air quality standard or contribute substantially to an existing or projected air quality violation. Impacts from operation of the project would be less than significant.

No major change in emissions would occur during long-term operations, and impacts would be less than significant. The temporary increases in emissions that would be attributed to construction of the project are well below SCAQMD's significance thresholds. Thus, project emissions would not be considered cumulatively considerable and would be considered less than significant.

Potential Impacts	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
c) Expose sensitive receptors to substantial pollutant concentrations?			X	

Residential uses, schools, hospitals, and similar land uses are considered sensitive to air pollutants because they tend to be occupied for long periods and occupants typically include air pollutant-sensitive groups such as the aged, the young, and the infirm. Recreational areas also are considered relatively sensitive to air pollutants because of the frequency and duration of outdoor athletic activities in these areas. Commercial and industrial uses are generally considered insensitive to air pollutants because workers generally work indoors and exposure periods are limited to work hours, and patrons and visitors are onsite for limited time periods. Transportation corridors are also considered relatively insensitive to air pollutants because exposure periods from any one source are generally short for travelers.

There are no sensitive receptors such as schools, hospitals, or residences in the immediate area of the WWTP. The nearest sensitive receptor is Citrus Valley High School, which is located approximately 0.5 mile southeast of the WWTP, across SR-210. The nearest residential neighborhood is located approximately 0.7 mile southeast, on the opposite side of SR-210. The prevailing winds at the site are from the northwest. Due to distance from the project site and the

type and size of proposed improvements, residential areas and the high school would not experience substantial pollutant concentrations from construction of the proposed project and operation of the upgraded WWTP. Thus, air quality impacts on sensitive receptors would be less than significant.

Potential Impacts	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
d) Result in substantial emissions (such as odors or dust) adversely affecting a substantial number of people?			X	

Wastewater inflows to treatment plants generally bring with them a variety of odorous compounds that are either present in the original wastewater or developed during their transport through the sewer system (Table 4). Municipal wastewater systems generate various additional types of gases during the treatment and removal of biological and chemical contaminants and filtration and aeration of the treated wastewater. Odors are usually caused by sulfur-bearing compounds, such as hydrogen sulfide (H_2S), as shown in Table 5.

Table 4. Typical Composition of Odorous Compounds in WWTP Influent

COMPOUND	AVERAGE CONCENTRATION (MICROGRAM/LITER)
Hydrogen sulfide	23.9
Carbon disulfide	0.8
Methyl mercaptan	148
Dimethyl sulfide	10.6
Dimethyl disulfide	52.9
Dimethyl amine	210
Trimethyl amine	78
n-Propylamine	33

Source: Hwang et al., 1995.

Table 5. Odorous Sulfur Compounds Typically Present in Wastewater

COMPOUND	ODOR THRESHOLD (PARTS PER MILLION [PPM])
Allyl mercaptan	0.00005
Dimethyl sulfide	0.0001
Ethyl mercaptan	0.000019
Hydrogen sulfide	0.00047
Methyl mercaptan	0.0011

Source: EPA, 1985.

While these odors occur and would continue to be generated by the Redlands WWTP, the project would not increase the amount of wastewater that is treated at the WWTP. A new biotrickling filter odor control system would be installed as part of the proposed project, which would minimize and reduce existing odorous compounds emitted by the WWTP. In addition, there are no sensitive receptors near the site that would subject a substantial number of people to objectionable odors. Thus, adverse odor impacts would be less than significant.

IV. Biological Resources
Would the project:

Potential Impacts	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?		X		

Project compliance with the Federal and California Endangered Species Acts, California Fish and Game Code, Migratory Bird Treaty Act (MBTA), and Protection of Wetlands (Executive Order [EO] 11990) was evaluated in the Biological Resources Technical Report that was prepared for the project and provided in Appendix B. The findings of this report are summarized below.

Based on reviews of the *Information Planning and Consultation* (IPaC) planning tool of the U.S. Fish and Wildlife Service (USFWS), the California Natural Diversity Data Base (CNDDB) of the California Department of Fish and Wildlife (CDFW), the National Oceanic and Atmospheric Administration's (NOAA) National Marine Fisheries Service Species Lists, the California Native Plant Society's (CNPS) Inventory of Rare Plants, eBird (2019), and the Consortium of California Herbaria's (CCH) CCH1 Database, there are 41 special-status biological resources that could be present in the project area, as identified in the literature search. These include 14 plants, 1 fish, 8 birds, 10 mammals (including 4 bats and 6 burrowing mammals), and 8 amphibians and reptiles.

A biological survey of the project site conducted in May 2019 and May 2021 determined that of those 41 species, 10 wildlife species had substantial (i.e., moderate or higher) potential to occur on the site, including no plants, no fish, 1 bird, 9 mammals (including 4 bats and 5 burrowing mammals), and no amphibians and reptiles (as listed in Table 6). Habitat is absent for the other 31 sensitive species.

Table 6. Sensitive Wildlife Species with Suitable Habitat at the Project Site

COMMON NAME (SCIENTIFIC NAME)	STATUS	HABITAT	POTENTIAL FOR OCCURRENCE
Birds			
Burrowing owl *(Athene cunicularia)*	SSC, BCC	Coastal prairie, coastal scrub, great basin scrub, desert scrub, and grasslands.	Moderate potential to occur. The project site has suitable habitat present, and California ground squirrel were observed at the site, which are one of the primary prey for this species.
Mammals			
Pallid bat *(Antrozous pallidus)*	SSC	Chaparral, coastal scrub, desert wash, great basin scrub, desert scrub, riparian woodland, upper montane coniferous forest, and grasslands.	Moderate potential to occur. The site is developed; no guano was observed on the site, but structures present could support roosting of bats.
Northwestern San Diego pocket mouse *(Chaetodipus fallax fallax)*	SSC	Chaparral and coastal scrub.	Moderate potential to occur. Small burrows present at the percolation basins could support this species.
San Bernardino kangaroo rat *(Dipodomys merriami parvus)*	SSC	Coastal scrub.	Moderate potential to occur. Critical habitat present. Small burrows present at the percolation basins could support this species.
Stephens' kangaroo rat *(Dipodomys stephensi)*	FE, SE	Coastal scrub and grasslands.	Moderate potential to occur. Small burrows present at the percolation basins could support this species.
Western mastiff bat *(Eumops perotis californicus)*	SSC	Chaparral cismontane woodland, coastal scrub, and grasslands.	Moderate potential to occur. The site is developed; no guano was observed on the site, but structures present could support roosting of bats.
Western yellow bat *(Lasiurus xanthinus)*	SSC	Desert wash.	Moderate potential to occur. The site is developed; no guano was observed on the site, but structures present could support roosting of bats.
Pocketed free-tailed bat *(Nyctinomops femorosaccus)*	SSC	Joshua tree woodland, pinon & juniper woodlands, riparian scrub, and Sonoran desert scrub.	Moderate potential to occur. The site is developed; no guano was observed on the site, but structures present could support roosting of bats.

Table 6. Sensitive Wildlife Species with Suitable Habitat at the Project Site

COMMON NAME (SCIENTIFIC NAME)	STATUS	HABITAT	POTENTIAL FOR OCCURRENCE
Los Angeles pocket mouse *(Perognathus longimembris brevinasus)*	SSC	Coastal scrub.	Moderate potential to occur. Small burrows present at the percolation basins could support this species.
American badger *(Taxidea taxus)*	SSC	Coastal scrub, chaparral, desert scrub, and others.	Moderate potential to occur. The project site has suitable habitat present, and California ground squirrel were observed at the site, which are one of the primary prey for this species.
FE = Federally-listed Endangered; SE = State-listed Endangered; SSC = CDFW Species of Special Concern; BCC = USFWS Bird of Conservation Concern			

Source: Biological Survey Technical Memorandum for Proposed Redlands Wastewater Treatment Plant Upgrade Project, 2021.

The Magnuson-Stevens Fishery Conservation and Management Act was promulgated to promote fishery conservation, establish regional councils to manage fish stocks, and protect essential fish habitat. There is no Essential Fish Habitat in the project area. Critical Habitat for the Santa Ana River sucker is present immediately adjacent to the site on the north side within the Santa Ana River but is not expected to be directly impacted by the project.

While no special-status plant or wildlife species were observed in the biological study area during the habitat assessment, suitable habitat is available for the following biological resources: nesting birds, burrowing owl (BUOW), burrowing mammals (San Bernardino kangaroo rat, Stephens' kangaroo rat, northwestern San Diego pocket mouse, Los Angeles pocket mouse, and American badger), and bats.

Nesting Birds. The project site, including both the main facility area and force main pipeline alignment, have features that could support a variety of nesting birds. Well-established ornamental trees and cubby structures may provide marginal nesting habitat for common birds, including raptors, protected under the MBTA and the California Fish and Game Code. Due to the presence of water in structures of the Redlands WWTP and high-quality habitat located in the adjacent Santa Ana River, various bird species encroach the site at any time, including special-status species. Construction of the proposed project that occurs during the general bird nesting season (February 15–September 1) could result in impacts to nesting birds. Thus, mitigation measures BIO-1, BIO-2, BIO-3, and BIO-4 shall be implemented to prevent significant adverse impacts on nesting birds and raptors.

Burrowing Owl. BUOW, a state species of concern and a protected species under the MBTA, utilizes the abandoned burrows of ground squirrels, foxes, and other small animals. This ground-nesting species is active during the day and is easily observed standing on a mound of excavated earth next to the burrow or actively hunting for small prey, including insects, lizards, and mice. The breeding season for the BUOW in California is from March to August, but it can begin as early

as February and extend into December (Gervais, *et al.,* 2008). No BUOW, or sign thereof, was observed during the May 2019 survey. Nonetheless, the Redlands WWTP site (i.e., main facility area and percolation ponds) contain marginally suitable habitat for BUOW. All burrows observed that corresponded to sizes/characteristics that could support BUOW were assessed and found to be occupied or recently occupied by California ground squirrel.

BUOW have been known to occupy habitats similar to those on the project site, such as water basins, fallow fields, and open disturbed areas. As a result, avoidance/minimization measures should be implemented to reduce impacts on BUOW. It is important to note that BUOW could encroach on the site at any time, and as a precaution, awareness training (BIO-3) and preconstruction surveys (BIO-5) shall be conducted following guidelines provided in California Department of Fish and Game's *Staff Report on Burrowing Owl Mitigation* (CDFG, 2012) to prevent significant adverse impacts to BUOW.

Burrowing Mammals. The project site contains habitat that is suitable for several burrowing mammals, including San Bernardino kangaroo rat, Stephens' kangaroo rat, northwestern San Diego pocket mouse, Los Angeles pocket mouse, and American badger. Small burrows are present at the percolation basins and could be active and support San Bernardino kangaroo rat, Stephens' kangaroo rat, northwestern San Diego pocket mouse, and Los Angeles pocket mouse. Due to the proximity of known populations of several sensitive burrowing mammals near the project site, avoidance measures in BIO-6 shall be followed to avoid potentially significant adverse impacts to burrowing mammals.

Bats. Structures at the WWTP site and well-established ornamental trees at the main facility and along portions of the force main pipeline alignment could support roosting bats. No bats were observed during the survey; nonetheless, bats could encroach structures on the site at any time. Vegetation north of the project site, within and adjacent to the Santa Ana River, provides high-quality habitat for many species of bats; therefore, BIO-7 includes precautions that shall be followed to avoid potentially significant adverse impacts to roosting bats.

Mitigation Measures

BIO-1. Preconstruction Nesting Bird Survey. For construction in areas containing mature trees or potential habitat for nesting birds, and that is initiated between February 15 and September 1, a Qualified Biologist shall conduct a preconstruction nesting bird survey to determine if any nesting birds (including BUOW) are present on the work site. This survey would be initiated within 30 days before the start of construction. The survey report would include a finding of whether monitoring during construction would be required. Should nesting birds be found, an exclusionary buffer would be established by the Qualified Biologist around each nest site. Buffer size would be determined by bird species, with a 300-foot buffer standard for passerine birds. The Qualified Biologist would be responsible for surveys, providing nesting bird identification, implementation of identified protection measures, and coordination with applicable resource agencies. The buffer would be clearly marked in the field by construction personnel under guidance of the contractor's Qualified Biologist, in coordination with the United States Fish and Wildlife Service (USFWS) and California Department of Fish and Wildlife (CDFW). Construction or clearing shall not be conducted within this zone until the Qualified Biologist determines that the young have fledged or the nest is no longer active.

During construction, if a nest is found during the nesting season, the Qualified Biologist will be contacted, and the site will be visited within 24 hours. Work will cease within 300 feet of the discovered nest.

BIO-2. Preconstruction Nesting Raptor Survey. A preconstruction survey for nesting raptors shall be conducted by a Qualified Biologist within the limits of project disturbance, 7 days prior to the onset of construction activities. Any active nest found during survey efforts shall be mapped on the construction plans. If nesting activity is present, the active site shall be protected until nesting activity ends to ensure compliance with Section 3503.5 of the California Fish and Game Code.

Nesting activity for raptors in the region normally occurs from February 1 to June 30. If no active nests are found, no further mitigation would be required. Results of the surveys shall be provided to CDFW.

To protect an active nest site, the following restrictions on construction would be required between February 1 and August 31 (or until nests are no longer active, as determined by a Qualified Biologist): (1) clearing limits shall be established a minimum of 300 feet in any direction from any occupied nest and (2) access and surveying shall be restricted within 200 feet of any occupied nest. Any encroachment into the 300-/200-foot buffer area around the active nest shall only be allowed if it is determined by a Qualified Biologist that the proposed activity shall not disturb the nest occupants. Construction during the non-nesting season can occur only at the buffer areas if a Qualified Biologist determines that fledglings have left the nest.

BIO-3. Nesting Bird/Burrowing Owl Awareness Training. For work within areas considered potential nesting habitat, the construction contractor(s) shall ensure that the workers' environmental awareness training program includes a short instructional presentation on nesting birds that is to be presented to all construction personnel at the start of earthwork or vegetation clearing activities.

BIO-4. Tree Protection. Trimming (or removal) of mature trees that are located near construction areas (within 50 feet) shall be conducted outside of the bird nesting season (February 15 to September 1). Trees to be protected near construction areas shall be flagged as an environmentally sensitive area by a Qualified Biologist. Any tree removal shall be replaced at a 1:1 ratio, and the City of Redlands Landscape Architect, or designated representative, shall approve the species proposed for planting on site.

BIO-5. Preconstruction Burrowing Owl Survey. A preconstruction survey shall be conducted by a Qualified Biologist within 30 days prior to any phase of construction in the areas identified as potential BUOW habitat and in accordance with the survey requirements detailed in the *Staff Report on Burrowing Owl* (CDFG, 2012). If no active burrows are found, no further mitigation shall be required.

Any active burrow found during preconstruction survey efforts shall be mapped and provided to the construction foreman so that all work is stopped in the immediate area of the occupied burrow. No disturbance shall occur within 160 feet of occupied burrows during the

nonbreeding season (September 1 through January 31) or within 250 feet during the breeding season (February 1 through August 31).

If BUOW must be moved away from the disturbance area, passive relocation is preferable to trapping. Relocation shall be implemented only during the nonbreeding season by a Qualified Biologist and would occur in coordination with CDFW. BUOW shall be excluded from burrows in the immediate impact zone by installing one-way doors in burrow entrances. One-way doors shall be left in place for 48 hours to ensure BUOW have left the burrow before excavation.

An effort shall be made to preserve foraging habitat contiguous with occupied burrow sites for each pair of breeding BUOW or for every single unpaired resident bird.

Additional compensatory mitigation for BUOW shall be required only if BUOW found within 250 feet of construction activities during preconstruction surveys cannot be avoided during construction. This may include offsite mitigation through the improvement or addition of BUOW habitat. In this event, further coordination with CDFW is required.

BIO-6. Preconstruction Burrowing Mammal Survey. A preconstruction survey shall be conducted within 30 days of ground disturbance for sensitive burrowing mammals (i.e., American badger, San Bernardino kangaroo rat, Stephen's kangaroo rat, or Los Angeles pocket mouse) to avoid impacting these animals. Active burrows identified during the preconstruction survey shall be flagged for avoidance until authorization from USFWS and CDFW is obtained to move listed species from the construction area. In addition to flagging burrows for avoidance, an exclusionary buffer of at least 100 feet shall be set at the discretion of the Qualified Biologist to avoid potential impacts to sensitive burrowing animals.

BIO-7. Bat Precautions. During construction, should nightwork be required, lighting during the early evening twilight hours adjacent to open space areas shall be minimized or avoided to the greatest extent possible. Permanent night lighting for the project shall be directed away from natural open space areas and undeveloped lands.

Implementation of these mitigation measures would avoid or reduce significant adverse impacts to sensitive species that may be present at the project site. Impacts would be less than significant after mitigation.

Potential Impacts	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, and regulations, or by the California Department of Fish and Wildlife or the U.S. Fish and Wildlife Service?			X	

The habitat types present at the site are classified as Disturbed/Developed with a small area of coastal sage scrub (CSS) habitat identified between the eastern edge of the main facility and Alabama Street. The project site does not contain riparian habitat. Vegetation at the WWTP main facility consists of ruderal vegetation and an array of landscaped areas in an area consisting of built structures, barren lands near structures, and roads. The area of the force main pipeline is dominated by introduced annual grasses. In the center of this area is an elevated plateau that contains a small area of CSS habitat, which includes native California buckwheat (*Eriogonum fasciculatum*), California sunflower (*Encelia californica*), purple sage (*Salvia leucophylla*), California sagebrush (*Artemisia californica*), giant wild-rye (*Elymus condensatus*), mulefat (*Baccharis salicifolia salicifolia*), and chaparral yucca (*Hesperoyucca whipplei*). Two patches of native plants, including California croton (*Croton californicus*), bur-sage (*Ambrosia cf. acanthicarpa*), fiddleneck (*Amsinckia sp.*), and stinging lupine (*Lupinus hirsutissimus*), are located just west of Alabama Street. Approximately 0.1 acre of the CSS habitat would be impacted by installation of the new force main pipeline. To minimize the impact, the 15-foot-wide limits of disturbance for installation of the pipeline will be clearly marked with environmentally sensitive area fencing. The orange construction environmentally sensitive area fencing will be installed to protect and preserve the CSS habitat located outside of the established limits of disturbance (see Figure 5).

Figure 5. Environmentally Sensitive Area Fencing

The proposed improvements would not result in impacts to riparian habitat. No conflict with the Magnuson-Stevens Fishery Conservation and Management Act, Fish and Wildlife Coordination Act, or Rivers and Harbors Act, Section 10 would occur with the project.

Potential Impacts	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
c) Have a substantial adverse effect on State or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?				X

No jurisdictional waters are located on the project site. Just north of the site is the Santa Ana River, which is considered Waters of the United States and Waters of the State, but which would be avoided by the proposed project. No impacts to jurisdictional waters would occur with the project.

Potential Impacts	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?		X		

Habitat connectivity is established where a wildlife movement corridor connects two blocks of native habitat. A wildlife corridor between such habitats allows genetic interchange between populations. The WWTP is located on developed land. While the site is adjacent to the Santa Ana River, the WWTP and pipeline alignment are fenced off, and neither location serves as a wildlife corridor. Therefore, the proposed project would not affect wildlife corridors.

The MBTA (50 *Code of Federal Regulations* [CFR] Section 10.13) implemented the 1916 convention between the United States and Great Britain for the protection of birds migrating between the United States and Canada. The MBTA made it illegal for people to "take" migratory birds, their eggs, feathers, or nests. Take is defined in the MBTA to include by any means or in any manner, any attempt at hunting, pursuing, wounding, killing, possessing or transporting any migratory bird, nest, egg, or part thereof. A migratory bird is any species or family of birds that live, reproduce, or migrate within or across international borders at some point during their annual life cycle. In total, 836 bird species are protected by the MBTA, 58 of which are currently legally hunted as game birds that are subject to migratory game bird regulations issued by USFWS. BUOW are protected by the MBTA. The Bald and Golden Eagle Protection Act affords additional protection to all bald and golden eagles.

To avoid impacts to migratory birds that may be nesting on the site, which include disturbances that cause the abandonment of active nests containing eggs and/or young, the City would implement mitigation measures BIO-1, BIO-2, BIO-3, and BIO-4 as described in Section 2.3.IV (a) above. With incorporation of these mitigation measures, impacts to migratory wildlife would be considered less than significant after mitigation.

Potential Impacts	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?				X

The main facility of the Redlands WWTP contains an array of landscaped areas, with several mature trees that could support nesting birds. The project may require the trimming of ornamental trees but would not result in the need to remove any trees on the site. Rather, several trees would be planted along the eastern, southern, and western perimeter of the site. Thus, the project would not impact the City's urban forest, which consists of public parks and street trees. No conflict with General Plan policies for trees and streetscapes and Chapter 12.52 of the Redlands Municipal Code regarding the protection of native and specimen trees, landmark trees, and public trees along streets and public places would occur with the project. There would be no impact associated with a conflict with local policies or ordinances protecting biological resources.

Potential Impacts	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
f) Conflict with the provision of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?				X

The Upper Santa Ana River Land Management Habitat Conservation Plan (HCP) and the Upper Santa Ana River HCP include areas located immediately adjacent to the north and west of the project site; however, there would be no impact to these HCPs as a result of the project because all proposed improvements would be confined to the WWTP site. The project would not conflict with an adopted HCP, Natural Community Conservation Plan, or other approved local, regional, or state HCP. No impact would occur.

V. Cultural Resources Would the project:				
Potential Impacts	**Potentially Significant Impact**	**Less Than Significant With Mitigation Incorporated**	**Less Than Significant Impact**	**No Impact**
a) Cause a substantial adverse change in the significance of a historical resource pursuant to § 15064.5?				X

A Historic Property Identification Report was prepared for the proposed project, which evaluated project compliance with the NHPA. The report is provided in Appendix C, and the findings of the report are summarized below.

The Historic Property Identification Report included a records search to determine the extent of previous cultural resource investigations in the area. Archaeological site records, historic maps, listing of resources on the National Register of Historic Places (NRHP), California Register of Historic Resources (CRHR), California Points of Historical Interest, California Landmarks, National Historic Landmarks, Local Register of Historic Resources, and the Redlands Area Historical Society Explorer Web App were reviewed to determine whether any archaeological sites or architectural resources exist on or near the WWTP site. No cultural resources were identified within the project area from the records search.

An inventory of the built environment of the WWTP property was completed on May 6, 2019. Because the facility was originally built in 1962 and subsequent updates were completed in 1972, those features, buildings, and structures were documented as a single site, representing the historic core of the WWTP. An evaluation of WWTP for eligibility to the NRHP, the CRHR, and local designation as a City of Redlands Historic Resource was completed. The evaluation shows that the historic components of the WWTP consist of several buildings, structures, infrastructure, and features that are historic in age (dating back from 1962 and 1972) that are in good condition, and in several cases are still maintained, repaired, updated, and in use as a major functional facility for the WWTP. However, the facility has undergone several updates and additional construction episodes in 1987, 1989, 2003, and 2006. These subsequent updates to the facility have diminished the original composition of the facility. The WWTP site is currently composed of historic-age and modern buildings, structures, and infrastructure that are not tied to any individual person or significant event in history. None of the buildings and structures embody distinctive characteristics of a type, period, region, or method of construction. The surrounding area has also undergone modern development from agricultural fields and orchards into industrial warehouses, losing some of its setting and feeling. Thus, the Redlands WWTP site is not eligible for listing in the NRHP or the CRHR.

The design and materials of the WWTP are common for such facilities; do not contain a unique design or detailing; and are not good examples of a particular period or style. Therefore, it does not contribute to the historical or scenic heritage of the City, and it is not located within a historic and scenic or urban conservation district. Therefore, it is not eligible for designation as a City of Redlands Historic Resource.

Because the WWTP is determined to not be eligible for inclusion in the NRHP, the CRHR, or for local listing, the proposed improvements to the WWTP would not have an impact on historic properties.

Potential Impacts	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to § 15064.5?		X		

As part of the Historic Property Identification Report, the cultural records search for the project identified 33 previous investigations that have been completed within 1 mile of the project site between 1977 and 2014. Of these, five investigations partially overlap portions of the site, but no resources were found within the site. The South Central Coastal Information Center records search identified 24 previously documented resources within 1 mile of the site, including 5 built environment resources, 19 historic-era sites, 1 prehistoric isolate, and 2 potentially historic resources. None of the previously recorded resources are located within the site.

No prehistoric resources were identified during the archaeological field survey of the WWTP site, including the pipeline alignment. The areas within the Santa Ana River drainage are not conducive towards prehistoric site preservation, despite the potential for accretional deposition. The soils that compose the terrace above the river in the southern portion of the WWTP property may have buried sites, but the property has had heavy disturbances from the construction and expansion of the WWTP over time, and intact subsurface archaeological deposits are not expected to exist; however, this does not preclude the possibility of undisturbed subsurface deposits.

In the unlikely event subsurface archaeological materials are identified during ground-disturbing activities, CUL-1 shall be implemented to prevent significant adverse impacts on archaeological resources.

Mitigation Measures

CUL-1. Unanticipated Discovery of Archaeological Materials. In the unlikely event subsurface archaeological materials are identified during ground-disturbing activities, work shall be halted within 60 feet of the find. A qualified archaeologist shall be retained to record and evaluate the find. If the unanticipated discovery is determined to be a historic property under Section 106 of the NHPA or a historical resource or unique archaeological resource under CEQA, the City shall notify the State Historic Preservation Officer (SHPO), consulting Native American groups (including the San Manual Band of Mission Indians), and the Advisory Council on Historic Preservation within 48 hours of the discovery. The archaeologist shall develop a Monitoring and Treatment Plan in consultation with the City and affected tribes that satisfies the requirements of Section 106 of the NHPA and PRC Section 21083.2 and Section 15064.5 of the CEQA Guidelines. The Monitoring and Treatment Plan shall include recordation, onsite preservation, data recovery and curation, and/or other measures to protect or preserve the significance of the resource. Work shall not resume until the City has given authorization to resume work.

With incorporation of this mitigation measure into the project, impacts to archaeological resources would be considered less than significant after mitigation.

Potential Impacts	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
c) Disturb any human remains, including those interred outside of formal cemeteries?		X		

The project site has been disturbed from past construction and improvements of the WWTP and is not expected to have human remains that may be uncovered during earthmoving activities. The project area is not otherwise known to be a previous cemetery or burial site. Therefore, the probability of encountering human remains during project construction is unlikely. To avoid potential impacts to unknown human remains that may be buried beneath the surface in the work area, the City would ensure that CUL-2 is implemented.

Mitigation Measures

CUL-2. Unanticipated Discovery of Human Remains. In the unlikely event human remains or funerary objects are encountered, all activity within the work location shall be halted within 100 feet of the find, and the City and the San Bernardino County Coroner notified immediately, in accordance with the procedures in CEQA Guidelines Section 15064.5(e), California Health and Safety Code Section 7050.5(b), and California PRC Section 5097.98. If the Coroner determines the remains to be of Native American origin, he or she shall notify the Native American Heritage Commission (NAHC). The NAHC shall then identify the most likely descendant (MLD) to be consulted regarding treatment and/or repatriation of the remains. The MLD shall be granted access to examine the remains and then has 48 hours to provide recommendations for the treatment or reburial of the remains. If the MLD fails to make a recommendation within 48 hours of being granted access to the remains, the City shall rebury the remains in a location that would not be subject to further disturbance.

With incorporation of this mitigation measure, impacts to human remains would be considered less than significant after mitigation.

VI. Energy
Would the project:

Potential Impacts	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Result in a potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy, or wasteful use of energy resources, during project construction or operation?			X	

The project would bring in additional equipment and systems that may increase energy use at the WWTP; however, the project proposes upgrades and replacements of old and outdated equipment and systems to improve energy efficiency throughout the facility. The improvements include new energy-efficient blowers, pumps, and electrical systems; an improved aeration control system; and new boilers/heat exchangers, among other upgrades. An approximate 10 to 12 percent increase in electrical power use (from 650,000 kilowatt hours [kWh] per month to 728,000 kWh per month) is expected due to additional equipment. The same or decreased natural gas use (currently 114 cubic feet per day) due to the continued use of digester gas for heating the boilers/heat exchangers is expected with the project. At the same time, no increases in the volume of wastewater that is treated at the WWTP would occur with the project. Also, no increase in the number of personnel operating the WWTP (i.e., 23 staff and 6 operator-in-training volunteers) and the number of chemical truck deliveries to the site would occur. Therefore, there would be no increase in energy use associated with personnel vehicles and delivery trucks traveling to the project site during long-term operations of the upgraded WWTP. Energy use during construction would include fossil fuels and electricity consumption that would be short-term during the 24-month construction period; therefore, no major increase in energy consumption is anticipated with the project, and energy consumption during construction would be minimal. The energy use of the project would not be considered wasteful, inefficient, or unnecessary.

For comparison purposes, the 41-acre WWTP site is only one of the facilities in Redlands (covering 23,177 acres), within San Bernardino County (covering 20,105 square miles) that is part of the 50,000-square-mile service area of the Southern California Edison Company (SCE) and the 24,000-square-mile service area of the Southern California Gas Company (SCG) that serve the WWTP. The electrical and natural gas demands of the WWTP represent a negligible portion of SCE's and SCG's energy resources. Impacts would be less than significant.

Potential Impacts	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
i) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?			X	

The Clean Energy and Pollution Reduction Act (Senate Bill [SB] 350) established clean energy, clean air, and greenhouse gas (GHG) reduction goals, including reducing GHG to 40 percent below 1990 levels by 2030 and to 80 percent below 1990 levels by 2050. It also increases California's renewable electricity procurement goal from 33 percent by 2020 to 50 percent by 2030. The California Energy Commission (CEC) established building energy efficiency standards for new construction (as part of Title 24 of the California Code of Regulations or the California Building Code [CBC]), a building energy benchmarking program for large commercial and multi-family buildings; and a plan to increase efficiency in existing buildings. The CEC's Renewables Portfolio Standard (RPS) sets renewable energy procurement requirements for energy providers per SB 350. The Redlands Climate Action Plan was adopted by the City to reduce GHG emissions in the City and includes energy conservation measures.

The project would utilize equipment and systems that meet current energy efficiency standards, in accordance with the CBC. As discussed above, the proposed improvements include upgrades and replacements of old and outdated equipment and systems to improve energy efficiency throughout the facility. The new boilers/heat exchangers would be using digester gas that is generated onsite to heat the digesters, before the excess gas is flared off. Currently, treated wastewater/recycled water is delivered to the Mountainview Power Plant and utilized for cooling and to irrigation users. With the full MBR system, recycled water from the WWTP would be available for additional onsite and offsite irrigation; thereby reducing the amount of potable water used for landscape irrigation purposes in Redlands. There is an existing 135.2-kilowatt solar photovoltaic system at the WWTP, although it is currently not in use. Thus, while construction activities would result in short-term energy use and the upgraded WWTP would result in a minor increase in energy use, this use would not conflict with or obstruct the programs of the CEC and the City's Climate Action Plan for increased use of renewable energy and energy efficiency. Impacts would be less than significant.

VII. Geology and Soils
Would the project:

Potential Impacts	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.				X

The project site is in the northernmost portion of the Peninsular Ranges Geomorphic Province. This area is located along the Santa Ana River within the San Bernardino Valley, which is bounded by the San Andreas Fault Zone to the northeast and the San Jacinto Fault Zone to the southwest. The San Bernardino Valley is one of several blocks making up the Peninsular Ranges Geomorphic Province.

The project site is not located in an Alquist-Priolo Earthquake Fault Zone (State of California Fault Rupture Hazard Zone). The nearest Alquist-Priolo Earthquake Fault Zones are along the San Andreas Fault, which is located nearly 3.0 miles northeast of the site, and the San Jacinto Fault, which is located more than 4.0 miles southwest of the site. There are no known earthquake faults that run through or pass near the site. Thus, the project and the WWTP would not be exposed to hazards associated with surface rupture of a known earthquake fault. No impact would occur.

Potential Impacts	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
ii) Strong seismic ground shaking?			X	

Due to the location of the site in relation to the San Andreas Fault and the San Jacinto Fault, strong seismic ground shaking during earthquakes on these faults could be experienced at the site. This could lead to damage to the buildings and infrastructure at the WWTP. Title 15 of the Redlands Municipal Code adopts the CBC with amendments, which requires individual projects to complete a site-specific soil and geotechnical engineering study and implement the recommendations addressing potential seismic hazards and geologic constraints. The CBC also includes building standards for ensuring the structural stability of buildings and infrastructure.

Because earthquake events cannot be avoided, ground shaking from earthquakes associated with nearby and distant faults may occur during the lifetime of the project. The project would be designed to withstand ground-shaking hazards through compliance with the seismic criteria in the CBC and the recommendations in the geotechnical engineering study for the project to reduce hazards from ground shaking. Therefore, the potential impact from seismic ground shaking is considered less than significant.

Potential Impacts	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
iii) Seismic-related ground failure, including liquefaction?			X	

The project site is located just south of the Santa Ana River, and the Redlands General Plan 2035 shows that the site is in an area with high susceptibility for liquefaction, except for the southwestern section of the WWTP. In compliance with the Redlands Municipal Code, implementation of geotechnical recommendations and engineering standards in the CBC (as described in Section 2.3.VI [a][ii] above) would reduce potential impacts from liquefaction. The impact from seismic-related ground failure, including liquefaction, is considered less than significant.

Potential Impacts	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
iv) Landslides?				X

The project site is located on relatively flat terrain within the San Bernardino Valley, although there is a slope that separates the aeration basins on the southern portion of the site at a slightly higher elevation from the WWTP facilities on the northern portion of the site. Earthen berms surround the WWTP main facility and the pipeline alignment. However, these slopes are not large or high enough to lead to landslides. There are no hills or mountainous areas in the vicinity of the WWTP. Thus, the potential for landslides is unlikely, and landslide hazards are not expected. No impact from landslides would occur.

Potential Impacts	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
b) Result in substantial soil erosion or the loss of topsoil?			X	

The project would include excavation and trenching for construction of the proposed site improvements, such as building and equipment foundations, utility and pipeline trenches, and planting areas. Ground disturbance would lead to the potential for wind or water erosion prior to paving or landscaping. The project would not result in development of any structures on sloped areas or within any area of potential slope failure. Rather, slope protection is proposed on the existing slope located north of the aeriation basins, and landscaping is proposed in other areas. These site improvements would reduce long-term erosion potential at the site. The potential for soil erosion and loss of topsoil would be temporary and minimal during construction. Thus, impacts related to erosion would be less than significant.

Potential Impacts	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
c) Be located on a geological unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?			X	

No specific geologic hazards were identified in previous geotechnical investigations at the WWTP. The CBC also requires projects to be designed and constructed in accordance with the recommendations of the site-specific geotechnical investigation. A geotechnical report would be prepared for the project and the recommendations in the report used in the engineering design of the proposed improvements. With implementation of the recommendations in the geotechnical investigation, impacts related to onsite or offsite landslide, lateral spreading, subsidence, liquefaction, or collapse would be minimized. Impacts from unstable soils are considered less than significant.

Potential Impacts	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?			X	

Expansive soil, also called soils with high shrink-swell potential, is a common cause of foundation problems. Depending on moisture content in the ground and the amount of clay, expansive soils could experience changes in volume of up to 30 percent or more. These soils can cause lifting of

a building or other structure during periods of high moisture. Conversely, during periods of falling soil moisture, expansive soils could collapse and result in building settlement. Expansive soils also exert pressure on the vertical face of a foundation, basement, or retaining wall resulting in lateral movement. Soils that have expanded due to high ground moisture experience a loss of soil strength or "capacity," and the resulting instability can result in various forms of foundation problems and slope failure.

Previous geotechnical investigations at the WWTP did not identify the presence of expansive soils. The United States Department of Agriculture (USDA) Web Soil Survey identifies surface soils at the site as Hanford sandy loam, Psamments, Fluvents, and Frequently Flooded Soils, and Tujunga loamy sand. These soils have low shrink-swell potential. Implementation of the recommendations in the geotechnical investigation for the project would prevent hazards associated with soil expansion. Therefore, impacts from expansive soils are considered less than significant.

Potential Impacts	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
e) Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?				X

The WWTP treats wastewater through a combination of MBR and CAS systems and has limited wastewater generation from two toilets/locker rooms and a small kitchen onsite. The number of personnel at the site who would use the toilets and kitchen would not change; thus, no additional wastewater would be generated. Therefore, the proposed improvements would not increase the amount of wastewater treated at the site. Septic tanks are not proposed, and the project would install a state-of-the-art 9.5 MGD MBR system (an increase over the existing 6.0 MGD MBR system) and would eliminate the 3.5 MGD CAS system. Therefore, no impacts related to soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems would occur.

Potential Impacts	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
f) Directly or indirectly destroy a unique paleontological resource or site of unique geologic feature?		X		

A Paleontological Inventory Report was conducted for the proposed project to determine potential impacts on paleontological resources. This report is provided in Appendix D and summarized below.

The project site would remain relatively flat after construction of the proposed improvements, and no change in a unique geologic feature would occur.

The project area is underlain by late Holocene-age very young wash deposits (Qw, Qw1) and middle Holocene-age young axial-channel deposits (Qya3), which both have low potential for containing fossil resources, and unmapped artificial fill. While there are no documented paleontological localities within the project area, older (e.g., Pleistocene-age) deposits may underlie the Holocene-age sediments and artificial fill at shallow or unknown depths at the site. Pleistocene-age geologic units have a moderate potential for paleontological resources.

Impacts on paleontological resources can generally be classified as either direct, indirect, or cumulative. Direct adverse impacts on surface or subsurface paleontological resources are the result of destruction by breakage and crushing as the result of surface-disturbing actions including construction excavations. In areas that contain paleontologically sensitive geologic units, ground disturbance has the potential to adversely impact surface and subsurface paleontological resources of scientific importance. Without mitigation, these fossils and the paleontological data they could provide if properly recovered and documented, could be damaged or destroyed, rendering them permanently unavailable to science and society.

Because numerous scientifically significant fossils have been recorded from Pleistocene-age deposits throughout San Bernardino and Riverside counties, excavation activities at depths greater than 8 feet below ground surface (bgs) at the site (for utility trenching) may potentially impact underlying paleontological resources, if present. Based on the depth of artificial fill at the site, which varies from 2 to 15 feet bgs and the maximum depth of planned ground-disturbing activities (up to approximately 15 feet), there is a potential for the discovery and disturbance of paleontological resources. Consistent with the policies and actions in the Redlands General Plan 2035, GEO-1 shall be implemented to avoid adverse impacts to significant paleontological resources during project construction.

Mitigation Measures

GEO-1. Paleontological Resources Monitoring and Mitigation. Part-time monitoring (i.e., spot-checking) shall be conducted when ground-disturbing activities (i.e., utility trenching) impact sediments at 8 feet bgs or deeper to check for the presence of Pleistocene-age deposits. If Pleistocene-age deposits are observed at depth and would be impacted by planned excavations, then monitoring efforts shall be increased to full-time. If only artificial fill, late Holocene-age very young wash deposits (Qw, Qw1), and/or middle Holocene-age young axial-channel deposits (Qya3) are observed, then spot-checking can be reduced or ceased at the discretion of a qualified paleontologist in consultation with the City. Any subsurface bones or potential fossils that are unearthed during construction shall be evaluated, recorded, and reported by a qualified paleontologist.

Paleontological resources determined to be significant, or potentially significant, shall be subject to fossil recovery, laboratory analysis, and museum curation (through a curation agreement with the San Bernardino County Museum, or another appropriate repository).

With the implementation of this mitigation measure, impacts to significant paleontological resources would be less than significant after mitigation.

VIII. Greenhouse Gas Emissions Would the project:				
Potential Impacts	**Potentially Significant Impact**	**Less Than Significant With Mitigation Incorporated**	**Less Than Significant Impact**	**No Impact**
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment, based on any applicable threshold of significance?			X	

GHGs consist of water vapor, O_3, aerosols, carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), chlorofluorocarbons, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride. GHG are emitted by a variety of sources, including the combustion of fossil fuels by motor vehicles for transportation, power plants for electricity production, and various industries. In 2016, 429.4 million metric tons of CO_2 equivalent (CO_2e) was generated in California, with transportation (41 percent) and industrial GHG emissions (23 percent) combined making up nearly two-thirds of the total GHG emissions.

CO_2, CH_4, and N_2O are the three major constituents of GHG. The other GHGs usually represent a small fraction of GHG emissions and may be discounted for most sources. GHGs have varying global warming potentials (GWP) (i.e., the potential of a gas to trap heat in the atmosphere). The reference gas for GWP is CO_2, which has a GWP of one. CH_4 has a GWP of 21, which means that it has a global warming effect 21 times that of CO_2 on a mass basis. N_2O has a GWP of 310 (Table 7). A CO_2e representing the weighted total GWP of CO_2, CH_4, and N_2O is calculated to assess the anticipated overall GHG effect of an activity.

Table 7. Global Warming Potential of Greenhouse Gases

GAS	ATMOSPHERIC LIFETIME (YEARS)[1]	GLOBAL WARMING POTENTIAL (100-YEAR TIME HORIZON)[2]
Carbon Dioxide (CO_2)	50 to 200	1
Methane (CH_4)	12	28
Nitrous Oxide (N_2O)	114	265
HFC-23	270	12,400
HFC-134a	14	1,120
HFC-152a	1.4	138
PFC: Tetrafluoromethane (CF_4)	50,000	6,630
PFC: Hexafluoromethane (C_2F_6)	10,000	11,100
Sulfur Hexafluoride (SF_6)	3,200	23,500
HFC = hydroflurorocarbons PFC = perflurorocarbons		

Sources: 1. IPCC, 2007; 2. IPCC, 2018.

When assessing the significance of impacts from GHG emissions on the environment, the lead agency should consider: (a) the extent to which the project may increase or reduce GHG emissions compared to the environmental setting; (b) whether the project emissions exceeds a threshold of significance that the lead agency determines applies to the project; and (c) the extent to which the project complies with regulations and requirements adopted to implement a statewide, regional, or local plan for reduction of GHG emissions.

While CEQA requires lead agencies to inform decisionmakers and the public about the potentially significant environmental impacts of a proposed project, scientists are still unable to identify the direct climate effects of projected GHG emissions from a specific project. Also, an individual project generally does not generate enough GHG emissions to significantly influence global climate change. Thus, it can be safely concluded that the individual contributions of most projects to climate change would be negligible to extremely minor and thus would be insignificant.

The California Air Resources Board (ARB) had a draft proposal for setting a GHG threshold of 7,000 metric tons of CO_{2e} ($MTCO_2e$) per year for operations (excluding transportation but including construction emissions amortized over 30 years) for projects that meet specified construction and transportation performance standards. SCAQMD staff recommended an interim GHG significance threshold for screening industrial projects to determine whether they could affect regional climate of 10,000 $MTCO_2e$ per year, with construction GHG emissions amortized over 30 years and added to operational GHG emissions. These thresholds have not been formally adopted but are used for comparison purposes below.

Construction

Construction of the proposed project would generate a relatively minor amount of GHG emissions due to the types and sizes of improvements, the use of prefabricated buildings, the short construction period of 24 months, and the amortization of construction GHG emissions over 30 years. GHG estimates during construction were generated as part of the air quality modeling and show that when amortized over 30 years, these emissions represent relatively minimal levels and would not exceed the draft thresholds of ARB and SCAQMD.

Operations

Operation of the WWTP results in direct emissions, from the biological processes, of GHG such as CO_2, CH_4, and N_2O, as well as indirect emissions resulting from energy generation. CO_2 is of biogenic origin, which means short cycle or natural sources of atmospheric CO_2 cycles from plants to animals to humans as part of the natural carbon cycle and food chain. Photosynthesis produced short-cycle CO_2 removes an equal mass of CO_2 from the atmosphere that returns during respiration or wastewater treatment. Thus, it does not contribute to global warming. N_2O is associated with the degradation of nitrogen components in wastewater (e.g., urea, nitrate and protein). Wastewater and sludge produce CH_4 if it degrades anaerobically. The extent of CH_4 production depends primarily on the quantity of degradable organic material in the wastewater, the temperature, and the type of treatment system.

Estimates of GHG emissions from the WWTP are provided in the Redlands Climate Action Plan. Existing 2015 GHG emissions were 2,222 $MTCO_2e$, projected 2030 GHG emissions are 3,138 $MTCO_2e$, and projected 2065 GHG emissions are 3,208 $MTCO_2e$ due to growth in the City.

During long-term operations, the WWTP would retain its current capacity of 9.5 MGD. The volume of wastewater treated at the WWTP would also remain unchanged with the project (currently estimated at 5.8 MGD). Thus, emissions of N_2O and CH_4 from wastewater treatment processes would not change with the project. Also, no change in the number of employees or delivery trucks to the WWTP would occur with the project. In addition, no increases in natural gas consumption at the WWTP would occur because the digester gas would continue to be used for heating the boilers/heat exchangers.

Using EPA's Greenhouse Gas Equivalencies Calculator, the 10 to 12 percent increase in electrical use of the WWTP (78,000 kWh per month) that is expected with the proposed upgrade would generate approximately 55.2 $MTCO_2e$ per month or 662.4 $MTCO_2e$ per year of additional GHG emissions. Therefore, the project would not result in an increase in GHG emissions at the upgraded WWTP that would come close to the 7,000 or 10,000 $MTCO_2e$ thresholds that have been developed by ARB and recommended by SCAQMD. Proposed trees along the site perimeter would also sequester a portion of the GHG emissions. Thus, GHG emissions from construction and operation of the proposed improvements would be less than significant.

Potential Impacts	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
b) Conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases?			X	

Climate change and GHG emissions have been addressed through a series of State legislation and Executive Orders, including the following:

- *EO S-3-05* – Sets emission reduction targets: by 2010, reduce GHG emissions to 2000 levels; by 2020, reduce GHG emissions to 1990 levels; and by 2050, reduce GHG emissions to 80 percent below 1990 levels.
- *California Global Warming Solutions Act* (AB 32) – Requires that the State reduce emissions of GHG to 1990 levels by 2020.
- *Scoping Plan* – Provides guidance for local communities to meet AB 32 and EO S-3-05 targets. The Scoping Plan adopted a quantified cap on GHG emission representing 1990 emission levels, instituted a schedule to meet the emission cap, and developed tracking, reporting, and enforcement tools to assist the State in meeting the required GHG emissions reductions.
- *EO S-3-15* – Established an interim target to reduce GHG emissions to 40 percent below 1990 levels by 2030. SB 32 codified the 2030 GHG emissions reduction target.
- *EO S-1-07* – Mandates a Statewide goal be established to reduce carbon intensity of California's transportation fuels by at least 10 percent by 2020 – Low Carbon Fuel Standard (LCFS).

- *Title 24 (CBC)* – Established standards to allow consideration and possible incorporation of new energy-efficiency technologies and methods. It also includes the California Green Building Standards Code (or CalGreen Code), which requires that new buildings reduce water consumption, increase system efficiencies, divert construction waste from landfills, and install low pollutant-emitting finish materials.
- *AB 1493* – Requires ARB to develop and adopt regulations that reduce GHG emitted by passenger vehicles and light-duty trucks.
- *Climate Change Scoping Plan Update (2017)* – Recommends that local governments target 6 MTCO2e per capita per year in 2030 and 2 MTCO2e per capita per year in 2050.

Most of these regulations do not specifically address the WWTP. The project would comply with applicable standards in Title 24 and the CalGreen Code; therefore, no conflict with State regulations for GHG reduction would occur with the project.

The Redlands Community Sustainability Plan (RCSP) was a conceptual framework intended to guide the City's efforts to become increasingly sustainable. Past accomplishments include use of recycled water for power plant cooling, ongoing improvements to nonpotable water production, treatment, and distribution, and installation of solar photovoltaic panels at the WWTP, among others, that have reduced the City's GHG emissions. The RCSP included 10 sustainability themes and key goals and actions for each theme. Overall, the project is consistent with several of the goals identified in the RCSP. Proposed upgrades to operational systems and related improvements at the WWTP are consistent with sustainability goals related to energy efficiency and conservation, water and wastewater systems, and waste reduction and recycling. In addition, the planting of approximately 50 trees as part of the site improvements is consistent with the RCSP theme for storing and offsetting carbon emissions through enhancements to the urban forest.

The Redlands Climate Action Plan reinforces the City's commitment to reducing GHG emissions and demonstrates how the City will comply with California's GHG emission reduction standards. Based on an emissions inventory for 2015 and forecasted 2035 emissions according to the City's General Plan, the City will meet its GHG per capita targets for 2030 and 2035 with implementation of the policies and actions in its General Plan (e.g., bikeway system improvements, pedestrian connectivity, traffic calming, parking facilities, and transportation improvements) and compliance with the RPS, CBC building efficiency standards, and 75 percent solid waste diversion under AB 341. Optional measures to further reduce GHG emissions include the use of photovoltaic systems, energy efficiency retrofits, facility commissioning, efficient lighting standards, and increased zero-emissions vehicles. The WWTP has a solar photovoltaic system that can be used for plant operations, and the project includes equipment replacement for energy efficiency and would comply with the CBC and CalGreen Code. Thus, the WWTP and the proposed improvements support the Climate Action Plan and would not conflict with the City's GHG reduction policies and actions.

Based on the type and size of improvements and anticipated GHG emissions (discussed in Section 2.3.VIII [a] above), the proposed project would not have the potential to generate GHG emissions that could substantially influence climate change. The project would not conflict with applicable State and local plans, policies, or regulations adopted to reduce GHG emissions in the City. Furthermore, the project supports the principles of sustainability by improving energy

efficiency at the WWTP; continued use of digester gas for the boilers/heat exchangers, and recycled wastewater for use in power plant cooling and landscape irrigation. Impacts on GHG plans, policies, or regulations would be less than significant.

IX. Hazards and Hazardous Materials
Would the project:

Potential Impacts	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?			X	

The WWTP currently uses hazardous materials in the wastewater treatment process. Several aboveground storage tanks store various chemicals onsite: diesel gasoline (1,350-gallon tank), chlorine/sodium hypochlorite (4,500-gallon tank), sodium bisulfite (120-gallon tank), citric acid (900-gallon tank), and sodium hydroxide (4,000-gallon tank). These hazardous materials are transported, stored, used, and handled at the site in accordance with applicable federal, state, county, and local regulations.

Operation of the upgraded WWTP would not increase the amount of wastewater treated at the site nor increase the use of existing hazardous materials at the site. A new ferric chloride dosing pump is proposed but would be installed and used in accordance with applicable federal, state, county, and local regulations. Thus, the project would not create a significant hazard to the public, with compliance with applicable hazardous materials regulations. The impact of the project related to hazardous materials is considered less than significant.

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

As discussed above, the WWTP would continue to transport, store, and use diesel gasoline, chlorine/sodium hypochlorite, sodium bisulfite, citric acid, and sodium hydroxide. No increase in the use of these hazardous materials would occur with the project. Ferric chloride would be used in limited quantities and transported, stored, and used in accordance with applicable regulations. Impacts are considered less than significant.

Potential Impacts	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?				X

There are no schools within 0.25 mile of the WWTP. The nearest school is Citrus Valley High School, which is located approximately 0.5 mile southeast of the WWTP. This high school is separated from the WWTP by SR-210 and would not be adversely affected by operations at the WWTP. No impact would occur.

Potential Impacts	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?		X		

A search of environmental records was conducted in May 2021 to identify known releases of regulated substances, and any use, storage, treatment, generation, disposal, or handling of hazardous substances. The search included review of EPA's Envirofacts, California Department of Toxic Substance Control's (DTSC) EnviroStor, and RWQCB's GeoTracker databases.

Review of the EnviroStor database shows that the site is not listed in government databases as a hazardous material site. The nearest hazardous material site is the California Street Landfill, which is west of the WWTP, across Nevada Street. The groundwater beneath the landfill is impacted by perchlorate, tetrachloroethene (PCE), trichloroethene (TCE), and 1,2-dibromo-3-chloropropane (DBCP). In 2004, the City submitted a report that demonstrated that all groundwater contamination originated from sources other than the landfill. No further action is required. Other EnviroStor sites are located farther (more than 0.5 mile) from the site and would not pose environmental concerns at the site.

Review of the GeoTracker database shows there are no Leaking Underground Storage Tanks (LUST) Cleanup Sites, Permitted Underground Storage Tanks (USTs), DTSC Hazardous Waste Sites, Waste Discharge Requirement (WDR) sites, Cleanup Program Sites, or Military Cleanup Sites within 0.5 mile of the WWTP.

The WWTP is listed in the Envirofacts database as a regulated facility. In addition, there are several other Envirofacts sites within 0.5 mile of the WWTP. The Redlands City California Street Landfill is identified as a Resource Conservation and Recovery Act (RCRA) small quantity generator. Other sites include Burlington Store #517 located at 27582 Pioneer Avenue; Home

Depot at 27352 River Bluff Road; Kuehne Nagel Inc. at 9425 Nevada Street; IDS USA Redlands at 26635 Pioneer Avenue; and Lamps Plus at 9425 California Street. No violations have been identified for these sites, nor do they pose an environmental concern at the project site.

Review of information on underlying groundwater resources identified the presence of contaminant plumes in the Upper Santa Ana River watershed. The Crafton-Redlands plume is located south of the site, and the Norton plume is located west of the site; neither plume underlies the site. The project would confine the proposed improvements to the WWTP site and would not require excavation activities that would impact the underlying groundwater (estimated at 151.4 feet bgs). The WWTP would also continue to be operated and maintained in accordance with pertinent hazardous material regulations. Thus, the project would not create a significant hazard to the public or the environment. Impacts would be considered less than significant.

Potential Impacts	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?			X	

The proposed improvements would be located within the WWTP site, which is approximately 2.6 miles to the west from the Redlands Airport and approximately 0.6 mile to the southeast from the San Bernardino International Airport runway. The WWTP site is not within the boundaries of the designated Area of Special Compatibility Concern for the Redlands Airport but is within the airport influence area for the San Bernardino International Airport; however, no airport land use compatibility plan has been adopted for the San Bernardino International Airport. At the same time, the project does not change the land use of the site. The proposed structures would generally be at the same or lower heights as existing digesters at the WWTP (25 feet tall); therefore, the proposed structures would not result in obstructions to navigable air space, as defined in Federal Aviation Regulation (FAR) 77.

A variety of land uses, facilities, and structures near airports can create wildlife attractants that pose a threat to aircraft operations. These attractants include water and wastewater treatment facilities, stormwater management facilities, and agricultural areas. Federal Aviation Administration (FAA) *Advisory Circular* 150/5200-33B (*Wildlife Hazard Attractants On or Near Airports*) identifies separation distances within which hazardous wildlife attractants should be avoided, eliminated, or mitigated. A 5-mile radius for approach, departure, and aircraft operating in a standard traffic pattern is recommended by FAA.

The project would not change the land use of the site and would not increase the amount of wastewater treated at the site. The proposed new structures and equipment would also decrease the potential for attracting wildlife hazards to the site that may affect adjacent aircraft operations (due to the change from bare soils to paved areas, structures and equipment in regular use, and

the increased presence of personnel in these areas). Improvements to the peak storage ponds, aeration basins, and percolation ponds would not increase their footprints to serve as wildlife attractants. While trees would be planted as part of the project, which may attract wildlife, these trees would not be located within the main aircraft flights patterns around the Redlands Airport and the San Bernardino International Airport. There are existing trees on and near the site, and additional trees would not become a major airport or aircraft hazard. Potential impacts related to airport hazards would be less than significant.

Potential Impacts	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?			X	

The proposed upgrades and improvements would be confined to the WWTP site (e.g., main facility and force main pipeline alignment) and would not affect emergency response and evacuation at adjacent streets or the surrounding areas. Partial or complete street closure would be limited to Alabama Street when the force main pipeline is installed beneath the street during project construction. Flaggers and/or detour signs would be provided as necessary. Landscaping, entryway monument, and gate improvements would occur at the WWTP main entrance at Nevada Street, but there is a secondary entrance to the north where no improvements are proposed. The proposed work would only partially block the main gate for a limited time period. Therefore, impacts on emergency response or evacuation plans would be less than significant.

Potential Impacts	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
g) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?			X	

The California Department of Forestry and Fire Resources (CALFIRE) has prepared Fire Hazard Severity Zone Maps for the State, and the project site is in a Non-Very High Fire Hazard Severity Zone. The proposed improvements would be confined to the WWTP site and pipeline alignment and would also be constructed in accordance with the CBC, including the National Fire Protection Association (NFPA) 820 and National Electrical Code (NEC) 500 standards. Thus, the project would not result in any increase in the fire hazard at or near the project site. Impacts from wildland fires are considered less than significant.

X. Hydrology and Water Quality Would the project:				
Potential Impacts	**Potentially Significant Impact**	**Less Than Significant With Mitigation Incorporated**	**Less Than Significant Impact**	**No Impact**
a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?				X

The proposed project would improve wastewater treatment and system efficiency at the WWTP. Conversion of the facility to a full MBR system would result in treated wastewater/recycled water that meets higher water quality standards and allows the use of recycled water for landscape irrigation. The WWTP would continue to operate in accordance with the WDR for the facility (Order No. R8-2008-0040), as issued by the Santa Ana RWQCB. With compliance with the WDR, impacts related to water quality standards or WDRs would not occur.

Potential Impacts	**Potentially Significant Impact**	**Less Than Significant With Mitigation Incorporated**	**Less Than Significant Impact**	**No Impact**
b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?			X	

EPA's Sole Source Aquifer (SSA) Program was established under Section 1424(e) of the Safe Drinking Water Act (SDWA), 44 *Federal Register* (FR) 52751, as published on September 10, 1979. Since 1977, this program has been used by communities to help prevent contamination of groundwater from federally funded projects. The SSA program allows for EPA environmental review of any project that is financially assisted by federal grants or federal loan guarantees. These projects are evaluated to determine whether they have the potential to contaminate a sole source aquifer. The project site is not within the area designated by EPA as an SSA. No impact on an SSA would occur with the project.

The project site is underlain by the Bunker Hill groundwater subbasin of the Upper Santa Ana Valley groundwater basin. This subbasin is part of the San Bernardino Basin Area. Groundwater levels at the site were estimated at 175 feet bgs in 1972 and at 86 feet bgs in 1987. A well nearest the site had groundwater levels 151.4 feet bgs in fall 2018.

The project does not propose groundwater wells or excavation that would extend into the underlying groundwater. Maximum excavation depth is set at 15 feet. No major increase in water use at the WWTP would occur with the project because no increase in the volume of wastewater treated would occur with the project and no additional personnel would be stationed at the site. Irrigation of the proposed landscaping and trees along the site perimeter would utilize a minimal amount of recycled water from the WWTP. In addition, the San Bernardino Basin Area is under

adjudication by the Western-San Bernardino Watermaster, which manages groundway resources in the San Bernardino Basin Area and regulates the amount of groundwater that is extracted. Thus, the project would not impede sustainable groundwater management of the underlying groundwater basin, and the project would not result in depletion of groundwater supplies. Impacts to groundwater supplies are considered less than significant with the project.

Potential Impacts	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:				
(i) Result in substantial erosion or siltation on- or off-site?			X	

The project site is on an alluvial terrace on the south side of the Santa Ana River and is generally flat with a slight slope from south to north. No work within the Santa Ana River is proposed by the project. Earthen berms along the boundaries of the main facility prevent erosion or siltation into the Santa Ana River. The proposed buildings and equipment would increase impervious areas on the site and reduce potential erosion. Landscaping is also proposed at the central section of the WWTP to prevent slope erosion. Erosion may occur during construction when ground-disturbance and excavation and trenching activities are ongoing, but this would be temporary. Erosion control measures would be implemented during construction to minimize the potential for sediment to be picked up and transported offsite or by runoff. Impacts would be less than significant.

Potential Impacts	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
ii) Substantially increase the rate or amount of surface runoff in a manner that would result in flooding on- or off- site?			X	

Floodplain Management (Executive Orders 11988, 12148, and 13690). Floodplains are corridors of low, level ground on one or both sides of a stream channel and are subject to either periodic or infrequent inundation by floodwater. Inundation dangers associated with floodplains have prompted federal, state, and local legislation that limits development in these areas largely to recreation and preservation activities. Executive Orders 11988, 12148, and 13690, *Floodplain Management*, requires actions to minimize flood risks and impacts. Under these orders, development alternatives must be considered and building requirements must be in accordance with specific federal, state, and local floodplain regulations.

The project would not result in any alteration of existing drainage patterns at the WWTP. New buildings and equipment would be located at small and scattered locations, and stormwater at these

locations would flow into adjacent areas with bare soils for ground percolation. Surface runoff flow rates and volumes would not significantly increase over existing conditions or result in any increase in flooding. As shown in Figure 6, the northern sections of the WWTP main facility and percolation ponds are within the 500-year floodplain, but the 100-year floodplain associated with the Santa Ana River is outside and north of the project site and on a portion of Alabama Street. Appendix E has the Federal Emergency Management Agency (FEMA) flood zone maps.

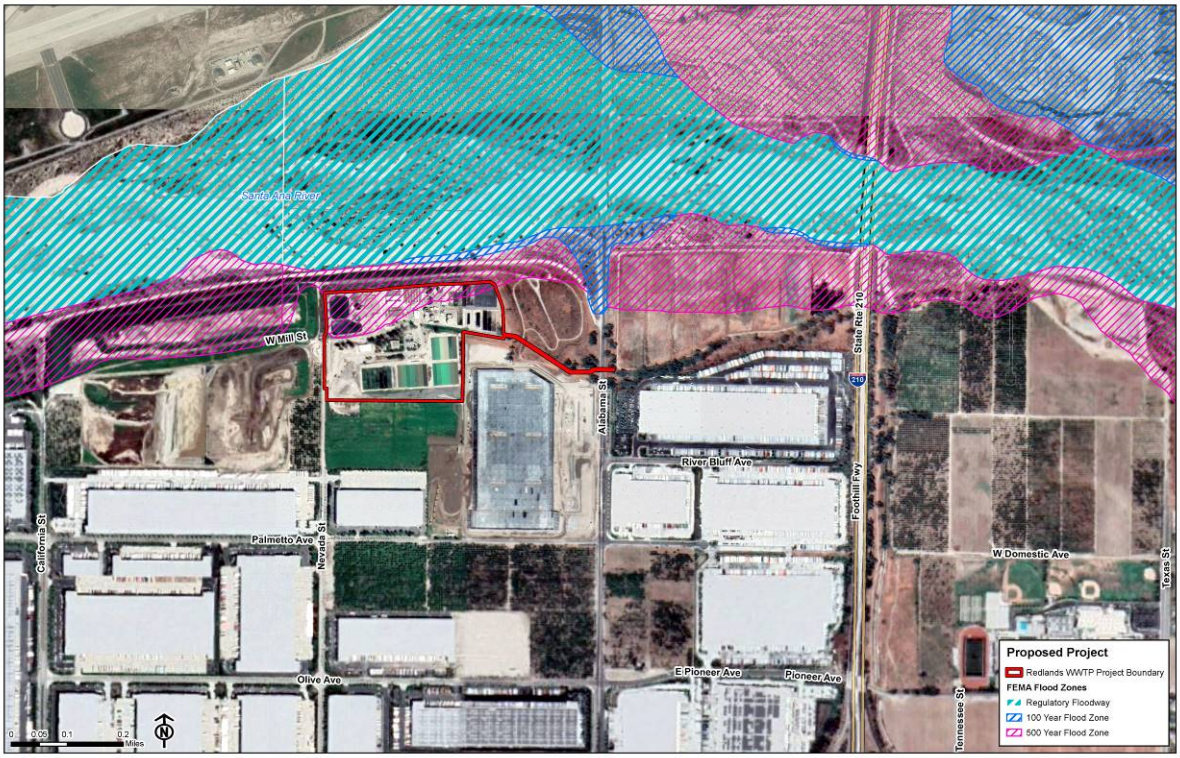

Figure 6. FEMA Flood Zones near Redlands WWTP

The proposed improvements to the peak storage ponds, MBR system, aeration basins, secondary clarifiers, and effluent pump station would be located within the limits of the 500-year floodplain, but no other improvements are proposed within the 500-year floodplain or the 100-year floodplain. With the limited size of the three prefabricated structures (i.e., 400 square feet each) in this area, stormwater would flow into the adjacent unpaved area for ground percolation. No change in the floodplain limits would occur with the project, and impacts related to flooding would be less than significant.

Potential Impacts	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
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?			X	

In compliance with its municipal National Pollutant Discharge Elimination System (NPDES) stormwater permit (MS4 Permit No. CAS618036, RWQCB Order No, R8-2010-0036), the City owns, operates, and maintains a master-planned storm drainage system within its corporate boundaries. The system consists of storm drains, stormwater basins, and pump stations that discharge to drainage channels, creeks, and the Santa Ana River, retaining and infiltrating as much runoff as possible on individual sites.

The proposed project would generate stormwater runoff from an increase in impervious surface area; however, the proposed improvements would be located on paved areas or at small, scattered locations and would disturb less than 3 acres of land. Stormwater from new impervious areas would flow into adjacent areas with bare soils for ground percolation. Surface runoff flow rates and volumes would not significantly increase over existing conditions nor exceed the capacity of existing or planned stormwater drainage systems. The project would not contribute a substantial additional source of polluted runoff because no change in land use or operations is proposed, and no increase in wastewater volume that is treated at the WWTP would occur with the project. No significant adverse impacts on existing or planned stormwater drainage systems and no new sources of stormwater pollutants would occur. Impacts would be less than significant.

Potential Impacts	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
iv) Impede or redirect flood flows?			X	

The site is located outside the 100-year floodplain, as shown in Figure 5. The project proposes improvements at scattered locations throughout the site and would direct runoff into adjacent areas with bare soils for ground percolation. This would not result in the obstruction or redirection of flood flows at the site. Stormwater flows at the site would continue to be primarily subject to ground percolation, with runoff flowing towards low-lying areas and into the aeration basins. Impacts related to redirection of flood flows would be less than significant with the project.

Potential Impacts	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?				X

The site is not located near the coast; therefore, it is not subject to the Coastal Barriers Resources Act and Coastal Zone Management Act. The project would not be exposed to flood hazards associated with a tsunami (sea waves).

There is no large body of water near the site that may result in a seiche during an earthquake event. Flooding associated with seiches, which are wave-like oscillations of water in an enclosed

basin caused by earthquakes, high winds, or other atmospheric conditions, is unlikely to occur at the project site due to shallow depths and design of the onsite ponds and basins.

The site is also outside the 100-year floodplain. Some proposed improvements would be located within the 500-year floodplain, but fine screens wastes would be disposed of at the nearby landfill. Screened effluent would be conveyed to the MBR basins for further treatment. In the event of a major storm, floodwaters that enter the fine screens would go through the MBR treatment process prior to reuse at the cooling plant or for landscape irrigation. Thus, no impact related to the release of a pollutant in a flood hazard, tsunami, or seiche zone would occur with the project.

Potential Impacts	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?				X

The project site is located south of the Santa Ana River, and the water quality control plan (Basin Plan) for the Santa Ana River identifies the beneficial uses of surface and groundwater resources within this watershed. The site is within Reach 5 of the Upper Santa Ana River, which has beneficial uses for Municipal and Domestic Supply, Agricultural Supply, Groundwater Recharge, Water-contact Recreation, Non-contact Water Recreation, Warm Freshwater Habitat, Wildlife Habitat, and Rare, Threatened and Endangered Species. Water quality objectives are also provided in the Basin Plan for the protection of water quality and to prevent antidegradation.

The project does not propose any improvements in the Santa Ana River and would not result in any discharges into the river. The site overlies the Bunker Hill groundwater subbasin, which has beneficial uses for Municipal and Domestic Supply, Agricultural Supply, Industrial Service Supply, and Industrial Process Supply. The proposed improvements would not extend into the underlying groundwater, and no increases in water use would occur with the upgraded WWTP; therefore, no conflict with the beneficial uses and water quality objectives in the Basin Plan would occur with the project.

As indicated above, the site overlies groundwater resources in the San Bernardino Basin Area, which is adjudicated by the Western-San Bernardino Watermaster to regulate the amount of groundwater that is extracted. No direct impacts to groundwater resources would occur with the project; therefore, the project would not impede sustainable groundwater management of the underlying groundwater basin.

Impacts on the Basin Plan for the Santa Ana River and the groundwater management plan for the San Bernardino Basin Area would not occur with the project.

XI. Land Use and Planning Would the project:				
Potential Impacts	**Potentially Significant Impact**	**Less Than Significant With Mitigation Incorporated**	**Less Than Significant Impact**	**No Impact**
a) Physically divide an established community?				X

The WWTP site is not located within an established community, and there are no residential uses near the site. The nearest residence is located approximately 0.7 mile to the southeast, east of SR-210. The proposed improvements would be located within the WWTP site and would not extend beyond the site boundaries. No impact on established communities would occur with the project.

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

Land use plans, policies, and regulations of the City that are applicable to the site include:

Redlands General Plan 2035. The City of Redlands General Plan 2035, adopted on December 5, 2017, sets the Community Vision for the City through a set of principles and actions to meet its vision for a Distinctive City, Prosperous Economy, Livable Community, Connected City, Vital Environment, Healthy Community, and Sustainable Community. The WWTP site has a land use designation of Public/Institutional and Linear Park.

East Valley Corridor Specific Plan. The East Valley Corridor Specific Plan regulates development at the northwestern section of Redlands that is part of the East Valley Corridor planning area, which includes land in the County of San Bernardino and the cities of Redlands and Loma Linda. The southwestern section of the WWTP site is within the boundaries of the East Valley Corridor Specific Plan. The Specific Plan designates this southwestern section as Public/Institutional (EVPI), which allows agriculture, government offices and facilities, and sewage treatment plants.

Zoning Ordinance. Title 18 (Zoning Regulations) of the Redlands Municipal Code serves as the City's Land Use Zoning Ordinance and provides regulations for permitted land uses and development regulations for every parcel in the City. The WWTP site is zoned Open Space and Public Institutional.

The project would upgrade the existing WWTP and would not change the land use of the site. The project would not conflict with land use plans, policies, regulations, or ordinances. No General Plan Amendment or Zone Change is needed to implement the project. No conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project including, but not limited to, the general plan, specific plan, local coastal program, or zoning

ordinance, adopted for the purpose of avoiding or mitigating an environmental effect would occur. No land use impacts are expected with the project.

XII. Mineral Resources
Would the project:

Potential Impacts	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?			X	

The California Department of Oil, Gas, and Geothermal Resources' (DOGGR) Well Finder shows there are no oil, geothermal, or gas wells (either active, inactive, plugged, or abandoned) on or near (within 1.0 mile) the site.

Based on the Mineral Land Classification of the Greater Los Angeles Area prepared by the California Department of Conservation, the project area is in the San Bernardino Production-Consumption region, an area containing regionally significant mineral resources (e.g., sand and gravel resources). The WWTP site and surrounding areas are designated as Mineral Resource Zone (MRZ) - 2, an area where adequate information indicates that significant mineral deposits are present or where it is judged that a high likelihood for their presence exists, primarily due to the location of the Santa Ana River just north of the site. While the project site may be underlain by sand and gravel resources, the site is developed, and the proposed improvements would be within the boundaries of the existing WWTP. Thus, it is unlikely that the site would be subject to mining operations in the future. At the same time, the project would not obstruct ongoing or future mining operations in the Santa Ana River and adjacent areas. Thus, the impact of the project on the availability of known regionally significant mineral resources is less than significant.

Potential Impacts	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
b) Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?			X	

The Redlands General Plan 2035 reflects the California Department of Conservation's MRZ-2 classification of the site and surrounding area, with the percolation ponds having regionally significant Portland cement concrete-grade aggregate resources. While the project would be on an area with locally important mineral resources (e.g., sand and gravel), the project would occur within a site that is now developed with wastewater treatment facilities. The improvements to the existing WWTP facilities would not affect the underlying mineral resources or access to these resources. Because there are no mining operations adjacent to the site, the project would also

not interfere with existing mining operations in the area. Therefore, impacts to local mineral resources are considered less than significant.

XIII. Noise Would the project result in:				
Potential Impacts	**Potentially Significant Impact**	**Less Than Significant With Mitigation Incorporated**	**Less Than Significant Impact**	**No Impact**
a) Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?			X	

The Redlands General Plan includes a Healthy Community chapter that addresses noise. This chapter includes principles to reduce noise from mobile sources; eliminate noise problems; make new development compatible with the noise environment; guide the location of noise sources; and regulate development around the Redlands Airport. Industrial uses are considered "Clearly Compatible" in areas with noise levels up to 75 decibels (dB) Community Noise Equivalent Level (CNEL) and "Normally Compatible" in areas with noise levels 80 dB CNEL and above. There is no exterior noise standard and a 60-dB CNEL interior noise standard for manufacturing, warehousing, wholesale, and utilities land uses.

Chapter 8.06, Community Noise Control, of the Redlands Municipal Code prohibits "loud, unnecessary or unusual noise which disturbs the peace and quiet of any neighborhood or which causes discomfort or annoyance to a reasonable person of normal sensitivity in the area". The ordinance sets exterior noise limits of 75 A-weighted decibels (dBA) in industrial areas, which cannot be exceeded for more than 30 minutes in any hour; with the limit plus 20 dB not permitted for any period of time. The ordinance also sets interior noise limits of 60 dBA in industrial areas. Lower exterior noise limits are set for residential and commercial uses, but there are no residential and commercial uses near the site. Construction and/or demolition activities are only allowed between 7:00 a.m. and 6:00 p.m. on weekdays and Saturdays but not on Sundays or holidays, except for emergency work.

The WWTP site is in an industrial area where industrial sources of noise such as outdoor activities by trucks, machinery, and pumps characterize the noise environment. Adjacent land uses include the Santa Ana River to the north, the California Street Landfill to the west, SR-210 to the east, and warehouses, agricultural fields, and vacant land to the south. Farther south and southwest of the site are various industrial uses and warehouses. The nearest noise-sensitive uses, single-family residences, are located approximately 0.7 mile to the southeast.

The project would not bring in a noise-sensitive land use to the WWTP. The project site is also not located in an area near noise-sensitive land uses and would not be adversely affected by airport operations or aircraft noise from the Redlands Airport and San Bernardino International Airport.

Construction equipment that could be used at the site include graders, dozers, dump trucks, front end loaders, and trenching machines. Generally, without barriers, construction equipment can generate noise levels of up to 86 dB at 50 feet and 83 dB at 100 feet. Under the City's Noise Ordinance, permitted construction activities between 7:00 a.m. and 6:00 p.m. are exempt from community noise standards. Construction of the proposed improvements would occur during the daytime hours on weekdays and Saturdays, in compliance with the City's Noise Ordinance. Construction noise impacts would be temporary and would not adversely affect adjacent land uses, including the Santa Ana River, Home Depot warehouse, vacant land/agricultural land, and the California Street Landfill. The noise intensity and duration of construction equipment operations, the lack of noise-sensitive receptors near the WWTP, and the distances between the site and nearby land uses would prevent violation of the City's noise regulations.

Operational noise generated by the upgraded WWTP would include noise from pumps, blowers, and other wastewater transport and treatment equipment, from onsite activities, and from vehicles traveling to and from the site. Several of these noise sources would be in enclosed buildings or would have covers; therefore, they would not generate substantial amounts of noise. Onsite maintenance activities would occasionally generate noise, but these infrequent events would not add measurably to long-term average noise levels. Earthen berms separate the WWTP from adjacent areas, breaking the line-of-site between onsite noise sources and adjacent offsite areas.

No increase in the amount of wastewater treated; the number of personnel stationed at the site; or the number of truck deliveries to the site would occur with project; therefore, no increase in vehicle noise generation would occur. In addition, there are no noise-sensitive receptors near the site that would be adversely impacted by onsite operational noise. Project-generated noise would not exceed the standards established in the Redlands General Plan or Noise Ordinance; therefore, impacts related to noise from operation of the upgraded WWTP would be considered less than significant.

Potential Impacts	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
b) Generation of excessive groundborne vibration or groundborne noise levels?			X	

Compacting and grading equipment, including small-diameter pile drivers and trenchers, may generate vibration temporarily during construction activities. Groundborne vibration is measured using the Federal Transit Authority (FTA) annoyance threshold of 72 VdB (vibrational velocity level). Due to the distance of the nearest residences (0.7 mile), intermittent and short-term vibration from construction activities at the WWTP are not expected to affect residents in the area. Impacts from excessive groundborne vibration or groundborne noise would be less than significant.

As discussed in Section 2.3.Xiii (a) above, during construction activities, the impact of the temporary increases in noise would be less than significant. No new long-term noise-generating activities above existing ambient noise levels in this industrial zone would occur from the project. Equipment and pump stations generally would be enclosed in buildings or covered and would not

emit substantial operational noise. The proposed improvements would not permanently change the existing ambient noise level. Impacts related to groundborne noise and vibration would be less than significant.

XIV. Population and Housing Would the project:				
Potential Impacts	**Potentially Significant Impact**	**Less Than Significant With Mitigation Incorporated**	**Less Than Significant Impact**	**No Impact**
a) Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?				X

The project proposes an upgrade of the WWTP to improve operational efficiency and reliability but would not increase the 9.5-MGD capacity of the facility. Rather, the project would change the wastewater treatment from a combination of MBR and CAS systems to a full MBR system; therefore, the project would not increase wastewater services in Redlands that may induce substantial or unplanned population growth. No change in the number of personnel (i.e., 23 staff and 6 operator-in-training volunteers) at the WWTP would occur with the project; therefore, no impacts related to growth inducement are expected.

Potential Impacts	**Potentially Significant Impact**	**Less Than Significant With Mitigation Incorporated**	**Less Than Significant Impact**	**No Impact**
b) Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?				X

There are no dwelling units on the site or in the surrounding area. The project would not displace any housing units, households, or residents. In addition, no businesses or employees would be displaced by the project. Therefore, the project would not result in any impacts to people or housing nor require replacement housing.

XV. Public Services

Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:

Potential Impacts	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Fire protection?			X	

The Redlands Fire Department provides fire protection services in the City through four fire stations. The nearest fire station to the site is Fire Station 263 (10 West Pennsylvania Avenue), located approximately 1.6 miles southeast of the site. The project would improve existing facilities at the WWTP and would be constructed in accordance with the CBC, including the NFPA 820 and NEC 500 standards. While more equipment will be present at the WWTP, the replacement of older equipment is expected to reduce the potential for fire. The proposed improvements would not create fire hazards that could increase the demand for fire protection services; generate a need for new fire stations in the area; or cause any significant impacts to existing fire protection services. Demand for fire protection services at the site is expected to remain unchanged. Therefore, impacts to fire protection services would be considered less than significant.

Potential Impacts	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
b) Police protection?			X	

The Redlands Police Department provides law enforcement and police protection services in the City, including the site. The WWTP site would remain fenced, and personnel would also be stationed at the WWTP 24 hours per day, 7 days per week. The project would not attract crime to the area. Thus, the project would not result in the need for new police stations in the area or otherwise adversely impact existing police services. Demand for police protection services at the site is expected to remain unchanged. Therefore, impacts to police protection services would be considered less than significant.

Potential Impacts	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
c) Schools?				X

The project would not bring in residents to the site who would generate a demand for school services; therefore, it would not impact local schools. No impacts to schools would result from the project.

Potential Impacts	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
d) Parks?				X

The project would not bring in residents to the site who would generate a demand for parks and recreational facilities. There are no existing nearby parks or recreational facilities that would be affected by the project. No impacts to parks would occur.

Potential Impacts	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
e) Other public facilities?				X

The project would improve the City's wastewater treatment services and would not use or require other public facilities. No new or additional personnel would be needed to operate the upgraded WWTP. Operation and maintenance of the improved WWTP would not result in any impacts to other public facilities.

XVI. Recreation

Potential Impacts	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?				X

There is no recreational use at the WWTP site, and the project would not bring in residents that may create a demand or result in an increase in use of any parks or other recreational facilities; therefore, there would be no impact to existing or planned neighborhood and regional parks.

Potential Impacts	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
b) Does the project include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment?				X

The project does not propose any new or improved recreational facilities. While a portion of the site is zoned as Open Space and the Redlands Land Use Map shows a Linear Park through the site, there are no recreational facilities on or near the site, and the project does not propose

recreational uses or improvements to existing recreational facilities. No impacts to the environment from expansion of recreational facilities would occur with the project.

XVII. Transportation Would the project:				
Potential Impacts	**Potentially Significant Impact**	**Less Than Significant With Mitigation Incorporated**	**Less Than Significant Impact**	**No Impact**
a) Conflict with a plan, ordinance or policy addressing the circulation system, including transit, roadways, bicycle lanes and pedestrian paths?			X	

During the construction period, construction workers would come to the WWTP site daily for approximately 24 months. Assuming 16 construction workers travel in single-occupant vehicles, this would result in an estimated maximum 32 additional inbound/outbound vehicle trips. In addition, trucks, delivery equipment, and building materials would come to the site during construction. These trips would generally occur before the morning and evening peak-hour traffic. Due to their limited number, the movement of construction vehicles would not result in any change to the volume-to-capacity ratio of roadways or levels of service at intersections in the surrounding area. Partial or full closure of Alabama Street during construction of the force main pipeline across this street would be limited to a few days, with flaggers and/or detour signs provided to maintain traffic flow. Construction-related traffic would be a temporary, short-term condition and would not result in any substantial effects on traffic.

Operation of the improved WWTP would not result in an increase in the number of employees at the site or the number of delivery trucks coming to the site. Thus, no long-term traffic impacts would occur with the project. The project would not conflict with any plan, ordinance, or policy establishing measures of effectiveness for the performance of the circulation system.

There are no bicycle lanes or trails in the surrounding area, although a bike trail is proposed along the south side of the Santa Ana River and along Alabama Street near the site. Omnitrans bus transit routes do not operate on Nevada Street or Alabama Street near the site. The project does not include any changes to existing roadways or pedestrian facilities, nor would it result in any conflicts with policies that support public transit, bicycle, or pedestrian facilities. There would be no conflicts with future bike trails because no improvements are proposed where future bike trails are planned along the Santa Ana River and the force main pipeline would be placed underground across Alabama Street. Therefore, impacts on plans or policies that support alternative transportation are not expected.

Impacts to roadway traffic would be short-term during construction and would be considered less than significant.

Potential Impacts	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
b) For a land use project, would the project conflict or be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b)(1)?				X

The project would not increase the number of employees at the WWTP nor increase vehicle miles traveled; therefore, it would not be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b)(1). There would be no impact related to increased travel with the project.

Potential Impacts	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
c) For a transportation project, would the project conflict with or be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b)(2)?				X

The project is not a transportation project and would not increase vehicle miles traveled or be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b)(2). There would be no impact with the project.

Potential Impacts	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
d) Substantially increase hazards due to a geometric design feature (e.g. sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?				X

The project would not result in any changes to roadways or intersections in the vicinity of the WWTP. The main entrance to the WWTP would be improved through landscaping, entry monumentation, and gate improvements. These would not result in sharp curves or dangerous intersections. No hazards or incompatible uses would occur as a result of the project. The force main pipeline would be placed underground across Alabama Street and the roadway surface returned to original conditions after construction. Therefore, no impacts related to roadway hazards would occur with the project.

Potential Impacts	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
e) Result in inadequate emergency access?				X

The project would not require any changes to roadways, intersections, or access to the site. The proposed upgrades and improvements would be confined to the WWTP site (e.g., treatment plant and edge of the percolation ponds), and partial or complete street closures would be limited to the time when the force main pipeline is constructed beneath Alabama Street. Flaggers and/or detour signs would be provided as necessary to maintain traffic flow. Landscaping, entryway monuments, and gate improvements would occur at the WWTP main entrance at Nevada Street, but there is a secondary entrance to the north where no improvements are proposed. The proposed work would only partially block the main gate for a limited time period. Therefore, impacts on emergency response or evacuation plans would be less than significant.

XVIII. Tribal Cultural Resources

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:

Potential Impacts	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), or				X

As discussed in Section 2.3.IV, the Historic Property Identification Report for the WWTP evaluated the eligibility of the WWTP for the NRHP, the CRHR, and local designation as a City of Redlands Historic Resource (attached as Appendix C). The findings of this report indicate the Redlands WWTP site is not eligible for listing in the NRHP or the CRHR. It is also not eligible for designation as a City of Redlands Historic Resource.

Thus, no tribal cultural resources that are listed or eligible for listing in the NRHP, the CRHR, or local designation as a Historic Resource would be affected by the proposed upgrade of the WWTP. No impacts would occur with the project.

Potential Impacts	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
b) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resources Code section 5024.1, the lead agency shall consider the significance of the resource		X		

Potential Impacts	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
to a California Native American tribe.				

Native American resources can include, but are not limited to, archaeological sites, burial sites, ceremonial areas, caves, mountains, water sources, trails, plant habitat, or gathering areas, or any other natural area important to a culture for religious or heritage reasons. NRHP-eligible traditional sites are subject to the same regulations, and afforded the same protection, as other types of historic properties. The Region of Influence (ROI) for Native American traditional resources consists of those areas associated with project activities in the vicinity of the WWTP. To date, there are no resources that have been identified to be significant pursuant to criteria set forth in subdivision (c) of PRC Section 5024.1.

As part of the Historic Property Identification Report, the NAHC was contacted to request information on sacred lands that may be located near the project site. The NAHC indicated that the Sacred Lands File search was positive and recommended that the San Manuel Band of Mission Indians be contacted for more information. The NAHC also provided a Tribal Consultation List of 10 contacts representing 7 Native American groups, all of which were contacted, and no information regarding tribal cultural resources has been received by the City or City's consultant.

In addition, the City's Planning Division maintains a list of Native American Tribes that have requested notification pursuant to AB 52: Gabrieleno Band of Mission Indians – Kizh Nation; Morongo Band of Mission Indians; Soboba Band of Luiseno Indians; San Manuel Band of Mission Indians; and Torres Martinez Desert Cahuilla Indians. Notification was sent on May 26, 2021, and several telephone calls and email correspondence with the Consulting Tribes have occurred, as appropriate.

The Gabrieleno Band of Mission Indians responded on June 3, 2021 requesting consultation. Telephone calls and email correspondence have not provided any information or evidence indicating the presence of any tribal cultural resources on the project site or the vicinity. The tribe [or the City] concluded consultation on October 8, 2021.

The San Manuel Band of Mission Indians requested consultation, stated they do not have any tribal cultural resources or sacred lands in the vicinity of the project site, and provided suggested mitigation measures for any inadvertent discoveries. The tribe [or the City] concluded consultation on October 8, 2021.

The City has not been presented with any information or evidence indicating the presence or the likely presence of any tribal cultural resources on or near the project site (including, but not limited to, undisclosed Native American burial sites, funerary objects, village sites, camp sites, landscapes, or other significant tribal cultural resources). The City requested such information or evidence from all consulting tribes, but none has been received. However, the City has agreed to implement mitigation measures as suggested through consultation to address the potential for any inadvertent discoveries during the project's ground-disturbing activities.

While the site is developed and disturbed, the discovery of tribal cultural resources is possible (i.e., inadvertent discovery) during ground-disturbing activities, the potential disturbance or destruction of which would be considered a less than significant impact with incorporation of the following mitigation measures. The following measures shall be implemented to prevent any significant adverse impacts to tribal cultural resources:

TCR-1: Monitoring and Unanticipated Discovery of Tribal Cultural Resources. A Tribal Monitor from the Consulting Tribe(s) shall be onsite to monitor all project-related earthmoving work. Prior to the initiation of construction activities, a rotating schedule of Tribal Monitor(s) shall be established. In the event that potential tribal cultural resources are discovered during project activities, all work in the immediate vicinity of the find (within a 60-foot buffer) shall cease and a qualified archaeologist meeting Secretary of Interior standards shall be hired to assess the find. Work on the other portions of the project outside of the buffered area may continue during this assessment period. The Consulting Tribe(s) Cultural Resources Department shall be contacted and provided information regarding the nature of the find, so as to allow Tribal input with regards to significance and treatment. Should the find be deemed significant, as defined by CEQA (as amended, 2015), a tribal cultural resources Monitoring and Treatment Plan shall be created, in coordination with the Consulting Tribe(s) and all subsequent finds of tribal cultural resources shall be subject to this Plan.

TCR-2: Monitoring and Treatment Plan. If significant pre-contact and/or historic-era tribal cultural resources are discovered and avoidance cannot be ensured, a Monitoring and Treatment Plan shall be developed in coordination with Consulting Tribes, the drafts of which shall be provided to the Consulting Tribe(s) for review and comment. The tribal monitor(s) and/or archaeologist shall monitor the remainder of the project and implement the Plan accordingly.

TCR-3: Ongoing Coordination and Documents and Reports. The City shall, in good faith, coordinate with the Consulting Tribe(s) throughout the life of the project for any tribal cultural resources. Any and all archaeological/cultural documents created as part of the project and may be legally disclosed in accordance with applicable law (e.g., isolate records, site records, survey reports, testing reports) shall be supplied to the Consulting Tribe(s).

Impacts on Tribal Cultural Resources would be considered less than significant after mitigation.

XVIX. Utilities and Service Systems
Would the project:

Potential Impacts	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Require or result in the relocation or construction of new or expanded water, wastewater treatment, or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?			X	

The WWTP currently treats wastewater through a combination of MBR and CAS systems and has limited onsite wastewater generation from two toilets/locker rooms and a small kitchen. The proposed improvements would not increase the amount of wastewater treated at the site. The number of personnel at the site who use the toilets and kitchen would not change; and no additional wastewater would be generated. The project would install a state-of-the-art 9.5-MGD MBR system, which is an increase over the existing 6.0-MGD MBR system, and would eliminate the 3.5-MGD CAS system. No increases in the overall capacity of the WWTP would occur. Impacts associated with wastewater treatment would be considered less than significant.

The project would consist of improvements of existing systems and equipment, but it would not increase the WWTP's capacity. Water demand from the existing personnel at the staff would remain unchanged because no new personnel would be needed with the upgraded WWTP. The landscaping and trees proposed at the entryway and perimeter of the site would require irrigation water, which could be provided by the recycled water that would be generated by the upgraded WWTP. No new or expanded water facilities are needed. Impacts on water services, as provided by the City, would be considered less than significant.

The project would result in an increase in impervious surfaces (approximately 2,000 square feet of buildings and structures), which would be at scattered locations at the site. Runoff from these impervious surfaces are expected to go into adjacent areas that are unpaved for ground percolation. Due to the small size and scattered locations of new impervious surfaces, the project would not result in the need for new storm water drainage facilities. Impacts to storm water drainage would be considered less than significant.

The project would result in an approximate 10 to 12 percent increase in electrical power use, from 650,000 kWh per month to 728,000 kWh per month, due to additional equipment and the same or decreased natural gas use, which is currently an average of 114 cubic feet per day, due to the continued use of digester gas for heating the boilers/heat exchangers. While electrical lines would be provided for the new equipment and buildings, no offsite expansion of the electrical or natural gas infrastructure is proposed. Impacts would be less than significant.

Similarly, telecommunication facilities at the site would be extended to new equipment and buildings, but no offsite expansion is proposed. Impacts would be less than significant.

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

The project is not expected to result in the need for additional water to run the full MBR system. No increase in personnel at the site who use water would occur with the project. Irrigation for the proposed landscaping and trees at the site is expected to utilize recycled water generated by the upgraded WWTP. No new or expanded entitlements would be needed for the project and the upgraded WWTP. Impacts to water supplies would be considered less than significant.

Potential Impacts	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
c) Result in a determination by the wastewater treatment provider, which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?				X

The proposed project would improve wastewater treatment services in Redlands, but it would not result in any increase in the WWTP's capacity or the amount of wastewater that is conveyed to the WWTP. No increase in personnel at the site who generate wastewater from toilet and kitchen use would be needed to operate and maintain the upgraded WWTP. Thus, no adverse impacts related to wastewater generation would occur with the project.

Potential Impacts	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
d) Generate solid waste in excess of State or local standards or in excess of the capacity of local infrastructure?			X	

The amount of construction wastes that would be generated by the project would be minimal due to the size and type of the proposed improvements. Construction wastes would be recycled, salvaged, or disposed in accordance with the CalGreen Code, Chapter 13.64 of the City's Municipal Code – Integrated Solid Waste Management Ordinance, and Chapter 13.66 of the Municipal Code – Recycling Requirements for Specified Development Activity. Construction wastes would be taken to the California Street Landfill located west of the site across Nevada Street. This landfill is owned and operated by the City and is projected to be in operation until 2042 when its 11.4 million cubic yard capacity would be reached. The need for construction-generated waste disposal from the project would be a short-term event over 24 months and would be within the daily permitted throughout of the California Street Landfill of 829 tons per day.

No change in the amount of wastewater treated at the WWTP or in the number of personnel operating the WWTP would occur with the project. Thus, no long-term increase in solid waste generation is expected with the project. Impacts on solid waste disposal would be temporary during construction and are considered less than significant.

Potential Impacts	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
e) Negatively impact the provision of solid waste services or impair the attainment of solid waste reduction goals?			X	

As discussed above, solid waste generation by the project would be limited to the construction phase, and solid wastes would be brought to the California Street Landfill located across Nevada Street from the WWTP. Due to the type and size of improvements and the short-term generation of construction wastes, the project would not negatively impact the provision of solid waste services in Redlands. No increase in long-term waste generation or the number of employees at the site would occur, which may impair attainment of the City's solid waste reduction goals. Impacts would be less than significant.

Potential Impacts	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
f) Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?			X	

The project would comply with applicable federal, state, and local management and reduction statutes and regulations related to solid waste. As discussed above, construction wastes would be recycled, salvaged, or disposed in accordance with the CalGreen Code, Chapter 13.64 of the City's Municipal Code – Integrated Solid Waste Management Ordinance, and Chapter 13.66 of the Municipal Code – Recycling Requirements for Specified Development Activity. Impacts would be less than significant with the project.

XX. Wildfire

If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project:

Potential Impacts	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Impair an adopted emergency response plan or emergency evacuation plan?			X	

CALFIRE has designated the WWTP site as a Non-Very High Fire Hazard Severity Zone. Adjacent areas are also designated as Non-Very High Fire Hazard Severity Zones.

The proposed upgrades and improvements would be confined to the WWTP site (e.g., treatment plant and pipeline alignment) and would not affect emergency response and evacuation in adjacent streets or areas. Landscaping, entryway monument, and gate improvements would occur at the WWTP main entrance at Nevada Street, but there is a secondary entrance to the

north, which would be available for emergency response or evacuation, where no improvements are proposed. The proposed work would only partially block the main gate for a limited time period. Partial or complete street closure would be limited to Alabama Street when the force main pipeline is installed beneath the street during project construction. Flaggers and/or detour signs would be provided as necessary. Impacts would be less than significant with the project.

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

Areas adjacent to the project site are designated by CALFIRE as Non-Very High Fire Hazard Severity Zones, similar to the site. The project area does not feature steep slopes, and prevailing winds are from the northwest. The proposed system and facility upgrades would be confined to the WWTP site and constructed in accordance with the CBC, including the NFPA 820 and NEC 500 standards. Thus, the project would not create wildfire risks or expose people to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire. Impacts would be less than significant with the project.

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

The project does not propose improvements that may exacerbate fire risk. The proposed pedestrian access to the bottom of the peak storage ponds and the small access road to be constructed west of the main operations building would not create a fire risk. Power lines would be extended to the proposed buildings and equipment but would be installed in accordance with NFPA 820 and NEC 500 standards. No increase in fire hazards would occur with the project. Proposed landscaping, slope protection, and trees would have minimal impacts on wildfire hazards. Impacts would be less than significant.

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

The project area is relatively flat, although there are earthen berms on the north, west, and east sides of the WWTP site. The project site is not located in an area where post-fire slope instability or changes in drainage would result in flooding or landslides on or near the site. Thus, no risks to people or structures in the area would occur. No impacts are expected.

XXI. Mandatory Findings of Significance				
Potential Impacts	**Potentially Significant Impact**	**Less Than Significant With Mitigation Incorporated**	**Less Than Significant Impact**	**No Impact**
a) Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal, or eliminate important examples of the major periods of California history or prehistory?		X		

The analyses in Sections 2.3.IV and 2.3.V of this IS indicate the project could result in significant adverse effects on biological, cultural, and tribal cultural resources. Several mitigation measures are proposed for the protection of active nests, burrowing mammals, and roosting bats. With the implementation of BIO-1 through BIO-8, construction activities associated with the project would not result in significant adverse impacts on biological resources after mitigation. As such, the project would not have the potential to substantially degrade the quality of habitats for 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; or substantially reduce the number or restrict the range of a rare or endangered plant or animal.

Impacts on undiscovered cultural, paleontological, or tribal cultural resources or human remains would be reduced with implementation of mitigation measures CUL-1, CUL-2, GEO-1, TCR-1, TCR-2, and TCR-3. The project would not eliminate important examples of the major periods of California history or prehistory. Impacts on biological and cultural resources would be less than significant after mitigation.

Potential Impacts	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.)			X	

The impacts of the project would generally be associated with short-term construction activities because improvements to WWTP operations would occur with the project over the long-term and no major changes to the operational impacts of the WWTP would occur in terms of wastewater volume treated, number of onsite personnel, and truck deliveries to the site. As indicated in Section 1.8, Related Projects, nearby projects that may contribute to the cumulative impacts of the project are limited to TTM 20257 and 20336 projects. Both projects would be located on the other side (east side) of SR-210 and are not expected to be in construction at the same time as the WWTP upgrade because the proposed WWTP improvements are in the early stages of planning and design and would have to go through the SRF loan application process before final design is initiated. The impacts of the project on all environmental issues have been determined to be less than significant or less than significant after mitigation. Thus, the project would not make a cumulatively considerable contribution to the impacts of other projects planned in Redlands and near the WWTP. Cumulative impacts would be considered less than significant.

Potential Impacts	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
c) Does the project have environmental effects that would cause substantial adverse effects on human beings, either directly or indirectly?			X	

Direct and indirect adverse effects on human beings that would occur as a result of the project have been determined to be less than significant. As discussed above, impacts on aesthetics, GHG emissions, hazards and hazardous materials, land use and planning, noise, population and housing, public services, recreation, transportation, and utilities and service systems would not be considered significant, and no mitigation is required. Thus, adverse effects on human beings would be less than significant.

XXII. Socioeconomic Impacts

No direct socioeconomic impacts on employees of the WWTP or on residents and businesses in the area surrounding the site or in Redlands would occur with the project. Indirectly, sewer rates

are expected to increase to help repay the SRF loan but would be based on the land use and wastewater discharge volume of individual wastewater service connections. Long-term economic effects would be less than significant with the project. Construction labor and construction materials would have a temporary, minor, beneficial effect on the local and regional economies; however, the project would not increase long-term employment at the facility and would not change the purchase of goods and services by the WWTP. Thus, the project would have a net, albeit minor, economic benefit to the community during the construction phase.

XXIII. Environmental Justice

EO 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, was issued on February 11, 1994. This EO requires each federal agency to identify and address, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations in the United States and in its territories and possessions. EPA and the Council on Environmental Quality (CEQ) have emphasized the importance of incorporating environmental justice reviews into the analyses conducted by federal agencies under the National Environmental Policy Act and of developing measures to avoid disproportionate environmental effects on minority and low-income populations.

The resources addressed in this section are minority and low-income populations and individuals. Persons are included in the minority category if they identify themselves as belonging to any of the following groups: (1) Hispanic; (2) Black (not of Hispanic origin) or African American; (3) American Indian or Alaska Native; or (4) Asian, Native Hawaiian, or other Pacific Islander. The geographic distribution of minority and low-income population groups is based on demographic data from the Southern California Association of Governments (SCAG). The 2018 population (71,196 people) of Redlands consists of a 47.1 percent minority population (i.e., Hispanic or Latino of any race, Asian, Black, American Indian or Alaska Native). This is lower than the minority population in the County of San Bernardino population (67.3 percent) and the SCAG region (65.8 percent). As such, there are fewer minorities in Redlands than in San Bernardino County or the SCAG region.

Individuals who fall below the poverty line are considered low-income. The poverty line accounts for family size and the ages of individuals in the family. Guidance proposed by the CEQ stipulates that a low-income population exists where the percentage of low-income persons in any geographic unit is more than 20 percent higher than the reference geographic unit. A low-income population also exists in any geographic unit where the number of low-income persons exceeds 50 percent of the total population. The California Department of Housing and Community Development has set the 2021 area median income for San Bernardino County at $77,500 for a four-person household, with low-income households defined as four-person households having an annual income of $63,200 or less. SCAG estimates the City's 2018 median household income at $68,956, which is higher than the County's or the SCAG region's median income and higher than the State income limit.

Agencies should consider the composition of the affected area to determine whether minority populations, low-income populations, or Native American tribes are present in the area affected by a proposed project and, if so, whether there may be disproportionately high and adverse

human health or environmental effects on minority populations, low-income populations, or Native American tribes.

The project does not propose any improvements beyond the boundaries of the WWTP site. Local minority communities are not likely to be affected because there are no residences within 0.5 mile of the site. Adjacent land uses consist of the Santa Ana River, the California Street Landfill, vacant land and agricultural fields, a warehouse/distribution center, and a freeway (SR-210). The nearest residences are located approximately 0.7 mile southeast, on the other side of SR-210. No effect on these residences would occur with the project, and no effects on community resources have been identified. At the same time, the WWTP serves Redlands, and the project would improve wastewater treatment services to all residents, including minority populations and low-income households in the City. Consequently, implementation of the project would not directly or indirectly affect or disproportionately burden minority populations. Implementation of the project would not directly affect or disproportionately burden low-income populations. Therefore, no significant impacts related to environmental justice would occur with the project.

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APPENDICES

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Appendix A
Clean Air Act General Conformity Applicability Analysis

PARSONS

Clean Air Act
General Conformity Applicability Analysis
for Proposed Upgrade of the
City of Redlands
Wastewater Treatment Plant
Redlands, California

Redlands Wastewater Treatment Plant
1950 Nevada Street
Redlands, CA 92373

July 2021

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Acronyms and Abbreviations

ADWF	annual dry weather flow
AQCR	Air Quality Control Region
ASP	activated sludge process
CAA	Clean Air Act
CalEEMod	California Emissions Estimator Model
CAS	conventional activated sludge
CEQA	California Environmental Quality Act
CFR	*Code of Federal Regulations*
CO	carbon monoxide
City	City of Redlands
DAFT	dissolved air flotation thickener
DLR	device level ring
DO	dissolved oxygen
EPA	United States Environmental Protection Agency
ESA	Endangered Species Act
°F	degrees Fahrenheit
FR	*Federal Register*
HP	horsepower
HST	high-speed turbo
HVAC	heating, ventilation, and air conditioning
I-10	Interstate 10
I&C	instrument and control
IS	Initial Study
MDT	Mass Daily Threshold
MBR	membrane bioreactor
MCC	motor control center
mg/L	milligrams per liter
µg/m^3	micrograms per cubic meter
MGD	million gallons per day
mL	milliliters
MLSS	mixed liquor suspended solids
MND	Mitigated Negative Declaration
NAAQS	National Ambient Air Quality Standards
NH_3	ammonia
NHPA	National Historic Preservation Act
NO_2	nitrogen dioxide
NO_X	nitrogen oxides
NSR	New Source Review
NTU	nephelometric turbidity units
O_3	ozone

Pb	lead
P&IDs	piping and instrumentation diagrams
PLC	Programmable Logic Controllers
PM	particulate matter
$PM_{2.5}$	particulate matter less than or equal to 2.5 microns in aerodynamic diameter
PM_{10}	particulate matter less than or equal to 10 microns in aerodynamic diameter
ppb	parts per billion
ppm	parts per million
PSD	Prevention of Significant Deterioration
RAS	return activated sludge
SCAB	South Coast Air Basin
SCADA	Supervisory Control and Data Acquisition
SCAQMD	South Coast Air Quality Management District
SIP	State Implementation Plan
SO_2	sulfur dioxide
SO_X	sulfur oxides
SR-210	State Route 210
SRF	State Revolving Fund
SWRCB	State Water Resources Control Board
TIN	total inorganic nitrogen
TPY	tons per year
TSP	total suspended particulates
TWAS	thickened waste activated sludge
U.S.C.	United States Code
USGS	United States Geological Survey
VOC	volatile organic compounds
WAS	waste activated sludge
WWTP	wastewater treatment plant

1.0 Clean Air Act Conformity

1.1. Introduction

The Clean Air Act (CAA) requires the United States Environmental Protection Agency (EPA) to promulgate rules that ensure federal actions conform to the appropriate State Implementation Plan (SIP). These rules are codified in Title 40 *Code of Federal Regulations* (CFR) Parts 6, 51, and 93. The SIP is a plan that provides for implementation, maintenance, and enforcement of the National Ambient Air Quality Standards (NAAQS). This plan provides emission limitations and control measures to attain and maintain the NAAQS. Conformity to an SIP is defined as being consistent with the SIP's purpose of eliminating or reducing the severity and number of violations of the NAAQS and achieving their expeditious attainment.

Federal agencies proposing discretionary actions are required to determine if those actions conform to the applicable SIP. Proposed actions involving the Federal Highway Administration or Federal Transit Authority fall under the Transportation Conformity Rules. Other proposed actions fall under the General Conformity Rules.

The City of Redlands (City) will be applying to the State Water Resources Control Board (SWRCB) for a State Revolving Fund (SRF) Loan for the proposed upgrade and modernization of its Wastewater Treatment Plant (WWTP) in Redlands, California. It should be emphasized that there would not be any expansion of the existing design capacity of 9.5 million gallons per day (MGD) as a result of this upgrade. The SRF Loan Program is partially funded by EPA; therefore, it is subject to federal environmental regulations, including the General Conformity Rule for the CAA. The proposed upgrade of the WWTP would be a federally funded action subject to EPA General Conformity rules and must conform to the SIP for the State of California.

1.2. Conformity Background Information

Section 176(c) of the CAA prohibits federal entities from taking actions in nonattainment or maintenance areas that do not conform to the SIP for the attainment and maintenance of the NAAQS. The purposes of conformity are to:

- Ensure federal activities do not interfere with the emission budgets in the SIPs
- Ensure federal actions do not cause or contribute to new violations
- Ensure attainment and maintenance of the NAAQS

In December 1993, EPA promulgated two sets of regulations to implement Section 176(c) of the CAA. On December 24, EPA promulgated the Transportation Conformity Regulations (applicable to highways and mass transit) to establish the criteria and procedures for determining that transportation plans, programs, and projects funded under Title 23 of the United States Code (U.S.C.) or the Federal Transit Act conform to the SIP (58 *Federal Register* [FR] 62188). On December 30, EPA promulgated the General Conformity Regulations (applicable to all other projects) to ensure that other federal actions also conform to the SIP (58 FR 63214).

Under General Conformity, all proposed federal actions are covered unless otherwise exempt. Actions considered exempt from General Conformity include:

- Actions covered under Transportation Conformity
- Actions with clearly *de minimis* emissions
- Exempt actions listed in the rule
- Actions covered by a "Presumed to Conform" demonstration (an approved list)

Conformity can be demonstrated by:

- Showing that emission increases are included in the SIP
- The affected state agreeing to include increases in the SIP
- Demonstrating that no new violations of the NAAQS would occur and the frequency or severity of violations would not increase in areas without SIPs
- Offsets
- Mitigation

The proposed action is subject to the General Conformity requirements as part of its SRF loan application process under the federal Clean Water Act, as amended in 1987.

1.3. General Conformity Determination Process

The General Conformity Rule has three major parts: applicability, analysis, and procedure. These three parts are described in the following sections.

1.3.1. Applicability

Attainment Areas

The General Conformity Rule applies to proposed actions in Air Basins (or portions thereof) designated as nonattainment or maintenance areas for one or more criteria air pollutants. Proposed actions in Air Basins in attainment of the NAAQS are not subject to the Conformity Rule.

Criteria air pollutants (so called because they are established pursuant to health-based criteria) are air pollutants for which the federal government has established ambient air quality standards for outdoor concentrations to protect public health and welfare. A nonattainment area is any area that does not meet (or that contributes to ambient air quality in a nearby area that does not meet) the national primary or secondary ambient air quality standard for that air pollutant. A maintenance area is a former nonattainment area that has attained the national primary ambient air quality standard for that air pollutant. Criteria air pollutants and Air Basin attainment status are further discussed in Section 3.2.

***De Minimis* Emissions Levels**

De minimis rates of air pollutant emissions were established in the Final Rule to focus conformity requirements on those proposed actions with the potential for significant air quality impacts. Except for lead, the *de minimis* levels are based on the CAA's major stationary source definitions for criteria air pollutants (and their precursors) and vary by the severity of the nonattainment area. A conformity determination is required when the annual total of direct and indirect emissions from a proposed action occurring in a nonattainment or maintenance area equals or exceeds the annual *de minimis* levels.

Table 1-1 lists the *de minimis* levels by air pollutant applicable for proposed actions in nonattainment areas. The *de minimis* level for ozone (O_3) applies to its precursors, volatile organic compounds (VOCs) and nitrogen oxides (NO_X). Project activities would occur in an area designated as maintenance (redesignated from nonattainment after meeting the applicable NAAQS) for coarse particulate matter (PM_{10}) and nitrogen dioxide (NO_2), extreme nonattainment for 8-hour O_3, and nonattainment for fine particulate matter ($PM_{2.5}$).

TABLE 1-1: *DE MINIMIS* LEVELS FOR CRITERIA POLLUTANTS IN NONATTAINMENT AREAS

POLLUTANT	DESIGNATION	TONS/YEAR
Ozone*	Serious nonattainment	50
	Severe nonattainment	25
	Extreme nonattainment	10
	Other nonattainment areas outside of ozone transport region	100
	Marginal and moderate nonattainment areas inside ozone transport region	50/100
Carbon Monoxide	All nonattainment areas	100
	Maintenance	100
Sulfur Dioxide	All nonattainment areas	100
Lead	All nonattainment areas	25
Nitrogen Dioxide	All nonattainment areas	100
Particulate Matter**	Moderate nonattainment (PM_{10})	100
	Serious nonattainment (PM_{10})	70
	Nonattainment ($PM_{2.5}$)	100

Notes: * Includes precursors: VOC and NO_X.
**Air Quality Control Region (AQCR) was redesignated maintenance for PM_{10}.
Source: EPA, 2012.

Regional Significance

A proposed action that does not exceed the *de minimis* level for a criteria air pollutant may still be subject to a General Conformity determination. General Conformity applies if a proposed action is considered to be "regionally significant," meaning the direct and indirect emissions of any pollutant represent 10 percent or more of a nonattainment or maintenance area's emissions inventory for that pollutant.

Exemptions and Presumptions

The final rule contains exemptions from the General Conformity process. Certain proposed actions are deemed by EPA to conform because of the thorough air quality analysis required to comply with other statutory requirements. Examples include those proposed actions or portions thereof subject to New Source Review, alterations of or additions to existing structures as specifically required by new or existing applicable environmental legislation or environmental regulations (e.g., scrubbers for air emissions), and remedial activities under the Comprehensive Environmental Response, Compensation and Liability Act.

Other proposed actions that are exempt from the conformity process include those actions that would result in no increase in emissions, or an increase in emissions that is clearly *de minimis*. Examples include continuing or recurring activities, routine maintenance and repair, administrative and planning actions, land transfers, and routine movement of mobile assets.

A federal agency can establish its own presumptions of conformity through separate rulemaking actions. Section 176(c) of the CAA does not specifically exempt any activity; thus, a separate analysis would need to show that the activity presumed to conform has no impacts on air quality.

Based on this analysis, a federal agency can document that certain types of future actions would be *de minimis*.

1.3.2. Analysis

A conformity analysis for a proposed action examines the impacts of the direct and indirect emissions from mobile and stationary sources and emissions from any other reasonably foreseeable proposed action. Indirect emissions are those emissions of a criteria pollutant or its precursors that are caused by the proposed action but may occur later in time or may be farther removed in distance from the action itself but are still reasonably foreseeable; and the federal agency can control and will maintain control over the indirect action due to a continuing program responsibility of the federal agency. Reasonably foreseeable emissions are projected future indirect emissions that are identified at the time the conformity determination is made; the location of such emissions is known, and the emissions are quantifiable, as described and documented by the federal agency based on its own information and after reviewing any information presented to the federal agency.

The conformity determination procedure is detailed in 40 CFR 51.589. The analysis is based on the latest planning assumptions, the latest emission estimation techniques, applicable air quality models, databases, and other requirements of the "Guideline on Air Quality Models (Revised)" (EPA Publication No. 450/2-78-027R, 1986), and on the total of direct and indirect emissions from the action. Finally, actions required to issue a conformity determination must list mitigation measures and go through the public notice process. Exempt actions are not required to go through this process.

1.3.3. Procedure

Procedural requirements of the conformity rule allow public review of the federal agency's conformity determination. Although the conformity determination is a federal responsibility, state and local air quality control agencies are notified and their expertise is consulted. No documentation or public participation is required for applicability analyses that result in *de minimis* determinations.

The federal agency must provide a 30-day notice of the proposed action and draft conformity determination to the appropriate EPA region, and state and local air quality control agencies. The federal agency must also make the draft determination available to the public to allow opportunity for review and comment.

2.0 Description of the Proposed Action

2.1. Introduction

The City owns and operates the WWTP with a design capacity of 9.5 MGD and current average flow of 5.8 MGD. Approximately 6 MGD of the design capacity are in a membrane bioreactor (MBR) system; the remaining 3.5 MGD are in a conventional activated sludge process (ASP). Of the current 5.8 MGD annual average flow received at the WWTP, approximately 4.0 MGD are treated through the MBR system, and the rest are treated through ASP. Considering the 0.8 percent per year population growth rate per the City of Redlands General Plan 2035, the projected flows by 2030 are expected to be well below the rated treatment capacity of 9.5 MGD, so an increase in this design capacity would not be required. The proposed project would install a state-of-the-art 9.5 MGD MBR system and eliminate the ASP system, and it would include the necessary improvements for reliability and redundancy.

The *California Environmental Quality Act* (CEQA), as established by statute (*Public Resources Code* §§ 21000 *et seq.)*, requires that the environmental impacts that may occur with the approval of a project by a public agency must be analyzed and evaluated before project approval. The proposed upgrade of the WWTP does not qualify for a Categorical Exemption in accordance with Section 15301 Existing Facilities of the *State CEQA Guidelines* (14 Cal. Code Reg. 15000 *et seq.*). Although the project proposes an upgrade of the existing WWTP with "negligible or no expansion of an existing use," it does not meet the exception criteria in Section 15300.2 Exceptions of the *State CEQA Guidelines*. An Initial Study (IS) (Section 15063) will be prepared for the project to determine its potential environmental impacts. If no or less than significant impacts are expected, the City will adopt a Negative Declaration of the project. If the IS evaluation determines that mitigation measures are needed to reduce impacts to less than significant levels, a Mitigated Negative Declaration (MND) (Section 15070(b)) will be adopted by the City, and the mitigation measures will be incorporated into the project.

2.2. Project Location

Redlands is located at the base of the San Bernardino Mountains in San Bernardino County, 60 miles northeast of Los Angeles and 45 miles west of Palm Springs. Figure 2-1 shows the location of Redlands in a regional context. Redlands lies along the Interstate 10 (I-10) freeway corridor, which links the city with the cities of San Bernardino, Ontario, and Los Angeles to the west and Palm Springs to the east. State Route 210 (SR-210) or the Foothill Freeway originates in Redlands, traverses the northwest part of the city, and heads west towards Pasadena. Within Redlands, the WWTP is located at 1950 Nevada Street, 1.6 miles north of I-10 and 0.6 mile west of SR-210 at an elevation of 1,213 feet above mean sea level. The facility is bounded by the Santa Ana River to the north, the Redlands California Landfill to the west, and vacant land to the south and east. The approach to the WWTP is northwards along Nevada Street. There are no sensitive receptors such as schools, hospitals, or residents in the immediate area of the WWTP. The nearest sensitive receptor is Citrus Valley High School, which is located approximately 0.7 mile southeast of the facility. The WWTP is located on approximately 81 acres of land owned by the City (City of Redlands, 2019a). The approximate location of the project site is Section 17 of Township 1 South, Range 3 West, San Bernardino Base and Meridian on the *Redlands, CA* United States Geologic Survey (USGS) topographic quadrangle (latitude 34.089936°N and longitude -117.215112°W).

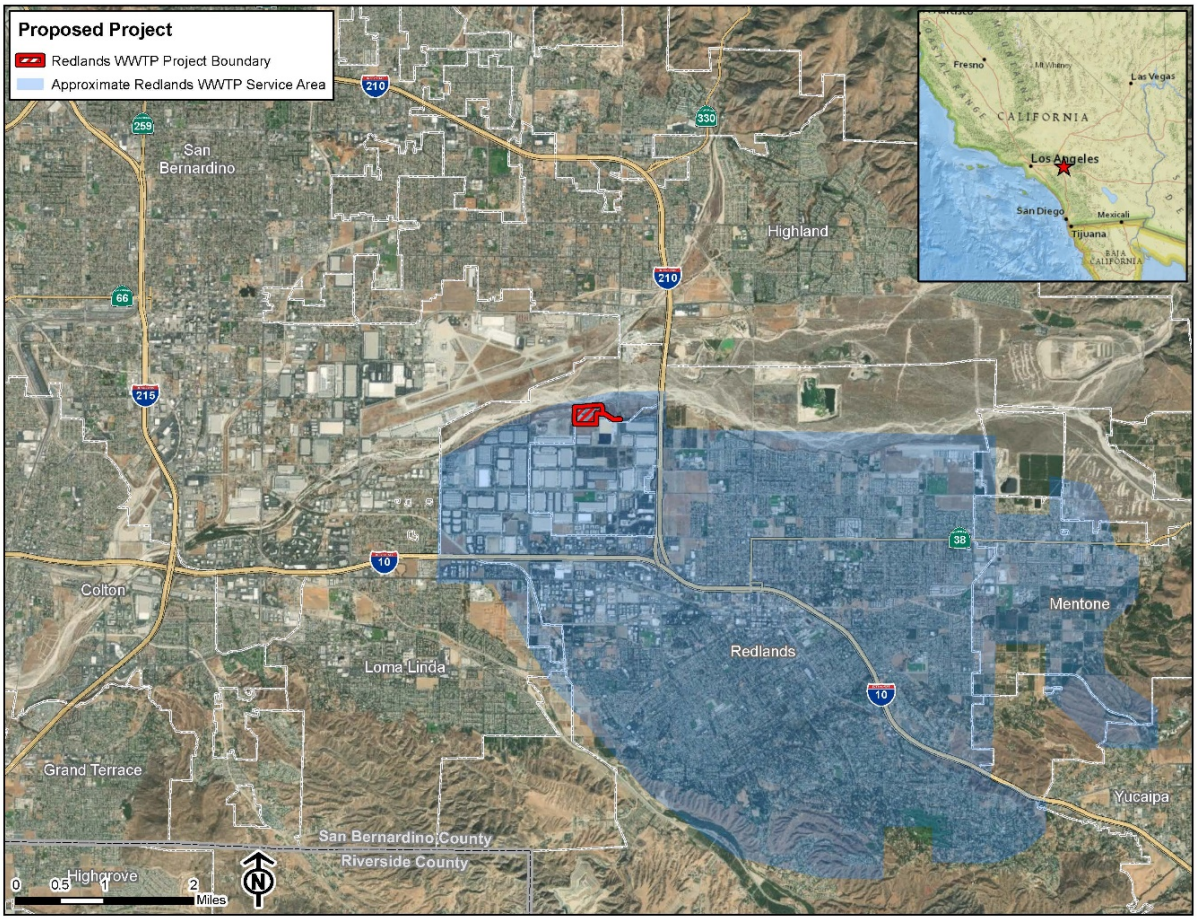

FIGURE 2-1: REGIONAL LOCATION AND WWTP SERVICE AREA

2.3. Background

Since 1962, the City has owned and operated the City of Redlands Water Reclamation Facility. The original WWTP was constructed in 1962. The facility's treatment process consisted of primary sedimentation, secondary treatment by activated sludge and disinfection prior to discharging to the Santa Ana River. Biosolids were anaerobically digested and distributed to sand drying beds. The facility was designed to treat peak flows of 5.0 MGD with average daily flows of 2.4 MGD (City of Redlands, 2018).

In 1971, the California Regional Water Quality Control Board instituted new discharge requirements. The WWTP underwent an extensive expansion and modification. This included a new headworks facility incorporating bar screens and a grit removal system, primary sedimentation tank, trickling filter with clarifier, and a peak storage pond. New aeration basins with activated sludge pumping stations, sludge thickener, and nitrification clarifiers were constructed. A new effluent pump station transferred tertiary effluent to percolation ponds located east of the WWTP for groundwater recharge. A second anaerobic digester was built to treat the additional biosolids. At the end of construction, the design capacity of the plant was 6.0 MGD.

In 1987, under the Immediate Expansion Project, the WWTP received an additional primary sedimentation tank, trickling filter clarifier, peak storage pond, nitrification clarifier, and second

sludge thickener. A third anaerobic digester was constructed and supported by additional sand drying beds. These improvements increased the plant's capacity to 9.0 MGD.

In 2000, concerns, over strained groundwater resources prompted the City to examine new technologies that could produce recycled water that exceeded California Title 22 requirements. By 2004, construction and implementation of an MBR filtration complex and chlorine contact chamber were completed. A chemical storage and distribution complex was also built. The plant's aeration basins were modified to treat for both the MBR and conventional ASP, creating parallel treatment trains within the WWTP. The design flow to the MBR was 6.0 MGD, leaving 3.5 MGD for the conventional treatment side of the WWTP, for a total of 9.5 MGD. Most of the recycled water, approximately 5 MGD, is delivered to the Mountainview Power Plant and utilized for cooling. In 2010, the plant constructed a biosolids handling facility utilizing a centrifuge solids dewatering system.

In 2020, breakdowns of various facilities at the WWTP required the replacement of membranes and air scour blowers in the MBR, boilers for the digesters, and the fine screens. In addition, new gas conditioning equipment was installed. These replacements and equipment provided the WWTP with the required operating capacity to serve existing loads, as well as improve system reliability and efficiency while avoiding a potential shutdown of the facility.

The facility can process 9.5 MGD and is currently processing approximately 5.8 MGD (City of Redlands, 2019a). Considering the 0.8 percent per year population growth rate per the City of Redlands General Plan 2035, the projected flows by 2030 are expected to be well below the rated treatment capacity of 9.5 MGD, so an increase in this design capacity would not be required, but improvements for reliability and redundancy would ensure that effluent quality requirements would be consistently met.

2.4. Existing WWTP

The existing WWTP is a Class V wastewater treatment plant that consists of 6.0-MGD MBR and 3.5-MGD conventional ASP treatment processes. It also has tertiary treatment that produces high-quality chlorinated reclaim water that meets Title 22 requirements. Figure 2-2 shows a plan view of the existing WWTP, including the force main pipeline. Sewer collections are first fed into headworks, which is then pumped through primary clarifiers and then into peak ponds. Peak ponds serve as equalization tanks at the facility. From the peak ponds, primary effluent is pumped to ASP and MBR. Typically, approximately 20 to 30 percent of primary effluent is fed into ASP and the remaining flow is fed into MBR. Four 200-horsepower (HP) motor-operated centrifugal blowers supply process air to three MBR and three ASP aeration tanks. Mostly two of the four blowers are continuously in operation to suffice oxygen demand. Additionally, there are three high-speed turbo blowers for MBR membrane scouring, and two out of the three blowers are continuously in operation. The operation is cycled between the three blowers to ensure even wear of the equipment.

MBR permeate is then pumped to the plant's chlorine contact tanks for disinfection. This disinfected reclaimed water is used at Edison's Mountainview Power Plant cooling towers, the City's landfill site, and other approved industrial landscape sites. After secondary clarifiers, ASP secondary effluent goes to the secondary effluent pump station and is then pumped to eight percolation ponds. A force main pipeline conveys treated wastewater from the plant to the percolation ponds. If the demand at the Mountainview power plant is not that high, disinfected reclaimed water also overflows to the ASP secondary effluent pump station.

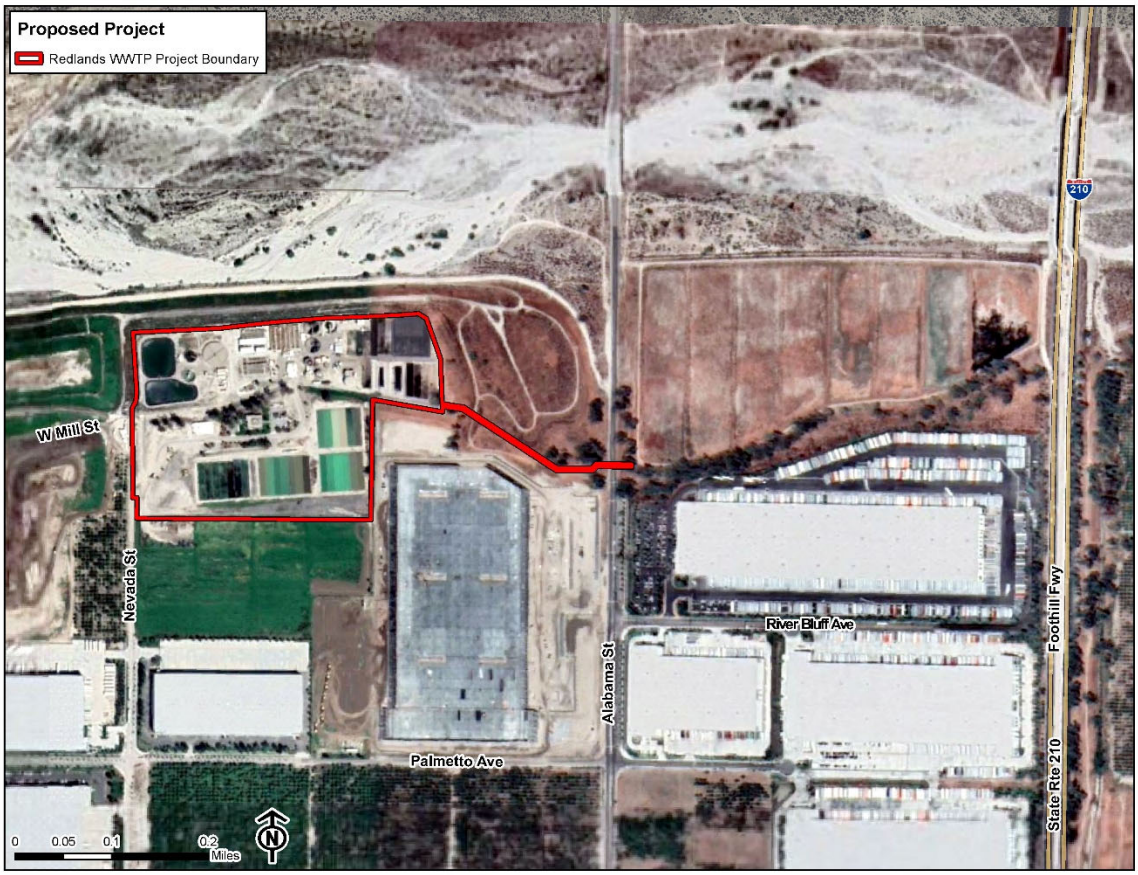

FIGURE 2-2: CITY OF REDLANDS EXISTING WWTP (INCLUDING FORCE MAIN PIPELINE)

Solids from the primary and secondary treatment processes are pumped to the solids handling part of the facility. This facility includes two dissolve air floatation tanks, three anaerobic digesters, one digested sludge storage tank, and two centrifuges. Anaerobically digested sludge is dewatered by centrifuge. Cake generated from centrifuge is classified as Class B biosolids. They are hauled to a local composting facility and the City's landfill when necessary. Lastly, the digester gas containing 64 percent methane is used in boilers to heat the digesters, and the excess is flared off.

2.5. Purpose of the Project

The purpose of the proposed project is to complete an assessment of the wastewater treatment process components, make recommendations for improvements or repairs necessary to handle existing inflow based on the assessment, prepare an implementation plan for suggested work, and complete the design of resulting projects(s) to maintain the WWTP at its current capacity and allow the City to forgo future improvements for the next 20 to 30 years.

2.6. Description of the Proposed Action

The proposed project would involve upgrading the existing WWTP with a state-of-the-art 9.5 MGD MBR system and include the necessary improvements for reliability and redundancy. The proposed physical changes to the WWTP are shown in Figure 2-3 and described herein. Following is a description of the proposed upgrades and improvements.

1. **Headworks.** In the motor control center (MCC), a new gas detection system and alarms are proposed. The air compressor in front of the MCC enclosure would be relocated to comply with work space code compliance. A supervisory control and data acquisition (SCADA) interface for headworks equipment would be provided. The current headworks MCC and deteriorated concrete at beam pockets would be replaced. A new biotrickling filter odor control system, along with two washer-compactors for screenings and two washer/classifiers for grit, would be installed. The Parshall Flume and raw sewage pumps would also be replaced and a new prefabricated building on a 400-square-foot slab on grade for the MCC constructed.
2. **Primary Clarification and Pumping.** A new ferric chloride dosing pump for flow/load proportional control to avoid excessive corrosion would be installed. A new SCADA interface for the primary clarifiers would also be installed. Replacement of the chain and flight mechanism for Clarifier #2 would be completed to enable the clarifier to be put back into service. The sludge pumps, collectors and drives, and equipment (including MCC) would be replaced. In addition, a new ferric chloride storage tank would be provided, along with the recoating of the concrete ferric chloride containment area, ventilation of the primary sludge pump room, and construction of a new prefabricated building on a 400-square-foot slab on grade.
3. **Peak Storage Ponds and Pump Station.** A new mixing system would maintain a uniform mixture of contents in the ponds, and the oldest pumps would be replaced. Proper pedestrian access (ingress/egress) to the bottom of the peak storage ponds would be constructed to alleviate safety concerns for maintenance staff. The MCC in the peak pond pump station would be replaced and the control strategy updated to add status and alarm signals to the SCADA. A new prefabricated building on a 400-square-foot slab on grade would also be constructed.
4. **MBR and Aeration Basins.** The existing 6-MGD MBR system and the existing 3.5-MGD activated sludge system would be upgraded to operate as one single 9.5-MGD state-of-the-art MBR system to comply with the following effluent quality requirements:
   - Turbidity:
     - 0.2 Nephelometric Turbidity Units (NTU) or less 95 percent of the time
     - 0.5 NTU or less 100 percent of the time
   - Total Coliform:
     - 2.2/100 milliliters (mL) 7-day median
     - Not to exceed 23/100 mL more than once in 30 days
     - Not to exceed 200/100 mL at any time
   - Total Inorganic Nitrogen (TIN) $\leq$ 10 milligrams per liter (mg/L)
   - Phosphorous $\leq$ 4 mg/L

   This 9.5-MGD MBR system conversion includes the following major facility upgrades:

   a. **Upgrade of Aeration Basins and Blowers**
      - Three conventional activated sludge (CAS) aeration basins would be converted to serve as pre-aeration tanks for the MBR system to operate at higher mixed liquor suspended solids (MLSS) (8,000 mg/L) and to provide nitrogen removal to meet the TIN – 10 mg/L or less criteria.
      - New baffles would be installed/configured.

- Return activated sludge (RAS) pumps would be upgraded to provide additional capacity for 9.5-MGD MBR.
- New mixed liquor return pumps would be installed for the nitrate return and anoxic mixers.
- Diffusers in the aeration basins would be replaced to suit higher oxygen transfer.
- Upgrades to the blower building to meet code compliance; installation of panic bars on doors; and modification of the heating, ventilation, and air conditioning (HVAC) system would also be completed.
- Piping for aeration blowers would be replaced on the existing CAS train.
- New mud valves for aeration basins would be provided.
- Equipment pad located in the northeast corner of the aeration basins has exposed bottom of the concrete pad. The contractor would fill in the footing cavity with concrete and construct concrete curb around pad to shore the equipment pad.

b. Expand MBR System

- Additional membranes/cassettes would be installed.
- Membrane basins to hold preselected membranes in the existing basins for up to 9.5 MGD annual dry weather flow (ADWF) would be modified.
- Permeate pumps would be replaced to support larger treated flows from MBR.
- Existing backpulse pumps and permeate lines would be modified (Note: MBR system has been sized to handle 13.3-MGD peak flow with one train offline. MBR permeate pumps will be sized to handle 13.3-MGD peak flow with five duty pumps [one standby pump]).

5. Effluent Pump Station Upgrade. The effluent pump station would be upgraded to include an SCADA interface for process analyzers for monitoring and recording. In addition, effluent pump No. 3 and MCC would be replaced, a parallel pipeline to the percolation ponds would be provided, and a new prefabricated building on a 400-square-foot slab on grade would be constructed.

6. *Impure Water Pumps. The impure water pumps below the chlorine contact tanks would be used to deliver water for fine screens cleaning. These pumps may be upgraded to ensure future requirements for washwater/fine screens cleaning are met. In addition, SCADA interface will be provided for the impure water pumps.*

7. *Supernatant Ponds. The MCC would be replaced; struvite management would be improved; and a centrate equalization tank, pumping station, and glass-lined piping to the fine screens would be provided. The supernatant pond lining would also be replaced.*

8. Thickening System Upgrade. The thickened waste activated sludge (TWAS) pumps Nos. 1–4 and dissolved air floatation thickener (DAFT) recycle pump No. 1 would be replaced. In addition, the proposed project would overhaul/replace the internal mechanism for the DAFT No. 1, and SCADA interfaces would be provided for all DAFTs. A new prefabricated building on a 400-square-foot slab on grade would also be constructed.

9. Digestion System Upgrade. Upgrades to the digestion system include the addition of a new digester and replacement of the boiler/heat exchanger at each digester to provide consistent heating of digesters. SCADA interfaces would be provided for all digesters as well.

10. **Recycled Water Pump Station.** Recycled water pump No. 1 would be replaced.

11. **Dewatering System.** A new silo and sludge conveyor system for transferring dewatered sludge from the centrifuges for direct loading onto sludge hauling trailers/trucks would be provided, and the dewatering sludge feed pump No. 1 and dewatering grinder No. 1 would be replaced. The small centrifuge would also be replaced to match large centrifuge capacity and SCADA interfaces for centrifuges installed.

12. **Plantwide Instrument and Control (I&C) and SCADA System Upgrades.**
    a. The existing SCADA system would be upgraded and expanded to include the following plant processes that are currently not interfaced with SCADA:
        - Headworks equipment
        - Primary clarifiers and sludge pumps
        - Fine screens
        - DAFTs
        - Primary and secondary digesters
        - Dewatering centrifuges
        - Impure water pumps
        - Waste gas flare
        - Gas conditioning system
    b. Process area status and alarms would be added on plant SCADA for the headworks, peak pond pumps, aeration basin mixers, RAS and waste activated sludge (WAS) pumps, secondary clarifiers, effluent pumps, recycled water pumps and SCADA communication health. The programmable logic controller (PLC)/SCADA communication network cables would be converted to Device Level Ring (DLR) topology, with the latest controllers and communications throughout the plant.
    c. Existing plant control strategies would be modified and optimized to meet the City's operational requirements.
    d. Existing piping and instrumentation diagrams (P&IDs) for facilities being modified would be updated.
    e. Calibration stickers on all instruments would be updated or provided.

13. **Plantwide Electrical System Upgrades**. The proposed project would replace the following electrical equipment:
    a. Switchboard M replacement
    b. MCC replacements
    c. Additional modifications/changes to existing MCCs:
        - Headworks equipment
        - Primary clarifiers and sludge pumps
        - Primary clarifier sludge pump room ventilation
        - Process equipment replacement

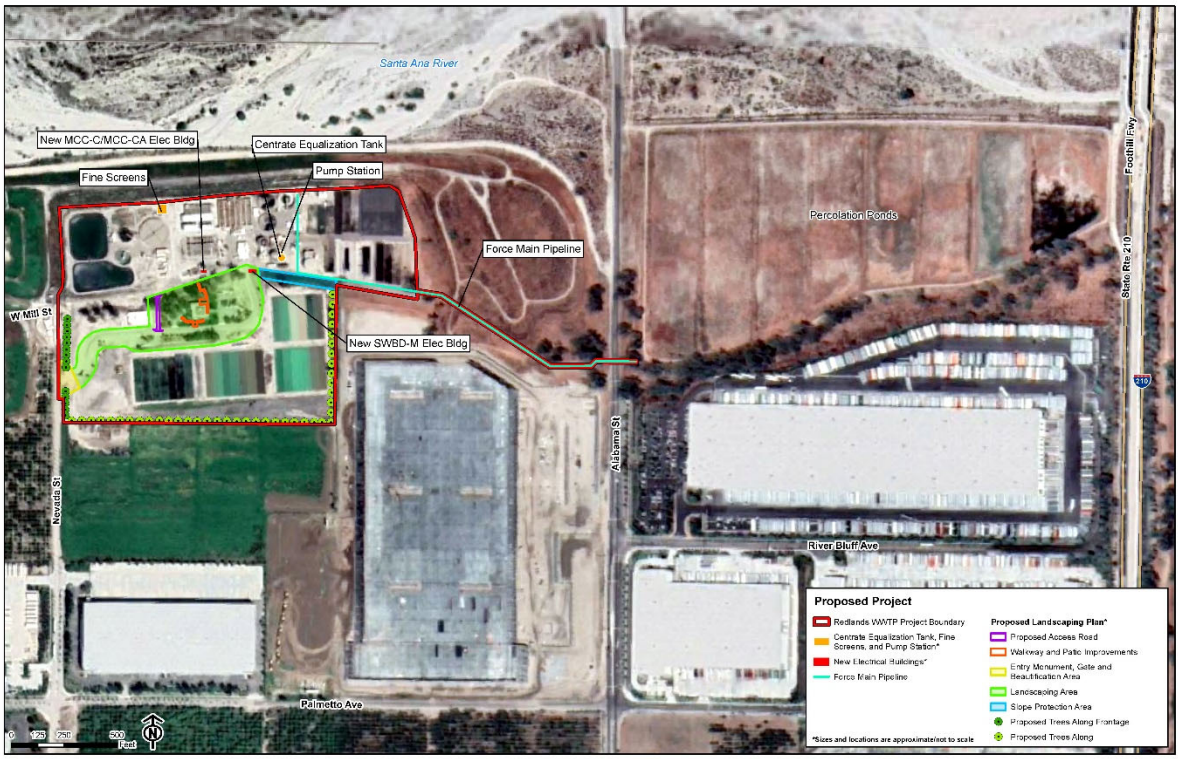

FIGURE 2-3: MODIFICATIONS TO THE EXISTING WWTP

14. **Redundant Pipelines.** To increase system reliability, new/redundant pipelines would be constructed for the following key critical pipelines:
    - An approximately 300-foot-long pipe from the headworks at the center of the plant, running northeasterly and then northerly to tie to the primary clarifiers.
    - A new 375-foot-long pipe generally extending westerly from the primary clarifiers to the peak storage ponds at the northwestern section of the plant.
    - A 220-foot-long pipe along the northern edge of the plant from aeration basins to membrane basins to accommodate increased flows to the MBR process.
    - An approximately 1,200-foot-long, 27-inch-diameter force main pipeline from the effluent pump station southerly and then easterly (south of the digesters) through the drying ponds approximately 10 feet from and roughly parallel to the existing pipeline and across Alabama Street to the southwest corner of the percolation ponds. The new pipeline will end in a valve vault with a tee between the two pipelines before the first percolation pond.

Trenching for these pipelines will be a maximum of approximately 15 feet wide and 15 feet deep.

15. **Landscape Architecture.** Demolition plans, as well as new construction, planting, and irrigation plans, would be included in the proposed project for landscaping and site improvements. Landscaping would include approximately 50 trees along the east side of the frontage road and along the southern and eastern perimeter of the facility. Beautification and an entry monument are proposed at the Nevada Street entrance. Other site improvements include general landscaping along the existing access road off Nevada Street; walkway and patio improvements, along with informational exhibits; and

another small access road west of the main operations building. Approximately 4,000 linear feet of trenching for utilities (i.e., irrigation systems) would be required at a maximum depth of 5 feet.

2.7. Construction

The proposed upgrades and improvements to the WWTP would require construction (i.e., demolition, excavation, and grading) within the existing plant boundaries and along the alignment of the existing force main to install a redundant pipeline from the WWTP to the percolation ponds. Construction vehicles, equipment, and materials would be staged at the WWTP and would require road closure for installation of the redundant pipeline across Alabama Street.

Construction of the upgrades and improvements is estimated to require approximately 24 months and would include earthwork on approximately 68,000 square feet. Project construction would require approximately 6,500 linear feet of utility trenching. Utility work would typically include trenching to a maximum depth of 15 feet in a corridor approximately 15 feet wide. Five new prefabricated buildings would be installed, each of which would be approximately 400 square feet in area. Excavations of up to 2 feet would be required for foundation work.

2.8. Operation

Operation of the WWTP would continue to be managed by the City. The facility currently employs a staff of 23 plus 6 operator-in-training volunteers and operates on a continuous basis – 24 hours per day, 7 days per week (City of Redlands, 2019a). For this CEQA analysis, no additional personnel are anticipated to be required to support the proposed project.

2.9. Cumulative Projects

The May 2021 listing of major projects in Redlands was reviewed to identify projects that are ongoing, planned, approved, or under construction near the project site. Projects within 1 mile of the WWTP include:

- Bergamot Specific Plan (TTM 20336) – Subdivision of 58 acres on the north side of Domestic Avenue, west of Texas Street, and east of I-210 into 317 single-family lots with 10 acres for parks, roadways, and infrastructure. This project is in process.
- Heritage Specific Plan (TTM 20257) – Subdivision of 37 acres on the west side of Texas Street, north of San Bernardino Avenue, and south of Pioneer Avenue into 207 single-family lots. This project is under construction.
- Starlite Management-17 (Tract 17022) – Subdivision of 4.3 acres on the northeast corner of West Pioneer Avenue and Texas Street into 12 residential lots for single-family residences. This project is in process.

2.10. Other Agencies Whose Approval is Required

The planning and regulatory agencies shown in Table 2-1 have potential permit or approval authority for the proposed action.

TABLE 2-1: PLANNING AND REGULATORY AGENCIES WITH PERMIT OR APPROVAL AUTHORITY

AGENCY	PERMIT OR APPROVAL AUTHORITY
California Department of Transportation, Transportation Permits Issuance Branch	Permit for transport of heavy construction vehicles on State Highways
State Water Resources Control Board	Stormwater Pollution Prevention Plan; State Revolving Fund Loan Review and Approval
California Regional Water Quality Control Board	National Pollutant Discharge Elimination System Permit and Waste Discharge Requirements
City of Redlands Building & Safety Division	Building Permits
South Coast Air Quality Management District	Permit to Construct; Permit to Operate (new equipment including MBR process and boilers)

2.11. State Revolving Fund Loan

The City will apply for an SRF loan from the SWRCB. The SRF Loan Program is partially funded by EPA and subject to federal environmental regulations, including the Endangered Species Act (ESA), the National Historic Preservation Act (NHPA), and the General Conformity Rule for the CAA. EPA has chosen to use CEQA as the compliance base for California's SRF Loan Program, in addition to compliance with the ESA, NHPA, and CAA. The SWRCB calls these requirements CEQA-Plus.

The SWRCB Division of Financial Assistance is a Responsible Agency that will act on behalf of EPA to review and consider the CEQA document before approving the project's funding. The SWRCB will determine the adequacy of the CEQA document and seek concurrence from federal agencies on compliance with federal crosscutting regulations. The CEQA document is also transmitted to the State Clearinghouse for State agency review before the SWRCB begins consultation with federal agencies for concurrence.

Additional environmental analyses are required for federal compliance associated with the CEQA-Plus process for the SRF loan application for the proposed upgrade and expansion of the WWTP. The environmental analyses for applicable federal consultation processes are underway and will be included in the CEQA-Plus documentation that will accompany the SRF loan application.

3.0 Existing Air Quality

Air quality is characterized by the existing concentrations of various air pollutants, and the climatic and meteorological conditions within an area. Precipitation, wind direction and speed (horizontal airflow), and atmospheric stability (vertical airflow) are factors that determine the extent of pollutant dispersion.

3.1. Meteorological Conditions

The topography and climate of southern California combine to create an area of high air pollution potential in the South Coast Air Basin (SCAB). During summer, a warm air mass frequently descends over the cool, moist marine layer, forming a cap over the cool marine layer that prevents polluted air from dispersing upward. This inversion allows pollutants to accumulate in the lower layer. Light winds during the summer further limit ventilation, exacerbating the concentration of pollutants. The low average wind speeds in the summer and a persistent daytime temperature inversion create an opportunity for emissions of hydrocarbons and oxides of nitrogen to combine with sunlight in a complex series of reactions. These reactions produce a photochemical oxidant commonly known as smog. Because the SCAB experiences more days of sunlight than most other major urban areas in the United States, the smog potential in the region is higher than in most other areas of the nation.

The major factors affecting local air pollution conditions in the project area are the extent and types of both regional and local emissions, climate, and meteorology. The climate of Redlands is characterized by sparse winter rainfall and hot summers, tempered by cool ocean breezes. The climate in Redlands, as in most of southern California, is controlled largely by the strength and position of the subtropical high-pressure cell over the Pacific Ocean. This cell produces a typical Mediterranean climate with warm summers, mild winters, and moderate rainfall. This pattern is infrequently interrupted by periods of extremely hot weather brought in by Santa Ana winds originating in the desert.

Meteorological data from a weather station location in Redlands (WRCC, 2019) have indicated that an average high of 94.5 degrees Fahrenheit (°F) occurs during the summer months and an average low of 39.4 °F occurs in the winter months. The average annual maximum temperature is 78.1 °F, and the average annual minimum temperature is 49.2 °F. Very little or no rainfall occurs during the summer months. Rainfall typically occurs from November through April, providing an average annual rainfall of 13.6 inches. Wind rose data for Redlands (MRCC, 2021) indicates that the average wind speed is 2.1 meters per second with the winds predominantly blowing from the west–northwest and southeast.

3.2. Criteria Air Pollutants and Standards

Criteria air pollutants are six major pollutants for which EPA has established NAAQS, pursuant to health-based criteria (Table 3-1). The six criteria air pollutants are O_3, particulate matter (PM; both fine [$PM_{2.5}$ – particulates under 2.5 microns] and coarse [PM_{10} – particulates under 10 microns]), nitrogen dioxide (NO_2), carbon monoxide (CO), sulfur dioxide (SO_2), and lead (Pb). O_3 is not directly emitted by air pollutant sources but forms from VOC and NO_X reacting in the atmosphere in the presence of sunlight. Criteria air pollutants cause or contribute to air pollution that could endanger the public health or welfare.

TABLE 3-1: NATIONAL AMBIENT AIR QUALITY STANDARDS

POLLUTANT	AVERAGING TIME	FEDERAL STANDARDS	
		PRIMARY	SECONDARY
Ozone (O_3)	8 Hour	0.070 ppm	Same as Primary Standard
Particulate Matter (PM_{10})	24 Hour	150 µg/m^3	Same as Primary Standard
Particulate Matter ($PM_{2.5}$)	24 Hour	35 µg/m^3	Same as Primary Standard
	Annual Arithmetic Mean	12 µg/m^3	15 µg/m^3
Carbon Monoxide (CO)	8 Hour	9 ppm (10 mg/m^3)	None
	1 Hour	35 ppm (40 mg/m^3)	
Nitrogen Dioxide (NO_2)	Annual Arithmetic Mean	0.053 ppm (100 µg/m^3)	Same as Primary Standard
	1 Hour	100 ppb	None
Lead	Rolling three-month average	0.15 µg/m^3	Same as Primary Standard
Sulfur Dioxide (SO_2)	1 hour	75 ppb	Primary
	3 Hour	0.5 ppm	Secondary

Notes: µg/m^3 – micrograms per cubic meter; ppm – parts per million; ppb – parts per billion.
Source: EPA, 2019.

The primary NAAQS standards establish the level of air quality necessary to allow an adequate margin of safety to protect public health. The secondary NAAQS standards establish the level of air quality necessary to protect the public welfare from known or anticipated adverse effects of a pollutant. The potential health and welfare effects of these pollutants are well documented.

Areas not meeting ambient air quality standards are designated as being in nonattainment for the specific pollutant causing the violation. The CAA Amendments of 1990 further classified O_3, CO, and PM nonattainment areas based on the magnitude of the problem. Depending on the classification (e.g., O_3: marginal, moderate, serious, severe, or extreme), an area must adopt certain air pollution reduction measures. The classification also determines when the area must achieve attainment.

3.2.1. Ozone

O_3 is not emitted directly into the air but is formed through chemical reactions between natural and man-made emissions of VOC and NO_X in the presence of sunlight. VOC and NO_X are thus referred to as "precursors" of O_3. The level of O_3 in the air depends on the outdoor levels of these organic gases, the radiant energy of the sun, and other weather conditions. The biggest concern with high O_3 concentrations is the damage it causes to human health, vegetation, and many common materials. High O_3 concentrations can cause shortness of breath, coughing, wheezing, headaches, nausea, eye and throat irritation, and lung damage.

3.2.2. Carbon Monoxide

CO is a colorless, odorless, and tasteless toxic gas found naturally in trace quantities in the atmosphere and emitted by any combustion process. At low concentrations, CO affects the central nervous system. At higher concentrations, irritability, headaches, rapid breathing, blurred vision, lack of coordination, nausea, and dizziness can all occur. CO is especially dangerous indoors when ventilation is inadequate; unconsciousness or death can occur.

3.2.3. Nitrogen Dioxide

NO_2 is a reddish-brown to dark brown poisonous gas that produces an irritating odor. It is a byproduct of high-temperature combustion sources such as automotive internal combustion engines. Health effects include damage to lungs, bronchial and respiratory system irritation, headaches, nausea, coughing, choking, and chest pains.

3.2.4. Sulfur Dioxide

SO_2 is a colorless gas with a strong, suffocating odor. SO_2 is generated by burning sulfur-containing fuels. SO_2 can irritate the respiratory system, including the lungs and throat, and can cause nose bleeds. In the presence of moisture, SO_2 can form sulfuric acid that can damage vegetation.

3.2.5. Suspended Particulate Matter

Suspended atmospheric PM of concern to human health includes both PM_{10} and $PM_{2.5}$. Sources of PM_{10} emissions include industrial and agricultural operations, automobile exhaust, and construction. Sources of $PM_{2.5}$ include all types of combustion activities (i.e., motor vehicles, power plants, wood burning) and certain industrial processes. PM_{10} poses a health concern because it can be inhaled and accumulate in the respiratory system. $PM_{2.5}$ is a subset of PM_{10} that is believed to pose the greatest health risks. Because of its small size (approximately 1/30 the average width of a human hair), $PM_{2.5}$ can lodge deeply in the lungs.

3.2.6. Lead

Pb is a bluish-white to silvery gray solid. Pb particles are emitted by industrial sources such as smelters and battery plants. Health effects include decreased motor function, reflexes, and learning, as well as damage to the central nervous system, kidneys, and brain. At high levels of exposure, seizures, coma, or death may occur.

3.3. Air Quality Control Region

Under the federal CAA, California is divided into several Air Quality Control Regions (AQCRs) that, for the most part, represent separate air basins. The proposed action is in the Metropolitan Los Angeles AQCR, which encompasses the counties of Ventura and Orange, and portions of the counties of Los Angeles, Riverside, and San Bernardino. Designated by EPA as AQCR 24, this area is under jurisdiction of the South Coast Air Quality Management District (SCAQMD) and is commonly known as the SCAB. Table 3-2 lists the air emissions estimates for AQCR 24 for 2019.

TABLE 3-2: 2019 EMISSIONS INVENTORY (PROJECTED) FOR AQCR 24 (TONS/DAY)

CO	VOC	NO_X	SO_X	NH_3	$PM_{2.5}$
1,447	376	353	17	74	64

Notes: CO – carbon monoxide, VOC – volatile organic compounds, NO_x – nitrogen oxides, SO_x – sulfur oxides, NH_3 – Ammonia, , $PM_{2.5}$ – particulate matter under 2.5 microns, PM_{10} – particulate matter under 10 microns (not provided)

Source: SCAQMD, 2016.

3.3.1. Attainment Status

Areas not meeting ambient air quality standards are designated as being in nonattainment for the specific pollutant causing the violation. National standards other than for O_3, PM, and those based on annual averages are not to be exceeded more than once per year. The 8-hour O_3 standard is attained when the 3-year average of the annual 4th highest daily concentrations is 0.070 parts per million (ppm) or less. The 24-hour PM_{10} standard is attained when the 3-year

average of the 99th percentile of monitored concentrations is less than 150 micrograms per cubic meter (µg/m³). The 24-hour $PM_{2.5}$ standard is attained when the 3-year average of 98th percentiles is less than 35 µg/m³. Except for the national PM standards, annual standards are met if the annual average falls below the standard at every site. The annual $PM_{2.5}$ standard is met if the 3-year average of annual averages spatially averaged across officially designed clusters of sites falls below the standard.

Ozone

In 1997, EPA promulgated the 8-hour O_3 standard. On April 15, 2004, EPA issued the first 8-hour O_3 designations. Before that date, O_3 attainment designations were determined by the 1-hour O_3 standard of 0.12 ppm. The new 8-hour standard became effective 60 days after promulgation (June 15, 2004), while the previous 1-hour standard, for most purposes, remains in effect until EPA determines an area has air quality meeting the 1-hour standard. According to 40 CFR 81.305, AQCR 24 has been designated as extreme nonattainment for both the 1-hour and 8-hour O_3 standards. Therefore, the applicable *de minimis* threshold to use to determine conformity for O_3 is 10 tons per year (TPY).

Particulate Matter

On January 5, 2005, EPA issued the first $PM_{2.5}$ designations. Before that date, PM attainment designations were determined by the PM_{10} standard of 150 µg/m³. The new $PM_{2.5}$ standard became effective 90 days after promulgation on April 5, 2005, while the existing PM_{10} standard, for most purposes, remains in effect until EPA determines an area has air quality meeting the PM_{10} standard.

According to 40 CFR 81.305, AQCR 24 has been designated as nonattainment for $PM_{2.5}$ and redesignated attainment (or maintenance) for PM_{10}. Therefore, the applicable *de minimis* threshold to use to determine conformity for particulate matter is 100 TPY for PM_{10} and $PM_{2.5}$.

Nitrogen Dioxide

According to 40 CFR 81.305, AQCR 24 has been designated as a maintenance area for NO_2. As a precursor to O_3, the applicable *de minimis* threshold to use to determine conformity is 10 TPY.

Sulfur Dioxide

According to 40 CFR 81.305, AQCR 24 has been designated as in attainment of national standards for SO_2. There is no applicable *de minimis* threshold as conformity is not required for attainment areas.

Carbon Monoxide

According to 40 CFR 81.305, AQCR 24 has been designated as a maintenance area for CO. The applicable *de minimis* threshold to use to determine conformity is 100 TPY.

Lead

According to 40 CFR 81.305, AQCR 24 – except for a portion of Los Angeles County - has been designated as unclassified/attainment for Pb. There is no applicable *de minimis* threshold as conformity is not required for unclassified/attainment areas.

4.0 Analysis and Results

This section includes a comprehensive analysis of the potential air pollutant emissions from the proposed action. The purpose of this analysis is to determine whether the proposed action would conform to the SIP as specified in Section 176(c) of the CAA. A positive conformity determination can be demonstrated by determining that the proposed action does not increase emissions with respect to the current emissions. A discussion of the overall analytical methodology, emission changes by sources, and a conclusion of General Conformity are presented in this chapter. Exhibit A contains supporting air pollutant emission calculations.

4.1. Conformity Determination Methodology

4.1.1. Analytical Methods

The methods for the General Conformity analysis for the proposed action consisted of the following steps: (1) determine the air pollutants of concern based on the attainment status of the air basin; (2) define the scope of the proposed action; (3) calculate construction-related and operational emissions based on the scope; (4) review net emission changes for *de minimis* threshold levels; (5) determine conformity for applicable criteria air pollutants. The California Emissions Estimator Model, version 2016.3.2 (CalEEMod) was used to calculate construction emissions and mobile source emissions for project operations. Because the design capacity for wastewater flows would be the same, it is assumed that VOC emissions would remain unchanged.

4.1.2. Pollutants of Concern

The area affected by the proposed action is in extreme nonattainment of the 8-hour O_3 standard, as described in Section 3.3.1.1, and maintenance for PM_{10} and nonattainment for $PM_{2.5}$, as described in Section 3.3.1.2. Consequently, direct and indirect emissions of VOC and NO_X (precursors to O_3), as well as emissions of PM_{10} and $PM_{2.5}$, resulting from the proposed action, are subject to a conformity determination. Thus, the conformity analysis will focus on these pollutants.

4.1.3. Applicability

As discussed in Section 1.3.1, the proposed action conforms for a criteria pollutant if the emissions for that pollutant do not exceed the *de minimis* thresholds specified in the Final Conformity Rule (see Table 1-1). Conversely, if the total direct and indirect emissions of a pollutant exceed its *de minimis* threshold, a formal General Conformity Determination is required for that pollutant.

4.2. Changes in Air Pollutant Emissions from the Proposed Action

The proposed action would affect the total amount of emissions from several categories of sources. The analysis includes all sources subject to the change in emission rates, exclusive of any stationary sources that are subject to review and that may require a permit under New Source Review (NSR) or Prevention of Significant Deterioration (PSD) regulations. As shown in Table 2-1, the sewage treatment plant and boilers will require air permits from SCAQMD under NSR, so operational emissions from these sources have not been included in this conformity analysis. Emissions associated with the proposed action that are not covered by NSR are included in the analysis, such as emissions from construction equipment; workers trips and haul trips. Because the numbers of plant operators would remain the same, there would not be any additional operational emissions resulting from this project.

4.2.1. Construction

Emissions from construction activities are considered area emissions, although short-term, while emissions from vehicles supporting construction are considered mobile sources.

Methods

CalEEMod was used to estimate construction air pollutant emissions from the proposed action. CalEEMod does not provide default values for construction or operation of WWTP operations. The Light Industry land use type was selected for the facility, and project-specific values were entered for construction schedule, lot acreage (earthwork footprint), building footprints, amounts of grading and site prep material imported and exported, and acres of paving and grading. Model defaults were utilized for construction equipment and construction worker and haul truck trips. CalEEMod output files are provided in Appendix A. Pollutant selections for greenhouse gases, such as carbon dioxide, methane, and nitrous oxides, were not made because these pollutants are not within the scope of the conformity analysis.

Construction is estimated to span approximately 24 months starting in October 2022 and ending in September 2024. It would include earthwork on approximately 68,000 square feet and approximately 1,462,500 cubic yards of cut based on a total linear cut of 6,500 feet and 15 feet by 15 feet cross-section of cut (see Section 2.7). It is assumed that sufficient cut volume would be generated to meet the backfill requirements of the site with 20 cubic yards of unwanted waste debris exported for disposal. Further refinements of cut and fill volumes will be developed as the design and site layout are finalized. Paving is anticipated to total approximately 77,000 square feet, and concrete pavement is anticipated to total approximately 257,300 square feet.

Results

Table 4-1 summarizes the criteria air pollutant and precursor emissions anticipated from construction activities. The proposed action's construction emissions would be generated over approximately 24 months.

TABLE 4-1. ESTIMATED AIR POLLUTANTS EMITTED DURING CONSTRUCTION

EMISSIONS SOURCE, METRIC	EMISSIONS BY CRITERIA POLLUTANT OR PRECURSOR					
	CO	NOX	VOC	SOX	PM10	PM2.5
2022 (tons)	**0.58**	**0.65**	**0.07**	**0.00**	**0.07**	**0.05**
2023 (tons)	**1.75**	**1.60**	**0.22**	**0.00**	**0.07**	**0.07**
2024 (tons)	**0.63**	**0.63**	**0.07**	**0.00**	**0.02**	**0.02**
Total Construction, tons	**2.96**	**2.81**	**0.36**	**0.00**	**0.16**	**0.14**
de minimis Threshold, TPY[1]	100	10	10	NA	100	100
Exceed *de minimis* Threshold?	No	No	No	NA	No	No
Average, pounds per day	**33.4**	**43.4**	**4.5**	**0.06**	**13.2**	**7.4**
MDT, pounds per day[2]	550	100	75	150	150	75
Exceed MDT?	No	No	No	No	No	No

Notes: CO = carbon monoxide, NO_x = nitrogen oxides, VOC = volatile organic compounds, SO_x = sulfur oxides, PM_{10} and $PM_{2.5}$ = particulate matter less than or equal to 10 microns and 2.5 microns in diameter, respectively, TPY = tons per year. MDT = SCAQMD Mass Daily Thresholds for construction, intended to determine whether project impacts are regionally significant.

1. See Table 1-1 for *de minimis* thresholds
2. SCAQMD, 1993. Air Quality Significance Thresholds

Source: Parsons. 2021. CalEEMod Output Files. TPY numbers from the Annual Report (Exhibit A), pounds per day numbers from the Summer Report (Exhibit B)

4.2.2. Operation

After the proposed WWTP upgrade and modernization is completed, the design flow would remain the same, so there would not be any change in the operational emissions. The number of personnel operating the WWTP and chemical truck deliveries would remain the same after completion of construction. Therefore, there would be no combustion or particulate matter emissions that would be associated with personnel and delivery trucks traveling to the project site during operation. Operational emissions from the three digester gas-fired boilers have not been included in this conformity analysis because they would be subject to the NSR permitting requirements of SCAQMD and are excluded from this analysis. Because these newer boilers would be subject to SCAQMD Best Available Control Technology requirements, their emissions would be lower than the existing boilers.

4.2.3. Summary of Results

Table 4-1 compares construction emissions to SCAQMD's Mass Daily Thresholds (MDT) and indicates that construction emissions would not exceed these thresholds. Operational emissions would be the same as the existing baseline conditions because the post-modification design flow remains the same.

4.3. Conformity Determination

To determine whether a full General Conformity determination is necessary, construction and operational emissions are compared to General Conformity *de minimis* thresholds. A proposed action conforms to the applicable SIP when criteria pollutants do not exceed their respective *de minimis* thresholds of 100 TPY for CO, PM_{10}, and $PM_{2.5}$ and 10 TPY for VOC and NO_X. As discussed in Section 4.2, emissions from the proposed action would not exceed these thresholds.

The location of the proposed WWTP has three other reasonably foreseeable concurrent projects that could be constructed during the same period as the proposed action. These are briefly described in Section 2.15. These projects taken cumulatively would be consistent with all relevant requirements and milestones contained in the applicable SIP

4.4. Conclusion

The proposed action would be implemented in an area designated as extreme nonattainment for 8-hour O_3, nonattainment for $PM_{2.5}$, and maintenance for CO, NO_X, and PM_{10}. Thus, this conformity determination focuses on only the criteria pollutants of PM_{10}, $PM_{2.5}$, VOC, CO, and NO_X.

The analysis of direct and indirect emission changes from mobile and stationary sources and reasonably foreseeable and controllable actions for the proposed action supports a positive conformity determination. Yearly direct and indirect project PM_{10}, $PM_{2.5}$, VOC, CO, and NO_X emissions are below the annual *de minimis* thresholds established for these pollutants. The proposed action would conform to the applicable SIP. The City would support an activity that has been demonstrated by EPA standards not to cause or contribute to new violations of any NAAQS in the affected area, nor would this action increase the frequency or severity of an existing violation. Implementation of the proposed action would not delay timely attainment of any standards in AQCR 24, and the proposed action would be consistent with all relevant requirements and milestones contained in the applicable SIP. This conclusion of General Conformity for the proposed action fulfills the City's responsibilities under 40 CFR Part 93,

Subpart B, Determining Conformity of General Federal Actions to State or Federal Implementation Plans.

5.0 References

[1] California Air Pollution Control Officers Association. 2016. California Emissions Estimator Model 2016.3.2. Available at: http://www.caleemod.com. Accessed on April 30, 2021.

[2] City of Redlands, 2018. RFP for Engineering Services for Wastewater Treatment Plant Facility Assessment.

[3] City of Redlands, 2021. Information on City of Redlands Waste Water Treatment website. Available at https://www.cityofredlands.org/post/wastewater-treatment. Accessed on May 10, 2021.

[4] City of Redlands, 2021. *Major Projects List 2020 (Updated May 6, 2021)*. Available at https://www.cityofredlands.org/sites/main/files/file-attachments/current_projects_list_2q2021_0.pdf. Accessed on May 12, 2021.

[5] 40 Code of Federal Regulations, Part 51 – Requirements for Preparation, Adoption, and Submittal of Implementation Plans.

[6] 40 Code of Federal Regulations, Part 81 – Designation of Areas for Air Quality Planning Purposes.

[7] Midwestern Regional Climate Center, 2021. Cli-MATE Application. Available at https://mrcc.illinois.edu/CLIMATE/welcome.jsp. Accessed on May 13, 2021.

[8] South Coast Air Quality Management District, Air Quality Significance Thresholds, Revision April 2019. Available at: http://www.aqmd.gov/docs/default-source/ceqa/handbook/scaqmd-air-quality-significance-thresholds.pdf?sfvrsn=2. Accessed on May 12, 2021.

[9] South Coast Air Quality Management District, Air Quality Management Plan Chapter 3, 2016. Available at: https://www.aqmd.gov/docs/default-source/clean-air-plans/air-quality-management-plans/2016-air-quality-management-plan/final-2016-aqmp/chapter3.pdf?sfvrsn=4. Accessed on May 12, 2021.

[10] United States Environmental Protection Agency. 2012. General Conformity – De Minimis Levels. Available at: https://www.epa.gov/general-conformity/de-minimis-tables. Accessed on May 12, 2021.

[11] United States Environmental Protection Agency. 2019. National Ambient Air Quality Standards (NAAQS). Available at: http://www.epa.gov/criteria-air-pollutants/naaqs-table. Accessed on May 12, 2021.

[12] Western Regional Climatic Center, 2019. *Climate Summary for Redlands, CA*. Available at: https://wrcc.dri.edu/cgi-bin/cliMAIN.pl?ca7306. Accessed on May 10, 2021.

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EXHIBIT A – CALEEMOD OUTPUT ANNUAL

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Redlands WWTP

South Coast Air Basin, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Light Industry	68.00	1000sqft	1.56	2,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	31
Climate Zone	10			**Operational Year**	2024
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Pollutant selections for greenhouse gases such as carbon dioxide, methane and nitrous oxides were not made as these pollutants are not within the scope of the conformity analysis.

Land Use - Lot Acreage is 68,000 sq ft,or 1.56 acres. This is the area on which earthwork will occur. The 2,000 sq. ft. is the total headworks for 5 new prefabricated buildings. (CalEEMOD user manual recommends overriding the square footage if the footprint is known.)

Construction Phase - Assumes a 24 month project, starting October 1, 2022 (per Preliminary Project Schedule in the PMP document, page 48 of 102.)

Demolition - Assumes 20 cu. yd. for site preparation which includes clearing vegetation and unwanted material.

Grading - It is assumed that sufficient fill volume would be generated from trenching to meet the backfill requirements for the site.
Includes 0.4 acres of grading for the project pipeline and 0.9 acres of grading for redundant pipelines.

Trips and VMT - Assumes 20 cu. yd. for site preparation which includes clearing vegetation and unwanted material.

Energy Use -

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	10.00	20.00
tblConstructionPhase	NumDays	200.00	400.00
tblConstructionPhase	NumDays	20.00	40.00
tblConstructionPhase	NumDays	4.00	8.00
tblConstructionPhase	NumDays	10.00	20.00
tblConstructionPhase	NumDays	2.00	4.00
tblConstructionPhase	PhaseEndDate	9/11/2023	9/25/2023
tblConstructionPhase	PhaseEndDate	8/14/2023	5/20/2024
tblConstructionPhase	PhaseEndDate	10/28/2022	11/25/2022
tblConstructionPhase	PhaseEndDate	11/7/2022	11/11/2022
tblConstructionPhase	PhaseEndDate	8/28/2023	9/11/2023
tblConstructionPhase	PhaseEndDate	11/1/2022	11/3/2022
tblGrading	AcresOfGrading	3.00	4.30
tblLandUse	LandUseSquareFeet	68,000.00	2,000.00
tblTripsAndVMT	HaulingTripNumber	0.00	2.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2022	0.0742	0.6549	0.5760	1.0400e-003	0.0358	0.0316	0.0674	0.0171	0.0298	0.0469						
2023	0.2166	1.5984	1.7533	3.0600e-003	2.8500e-003	0.0707	0.0736	7.6000e-004	0.0682	0.0689						
2024	0.0719	0.5588	0.6335	1.1200e-003	5.5000e-004	0.0228	0.0233	1.5000e-004	0.0220	0.0221						
Maximum	**0.2166**	**1.5984**	**1.7533**	**3.0600e-003**	**0.0358**	**0.0707**	**0.0736**	**0.0171**	**0.0682**	**0.0689**						

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2022	0.0742	0.6549	0.5760	1.0400e-003	0.0358	0.0316	0.0674	0.0171	0.0298	0.0469						
2023	0.2166	1.5984	1.7533	3.0600e-003	2.8500e-003	0.0707	0.0736	7.6000e-004	0.0682	0.0689						
2024	0.0719	0.5588	0.6335	1.1200e-003	5.5000e-004	0.0228	0.0233	1.5000e-004	0.0220	0.0221						
Maximum	**0.2166**	**1.5984**	**1.7533**	**3.0600e-003**	**0.0358**	**0.0707**	**0.0736**	**0.0171**	**0.0682**	**0.0689**						

Redlands WWTP - South Coast Air Basin, Annual

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	**10-1-2022**	**12-31-2022**	0.7228	0.7228
2	**1-1-2023**	**3-31-2023**	0.4256	0.4256
3	**4-1-2023**	**6-30-2023**	0.4303	0.4303
4	**7-1-2023**	**9-30-2023**	0.5288	0.5288
5	**10-1-2023**	**12-31-2023**	0.4350	0.4350
6	**1-1-2024**	**3-31-2024**	0.4059	0.4059
7	**4-1-2024**	**6-30-2024**	0.2230	0.2230
		Highest	0.7228	0.7228

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	8.2300e-003	1.0000e-005	8.7000e-004	0.0000		0.0000	0.0000		0.0000	0.0000						
Energy	3.5000e-004	3.1900e-003	2.6800e-003	2.0000e-005		2.4000e-004	2.4000e-004		2.4000e-004	2.4000e-004						
Mobile	0.1028	0.5070	1.5654	6.5900e-003	0.6020	4.7300e-003	0.6067	0.1613	4.3900e-003	0.1657						
Waste						0.0000	0.0000		0.0000	0.0000						
Water						0.0000	0.0000		0.0000	0.0000						
Total	**0.1113**	**0.5102**	**1.5689**	**6.6100e-003**	**0.6020**	**4.9700e-003**	**0.6070**	**0.1613**	**4.6300e-003**	**0.1659**						

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	8.2300e-003	1.0000e-005	8.7000e-004	0.0000		0.0000	0.0000		0.0000	0.0000						
Energy	3.5000e-004	3.1900e-003	2.6800e-003	2.0000e-005		2.4000e-004	2.4000e-004		2.4000e-004	2.4000e-004						
Mobile	0.1028	0.5070	1.5654	6.5900e-003	0.6020	4.7300e-003	0.6067	0.1613	4.3900e-003	0.1657						
Waste						0.0000	0.0000		0.0000	0.0000						
Water						0.0000	0.0000		0.0000	0.0000						
Total	**0.1113**	**0.5102**	**1.5689**	**6.6100e-003**	**0.6020**	**4.9700e-003**	**0.6070**	**0.1613**	**4.6300e-003**	**0.1659**						

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	10/1/2022	11/25/2022	5	40	
2	Site Preparation	Site Preparation	10/29/2022	11/3/2022	5	4	
3	Grading	Grading	11/2/2022	11/11/2022	5	8	
4	Building Construction	Building Construction	11/8/2022	5/20/2024	5	400	
5	Paving	Paving	8/15/2023	9/11/2023	5	20	
6	Architectural Coating	Architectural Coating	8/29/2023	9/25/2023	5	20	

Acres of Grading (Site Preparation Phase): 2

Acres of Grading (Grading Phase): 4.3

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 3,000; Non-Residential Outdoor: 1,000; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Rubber Tired Dozers	1	8.00	247	0.40
Demolition	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Grading	Graders	1	6.00	187	0.41
Grading	Rubber Tired Dozers	1	6.00	247	0.40
Grading	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Building Construction	Cranes	1	6.00	231	0.29
Building Construction	Forklifts	1	6.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Building Construction	Welders	3	8.00	46	0.45
Site Preparation	Graders	1	8.00	187	0.41
Site Preparation	Rubber Tired Dozers	1	7.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Paving	Cement and Mortar Mixers	1	6.00	9	0.56
Paving	Pavers	1	6.00	130	0.42
Paving	Paving Equipment	1	8.00	132	0.36
Paving	Rollers	1	7.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	5	13.00	0.00	2.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	3	8.00	0.00	2.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	7	1.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	3	8.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	5	13.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	0.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Demolition - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					2.1000e-004	0.0000	2.1000e-004	3.0000e-005	0.0000	3.0000e-005						
Off-Road	0.0338	0.3324	0.2792	4.8000e-004		0.0168	0.0168		0.0157	0.0157						
Total	**0.0338**	**0.3324**	**0.2792**	**4.8000e-004**	**2.1000e-004**	**0.0168**	**0.0170**	**3.0000e-005**	**0.0157**	**0.0157**						

3.2 Demolition - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.0000e-005	2.5000e-004	6.0000e-005	0.0000	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0000	1.0000e-005						
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Worker	1.0100e-003	7.2000e-004	8.3800e-003	3.0000e-005	2.8500e-003	2.0000e-005	2.8700e-003	7.6000e-004	2.0000e-005	7.8000e-004						
Total	**1.0200e-003**	**9.7000e-004**	**8.4400e-003**	**3.0000e-005**	**2.8700e-003**	**2.0000e-005**	**2.8900e-003**	**7.6000e-004**	**2.0000e-005**	**7.9000e-004**						

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					2.1000e-004	0.0000	2.1000e-004	3.0000e-005	0.0000	3.0000e-005						
Off-Road	0.0338	0.3324	0.2792	4.8000e-004		0.0168	0.0168		0.0157	0.0157						
Total	**0.0338**	**0.3324**	**0.2792**	**4.8000e-004**	**2.1000e-004**	**0.0168**	**0.0170**	**3.0000e-005**	**0.0157**	**0.0157**						

3.2 Demolition - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.0000e-005	2.5000e-004	6.0000e-005	0.0000	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0000	1.0000e-005						
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Worker	1.0100e-003	7.2000e-004	8.3800e-003	3.0000e-005	2.8500e-003	2.0000e-005	2.8700e-003	7.6000e-004	2.0000e-005	7.8000e-004						
Total	**1.0200e-003**	**9.7000e-004**	**8.4400e-003**	**3.0000e-005**	**2.8700e-003**	**2.0000e-005**	**2.8900e-003**	**7.6000e-004**	**2.0000e-005**	**7.9000e-004**						

3.3 Site Preparation - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0116	0.0000	0.0116	5.9100e-003	0.0000	5.9100e-003						
Off-Road	2.6200e-003	0.0293	0.0142	3.0000e-005		1.2500e-003	1.2500e-003		1.1500e-003	1.1500e-003						
Total	**2.6200e-003**	**0.0293**	**0.0142**	**3.0000e-005**	**0.0116**	**1.2500e-003**	**0.0129**	**5.9100e-003**	**1.1500e-003**	**7.0600e-003**						

3.3 Site Preparation - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Worker	6.0000e-005	4.0000e-005	5.2000e-004	0.0000	1.8000e-004	0.0000	1.8000e-004	5.0000e-005	0.0000	5.0000e-005						
Total	**6.0000e-005**	**4.0000e-005**	**5.2000e-004**	**0.0000**	**1.8000e-004**	**0.0000**	**1.8000e-004**	**5.0000e-005**	**0.0000**	**5.0000e-005**						

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0116	0.0000	0.0116	5.9100e-003	0.0000	5.9100e-003						
Off-Road	2.6200e-003	0.0293	0.0142	3.0000e-005		1.2500e-003	1.2500e-003		1.1500e-003	1.1500e-003						
Total	**2.6200e-003**	**0.0293**	**0.0142**	**3.0000e-005**	**0.0116**	**1.2500e-003**	**0.0129**	**5.9100e-003**	**1.1500e-003**	**7.0600e-003**						

3.3 Site Preparation - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Worker	6.0000e-005	4.0000e-005	5.2000e-004	0.0000	1.8000e-004	0.0000	1.8000e-004	5.0000e-005	0.0000	5.0000e-005						
Total	**6.0000e-005**	**4.0000e-005**	**5.2000e-004**	**0.0000**	**1.8000e-004**	**0.0000**	**1.8000e-004**	**5.0000e-005**	**0.0000**	**5.0000e-005**						

3.4 Grading - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0204	0.0000	0.0204	0.0102	0.0000	0.0102						
Off-Road	4.3300e-003	0.0480	0.0237	6.0000e-005		2.0700e-003	2.0700e-003		1.9000e-003	1.9000e-003						
Total	**4.3300e-003**	**0.0480**	**0.0237**	**6.0000e-005**	**0.0204**	**2.0700e-003**	**0.0224**	**0.0102**	**1.9000e-003**	**0.0121**						

3.4 Grading - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.0000e-005	2.5000e-004	6.0000e-005	0.0000	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0000	1.0000e-005						
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Worker	1.2000e-004	9.0000e-005	1.0300e-003	0.0000	3.5000e-004	0.0000	3.5000e-004	9.0000e-005	0.0000	1.0000e-004						
Total	**1.3000e-004**	**3.4000e-004**	**1.0900e-003**	**0.0000**	**3.7000e-004**	**0.0000**	**3.7000e-004**	**9.0000e-005**	**0.0000**	**1.1000e-004**						

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0204	0.0000	0.0204	0.0102	0.0000	0.0102						
Off-Road	4.3300e-003	0.0480	0.0237	6.0000e-005		2.0700e-003	2.0700e-003		1.9000e-003	1.9000e-003						
Total	**4.3300e-003**	**0.0480**	**0.0237**	**6.0000e-005**	**0.0204**	**2.0700e-003**	**0.0224**	**0.0102**	**1.9000e-003**	**0.0121**						

3.4 Grading - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.0000e-005	2.5000e-004	6.0000e-005	0.0000	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0000	1.0000e-005						
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Worker	1.2000e-004	9.0000e-005	1.0300e-003	0.0000	3.5000e-004	0.0000	3.5000e-004	9.0000e-005	0.0000	1.0000e-004						
Total	**1.3000e-004**	**3.4000e-004**	**1.0900e-003**	**0.0000**	**3.7000e-004**	**0.0000**	**3.7000e-004**	**9.0000e-005**	**0.0000**	**1.1000e-004**						

3.5 Building Construction - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0322	0.2438	0.2482	4.3000e-004		0.0115	0.0115		0.0111	0.0111						
Total	**0.0322**	**0.2438**	**0.2482**	**4.3000e-004**		**0.0115**	**0.0115**		**0.0111**	**0.0111**						

3.5 Building Construction - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Worker	8.0000e-005	5.0000e-005	6.3000e-004	0.0000	2.1000e-004	0.0000	2.2000e-004	6.0000e-005	0.0000	6.0000e-005						
Total	**8.0000e-005**	**5.0000e-005**	**6.3000e-004**	**0.0000**	**2.1000e-004**	**0.0000**	**2.2000e-004**	**6.0000e-005**	**0.0000**	**6.0000e-005**						

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0322	0.2438	0.2482	4.3000e-004		0.0115	0.0115		0.0111	0.0111						
Total	**0.0322**	**0.2438**	**0.2482**	**4.3000e-004**		**0.0115**	**0.0115**		**0.0111**	**0.0111**						

3.5 Building Construction - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Worker	8.0000e-005	5.0000e-005	6.3000e-004	0.0000	2.1000e-004	0.0000	2.2000e-004	6.0000e-005	0.0000	6.0000e-005						
Total	**8.0000e-005**	**5.0000e-005**	**6.3000e-004**	**0.0000**	**2.1000e-004**	**0.0000**	**2.2000e-004**	**6.0000e-005**	**0.0000**	**6.0000e-005**						

3.5 Building Construction - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1980	1.5224	1.6394	2.8700e-003		0.0669	0.0669		0.0646	0.0646						
Total	**0.1980**	**1.5224**	**1.6394**	**2.8700e-003**		**0.0669**	**0.0669**		**0.0646**	**0.0646**						

3.5 Building Construction - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Worker	4.8000e-004	3.3000e-004	3.8600e-003	1.0000e-005	1.4300e-003	1.0000e-005	1.4400e-003	3.8000e-004	1.0000e-005	3.9000e-004						
Total	**4.8000e-004**	**3.3000e-004**	**3.8600e-003**	**1.0000e-005**	**1.4300e-003**	**1.0000e-005**	**1.4400e-003**	**3.8000e-004**	**1.0000e-005**	**3.9000e-004**						

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1980	1.5224	1.6394	2.8700e-003		0.0669	0.0669		0.0646	0.0646						
Total	**0.1980**	**1.5224**	**1.6394**	**2.8700e-003**		**0.0669**	**0.0669**		**0.0646**	**0.0646**						

3.5 Building Construction - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Worker	4.8000e-004	3.3000e-004	3.8600e-003	1.0000e-005	1.4300e-003	1.0000e-005	1.4400e-003	3.8000e-004	1.0000e-005	3.9000e-004						
Total	**4.8000e-004**	**3.3000e-004**	**3.8600e-003**	**1.0000e-005**	**1.4300e-003**	**1.0000e-005**	**1.4400e-003**	**3.8000e-004**	**1.0000e-005**	**3.9000e-004**						

3.5 Building Construction - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0717	0.5587	0.6321	1.1100e-003		0.0228	0.0228		0.0220	0.0220						
Total	**0.0717**	**0.5587**	**0.6321**	**1.1100e-003**		**0.0228**	**0.0228**		**0.0220**	**0.0220**						

3.5 Building Construction - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Worker	1.8000e-004	1.2000e-004	1.4000e-003	0.0000	5.5000e-004	0.0000	5.6000e-004	1.5000e-004	0.0000	1.5000e-004						
Total	**1.8000e-004**	**1.2000e-004**	**1.4000e-003**	**0.0000**	**5.5000e-004**	**0.0000**	**5.6000e-004**	**1.5000e-004**	**0.0000**	**1.5000e-004**						

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0717	0.5587	0.6321	1.1100e-003		0.0228	0.0228		0.0220	0.0220						
Total	**0.0717**	**0.5587**	**0.6321**	**1.1100e-003**		**0.0228**	**0.0228**		**0.0220**	**0.0220**						

3.5 Building Construction - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Worker	1.8000e-004	1.2000e-004	1.4000e-003	0.0000	5.5000e-004	0.0000	5.6000e-004	1.5000e-004	0.0000	1.5000e-004						
Total	**1.8000e-004**	**1.2000e-004**	**1.4000e-003**	**0.0000**	**5.5000e-004**	**0.0000**	**5.6000e-004**	**1.5000e-004**	**0.0000**	**1.5000e-004**						

3.6 Paving - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	6.4500e-003	0.0624	0.0880	1.4000e-004		3.0800e-003	3.0800e-003		2.8500e-003	2.8500e-003						
Paving	0.0000					0.0000	0.0000		0.0000	0.0000						
Total	**6.4500e-003**	**0.0624**	**0.0880**	**1.4000e-004**		**3.0800e-003**	**3.0800e-003**		**2.8500e-003**	**2.8500e-003**						

3.6 Paving - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Worker	4.8000e-004	3.3000e-004	3.8600e-003	1.0000e-005	1.4300e-003	1.0000e-005	1.4400e-003	3.8000e-004	1.0000e-005	3.9000e-004						
Total	**4.8000e-004**	**3.3000e-004**	**3.8600e-003**	**1.0000e-005**	**1.4300e-003**	**1.0000e-005**	**1.4400e-003**	**3.8000e-004**	**1.0000e-005**	**3.9000e-004**						

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	6.4500e-003	0.0624	0.0880	1.4000e-004		3.0800e-003	3.0800e-003		2.8500e-003	2.8500e-003						
Paving	0.0000					0.0000	0.0000		0.0000	0.0000						
Total	**6.4500e-003**	**0.0624**	**0.0880**	**1.4000e-004**		**3.0800e-003**	**3.0800e-003**		**2.8500e-003**	**2.8500e-003**						

3.6 Paving - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Worker	4.8000e-004	3.3000e-004	3.8600e-003	1.0000e-005	1.4300e-003	1.0000e-005	1.4400e-003	3.8000e-004	1.0000e-005	3.9000e-004						
Total	**4.8000e-004**	**3.3000e-004**	**3.8600e-003**	**1.0000e-005**	**1.4300e-003**	**1.0000e-005**	**1.4400e-003**	**3.8000e-004**	**1.0000e-005**	**3.9000e-004**						

3.7 Architectural Coating - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	9.2700e-003					0.0000	0.0000		0.0000	0.0000						
Off-Road	1.9200e-003	0.0130	0.0181	3.0000e-005		7.1000e-004	7.1000e-004		7.1000e-004	7.1000e-004						
Total	**0.0112**	**0.0130**	**0.0181**	**3.0000e-005**		**7.1000e-004**	**7.1000e-004**		**7.1000e-004**	**7.1000e-004**						

3.7 Architectural Coating - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**						

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	9.2700e-003					0.0000	0.0000		0.0000	0.0000						
Off-Road	1.9200e-003	0.0130	0.0181	3.0000e-005		7.1000e-004	7.1000e-004		7.1000e-004	7.1000e-004						
Total	**0.0112**	**0.0130**	**0.0181**	**3.0000e-005**		**7.1000e-004**	**7.1000e-004**		**7.1000e-004**	**7.1000e-004**						

3.7 Architectural Coating - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**						

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.1028	0.5070	1.5654	6.5900e-003	0.6020	4.7300e-003	0.6067	0.1613	4.3900e-003	0.1657						
Unmitigated	0.1028	0.5070	1.5654	6.5900e-003	0.6020	4.7300e-003	0.6067	0.1613	4.3900e-003	0.1657						

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Light Industry	473.96	89.76	46.24	1,585,197	1,585,197
Total	473.96	89.76	46.24	1,585,197	1,585,197

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
General Light Industry	16.60	8.40	6.90	59.00	28.00	13.00	92	5	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
General Light Industry	0.553363	0.042540	0.203692	0.115607	0.014606	0.005830	0.021800	0.032323	0.002120	0.001725	0.004837	0.000711	0.000846

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000						
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000						
NaturalGas Mitigated	3.5000e-004	3.1900e-003	2.6800e-003	2.0000e-005		2.4000e-004	2.4000e-004		2.4000e-004	2.4000e-004						
NaturalGas Unmitigated	3.5000e-004	3.1900e-003	2.6800e-003	2.0000e-005		2.4000e-004	2.4000e-004		2.4000e-004	2.4000e-004						

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
General Light Industry	64980	3.5000e-004	3.1900e-003	2.6800e-003	2.0000e-005		2.4000e-004	2.4000e-004		2.4000e-004	2.4000e-004						
Total		**3.5000e-004**	**3.1900e-003**	**2.6800e-003**	**2.0000e-005**		**2.4000e-004**	**2.4000e-004**		**2.4000e-004**	**2.4000e-004**						

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
General Light Industry	64980	3.5000e-004	3.1900e-003	2.6800e-003	2.0000e-005		2.4000e-004	2.4000e-004		2.4000e-004	2.4000e-004						
Total		**3.5000e-004**	**3.1900e-003**	**2.6800e-003**	**2.0000e-005**		**2.4000e-004**	**2.4000e-004**		**2.4000e-004**	**2.4000e-004**						

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Light Industry	20300				
Total					

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Light Industry	20300				
Total					

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	8.2300e-003	1.0000e-005	8.7000e-004	0.0000		0.0000	0.0000		0.0000	0.0000						
Unmitigated	8.2300e-003	1.0000e-005	8.7000e-004	0.0000		0.0000	0.0000		0.0000	0.0000						

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	9.3000e-004					0.0000	0.0000		0.0000	0.0000						
Consumer Products	7.2300e-003					0.0000	0.0000		0.0000	0.0000						
Landscaping	8.0000e-005	1.0000e-005	8.7000e-004	0.0000		0.0000	0.0000		0.0000	0.0000						
Total	**8.2400e-003**	**1.0000e-005**	**8.7000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**						

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	9.3000e-004					0.0000	0.0000		0.0000	0.0000						
Consumer Products	7.2300e-003					0.0000	0.0000		0.0000	0.0000						
Landscaping	8.0000e-005	1.0000e-005	8.7000e-004	0.0000		0.0000	0.0000		0.0000	0.0000						
Total	**8.2400e-003**	**1.0000e-005**	**8.7000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**						

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated				
Unmitigated				

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Light Industry	15.725 / 0				
Total					

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Light Industry	15.725 / 0				
Total					

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated				
Unmitigated				

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Light Industry	84.32				
Total					

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Light Industry	84.32				
Total					

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

EXHIBIT B – CALEEMOD OUTPUT DAILY EMISSIONS (SUMMER)

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Redlands WWTP

South Coast Air Basin, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Light Industry	68.00	1000sqft	1.56	2,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	31
Climate Zone	10			**Operational Year**	2024
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Pollutant selections for greenhouse gases such as carbon dioxide, methane and nitrous oxides were not made as these pollutants are not within the scope of the conformity analysis.

Land Use - Lot Acreage is 68,000 sq ft,or 1.56 acres. This is the area on which earthwork will occur. The 2,000 sq. ft. is the total headworks for 5 new prefabricated buildings. (CalEEMOD user manual recommends overriding the square footage if the footprint is known.)

Construction Phase - Assumes a 24 month project, starting October 1, 2022 (per Preliminary Project Schedule in the PMP document, page 48 of 102.)

Demolition - Assumes 20 cu. yd. for site preparation which includes clearing vegetation and unwanted material.

Grading - It is assumed that sufficient fill volume would be generated from trenching to meet the backfill requirements for the site.
Includes 0.4 acres of grading for the project pipeline and 0.9 acres of grading for redundant pipelines.

Trips and VMT - Assumes 20 cu. yd. for site preparation which includes clearing vegetation and unwanted material.

Energy Use -

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	10.00	20.00
tblConstructionPhase	NumDays	200.00	400.00
tblConstructionPhase	NumDays	20.00	40.00
tblConstructionPhase	NumDays	4.00	8.00
tblConstructionPhase	NumDays	10.00	20.00
tblConstructionPhase	NumDays	2.00	4.00
tblConstructionPhase	PhaseEndDate	9/11/2023	9/25/2023
tblConstructionPhase	PhaseEndDate	8/14/2023	5/20/2024
tblConstructionPhase	PhaseEndDate	10/28/2022	11/25/2022
tblConstructionPhase	PhaseEndDate	11/7/2022	11/11/2022
tblConstructionPhase	PhaseEndDate	8/28/2023	9/11/2023
tblConstructionPhase	PhaseEndDate	11/1/2022	11/3/2022
tblGrading	AcresOfGrading	3.00	4.30
tblLandUse	LandUseSquareFeet	68,000.00	2,000.00
tblTripsAndVMT	HaulingTripNumber	0.00	2.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2022	4.5093	43.3976	33.4038	0.0629	11.2263	1.9802	13.2065	5.5869	1.8339	7.4208						
2023	3.3382	19.2803	23.6735	0.0400	0.1565	0.8948	1.0513	0.0415	0.8533	0.8948						
2024	1.4235	11.0659	12.5471	0.0222	0.0112	0.4507	0.4618	2.9600e-003	0.4349	0.4378						
Maximum	**4.5093**	**43.3976**	**33.4038**	**0.0629**	**11.2263**	**1.9802**	**13.2065**	**5.5869**	**1.8339**	**7.4208**						

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2022	4.5093	43.3976	33.4038	0.0629	11.2263	1.9802	13.2065	5.5869	1.8339	7.4208						
2023	3.3382	19.2803	23.6735	0.0400	0.1565	0.8948	1.0513	0.0415	0.8533	0.8948						
2024	1.4235	11.0659	12.5471	0.0222	0.0112	0.4507	0.4618	2.9600e-003	0.4349	0.4378						
Maximum	**4.5093**	**43.3976**	**33.4038**	**0.0629**	**11.2263**	**1.9802**	**13.2065**	**5.5869**	**1.8339**	**7.4208**						

Redlands WWTP - South Coast Air Basin, Summer

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.0453	6.0000e-005	6.9300e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005						
Energy	1.9200e-003	0.0175	0.0147	1.0000e-004		1.3300e-003	1.3300e-003		1.3300e-003	1.3300e-003						
Mobile	0.7958	3.5314	12.0572	0.0498	4.4605	0.0344	4.4949	1.1932	0.0320	1.2251						
Total	**0.8431**	**3.5489**	**12.0788**	**0.0499**	**4.4605**	**0.0357**	**4.4962**	**1.1932**	**0.0333**	**1.2265**						

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.0453	6.0000e-005	6.9300e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005						
Energy	1.9200e-003	0.0175	0.0147	1.0000e-004		1.3300e-003	1.3300e-003		1.3300e-003	1.3300e-003						
Mobile	0.7958	3.5314	12.0572	0.0498	4.4605	0.0344	4.4949	1.1932	0.0320	1.2251						
Total	**0.8431**	**3.5489**	**12.0788**	**0.0499**	**4.4605**	**0.0357**	**4.4962**	**1.1932**	**0.0333**	**1.2265**						

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	10/1/2022	11/25/2022	5	40	
2	Site Preparation	Site Preparation	10/29/2022	11/3/2022	5	4	
3	Grading	Grading	11/2/2022	11/11/2022	5	8	
4	Building Construction	Building Construction	11/8/2022	5/20/2024	5	400	
5	Paving	Paving	8/15/2023	9/11/2023	5	20	
6	Architectural Coating	Architectural Coating	8/29/2023	9/25/2023	5	20	

Acres of Grading (Site Preparation Phase): 2

Acres of Grading (Grading Phase): 4.3

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 3,000; Non-Residential Outdoor: 1,000; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Rubber Tired Dozers	1	8.00	247	0.40
Demolition	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Grading	Graders	1	6.00	187	0.41
Grading	Rubber Tired Dozers	1	6.00	247	0.40
Grading	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Building Construction	Cranes	1	6.00	231	0.29
Building Construction	Forklifts	1	6.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Building Construction	Welders	3	8.00	46	0.45
Site Preparation	Graders	1	8.00	187	0.41
Site Preparation	Rubber Tired Dozers	1	7.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Paving	Cement and Mortar Mixers	1	6.00	9	0.56
Paving	Pavers	1	6.00	130	0.42
Paving	Paving Equipment	1	8.00	132	0.36
Paving	Rollers	1	7.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	5	13.00	0.00	2.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	3	8.00	0.00	2.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	7	1.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	3	8.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	5	13.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	0.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Demolition - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0107	0.0000	0.0107	1.6200e-003	0.0000	1.6200e-003						
Off-Road	1.6889	16.6217	13.9605	0.0241		0.8379	0.8379		0.7829	0.7829						
Total	**1.6889**	**16.6217**	**13.9605**	**0.0241**	**0.0107**	**0.8379**	**0.8486**	**1.6200e-003**	**0.7829**	**0.7845**						

3.2 Demolition - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	3.6000e-004	0.0120	2.8300e-003	4.0000e-005	8.7000e-004	3.0000e-005	9.1000e-004	2.4000e-004	3.0000e-005	2.7000e-004						
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Worker	0.0510	0.0321	0.4514	1.3900e-003	0.1453	1.0400e-003	0.1464	0.0385	9.6000e-004	0.0395						
Total	**0.0514**	**0.0441**	**0.4542**	**1.4300e-003**	**0.1462**	**1.0700e-003**	**0.1473**	**0.0388**	**9.9000e-004**	**0.0398**						

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0107	0.0000	0.0107	1.6200e-003	0.0000	1.6200e-003						
Off-Road	1.6889	16.6217	13.9605	0.0241		0.8379	0.8379		0.7829	0.7829						
Total	**1.6889**	**16.6217**	**13.9605**	**0.0241**	**0.0107**	**0.8379**	**0.8486**	**1.6200e-003**	**0.7829**	**0.7845**						

3.2 Demolition - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	3.6000e-004	0.0120	2.8300e-003	4.0000e-005	8.7000e-004	3.0000e-005	9.1000e-004	2.4000e-004	3.0000e-005	2.7000e-004						
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Worker	0.0510	0.0321	0.4514	1.3900e-003	0.1453	1.0400e-003	0.1464	0.0385	9.6000e-004	0.0395						
Total	**0.0514**	**0.0441**	**0.4542**	**1.4300e-003**	**0.1462**	**1.0700e-003**	**0.1473**	**0.0388**	**9.9000e-004**	**0.0398**						

3.3 Site Preparation - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					5.7996	0.0000	5.7996	2.9537	0.0000	2.9537						
Off-Road	1.3122	14.6277	7.0939	0.0172		0.6225	0.6225		0.5727	0.5727						
Total	**1.3122**	**14.6277**	**7.0939**	**0.0172**	**5.7996**	**0.6225**	**6.4221**	**2.9537**	**0.5727**	**3.5264**						

3.3 Site Preparation - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Worker	0.0314	0.0197	0.2778	8.6000e-004	0.0894	6.4000e-004	0.0901	0.0237	5.9000e-004	0.0243						
Total	**0.0314**	**0.0197**	**0.2778**	**8.6000e-004**	**0.0894**	**6.4000e-004**	**0.0901**	**0.0237**	**5.9000e-004**	**0.0243**						

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					5.7996	0.0000	5.7996	2.9537	0.0000	2.9537						
Off-Road	1.3122	14.6277	7.0939	0.0172		0.6225	0.6225		0.5727	0.5727						
Total	**1.3122**	**14.6277**	**7.0939**	**0.0172**	**5.7996**	**0.6225**	**6.4221**	**2.9537**	**0.5727**	**3.5264**						

3.3 Site Preparation - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Worker	0.0314	0.0197	0.2778	8.6000e-004	0.0894	6.4000e-004	0.0901	0.0237	5.9000e-004	0.0243						
Total	**0.0314**	**0.0197**	**0.2778**	**8.6000e-004**	**0.0894**	**6.4000e-004**	**0.0901**	**0.0237**	**5.9000e-004**	**0.0243**						

3.4 Grading - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					5.0866	0.0000	5.0866	2.5442	0.0000	2.5442						
Off-Road	1.0832	12.0046	5.9360	0.0141		0.5173	0.5173		0.4759	0.4759						
Total	**1.0832**	**12.0046**	**5.9360**	**0.0141**	**5.0866**	**0.5173**	**5.6039**	**2.5442**	**0.4759**	**3.0201**						

3.4 Grading - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	1.8100e-003	0.0600	0.0142	1.9000e-004	4.3700e-003	1.7000e-004	4.5400e-003	1.2000e-003	1.7000e-004	1.3600e-003						
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Worker	0.0314	0.0197	0.2778	8.6000e-004	0.0894	6.4000e-004	0.0901	0.0237	5.9000e-004	0.0243						
Total	**0.0332**	**0.0797**	**0.2919**	**1.0500e-003**	**0.0938**	**8.1000e-004**	**0.0946**	**0.0249**	**7.6000e-004**	**0.0257**						

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					5.0866	0.0000	5.0866	2.5442	0.0000	2.5442						
Off-Road	1.0832	12.0046	5.9360	0.0141		0.5173	0.5173		0.4759	0.4759						
Total	**1.0832**	**12.0046**	**5.9360**	**0.0141**	**5.0866**	**0.5173**	**5.6039**	**2.5442**	**0.4759**	**3.0201**						

3.4 Grading - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	1.8100e-003	0.0600	0.0142	1.9000e-004	4.3700e-003	1.7000e-004	4.5400e-003	1.2000e-003	1.7000e-004	1.3600e-003						
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Worker	0.0314	0.0197	0.2778	8.6000e-004	0.0894	6.4000e-004	0.0901	0.0237	5.9000e-004	0.0243						
Total	**0.0332**	**0.0797**	**0.2919**	**1.0500e-003**	**0.0938**	**8.1000e-004**	**0.0946**	**0.0249**	**7.6000e-004**	**0.0257**						

3.5 Building Construction - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.6487	12.5031	12.7264	0.0221		0.5889	0.5889		0.5689	0.5689						
Total	**1.6487**	**12.5031**	**12.7264**	**0.0221**		**0.5889**	**0.5889**		**0.5689**	**0.5689**						

3.5 Building Construction - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Worker	3.9300e-003	2.4700e-003	0.0347	1.1000e-004	0.0112	8.0000e-005	0.0113	2.9600e-003	7.0000e-005	3.0400e-003						
Total	**3.9300e-003**	**2.4700e-003**	**0.0347**	**1.1000e-004**	**0.0112**	**8.0000e-005**	**0.0113**	**2.9600e-003**	**7.0000e-005**	**3.0400e-003**						

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.6487	12.5031	12.7264	0.0221		0.5889	0.5889		0.5689	0.5689						
Total	**1.6487**	**12.5031**	**12.7264**	**0.0221**		**0.5889**	**0.5889**		**0.5689**	**0.5689**						

3.5 Building Construction - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Worker	3.9300e-003	2.4700e-003	0.0347	1.1000e-004	0.0112	8.0000e-005	0.0113	2.9600e-003	7.0000e-005	3.0400e-003						
Total	**3.9300e-003**	**2.4700e-003**	**0.0347**	**1.1000e-004**	**0.0112**	**8.0000e-005**	**0.0113**	**2.9600e-003**	**7.0000e-005**	**3.0400e-003**						

3.5 Building Construction - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5233	11.7104	12.6111	0.0221		0.5145	0.5145		0.4968	0.4968						
Total	**1.5233**	**11.7104**	**12.6111**	**0.0221**		**0.5145**	**0.5145**		**0.4968**	**0.4968**						

3.5 Building Construction - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Worker	3.6900e-003	2.2300e-003	0.0321	1.0000e-004	0.0112	8.0000e-005	0.0113	2.9600e-003	7.0000e-005	3.0400e-003						
Total	**3.6900e-003**	**2.2300e-003**	**0.0321**	**1.0000e-004**	**0.0112**	**8.0000e-005**	**0.0113**	**2.9600e-003**	**7.0000e-005**	**3.0400e-003**						

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5233	11.7104	12.6111	0.0221		0.5145	0.5145		0.4968	0.4968						
Total	**1.5233**	**11.7104**	**12.6111**	**0.0221**		**0.5145**	**0.5145**		**0.4968**	**0.4968**						

3.5 Building Construction - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Worker	3.6900e-003	2.2300e-003	0.0321	1.0000e-004	0.0112	8.0000e-005	0.0113	2.9600e-003	7.0000e-005	3.0400e-003						
Total	**3.6900e-003**	**2.2300e-003**	**0.0321**	**1.0000e-004**	**0.0112**	**8.0000e-005**	**0.0113**	**2.9600e-003**	**7.0000e-005**	**3.0400e-003**						

3.5 Building Construction - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.4200	11.0639	12.5172	0.0221		0.4506	0.4506		0.4348	0.4348						
Total	**1.4200**	**11.0639**	**12.5172**	**0.0221**		**0.4506**	**0.4506**		**0.4348**	**0.4348**						

3.5 Building Construction - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Worker	3.4900e-003	2.0300e-003	0.0299	1.0000e-004	0.0112	8.0000e-005	0.0113	2.9600e-003	7.0000e-005	3.0400e-003						
Total	**3.4900e-003**	**2.0300e-003**	**0.0299**	**1.0000e-004**	**0.0112**	**8.0000e-005**	**0.0113**	**2.9600e-003**	**7.0000e-005**	**3.0400e-003**						

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.4200	11.0639	12.5172	0.0221		0.4506	0.4506		0.4348	0.4348						
Total	**1.4200**	**11.0639**	**12.5172**	**0.0221**		**0.4506**	**0.4506**		**0.4348**	**0.4348**						

3.5 Building Construction - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Worker	3.4900e-003	2.0300e-003	0.0299	1.0000e-004	0.0112	8.0000e-005	0.0113	2.9600e-003	7.0000e-005	3.0400e-003						
Total	**3.4900e-003**	**2.0300e-003**	**0.0299**	**1.0000e-004**	**0.0112**	**8.0000e-005**	**0.0113**	**2.9600e-003**	**7.0000e-005**	**3.0400e-003**						

3.6 Paving - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.6446	6.2357	8.8024	0.0136		0.3084	0.3084		0.2846	0.2846						
Paving	0.0000					0.0000	0.0000		0.0000	0.0000						
Total	**0.6446**	**6.2357**	**8.8024**	**0.0136**		**0.3084**	**0.3084**		**0.2846**	**0.2846**						

3.6 Paving - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Worker	0.0480	0.0290	0.4168	1.3400e-003	0.1453	1.0200e-003	0.1463	0.0385	9.4000e-004	0.0395						
Total	**0.0480**	**0.0290**	**0.4168**	**1.3400e-003**	**0.1453**	**1.0200e-003**	**0.1463**	**0.0385**	**9.4000e-004**	**0.0395**						

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.6446	6.2357	8.8024	0.0136		0.3084	0.3084		0.2846	0.2846						
Paving	0.0000					0.0000	0.0000		0.0000	0.0000						
Total	**0.6446**	**6.2357**	**8.8024**	**0.0136**		**0.3084**	**0.3084**		**0.2846**	**0.2846**						

3.6 Paving - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Worker	0.0480	0.0290	0.4168	1.3400e-003	0.1453	1.0200e-003	0.1463	0.0385	9.4000e-004	0.0395						
Total	**0.0480**	**0.0290**	**0.4168**	**1.3400e-003**	**0.1453**	**1.0200e-003**	**0.1463**	**0.0385**	**9.4000e-004**	**0.0395**						

3.7 Architectural Coating - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	0.9270					0.0000	0.0000		0.0000	0.0000						
Off-Road	0.1917	1.3030	1.8111	2.9700e-003		0.0708	0.0708		0.0708	0.0708						
Total	**1.1187**	**1.3030**	**1.8111**	**2.9700e-003**		**0.0708**	**0.0708**		**0.0708**	**0.0708**						

3.7 Architectural Coating - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**						

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	0.9270					0.0000	0.0000		0.0000	0.0000						
Off-Road	0.1917	1.3030	1.8111	2.9700e-003		0.0708	0.0708		0.0708	0.0708						
Total	**1.1187**	**1.3030**	**1.8111**	**2.9700e-003**		**0.0708**	**0.0708**		**0.0708**	**0.0708**						

3.7 Architectural Coating - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**						

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.7958	3.5314	12.0572	0.0498	4.4605	0.0344	4.4949	1.1932	0.0320	1.2251						
Unmitigated	0.7958	3.5314	12.0572	0.0498	4.4605	0.0344	4.4949	1.1932	0.0320	1.2251						

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Light Industry	473.96	89.76	46.24	1,585,197	1,585,197
Total	473.96	89.76	46.24	1,585,197	1,585,197

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
General Light Industry	16.60	8.40	6.90	59.00	28.00	13.00	92	5	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
General Light Industry	0.553363	0.042540	0.203692	0.115607	0.014606	0.005830	0.021800	0.032323	0.002120	0.001725	0.004837	0.000711	0.000846

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	1.9200e-003	0.0175	0.0147	1.0000e-004		1.3300e-003	1.3300e-003		1.3300e-003	1.3300e-003						
NaturalGas Unmitigated	1.9200e-003	0.0175	0.0147	1.0000e-004		1.3300e-003	1.3300e-003		1.3300e-003	1.3300e-003						

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
General Light Industry	178.027	1.9200e-003	0.0175	0.0147	1.0000e-004		1.3300e-003	1.3300e-003		1.3300e-003	1.3300e-003						
Total		**1.9200e-003**	**0.0175**	**0.0147**	**1.0000e-004**		**1.3300e-003**	**1.3300e-003**		**1.3300e-003**	**1.3300e-003**						

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
General Light Industry	0.178027	1.9200e-003	0.0175	0.0147	1.0000e-004		1.3300e-003	1.3300e-003		1.3300e-003	1.3300e-003						
Total		**1.9200e-003**	**0.0175**	**0.0147**	**1.0000e-004**		**1.3300e-003**	**1.3300e-003**		**1.3300e-003**	**1.3300e-003**						

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0453	6.0000e-005	6.9300e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005						
Unmitigated	0.0453	6.0000e-005	6.9300e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005						

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	5.0800e-003					0.0000	0.0000		0.0000	0.0000						
Consumer Products	0.0396					0.0000	0.0000		0.0000	0.0000						
Landscaping	6.4000e-004	6.0000e-005	6.9300e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005						
Total	**0.0453**	**6.0000e-005**	**6.9300e-003**	**0.0000**		**2.0000e-005**	**2.0000e-005**		**2.0000e-005**	**2.0000e-005**						

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	5.0800e-003					0.0000	0.0000		0.0000	0.0000						
Consumer Products	0.0396					0.0000	0.0000		0.0000	0.0000						
Landscaping	6.4000e-004	6.0000e-005	6.9300e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005						
Total	**0.0453**	**6.0000e-005**	**6.9300e-003**	**0.0000**		**2.0000e-005**	**2.0000e-005**		**2.0000e-005**	**2.0000e-005**						

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Appendix B
Biological Resources Technical Report

PARSONS

Biological Survey Technical Memorandum
for
Proposed Redlands Wastewater Treatment Plant Upgrade Project
Redlands, California

July 2021

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ACRONYMS AND ABBREVIATIONS

ADWF	annual dry weather flow
ASP	activated sludge process
BLM	Bureau of Land Management
BMP	Best Management Practice
BUOW	burrowing owl
CAA	Clean Air Act
CAS	conventional activated sludge
CCH	Consortium of California Herbaria
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CH	Critical Habitat
City	City of Redlands
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
CSS	coastal sage scrub
CWA	Clean Water Act
DAFT	dissolved air flotation thickener
DLR	device level ring
EIR	Environmental Impact Report
EIS	Environmental Impact Statement
EPA	United States Environmental Protection Agency
ESA	Endangered Species Act
GPS	global positioning system
HVAC	Heating, ventilation, and air conditioning
I&C	instrument and control
I-10	Interstate 10
IPaC	Information, Planning, and Consultation
JD	Jurisdictional Delineation
MBR	membrane bioreactor
MBTA	Migratory Bird Treaty Act
MCC	motor control center
mg/L	milligrams per liter
mgd	million gallons per day
mL	milliliters
MLSS	mixed liquor suspended solid
NHPA	National Historic Preservation Act
NTU	nephelometric turbidity unit
P&ID	piping and instrumentation diagram
PLC	programmable logic controller
RAS	return activated sludge
RWQCB	Regional Water Quality Control Board
SCADA	Supervisory Control and Data Acquisition
SR	State Route
SRF	State Revolving Fund
SWPPP	Storm Water Pollution Prevention Plan

SWRCB	State Water Resources Control Board
TIN	total inorganic nitrogen
TWAS	thickened waste activated sludge
USACE	United States Army Corps of Engineers
USFWS	United States Fish and Wildlife Service
USGS	U.S. Geologic Survey
UV	ultraviolet
WOTS	Waters of the State
WOTUS	Waters of the United States
WWTP	Wastewater Treatment Plant

1.0 Project Description

The City of Redlands (City) will be applying to the State Water Resources Control Board (SWRCB) for a State Revolving Fund (SRF) loan. The SRF Loan Program is partially funded by the United States Environmental Protection Agency (EPA) and is subject to federal environmental regulations, including the Endangered Species Act (ESA), the National Historic Preservation Act (NHPA), and the General Conformity Rule for the Clean Air Act (CAA). EPA chose to use the California Environmental Quality Act (CEQA) as the compliance base for California's SRF Loan Program, in addition to compliance with the ESA, NHPA, and CAA. Collectively, SWRCB calls these requirements CEQA-Plus.

SWRCB, Division of Financial Assistance, is the Responsible Agency that will act on behalf of EPA to review and consider the CEQA document before approving the project's funding. SWRCB will make a determination as to the adequacy of the CEQA document and seek concurrences from federal agencies on compliance with federal cross-cutting regulations. The CEQA document is also transmitted to the State Clearinghouse for State agency review before SWRCB begins consultation with federal agencies for their concurrence.

Additional environmental analyses are required for federal compliance associated with the CEQA-Plus process for the Clean Water SRF loan application for the proposed wastewater treatment plant (WWTP) project for the City. The environmental analyses for applicable federal consultation processes are underway and will be included in the CEQA-Plus documentation that will accompany the SRF loan application. Supporting information for federal requirements is provided in Table 1.

Table 1. Federal Environmental Requirements for SRF Loan Application Review

SRF APPLICATION FORM ATTACHMENT	SUBJECT
E2.2	EPA Clean Air Act General Conformity Analysis
E2.3	Federal Endangered Species Act (Section 7)
E2.3	Migratory Bird Treaty Act
E2.3	Protection of Wetlands (Executive Order 11990)
E2.5	National Historic Preservation Act (Section 106)
E2.5	Native American Consultation
E2.5	Archaeological and Historic Preservation Act
(not applicable)	Magnuson-Stevens Fishery Conservation and Management Act
(not applicable)	Fish and Wildlife Coordination Act
(not applicable)	Rivers and Harbors Act, Section 10
(not applicable)	Flood Plains Management (Executive Orders 11988, 12148, and 13690)
(not applicable)	Wild and Scenic Rivers Act
(not applicable)	Coastal Barriers Resources Act
(not applicable)	Coastal Zone Management Act

SRF APPLICATION FORM ATTACHMENT	SUBJECT
(not applicable)	Safe Drinking Water Act – Source Water Protection
(not applicable)	Farmland Protection Policy Act
(not applicable)	Socioeconomic Impact Analysis
(not applicable)	Environmental Justice

1.1. Background

Since 1962, the City has owned and operated the City of Redlands Water Reclamation Facility. The original WWTP was constructed in 1962. The facility's treatment process consisted of primary sedimentation, secondary treatment by activated sludge, and disinfection prior to discharging to the Santa Ana River. Biosolids were anaerobically digested and distributed to sand drying beds. The facility was designed to treat peak flows of 5.0 million gallons per day (mgd) with average daily flows of 2.4 mgd.

In 1971, the California Regional Water Quality Control Board (RWQCB) instituted new discharge requirements. The WWTP underwent an extensive expansion and modification. This included a new headworks facility incorporating bar screens and a grit removal system, primary sedimentation tank, trickling filter with clarifier, and a peak storage pond. New aeration basins with activated sludge pumping stations, sludge thickener, and nitrification clarifiers were constructed. A new effluent pump station transferred tertiary effluent to percolation ponds located east of the WWTP for groundwater recharge. A second anaerobic digester was built to treat the additional biosolids. At the end of construction, the design capacity of the plant was 6.0 mgd.

In 1987, under the Immediate Expansion Project, the WWTP received an additional primary sedimentation tank, trickling filter clarifier, peak storage pond, nitrification clarifier, and second sludge thickener. A third anaerobic digester was constructed and supported by additional sand drying beds. These improvements increased the plant's capacity to 9.0 mgd.

In 2000, concerns over strained groundwater resources prompted the City to examine new technologies that could produce recycled water, which exceeded California Title 22 requirements. By 2004, construction and implementation of a membrane bioreactor (MBR) filtration complex and chlorine contact chamber was completed. A chemical storage and distribution complex was also built. The plant's aeration basins were modified to treat the MBR and conventional activated sludge processes (ASP), creating parallel treatment trains within the WWTP. The design flow to the MBR was 6.0 mgd, leaving 3.5 mgd for the conventional treatment side of the WWTP, for a total of 9.5 mgd. Most of the recycled water, approximately 5 mgd, is delivered to the Mountainview Power Plant and utilized for cooling. In 2010, the plant constructed a biosolids handling facility utilizing a centrifuge solids dewatering system.

In 2020, breakdowns of various facilities at the WWTP required the replacement of membranes and air scour blowers in the MBR, boilers for the digesters, and the fine screens. In addition, and gas conditioning equipment was installed. These replacements and equipment provided the WWTP with the required operating capacity to serve existing loads, as well as improve system reliability and efficiency while avoiding a potential shutdown of the facility.

1.1.1. Purpose of Proposed Project

The purpose of the proposed project is to complete an assessment of the wastewater treatment process components, make recommendations for improvements or repairs necessary to handle existing inflow based on the assessment, prepare an implementation plan for suggested work, and complete the design of resulting projects(s) to maintain the WWTP at its current capacity and allow the City to forgo future improvements for the next 20 to 30 years.

1.1.2. Description of Proposed Project

The proposed project would involve upgrading the existing WWTP with a state-of-the-art 9.5-mgd MBR system and include the necessary improvements for reliability and redundancy. As shown in Figure 1 in Attachment A, the following is a description of the proposed upgrades and improvements:

1. **Headworks.** In the motor control center (MCC), a new gas detection system and alarms are proposed. The air compressor in front of the MCC enclosure would be relocated to comply with work space code compliance. A supervisory control and data acquisition (SCADA) interface for headworks equipment would be provided. The current headworks MCC and deteriorated concrete at beam pockets would be replaced. A new biotrickling filter odor control system, along with two washer-compactors for screenings and two washer/classifiers for grit, would be installed. The Parshall Flume and raw sewage pumps would also be replaced, and a new prefabricated building on a 400-square-foot slab on grade for the MCC would be constructed.

2. **Primary Clarification and Pumping.** A new ferric chloride dosing pump for flow/load proportional control to avoid excessive corrosion would be installed. A new SCADA interface for the primary clarifiers would also be installed. Replacement of the chain and flight mechanism for Clarifier #2 would be completed to enable the clarifier to be put back into service. The sludge pumps, collectors and drives, and equipment (including MCC) would be replaced. In addition, a new ferric chloride storage tank would be provided, along with the recoating of the concrete ferric chloride containment area, ventilation of the primary sludge pump room, and construction of a new prefabricated building on a 400-square-foot slab on grade.

3. **Peak Storage Ponds and Pump Station.** A new mixing system would maintain a uniform mixture of contents in the ponds, and the oldest pumps would be replaced. Proper pedestrian access (i.e., ingress/egress) to the bottom of the peak storage ponds would be constructed to alleviate safety concerns for maintenance staff. The MCC in the peak pond pump station would be replaced, and the control strategy would be updated to add status and alarm signals to the SCADA. A new prefabricated building on a 400-square-foot slab on grade would also be constructed.

4. **MBR and Aeration Basins.** The existing 6-mgd MBR system and the existing 3.5-mgd activated sludge system would be upgraded to operate as one single 9.5-mgd state-of-the-art MBR system to comply with the following effluent quality requirements:
   - Turbidity:
     - 0.2 Nephelometric Turbidity Units (NTU) or less 95 percent of the time
     - 0.5 NTU or less 100 percent of the time
   - Total Coliform
     - 2.2/100 milliliters (mL) 7-day median

  - Not to exceed 23/100 mL more than once in 30 days
  - Not to exceed 200/100 mL at any time
- Total Inorganic Nitrogen (TIN) ≤ 10 milligrams per liter (mg/L)
  - Phosphorous ≤ 4 mg/L

This 9.5-mgd MBR system conversion includes the following major facility upgrades:

a. Upgrade of Aeration Basins and Blowers
   - Three conventional activated sludge (CAS) aeration basins would be converted to serve as pre-aeration tanks for the MBR system to operate at higher mixed liquor suspended solids (MLSS) (8,000 mg/L) and to provide nitrogen removal to meet the TIN – 10 mg/L or less criteria.
   - New baffles would be installed and configured.
   - Return activated sludge (RAS) pumps would be upgraded to provide additional capacity for 9.5-MGD MBR.
   - New mixed liquor return pumps would be installed for the nitrate return and anoxic mixers.
   - Diffusers in the aeration basins would be replaced to suit higher oxygen transfer.
   - Upgrades to the blower building to meet code compliance; installation of panic bars on doors; and modification of the heating, ventilation, and air conditioning (HVAC) system would also be completed.
   - Piping for aeration blowers on the existing CAS train would be replaced.
   - New mud valves would be provided for aeration basins.
   - The equipment pad located in the northeast corner of the aeration basins has exposed bottom of the concrete pad. The contractor would fill in the footing cavity with concrete and construct concrete curb around the pad to shore the equipment pad.

b. Expand MBR System
   - Additional membranes/cassettes would be installed.
   - Membrane basins would be modified to hold preselected membranes in the existing basins for up to 9.5 MGD annual dry weather flow (ADWF).
   - Permeate pumps would be replaced to support larger treated flows from MBR.
   - Existing backpulse pumps and permeate lines would be modified (Note: MBR system has been sized to handle 13.3-MGD peak flow with one train offline. MBR permeate pumps will be sized to handle 13.3-MGD peak flow with five duty pumps [one standby pump]).

5. Effluent Pump Station Upgrade. The effluent pump station would be upgraded to include an SCADA interface for process analyzers for monitoring and recording. In addition, effluent pump No. 3 and MCC would be replaced, a parallel pipeline to the percolation ponds would be provided, and a new prefabricated building on a 400-square-foot slab on grade would be constructed.

6. Impure Water Pumps. The impure water pumps below the chlorine contact tanks would be used to deliver water for fine screens cleaning. These pumps may be upgraded to ensure future requirements for washwater/fine screens cleaning are met. In addition, SCADA interface would be provided for the impure water pumps.

7. **Supernatant Ponds**. The MCC would be replaced; struvite management would be improved; and a centrate equalization tank, pumping station, and glass-lined piping to the fine screens would be provided. The supernatant pond lining would also be replaced.

8. **Thickening System Upgrade.** The thickened waste activated sludge (TWAS) pumps Nos. 1–4 and dissolved air floatation thickener (DAFT) recycle pump No. 1 would be replaced. In addition, the proposed project would overhaul/replace the internal mechanism for the DAFT No. 1, and SCADA interfaces would be provided for all DAFTs. A new prefabricated building on a 400-square-foot slab on grade would also be constructed.

9. **Digestion System Upgrade.** Upgrades to the digestion system include the addition of a new digester and replacement of the boiler/heat exchanger at each digester to provide consistent heating of digesters. SCADA interfaces would be provided for all digesters as well.

10. **Recycled Water Pump Station.** Recycled water pump No. 1 would be replaced.

11. **Dewatering System.** A new silo and sludge conveyor system for transferring dewatered sludge from the centrifuges for direct loading onto sludge hauling trailers/trucks would be provided, and the dewatering sludge feed pump No. 1 and dewatering grinder No. 1 would be replaced. The small centrifuge would also be replaced to match large centrifuge capacity and SCADA interfaces for centrifuges installed.

12. **Plantwide Instrument and Control (I&C) and SCADA System Upgrades.**
    a. The existing SCADA system would be upgraded and expanded to include the following plant processes that are currently not interfaced with SCADA:
        - Headworks equipment
        - Primary clarifiers and sludge pumps
        - Fine screens
        - DAFTs
        - Primary and secondary digesters
        - Dewatering centrifuges
        - Impure water pumps
        - Waste gas flare
        - Gas conditioning system
    b. Process area status and alarms would be added on plant SCADA for the headworks, peak pond pumps, aeration basin mixers, RAS and waste activated sludge pumps, secondary clarifiers, effluent pumps, recycled water pumps, and SCADA communication health. The programmable logic controller (PLC)/SCADA communication network cables would be converted to Device Level Ring (DLR) topology, with the latest controllers and communications throughout the plant.
    c. Existing plant control strategies would be modified and optimized to meet the City's operational requirements.
    d. Existing piping and instrumentation diagrams (P&IDs) for facilities being modified would be updated.
    e. Calibration stickers on all instruments would be updated or provided.

13. **Plant-Wide Electrical System Upgrades.** The proposed project would replace the following electrical equipment:
    a. Switchboard M replacement

b. MCC-replacement
c. Additional modifications/changes to existing MCCs:
    - Headworks equipment
    - Primary clarifiers and sludge pumps
    - Primary clarifier sludge pump room ventilation
    - Process equipment replacement

14. **Redundant Pipelines.** To increase system reliability, new/redundant pipelines would be constructed for the following key critical pipelines:
    - An approximately 300-foot-long pipe from the headworks at the center of the plant, running northeasterly and then northerly to tie to the primary clarifiers.
    - A new 375-foot-long pipe generally extending westerly from the primary clarifiers to the peak storage ponds at the northwestern section of the plant.
    - A 220-foot-long pipe along the northern edge of the plant from aeration basins to membrane basins to accommodate increased flows to the MBR process.
    - An approximately 1,200-foot-long, 27-inch-diameter force main pipeline from the effluent pump station southerly and then easterly (south of the digesters) through the drying ponds approximately 10 feet from and roughly parallel to the existing pipeline and across Alabama Street to the southwest corner of the percolation ponds. The new pipeline would end in a valve vault with a tee between the two pipelines before the first percolation pond.
    - Trenching for these pipelines would be a maximum of approximately 15 feet wide and 15 feet deep.

15. **Landscape Architecture.** Demolition plans, as well as new construction, planting, and irrigation plans, would be included in the proposed project for landscaping and site improvements. Landscaping would include approximately 50 trees along the east side of the frontage road and along the southern and eastern perimeter of the facility. Beautification and an entry monument are proposed at the Nevada Street entrance. Other site improvements include general landscaping along the existing access road off Nevada Street; walkway and patio improvements, along with informational exhibits; and another small access road west of the main operations building. Approximately 3,750 linear feet of trenching for utilities (i.e., irrigation systems) would be required at a maximum depth of 5 feet.

Construction

The proposed upgrades and improvements to the WWTP would require construction (i.e., demolition, excavation, and grading) within the existing plant boundaries and along the alignment of the existing force main to install a redundant pipeline from the WWTP to the percolation ponds. Construction vehicles, equipment, and materials would be staged at the WWTP and would require road closures for installation of the redundant pipeline across Alabama Street.

Construction of the upgrades and improvements is estimated to require approximately 24 months and would include earthwork on approximately 68,000 square feet. Project construction would require approximately 64,500 linear feet of utility trenching. Utility work would typically include trenching to a maximum depth of 15 feet in a corridor approximately 15 feet wide. Five

new prefabricated buildings would be installed, each of which would be approximately 400 square feet in area. Excavations of up to 2 feet would be required for foundation work.

Operations

Operation of the WWTP would continue to be managed by the City. The facility currently employs a staff of 23 plus 6 operator-in-training volunteers and operates on a continuous basis – 24 hours per day, 7 days per week. No additional personnel are anticipated to be required to support the proposed project.

2.0 Project Location

The project would be located at 1950 Nevada Street in the city of Redlands in San Bernardino County in southern California. The proposed project site is located 1.6 miles north of Interstate I-10 (I-10) and approximately 0.6 mile west of State Route (SR) 210. Figure 2 shows the proposed site for the project, and Figure 3 shows the regional location of the project (see Attachment A).

3.0 Regulatory Requirements

3.1.1. Federal Regulations

Endangered Species Act

Under provisions of the ESA, Section 7(a)(2), a federal agency that permits, licenses, funds, or otherwise authorizes a project activity must consult with the United States Fish and Wildlife Service (USFWS) to ensure that its actions would not jeopardize the continued existence of any listed species, or destroy or adversely modify critical habitat (CH).

Migratory Bird Treaty Act

The federal Migratory Bird Treaty Act (MBTA) protects all migratory birds, including their eggs, nests, and feathers. The MBTA is enforced by USFWS, and potential constraints to species protected under this law may be evaluated by USFWS during the consultation process.

If any trees, shrubs, or other vegetation that could support nesting bird species would be removed during the typical nesting season (i.e., February 15 through September 1), preconstruction nest surveys should be conducted to determine if birds are actively nesting within the study corridor. Any work near active bird nests would have to be avoided until the young have left the nest. As feasible, removal of vegetation should be completed outside the nesting season.

3.1.2. State Regulations

California Endangered Species Act

The California Endangered Species Act (CESA) is administered by the California Department of Fish and Wildlife (CDFW) and prohibits the take of plant and animal species identified as either threatened or endangered in California by the Fish and Game Commission (Fish and Game Code Section 2050-2097). “Take” means to hunt, pursue, catch, capture, or kill or attempt to hunt, pursue, catch, capture, or kill. CESA Sections 2091 and 2081 allow CDFW to authorize exceptions to the prohibition of take of the State-listed threatened or endangered plant and animal species for purposes such as public and private development. CDFW requires formal

consultation to ensure that these actions would not jeopardize the continued existence of any listed species or destroy or adversely modify CH.

California Fish and Game Code

California Fish and Game Code Section 3503 includes provisions to protect the nests and eggs of birds. Sections 3511, 4700, 5050, and 5515 include provisions to protect fully protected species, such as (1) prohibiting take or possession "at any time" of the species listed in the statute, with few exceptions; (2) stating that "no provision of this code or any other law shall be construed to authorize the issuance of permits or licenses to "take" the species; and (3) stating that no previously issued permits or licenses for take of the species "shall have any force or effect" for authorizing take or possession. CDFW cannot authorize incidental take of "fully protected" species when activities are proposed in areas inhabited by those species. Any project-related activities that could result in the "take" of any fully protected species would have to be avoided.

3.1.3. Regional and Local Regulations

Upper Santa Ana River Land Management Habitat Conservation Plan (Wash Plan)

The Upper Santa Ana River Land Management Habitat Conservation Plan applies to areas immediately adjacent to the percolation ponds to the north and west. The Upper Santa Ana River Habitat Conservation Plan includes Covered Activities related to operation and maintenance of existing facilities (166.9 acres) and expansion or enhancement of existing facilities (634.1 acres), including types of projects that include elements of flood control, mining, trails, transportation, water conservation, and wells. Task force members and stakeholders developed the plan for mitigation of Covered Activities by the preservation of 3,313.7 acres of sage scrub and 12.9 acres of riparian habitats within the planning area of this Habitat Conservation Plan. Covered Species include five species: slender-horned spineflower *(Dodecahema leptoceras),* Santa Ana River woolly-star *(Eriastrum densifolium* ssp. sanctorum), cactus wren *(Campylorhynchus brunneicapillus),* coastal California gnatcatcher *(Polioptila californica californica),* and San Bernardino kangaroo rat *(Dipodomys merriami parvus).* A portion of the plan has been implemented as the Santa Ana River Wash Plan Land Exchange Act (H.R. 1067), which was signed into law in March 2019, allowing for the exchange of federal Bureau of Land Management (BLM) lands to San Bernardino Valley Water Conservation District for non-federal lands.

Upper Santa Ana River Habitat Conservation Plan

Currently, the Upper Santa Ana River Habitat Conservation Plan is in the planning phase, with a draft plan developed in March 2014, the Notice of Preparation of an Environmental Impact Report (EIR)/Environmental Impact Statement (EIS) published in December 2018, and the Draft EIR circulated on April 19, 2019. The goal of the Upper Santa Ana River Habitat Conservation plan is to provide a streamlined approach to incidental take permitting for water supply projects to meet future water supply demands. The joint EIR/EIS is being prepared by the following agencies: San Bernardino Valley Municipal Water District (Lead Agency for CEQA), USFWS (Lead Agency under NEPA), and CDFW (Trustee and Responsible Agency under CEQA). Twenty-two (22) special-status species, including 11 listed as threatened or endangered pursuant to the ESA and CESA, are included in the Draft List of Covered Species for this plan. (More information regarding the progress of this plan can be found at: http://www.uppersarhcp.com/.)

City of Redlands General Plan

The City of Redlands General Plan 2035 (adopted in 2017) contains policies for the protection and preservation of biological resources. The plan dictates several principles and actions that should be taken to preserve and protect sensitive species, wildlife habitats, and waterways. Principles and actions specifically pertaining to biological resources include the following (excerpted from page 6-12 of the General Plan):

Principles

6-P.7 Protect environmentally sensitive lands, wildlife habitats, and rare, threatened, or endangered plant and animal communities.

6-P.8 Minimize disruption of wildlife and valued habitat throughout the Planning Area and emphasize that open space is for more than just human use, but also serves as habitat for biological resources.

6-P.9 Preserve, protect, and enhance wildlife corridors, including natural watercourses, connecting the San Bernardino National Forest, Santa Ana River Wash, Crafton Hills, San Timoteo and Live Oak Canyons, the Badlands, and other open space areas.

6-P.10 Landscape public areas using native vegetation where practical.

Actions

6-A.11 Require a biological assessment of any proposed project site within the Planning Area where species that are State or federally listed as rare, threatened, or endangered are identified as potentially present.

6-A.12 Require that proposed projects adjacent to, surrounding, or containing wetlands, riparian corridors, or wildlife corridors be subject to a site-specific analysis that will determine the appropriate size and configuration of a buffer zone.

6-A.13 Utilize conservation easements and preserves as means to conserve natural habitats.

6-A.14 Construct freeway and arterial street undercrossings or overpasses where necessary to establish and preserve identified wildlife corridors.

6-A.15 Enhance the Mill Creek Zanja and Morey Arroyo and tributary drainages as riparian corridors, where feasible, to provide habitat as well as recreational and aesthetic value consistent with an overall master plan for habitat preservation.

6-A.16 Work with the Crafton Hills Open Space Conservancy to preserve, enhance, and maintain the Crafton Hills as an ecosystem.

6-A.17 Coordinate open space and habitat preservation in the Crafton Hills with the City of Yucaipa.

6-A.18 Coordinate open space and habitat preservation in San Timoteo and Live Oak canyons with Riverside County.

6-A.19 Continue participation in regional planning efforts to protect habitat and environmentally sensitive species, including efforts by the City of Yucaipa on habitat preservation along Yucaipa Creek and in Live Oak Canyon throughout its length.

6-A.20 Work with State and County agencies in developing recovery and restoration plans after natural or manmade disasters to restore natural landscapes, habitats, and functioning ecosystems. As part of the recovery and restoration plans, include evaluation processes and implementation actions. Where appropriate, incorporate the use of native species.

6-A.21 Ensure that future activities in the Santa Ana River Wash are consistent with the habitat conservation policies of the Upper Santa Ana River Land Management Habitat Conservation Plan (Wash Plan).

4.0 Biological Study Area

4.1.1. Redlands Wastewater Treatment Facility

The biological study area for this portion of the project includes the main office facility, operations area, entrance road, and immediate surrounding boundary of the existing Redlands Wastewater Treatment Facility. The area of the facility is approximately 35.91 acres. The facility is bound by Nevada Street and the Redlands California Landfill to the west, the Santa Ana River to the north, and fallow fields (with evident disking and mowing) to the east and south. The entire property is bound by chain-link fence and is assumed to contain all construction staging areas that would be required for the project.

4.1.2. Force Main Pipeline

The biological study area for the force main pipeline encompasses a 100-foot-wide buffer along the alignment of the new force main pipeline located between the eastern edge of the treatment facility and western edge of the percolation basins, which are located off the east side of Alabama Street.

5.0 Literature Review

To determine which special-status species or special-status waterways/habitats may occur at or near the site, multiple databases were queried. Databases searched included the *Information Planning and Consultation* (IPaC) planning tool (USFWS, 2021), CDFW *California Natural Diversity Data Base* (CNDDB) *Rarefind 5* online application (CDFW, 2021), *National Oceanic and Atmospheric Administration (NOAA) National Marine Fisheries Service Species Lists* (NMFS, 2019), California Native Plant Society (CNPS) *Inventory of Rare Plants* (CNPS, 2019), eBird (2019), and Consortium of California Herbaria (CCH) CCH1 Database (2019). Searches of the nine-quad CNDDB searches yielded large datasets of species; many of these species identified in the search had no potential to occur and therefore were eliminated from review in this report based on one or more of the following rationale: (1) species are not known to occur at the elevation of the project site, (2) the project site is outside of the known distribution of species, and/or (3) species habitat or microhabitats are not present on the project site. Attachment C shows all species that were recovered in a search for the Redlands United States Geological Survey (USGS) quadrangle. All species included in the IPaC search (Attachment D) were evaluated in this report. No species were identified in the NOAA National Marine Fisheries Service Species Lists search (Attachment E). The remaining databases (CNPS, eBird, and CCH) were used to provide information relevant to identifying species present at the site.

Additional records were used to identify survey areas or could support special-status biological resources, including: historical aerial photographs (Google Earth Pro, 2019), the 7.5-minute USGS topographic quadrangle map for Redlands, the National Wetlands Inventory Mapper

(USFWS, 2019a), the National Hydrography Dataset (USGS, 2019), the SSURGO Soil Mapper (USDA-NRCS, 2019), and the USFWS Critical Habitat Mapper (USFWS, 2019b). Historical aerial photos and topographic maps were used to identify features such as special geologic formations, lakes, streams, rivers, canals, buildings, roadways, landmarks, and other features that may fall under jurisdiction of one or more regulatory agencies. Topographic maps, the National Wetlands Inventory Mapper, and the National Hydrography Dataset were used to identify historically recorded wetlands and waterways. Soil data were reviewed to determine if any hydric soils were present within the property boundary. Critical Habitats for special-status species were identified using the USFWS Critical Habitat Mapper.

6.0 Jurisdictional Delineations

Jurisdictional Delineations (JD) are performed on a property to delineate which waters are Waters of the U.S. (WOTUS) and Waters of the State (WOTS) and are therefore subject to water permitting requirements of Section 404 of the Clean Water Act (CWA), Section 401 of the CWA, Section 1602 of the Fish and Game Code, and Section 13000 *et seq.* of the California Water Code. Most often, a preliminary JD is submitted by the permit applicant to the agencies for approval (United States Army Corps of Engineers [USACE], CDFW, and a local RWQCB). USACE is ultimately responsible for making approvals of the delineation of the WOTUS --- the applicant can decide whether they would like a final approved jurisdictional determination or would like to proceed with an application with only a verified preliminary delineation, which makes for a shorter process. CDFW is responsible for making approvals of delineations of the WOTS. Local RWQCBs typically rely on determinations by USACE and CDFW, and they typically assert jurisdiction over WOTUS, and on a case-by-case basis WOTS per the Porter Cologne Act.

Because the project is located outside of potential WOTUS and WOTS, no formal JDs are expected to be required for this project. The Santa Ana River, a WOTUS and WOTS, is located just north of the project (Attachment A, Figure 4). There are no existing streams on the property with connectivity to the Santa Ana River that would be considered WOTUS and/or WOTS. General soil types mapped by USGS in the areas of the percolation ponds overlap with the Santa Ana River (Attachment A, Figure 5), which may indicate that the percolation ponds were built upon areas formerly part of the Santa Ana River or associated riparian areas; however, the soils present within the percolation ponds have been altered (e.g., by land use, mechanical and/or chemical treatments) such that they no longer support native plant communities and would not be considered hydric. Furthermore, percolation ponds are not considered jurisdictional waters because they are man-made structures.

7.0 Results – Biological Resources

The special-status species identified in the literature search are included in Table 2. In total, 41 special-status biological resources were identified in the literature search, including: 14 plants, 1 fish, 8 birds, 10 mammals (including 4 bats and 6 burrowing mammals), and 8 amphibians and reptiles. Of those 41, 10 had substantial (i.e., moderate or higher) potential to occur on the site, including: no plants, no fish, 1 bird, 9 mammals (including 4 bats and 5 burrowing mammals), and no amphibians and reptiles. An evaluation of each species potential considering the habitats observed during the field visit is also provided in Table 2. Species with moderate or higher potential to occur, or marginal habitat present, are discussed in detail in the following section, as appropriate. Critical Habitat for the Santa Ana River sucker is present immediately adjacent to

the project on the north side within the Santa Ana River and is not expected to be impacted by the project.

Table 2. Natural Communities of Concern, Jurisdictional Waters, Listed (Including Proposed) Species, and Critical Habitat Potentially Occurring or Known to Occur in the Project Area.

COMMON NAME[1]	*SCIENTIFIC NAME*[1]	STATUS[1,2]	GENERAL HABITAT DESCRIPTION[1]	HABITAT PRESENT?[3]	POTENTIAL TO OCCUR. JUSTIFICATION
Plants					
marsh sandwort	*Arenaria paludicola*	FE, SE, CRPR 1B.1	Freshwater marsh, marsh & swamp, wetland	Absent	**No potential to occur.** No habitats are present onsite that would support this species. The site is developed.
San Diego ambrosia	*Ambrosia pumila*	FE, CRPR 1B.1	Chaparral, coastal scrub, valley & foothill grassland	Absent	**No potential to occur.** No habitats are present onsite that would support this species. The site is developed.
Nevin's barberry	*Berberis nevinii*	FE, SE, CRPR 1B.1	Chaparral, cismontane woodland, coastal scrub, riparian scrub	Absent	**No potential to occur.** No habitats are present onsite that would support this species. The site is developed.
smooth tarplant	*Centromadia pungens ssp. laevis*	CRPR 1B.1	Alkali playa, chenopod scrub, meadow & seep, riparian woodland, grasslands, wetland	Absent	**No potential to occur.** No habitats are present onsite that would support this species. The site is developed.
salt marsh bird's-beak	*Chloropyron maritimum ssp. maritimum*	FE, SE, CRPR 1B.1	Coastal dunes, marsh & swamp, salt marsh, wetland	Absent	**No potential to occur.** No habitats are present onsite that would support this species. The site is developed.

Table 2. Natural Communities of Concern, Jurisdictional Waters, Listed (Including Proposed) Species, and Critical Habitat Potentially Occurring or Known to Occur in the Project Area.

COMMON NAME[1]	*SCIENTIFIC NAME*[1]	STATUS[1,2]	GENERAL HABITAT DESCRIPTION[1]	HABITAT PRESENT?[3]	POTENTIAL TO OCCUR. JUSTIFICATION
Parry's spineflower	*Chorizanthe parryi var. parryi*	CRPR 1B.1	Chaparral, cismontane woodland, coastal scrub, grasslands	Absent	**Low potential to occur.** No habitats are present onsite that would support this species. The site is developed. The nearby areas of the Santa Ana River could support this species.
Peruvian dodder	*Cuscuta obtusiflora var. glandulosa*	CRPR 2B.2	Marsh & swamp, wetland	Absent	**No potential to occur.** No habitats are present onsite that would support this species. The site is developed.
slender-horned spineflower	*Dodecahema leptoceras*	FE, SE, CRPR 1B.1	Chaparral, cismontane woodland, coastal scrub	Absent	**Low potential to occur.** No habitats are present onsite that would support this species. The site is developed. The nearby areas of the Santa Ana River could support this species.

Table 2. Natural Communities of Concern, Jurisdictional Waters, Listed (Including Proposed) Species, and Critical Habitat Potentially Occurring or Known to Occur in the Project Area.

COMMON NAME[1]	*SCIENTIFIC NAME*[1]	STATUS[1,2]	GENERAL HABITAT DESCRIPTION[1]	HABITAT PRESENT?[3]	POTENTIAL TO OCCUR. JUSTIFICATION
Santa Ana River woollystar	*Eriastrum densifolium ssp. sanctorum*	FE, SE, CRPR 1B.1	Chaparral, coastal scrub	Absent	**Low potential to occur.** No habitats are present onsite that would support this species. The site is developed and disturbed. The nearby areas of the Santa Ana River could support this species.
Robinson's pepper-grass	*Lepidium virginicum var. robinsonii*	CRPR 4.3	Chaparral, coastal scrub	Absent	**No potential to occur.** No habitats are present onsite that would support this species. The site is developed and disturbed.
Parish's bush-mallow	*Malacothamnus parishii*	CRPR 1A	Chaparral, coastal scrub	Absent	**No potential to occur.** No habitats are present onsite that would support this species. The site is developed and disturbed.
Parish's gooseberry	*Ribes divaricatum var. parishii*	CRPR 1A	Riparian woodland	Absent	**No potential to occur.** No habitats are present onsite that would support this species. The site is developed and disturbed.

Table 2. Natural Communities of Concern, Jurisdictional Waters, Listed (Including Proposed) Species, and Critical Habitat Potentially Occurring or Known to Occur in the Project Area.

COMMON NAME[1]	*SCIENTIFIC NAME*[1]	STATUS[1,2]	GENERAL HABITAT DESCRIPTION[1]	HABITAT PRESENT?[3]	POTENTIAL TO OCCUR. JUSTIFICATION
Plummer's mariposa-lily	*Calochortus plummerae*	CRPR 4.2	Chaparral, cismontane woodland, coastal scrub, lower montane coniferous forest, grasslands	Absent	**No potential to occur.** No habitats are present onsite that would support this species. The site is developed and disturbed.
California satintail	*Imperata brevifolia*	CRPR 2B.1	Chaparral, coastal scrub, meadow & seep, Mojavean desert scrub, riparian scrub, wetland	Absent	**No potential to occur.** No habitats are present onsite that would support this species. The site is developed and disturbed.
Birds					
burrowing owl	*Athene cunicularia*	SSC	Coastal prairie, coastal scrub, great basin scrub, desert scrub, grasslands	Present	**Moderate potential to occur.** The project site has suitable habitat present, and California ground squirrel were observed at the site, which are one of the primary prey for this species.

Table 2. Natural Communities of Concern, Jurisdictional Waters, Listed (Including Proposed) Species, and Critical Habitat Potentially Occurring or Known to Occur in the Project Area.

COMMON NAME[1]	*SCIENTIFIC NAME*[1]	STATUS[1,2]	GENERAL HABITAT DESCRIPTION[1]	HABITAT PRESENT?[3]	POTENTIAL TO OCCUR. JUSTIFICATION
western yellow-billed cuckoo	*Coccyzus americanus occidentalis*	FT, SE	Riparian forest	Absent	**Low potential to occur.** The site is developed, and vegetation present does not provide adequate canopy cover, although this species could use the site for feeding and foraging.
southwestern willow flycatcher	*Empidonax traillii extimus*	FE, SE	Riparian woodland	Absent	**Low potential to occur.** The site is developed, and vegetation present does not provide adequate canopy cover, although this species could use the site for feeding and foraging.
yellow-breasted chat	*Icteria virens*	SSC	Riparian forest, riparian scrub, riparian woodland	Absent	**Low potential to occur.** The site is developed, and vegetation present does not provide adequate canopy cover, although this species could use the site for feeding and foraging.

Table 2. Natural Communities of Concern, Jurisdictional Waters, Listed (Including Proposed) Species, and Critical Habitat Potentially Occurring or Known to Occur in the Project Area.

COMMON NAME[1]	*SCIENTIFIC NAME*[1]	STATUS[1,2]	GENERAL HABITAT DESCRIPTION[1]	HABITAT PRESENT?[3]	POTENTIAL TO OCCUR. JUSTIFICATION
loggerhead shrike	*Lanius ludovicianus*	SSC	Broadleaved upland forest, desert wash, Joshua tree woodland, desert scrub, pinon & juniper woodlands, riparian woodland	Absent	**Low potential to occur.** The site is developed, and vegetation present does not provide adequate canopy cover, although this species could use the site for feeding and foraging.
coastal California gnatcatcher	*Polioptila californica californica*	FT, SSC	Coastal bluff scrub, coastal scrub	Present	**Low potential to occur.** The site is developed, and vegetation present does not provide adequate canopy cover, although this species could use the site for feeding and foraging.
yellow warbler	*Setophaga petechia*	SSC	Riparian forest, riparian scrub, riparian woodland	Absent	**Low potential to occur.** The site is developed, and vegetation present does not provide adequate canopy cover, although this species could use the site for feeding and foraging.

Table 2. Natural Communities of Concern, Jurisdictional Waters, Listed (Including Proposed) Species, and Critical Habitat Potentially Occurring or Known to Occur in the Project Area.

COMMON NAME[1]	*SCIENTIFIC NAME*[1]	STATUS[1,2]	GENERAL HABITAT DESCRIPTION[1]	HABITAT PRESENT?[3]	POTENTIAL TO OCCUR. JUSTIFICATION
least Bell's vireo	*Vireo bellii pusillus*	FE, SE	Riparian forest, riparian scrub, riparian woodland	Absent	**Low potential to occur.** The site is developed, and vegetation present does not provide adequate canopy cover, although this species could use the site for feeding and foraging.
Mammals					
pallid bat	*Antrozous pallidus*	SSC	Chaparral, coastal scrub, desert wash, great basin scrub, desert scrub, riparian woodland, upper montane coniferous forest, grasslands	Marginal	**Moderate potential to occur.** The site is developed; no guano was observed on the site, but structures present could support roosting of bats.
northwestern San Diego pocket mouse	*Chaetodipus fallax fallax*	SSC	Chaparral, coastal scrub	Present	**Moderate potential to occur.** Small burrows present at the adjacent percolation basins could support this species.

Table 2. Natural Communities of Concern, Jurisdictional Waters, Listed (Including Proposed) Species, and Critical Habitat Potentially Occurring or Known to Occur in the Project Area.

COMMON NAME[1]	*SCIENTIFIC NAME*[1]	STATUS[1,2]	GENERAL HABITAT DESCRIPTION[1]	HABITAT PRESENT?[3]	POTENTIAL TO OCCUR. JUSTIFICATION
San Bernardino kangaroo rat	*Dipodomys merriami parvus*	SSC	Coastal scrub	Present; Critical Habitat Present	**Moderate potential to occur.** Small burrows present at the adjacent percolation basins could support this species.
Stephens' kangaroo rat	*Dipodomys stephensi*	FE, SE	Coastal scrub, grasslands	Present	**Moderate potential to occur.** Small burrows present at the adjacent percolation basins could support this species.
western mastiff bat	*Eumops perotis californicus*	SSC	Chaparral, cismontane woodland, coastal scrub, grasslands	Marginal	**Moderate potential to occur.** The site is developed; no guano was observed on the site, but structures present could support roosting of bats.
western yellow bat	*Lasiurus xanthinus*	SSC	Desert wash	Marginal	**Moderate potential to occur.** The site is developed; no guano was observed on the site, but structures present could support roosting of bats.

Table 2. Natural Communities of Concern, Jurisdictional Waters, Listed (Including Proposed) Species, and Critical Habitat Potentially Occurring or Known to Occur in the Project Area.

COMMON NAME[1]	*SCIENTIFIC NAME*[1]	STATUS[1,2]	GENERAL HABITAT DESCRIPTION[1]	HABITAT PRESENT?[3]	POTENTIAL TO OCCUR. JUSTIFICATION
San Diego desert woodrat	*Neotoma lepida intermedia*	SSC	Coastal scrub	Marginal	**Low potential to occur.** The site is developed and lacks vegetation cover typical of woodrat nesting sites. Marginal habitat is available in well-established shrubs and trees on the property. No woodrat nests were observed during the field visits, and due to the level of activity on the site, they are not expected.
pocketed free-tailed bat	*Nyctinomops femorosaccus*	SSC	Joshua tree woodland, pinon & juniper woodlands, riparian scrub, Sonoran desert scrub	Marginal	**Moderate potential to occur.** The site is developed; no guano was observed on the site, but structures present could support roosting of bats.
Los Angeles pocket mouse	*Perognathus longimembris brevinasus*	SSC	Coastal scrub	Present	**Moderate potential to occur.** Small burrows present at the adjacent percolation basins could support this species.

Table 2. Natural Communities of Concern, Jurisdictional Waters, Listed (Including Proposed) Species, and Critical Habitat Potentially Occurring or Known to Occur in the Project Area.

COMMON NAME[1]	*SCIENTIFIC NAME*[1]	STATUS[1,2]	GENERAL HABITAT DESCRIPTION[1]	HABITAT PRESENT?[3]	POTENTIAL TO OCCUR. JUSTIFICATION
American badger	*Taxidea taxus*	SSC	Coastal scrub, chaparral, desert scrub, and others	Marginal	**Moderate potential to occur.** The project site has suitable habitat present, and California ground squirrel were observed at the site, which are one of the primary prey for this species.
Fish					
Santa Ana sucker	*Catostomus santaanae*	FE	Rivers and streams	Absent; Critical Habitat is adjacent to project	**No potential to occur.** No habitats are present onsite that would support this species. The site is developed.
Reptiles and Amphibians					
southern California legless lizard	*Anniella stebbinsi*	SSC	Broadleaved upland forest, chaparral, coastal dunes, coastal scrub	Marginal	**Low potential to occur.** Site is disturbed and developed. Marginal habitat is present for this species, but this species is not expected to occur at the site.

Table 2. Natural Communities of Concern, Jurisdictional Waters, Listed (Including Proposed) Species, and Critical Habitat Potentially Occurring or Known to Occur in the Project Area.

COMMON NAME[1]	*SCIENTIFIC NAME*[1]	STATUS[1,2]	GENERAL HABITAT DESCRIPTION[1]	HABITAT PRESENT?[3]	POTENTIAL TO OCCUR. JUSTIFICATION
California glossy snake	*Arizona elegans occidentalis*	SSC	Grasslands, alluvial scrub, coastal scrub, riparian scrub, chaparral	Marginal	**Low potential to occur.** Site is disturbed and developed. Marginal habitat is present for this species, but this species is not expected to occur at the site.
coastal whiptail	*Aspidoscelis tigris stejnegeri*	SSC	Coastal scrub, chaparral, riparian scrub, grassland	Marginal	**Low potential to occur.** Site is disturbed and developed. Marginal habitat is present for this species, but this species is not expected to occur at the site.
red-diamond rattlesnake	*Crotalus ruber*	SSC	Chaparral, desert scrub	Marginal	**Low potential to occur.** Site is disturbed and developed. Marginal habitat is present for this species, but this species is not expected to occur at the site.
coast horned lizard	*Phrynosoma blainvillii*	SSC	Chaparral, coastal scrub, desert wash, woodlands, riparian scrub, grasslands	Absent	**Low potential to occur.** Soils present at the site are sandy but disturbed and not sufficiently friable to support this species.

Table 2. Natural Communities of Concern, Jurisdictional Waters, Listed (Including Proposed) Species, and Critical Habitat Potentially Occurring or Known to Occur in the Project Area.

COMMON NAME[1]	*SCIENTIFIC NAME*[1]	STATUS[1,2]	GENERAL HABITAT DESCRIPTION[1]	HABITAT PRESENT?[3]	POTENTIAL TO OCCUR. JUSTIFICATION
southern mountain yellow-legged frog	*Rana muscosa*	FE, SE	Aquatic	Absent	**No potential to occur.** No habitats are present onsite that would support this species. The site is developed.
western spadefoot	*Spea hammondii*	SSC	Cismontane woodland, coastal scrub, grasslands, vernal pool, wetland	Absent	**No potential to occur.** No habitats are present onsite that would support this species. The site is developed.
two-striped garter snake	*Thamnophis hammondii*	SSC	Marsh & swamp, riparian scrub, riparian woodland, wetland	Absent	**No potential to occur.** No habitats are present onsite that would support this species. The site is developed.

Notes:
[1]Source:
CDFW, 2018 (CNDDB); USFWS, 2018b (IPaC)
[2] Key to Acronyms:
WRMSHCP=Western Riverside Multiple Species Habitat Conservation Plan
USACE/CDFW/RWQCB= Potentially subject to the jurisdiction of the United States Army Corps of Engineers, California Department of Fish and Wildlife, and Regional Water Quality Control Board
FE= Federal Endangered, FT= Federal Threatened
SE= State Endangered, ST= State Threatened, CSE= Candidate State Endangered
SSC= Species of Special Concern (State)
CRPR=California Rare Plant Rank, for more info see: http://www.rareplants.cnps.org/glossary.html
[3]Explaination:
Present= Habitat is present onsite; Marginal = Habitat onsite is very low quality and/or degraded, and not likely to support this species; Absent = Habitat that could support this species is not present onsite.

7.1.1. Field Survey

General Habitat Assessment

The field survey is required to determine if sensitive biological resources are present at the project site. The field survey consisted of a pedestrian survey and habitat assessment of the proposed project areas. The Redlands WWTP was surveyed by Elizabeth Kempton, PhD, Principal Biological Scientist, on May 6, 2019. The force main pipeline alignment was surveyed by Emile Fiesler on May 3, 2021. Data collected included general observations of wildlife species, plant species, wetlands/waterways, and other applicable natural resources information. Geotagged

photographs (Attachment B) were taken to document current conditions at each of the proposed project areas, and general locations of burrows were noted in field notes. Areas outside of the project boundary were not surveyed because access to the private properties was not permitted and/or areas were fenced off; however, adjacent areas were viewed with binoculars to assess general wildlife and habitat that were in the general vicinity.

7.1.2. Habitat Types and Natural Communities

The habitat types present at the site are classified as Disturbed/Developed with a small area of coastal sage scrub (CSS) habitat identified between the eastern edge of the main facility and Alabama Street. Attachment A, Figure 6, shows a vegetation map for the properties. Detailed descriptions of the features present at each of the properties are outlined below.

Redlands Wastewater Treatment Facility

The main property of the Redlands WWTP is developed, consisting of built structures, barren lands near structures and on roads (evidence of herbicide use or soil alteration), ruderal vegetation, and an array of landscaped areas including areas with several mature trees that could support nesting birds.

Force Main Pipeline

The area of the force main pipeline is dominated by introduced annual grasses. In the center of this area is an elevated plateau that contains a small area of CSS habitat, which includes native California buckwheat (*Eriogonum fasciculatum*), California sunflower (*Encelia californica*), purple sage (*Salvia leucophylla*), California sagebrush (*Artemisia californica*), giant wild-rye (*Elymus condensatus*), mulefat (*Baccharis salicifolia salicifolia*), and chaparral yucca (*Hesperoyucca whipplei*). Two patches of native plants, including California croton (*Croton californicus*), bur-sage (*Ambrosia* cf. *acanthicarpa*), fiddleneck (*Amsinckia* sp.), and stinging lupine (*Lupinus hirsutissimus*), are located just west of Alabama Street. Additionally, there are a few introduced eucalyptus trees (*Eucalyptus globulus*) near the edges of the treatment facility and adjacent Alabama Street.

7.1.3. Habitat Connectivity

Habitat connectivity is established where a wildlife movement corridor connects two blocks of native habitat. A wildlife corridor between such habitats allows genetic interchange between populations. The proposed project area is located on already developed lands. The existing Redlands WWTP and area of the force main pipeline are fenced off, and neither location serves as a wildlife corridor. There are no designated wildlife corridors that occur in the proposed project area and pipeline alignment, and the proposed project would not change the existing movement of wildlife movement in the biological study area. No impacts to habitat connectivity are anticipated as part of this project.

7.1.4. Jurisdictional Waters

No jurisdictional waters are in the biological study area. Just outside of the project area is the Santa Ana River, a WOTUS and WOTS, which shall be avoided by the project. No impacts to jurisdictional waters are anticipated as part of this project.

8.0 Summary of Impacts

The biological study area is heavily developed, and project impacts would be limited to disturbed lands and a small area of CSS habitat (approximately 0.1 acre). While the project would not further impact native vegetation, it is important to note that sensitive biological resources can still be found in these developed areas, and due to the project's adjacency to the Santa Ana River, the likelihood of a sensitive species encroaching the area is higher than typical infill projects.

While no special-status plant or wildlife species were observed in the biological study area during the habitat assessment, suitable habitat in the biological study area is available for the following biological resources: nesting birds, burrowing owl (BUOW), burrowing mammals (San Bernardino kangaroo rat, Stephens' kangaroo rat, northwestern San Diego pocket mouse, Los Angeles pocket mouse, and American badger), and bats. These sensitive biological resources are discussed below.

Due to the adjacency of the Santa Ana River to the project, this resource is also discussed below, although it is not expected to be impacted by the project.

8.1.1. Nesting Birds

The proposed project areas, both the main Redlands WWTP and the force main pipeline alignment, have features that could support a variety of nesting birds. Well-established ornamental trees and cubby structures may provide marginal nesting habitat for common birds, including raptors, protected under the MBTA and the California Fish and Game Code. Due to the presence of water in structures of the Redlands WWTP and high-quality habitat located in the adjacent Santa Ana River, various bird species encroach the site at any time, including special-status species. Construction of the proposed project that is to occur during the general bird nesting season (February 15–September 1) could result in impacts to nesting birds. For this reason, mitigation measures have been included to reduce impacts on nesting birds and raptors.

8.1.2. Burrowing Owl

No BUOW, or sign thereof, was observed during the survey; nonetheless, the Redlands WWTP site and force main pipeline alignment contain marginally suitable habitat for BUOW. All burrows observed that corresponded to sizes/characteristics that could support BUOW were assessed and found to be occupied or recently occupied by California ground squirrel.

BUOW have been known to occupy habitats similar to the project site, such as water basins, fallow fields, and open disturbed areas. As a result, avoidance/minimization measures should be followed to reduce impacts on BUOW. It is important to note that BUOW could encroach the site at any time, and as a precaution, preconstruction surveys should be conducted following guidelines provided in California Department of Fish and Game's *Staff Report on Burrowing Owl Mitigation* (CDFG, 2012) to prevent any impacts to BUOW.

8.1.3. Burrowing Mammals

The proposed project site contains habitat that is suitable for several sensitive burrowing mammals, including San Bernardino kangaroo rat, Stephens' kangaroo rat, northwestern San Diego pocket mouse, Los Angeles pocket mouse, and American badger. Small burrows present at the percolation basins could be active and support San Bernardino kangaroo rat, Stephens' kangaroo rat, northwestern San Diego pocket mouse, and Los Angeles pocket mouse. The

project site is located within San Bernardino Kangaroo Rat Critical Habitat. Due to the proximity of known populations of several sensitive burrowing mammals near the project site mitigation measures should be implemented, as described in Section 9 of this report. Additionally, consultation with USFWS and CDFW shall be required and Incidental Take Permits obtained for the project in compliance with the federal and state Endangered Species Acts.

8.1.4. Bats

Structures at the Redlands WWTP and well-established ornamental trees that are present at the Redlands WWTP and along portions of the force main pipeline alignment could support roosting bats. No bats were observed during the survey; nonetheless, bats could encroach structures on the site at any time. Vegetation north of the project areas, within and adjacent to the Santa Ana River, provides high-quality habitat for many species of bats; therefore, precautions should be followed to avoid potential impacts.

8.1.5. Potential Jurisdictional Features

There are no potential jurisdictional features within the planned project area; however, the Santa Ana River is located immediately adjacent to the north of the project area (Attachment A, Figure 4). Because property boundaries are fenced off, no JDs should be required, and it is expected that the Santa Ana River shall be avoided by the project.

9.0 Recommendations

9.1.1. Management of Nesting Birds

Nesting Birds

Only active nests are protected under federal and State law. A nest is considered active as soon as construction of a new nest or the use of an existing nest commences. A nest is considered inactive when it does not contain viable eggs, young, or fledglings that are still dependent on the nest, and it can be lawfully removed/destroyed if possession of the nest does not occur. The following measures will minimize project impacts to nesting birds:

- The standard buffer width for the project is 300 feet for passerine birds.
- If nests are found on private property within the 300-foot buffer area, coordinate with CDFW to modify the buffer distance before any clearing or ground-disturbing activities occur at this location.
- Nests identified during monitoring will be reviewed by the Qualified Biologist for appropriate work restriction distance and suitable avoidance measures. A Qualified Biologist is one that has previously surveyed for nesting bird species within southern California.
- Work near mature trees should be conducted outside of the bird nesting season (February 15 to September 1). To avoid effects to nesting birds, vegetation removal or tree-trimming activities will occur outside of the nesting season. This will ensure that no impacts to nesting birds occur. If work occurs during the nesting season, a Qualified Biologist will need to conduct preconstruction nesting bird surveys prior to any vegetation-disturbing activity within 300 feet of construction areas no more than 30 days prior to the start of construction at the location to identify the locations of nests, if any. Should nesting birds be found, an exclusionary buffer will be established by the Qualified Biologist around each nest site. The Qualified Biologist will be responsible for surveys, providing nesting bird identification,

implementation of identified protection measures, and coordination with applicable resource agencies. The buffer will be clearly marked in the field by construction personnel under guidance of the contractor's Qualified Biologist, in coordination with USFWS and CDFW, and construction or clearing will not be conducted within this zone until the Qualified Biologist determines that the young have fledged or the nest is no longer active.

- During construction, if a nest is found during the nesting season, the Qualified Biologist will be contacted, and the site will be visited within 24 hours. Work will cease within 300 feet of the discovered nest.
- Work may occur during the swallow/swift nesting season (March 1 through September 1). Swallows will be excluded from structures, if necessary, by a Qualified Biologist during the nonbreeding season immediately prior to the start of construction. Exclusion structures will be left in place and maintained through September 1 of each breeding season or until work is complete.

Nesting Deterrents

Options for nest deterrents, may include, but are not limited to, the following:

Mesh Netting

Use of mesh netting to cover equipment, stored materials and equipment, and partially constructed facilities helps prevent birds from accessing potential nesting sites within the construction areas. Inspections and maintenance of netting will be performed daily to avoid impacts to birds and other wildlife species. Netting can be ordered for this purpose from several companies, including USA Bird Control (http://www.usabirdcontrol.com) and Nylon Net Co. (http://www.nylonnet.com/). The size of the mesh grid can vary depending on the sizes of birds that are being excluded. A 0.75-inch sized mesh may be suitable for excluding the greatest number of birds, including small birds such as house finches and swallows.

To increase the effectiveness of the mesh netting as a bird exclusion device, equipment or other objects will be completely covered, leaving no gaps in the netting through which birds could enter and build a nest under the netting. Mesh netting will be inspected daily to identify and repair any rips or gaps in the netting that could permit birds to pass through and to look for wildlife that may become trapped in the netting. If wildlife is observed inside or trapped in the mesh netting, the Qualified Biologist will be contacted immediately. Netting will be installed under direction of the Qualified Biologist.

Tarps

Where practical, equipment and materials can be covered with tarps; however, tarps must be tied down firmly to secure them against strong winds and will not be open at the bottom to prevent access. Tarps will be inspected at least once per week to identify and correct any openings that may allow cavity-nesting bird species to enter. If openings are found, the tarps will be inspected for trapped wildlife before reclosure. Tarps will be installed under direction of the Qualified Biologist.

Bird Spikes

Use of plastic or stainless spikes can be effective in discouraging birds from landing on structures and thus deterring nest establishment. Bird spikes typically consist of groupings of stainless steel or ultraviolet (UV)-resistant polycarbonate spikes that are spaced in such a

way as to prevent birds from landing and gaining a foothold on the surface to which the spikes are adhered.

Bird spikes can be specially ordered for this purpose from several companies, including USA Bird Control and Bird-B-Gone (http://birdbgone.com/). Spikes will be installed under direction of the Qualified Biologist.

Visual Deterrents

A variety of visual deterrents can be used to discourage birds from nesting. Visual deterrents can be affixed to construction equipment, around the perimeter of storage yards, to scare birds from the area, thereby reducing the likelihood of nesting. Visual deterrents will be installed under direction of the Qualified Biologist and may include, but are not limited to, ribbons and flagging.

Nest Removal

Even with implementation of these measures, avian species may successfully initiate nest attempts in the construction area, or on structures, including falsework related to the project. In situations where nests have been initiated despite implementation of deterrent methods, the Qualified Biologist shall coordinate with CDFW for subsequent steps. Work shall not proceed until cleared by the Qualified Biologist at the nesting location.

Raptors

Though not directly observed, there is suitable habitat for raptors in the biological study area. The following measures will minimize project impacts to raptors:

Seven days prior to the onset of construction activities, a Qualified Biologist will survey within the limits of the project disturbance for the presence of any active raptor nests. Any nest found during survey efforts will be mapped on the construction plans. If no active nests are found, no further mitigation will be required.

If nesting activity is present at any raptor nest site, the active site will be protected until nesting activity has ended to ensure compliance with Section 3503.5 of the California Fish and Game Code. Nesting activity for raptors in the region of the proposed project normally occurs from February 1 to June 30. To protect any nest site, the following restrictions on construction are required between February 1 and June 30 (or until nests are no longer active as determined by a Qualified Biologist): (1) clearing limits will be established a minimum of 300 feet in any direction from any occupied nest and (2) access and surveying will be restricted within 200 feet of any occupied nest. Any encroachment into the 300-/200-foot buffer area around the known nest will only be allowed if it is determined by a Qualified Biologist that the proposed activity will not disturb the nest occupants. Construction during the non-nesting season can occur only at the sites if a Qualified Biologist has determined that fledglings have left the nest.

Burrowing Owl

The biological study area contains suitable habitat for BUOW. In southern California, the breeding (nesting) season begins as early as February 1 and continues through September 1. The following measures will minimize project impacts to BUOW:

To ensure that any BUOW that may occupy the site in the future are not affected by construction activities, preconstruction BUOW surveys shall be conducted by a Qualified Biologist within 30 days prior to any phase of construction in the areas identified as potential BUOW habitat. A

preconstruction survey shall be conducted by a Qualified Biologist in accordance with the survey requirements detailed in the California Department of Fish and Game's *March 7, 2012, Staff Report on Burrowing Owl* (CDFG, 2012).

Survey adjoining areas within 500 feet or more where direct or indirect effects could potentially extend offsite. If lawful access cannot be achieved to adjacent areas, surveys can be performed with a spotting scope or other methods.

If conducting nonbreeding season surveys, conduct at least four site visits, spread evenly throughout the nonbreeding season following guidance for breeding season surveys (CDFG, 2012).

Any active burrow found during preconstruction survey efforts shall be mapped and provided to the construction foreman. If no active burrows are found, no further mitigation shall be required. These surveys are also required to comply with the federal MBTA and the California Fish and Game Code.

If a BUOW or an occupied burrow is discovered during construction, immediately stop work in the immediate area of the occupied burrow until a Qualified Biologist arrives.

Recommended restricted activity dates and setback distances by level of disturbance for BUOW (CDFG, 2012) are listed in Table 3. The CEQA lead agency and/or project proponent is encouraged to consult with CDFW for assistance in developing site-specific buffer zones and visual screens.

Table 3. Burrowing Owl Recommended Nest Buffers

LOCATION	TIME OF YEAR	LEVEL OF DISTURBANCE		
		LOW	MEDIUM	HIGH
Nesting sites	April 1–August 15	2,200 meters	5,500 meters	5,500 meters
Nesting sites	August 16–October 15	2,200 meters	2,200 meters	5,500 meters
Nesting sites	October 16–March 31	550 meters	2,100 meters	5,500 meters

Source: CDFG, 2012.

If BUOW must be moved away from the disturbance area, passive relocation is preferable to trapping. Relocation shall be implemented only during the nonbreeding season by a Qualified Biologist and will occur in coordination with CDFW. BUOW shall be excluded from burrows in the immediate impact zone by installing one-way doors in burrow entrances. One-way doors shall be left in place for 48 hours to ensure BUOW have left the burrow before excavation.

An effort shall be made to preserve foraging habitat contiguous with occupied burrow sites for each pair of breeding BUOWs or for every single unpaired resident bird.

Areas of bare ground, low-density vegetation, human-made structures, abandoned equipment, and other areas considered suitable for the BUOW shall be surveyed. All natural or human-made cavities large enough to allow BUOW entry shall be inspected for evidence of occupation. Evidence of occupation may include prey remains, cast pellets, white-wash, feathers, and

observations of BUOW adjacent to burrows. Any evidence of BUOW occupation was described and mapped, and the location of the evidence was recorded using a global positioning system (GPS) unit.

Passive Relocation

Eviction must occur outside of the nesting season and before construction begins. The Qualified Biologist will develop plans to replace lost burrows at a 3:1 ratio in suitable habitat if it is determined that this would improve habitat conditions. Plans should be submitted to CDFW before construction begins. Relocation of BUOW should only be implemented during the nonbreeding season.

Passive relocation does not involve actual capture and removal. Rather, BUOW are enticed to artificial (or natural) burrows by providing such burrows and using one-way door "traps" that allow BUOW to leave the burrow of concern but not re-enter. One-way doors shall be left in place 48 hours to ensure BUOW have left the burrow before excavation. One alternate natural or artificial burrow shall be provided for each burrow that will be excavated in the project area. This area shall be monitored daily for 1 week to confirm BUOW use of alternate burrows before excavating burrows in the immediate zone of impact. Whenever possible, burrows should be excavated using hand tools and refilled to prevent reoccupation.

If such actions are taken, coordination with CDFW and/or USFWS, as appropriate, is necessary prior to relocation. At least 1 week is recommended to allow the BUOW to move and acclimate to alternate burrows.

Other possibilities for mitigation will be the improvement or addition of BUOW habitat. Potential sites for grassland restoration and inclusion of artificial burrows do not exist within the project footprint; therefore, offsite mitigation will be required.

9.1.2. Recommended Avoidance and Minimization Measures

Preconstruction Nesting Bird Survey. For construction in areas containing or adjacent to mature trees or potential habitat for nesting birds, and that initiates between February 1 and September 30, a Qualified Biologist will conduct a preconstruction nesting bird survey to determine if any nesting birds (including BUOW) are present on the work site. This survey will be initiated within 30 days before the start of construction. The survey report will include a finding of whether monitoring during construction will be required. Should nesting birds be found, an exclusionary buffer will be established by the Qualified Biologist around each nest site. Buffer size will be determined by bird species. The Qualified Biologist will be responsible for surveys, providing nesting bird identification, implementation of identified protection measures, and coordination with applicable resource agencies. The buffer will be clearly marked in the field by construction personnel under guidance of the Qualified Biologist, in coordination with USFWS and CDFW, and construction or clearing will not be conducted within this zone until the Qualified Biologist determines that the young have fledged or the nest is no longer active.

Nesting Bird/Burrowing Owl Awareness Training. For work within areas considered potential nesting habitat, the construction contractor(s) will ensure that the workers' environmental awareness training program includes a short instructional presentation on nesting birds to be presented to all construction personnel at the start of earthwork.

Tree Removal and/or Trimming. The removal and/or trimming of ornamental trees is likely to occur for the proposed project. If trees are to be impacted (i.e., trimmed or removed) by the

project, a tree survey shall be completed for the project to count the exact number and type of trees to be impacted. Trees that shall be avoided during construction shall be flagged as an environmentally sensitive area by a Qualified Biologist prior to construction if immediately adjacent to the work area to avoid potential impacts by construction vehicles and/or equipment. Trees shall be planted in 1:1 replacement for removed trees, and a City of Redlands Landscape Architect, or designated representative, shall approve the species proposed for planting.

Environmentally Sensitive Area Fencing. The limits of disturbance for installation of the force main pipeline (15-feet wide corridor) crossing the CSS habitat shall be clearly marked with the installation of environmentally sensitive area fencing (i.e., orange construction fencing). Fencing shall be installed to protect and preserve the CSS habitat located outside of the established limits of disturbance.

Soil Stabilization and Erosion Control. Special care shall be taken to avoid any erosion or runoff of materials from the site due to the proximity of the project area to the Santa Ana River. Disturbed soil areas will be stabilized with landscaping and/or permanent erosion control measures. Standard best management practices (BMPs) include, but are not limited to, preservation of existing vegetation and slope/surface protection systems (i.e., vegetated surfaces, benching, or terracing). The Santa Ana River and adjacent vegetation shall be completely avoided during the course of the project to prevent unpermitted impacts to jurisdictional areas.

Invasive Species Control. Any fill materials required for construction will be obtained from a source certified as uncontaminated by seeds or pieces of stems and rhizomes capable of vegetative sprouting by invasive weeds. Prudent selection of necessary fill will be accomplished from weed-free sources.

Nesting Raptors: A preconstruction survey for nesting raptors shall be done by a Qualified Biologist within the limits of project disturbance. Any active nest found during survey efforts shall be mapped on the construction plans. If nesting activity is present, the active site shall be protected until nesting activity ends to ensure compliance with Section 3503.5 of the California Fish and Game Code.

Nesting activity for raptors in the region normally occurs from February 1 to August 31. If no active nests are found, no further mitigation will be required. Results of the surveys shall be provided to CDFW.

To protect any nest site, the following restrictions on construction will be required between February 1 and August 31 (or until nests are no longer active, as determined by a Qualified Biologist): (1) clearing limits shall be established a minimum of 300 feet in any direction from any occupied nest and (2) access and surveying shall be restricted within 200 feet of any occupied nest. Any encroachment into the 300-/200-foot buffer area around the known nest shall only be allowed if it is determined by a Qualified Biologist that the proposed activity shall not disturb the nest occupants. Construction during the non-nesting season can occur only at the sites if a Qualified Biologist determines that fledglings have left the nest.

Burrowing Owl: A preconstruction survey shall be conducted by a Qualified Biologist in accordance with the survey requirements detailed in the *Staff Report on Burrowing Owl* (CDFG, 2012).

Any active burrow found during preconstruction survey efforts shall be mapped and provided to the construction foreman. If no active burrows are found, no further mitigation shall be required.

No disturbance shall occur within 160 feet of occupied burrows during the nonbreeding season (September 1 through January 31) or within 250 feet during the breeding season (February 1 through August 31).

If BUOW must be moved away from the disturbance area, passive relocation is preferable to trapping. Relocation shall be implemented only during the nonbreeding season by a Qualified Biologist and will occur in coordination with CDFW. BUOW shall be excluded from burrows in the immediate impact zone by installing one-way doors in burrow entrances. One-way doors shall be left in place for 48 hours to ensure BUOW have left the burrow before excavation.

An effort shall be made to preserve foraging habitat contiguous with occupied burrow sites for each pair of breeding BUOW or for every single unpaired resident bird.

Additional compensatory mitigation for BUOW shall be required only if BUOW found within 250 feet of construction activities during preconstruction surveys cannot be avoided during construction. In this event, further coordination with CDFW is required.

Bats: During construction, when nightwork is required, lighting during the early evening twilight hours adjacent to open space areas shall be minimized or avoided to the greatest extent possible. Permanent night lighting for the project shall be directed away from natural open space areas.

Burrowing Mammals: At a minimum, a preconstruction survey shall be conducted by a Qualified Biologist within 30 days of ground disturbance for sensitive burrowing mammals (American badger, San Bernardino kangaroo rat, Stephen's kangaroo rat, or Los Angeles pocket mouse) to avoid impacting these animals. Active burrows identified during the preconstruction survey shall be flagged for avoidance until authorization from USFWS and CDFW is obtained to move listed species from the construction area. In addition to flagging burrows for avoidance, an exclusionary buffer of at least 100 feet shall be set at the discretion of the Qualified Biologist to avoid potential impacts to sensitive burrowing animals.

Jurisdictional Waters (Santa Ana River): The Santa Ana River is immediately adjacent to the north of the treatment plant northern boundary. No work shall occur within the boundaries of the Santa Ana River, and unpermitted impacts to the Santa Ana River shall not occur. The northern fence border of the property shall be marked with signs to inform crews that the Santa Ana River is an environmentally sensitive area to prevent crews from staging materials or debris outside of the project area.

Special care shall be taken to avoid unexpected offsite impacts to the Santa Ana River, such as runoff of pollutants and materials from the project site related to a storm event. A Storm Water Pollution Prevention Plan (SWPPP) should be prepared to prevent runoff and contain soils from excavations during construction, and a Dust Control and Prevention Plan shall be developed to minimize air pollution and airborne soil contamination from the site. The SWPPP shall contain an Emergency Response Plan to respond to and control runoff for common causes of pollution, and specifically to control the following types of pollutants: (1) construction soils and sediment, including non-hazardous soils; (2) fertilizers (used for landscaping), pesticides (used for weed control), or other chemicals used for construction; (3) oil and grease, including leaks from equipment; (4) concrete or waste washout/track-out from the project site; (5) construction trash and debris; and (6) any other waste. The Dust Control and Prevention Plan shall include elements to control dust during excavations or building structures, prepared in compliance with

local Air Quality Management District standards, and shall include methods to prevent dust while also avoiding water runoff from the construction site.

10.0 REFERENCES

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_____. 2019b. Topographic Maps. Available at: https://ngmdb.usgs.gov/topoview/viewer/.

Attachment A: Figures

Figure 1. Preliminary Site Layout for Redlands WWTP

Figure 2. Project Location

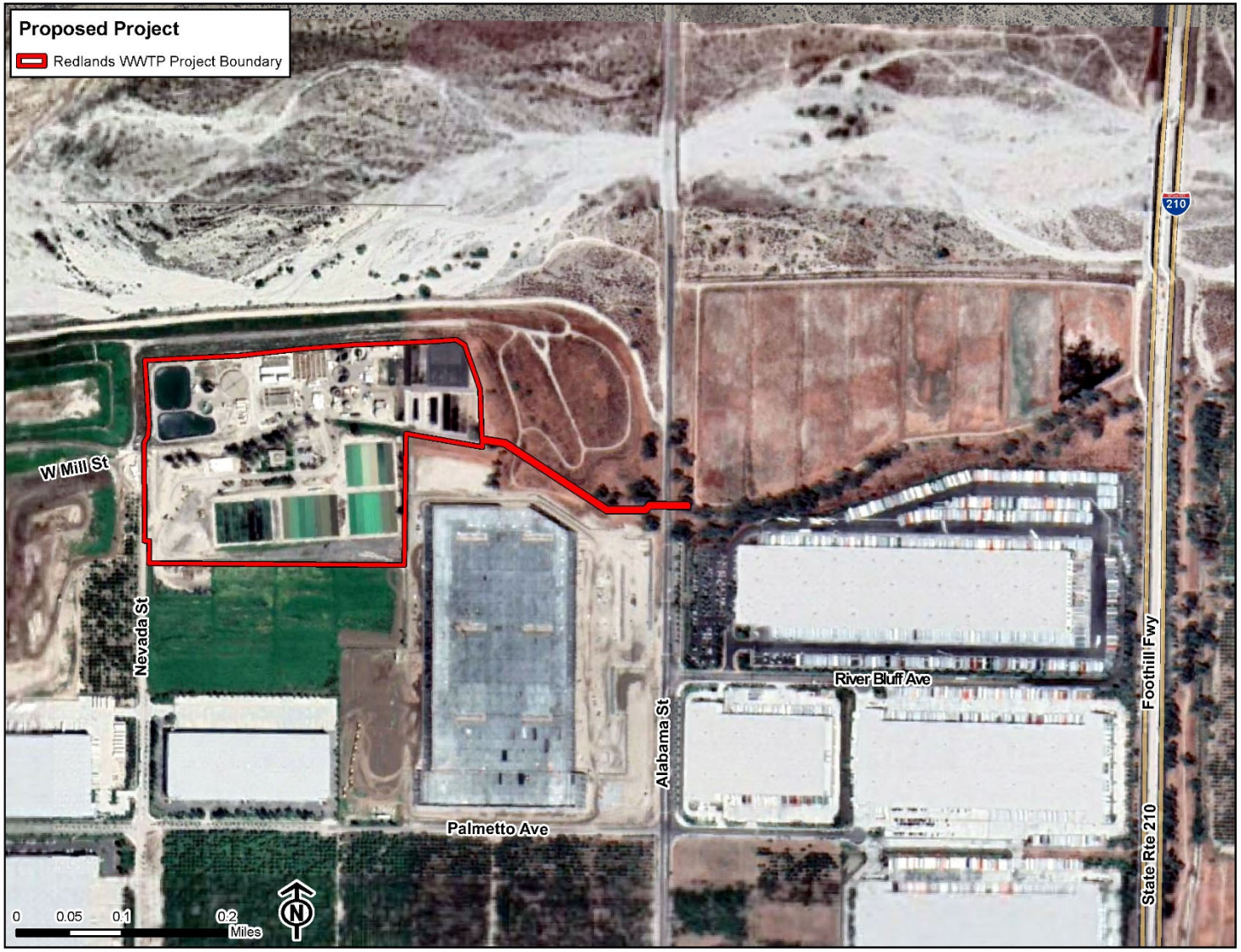


Figure 3. Project Vicinity

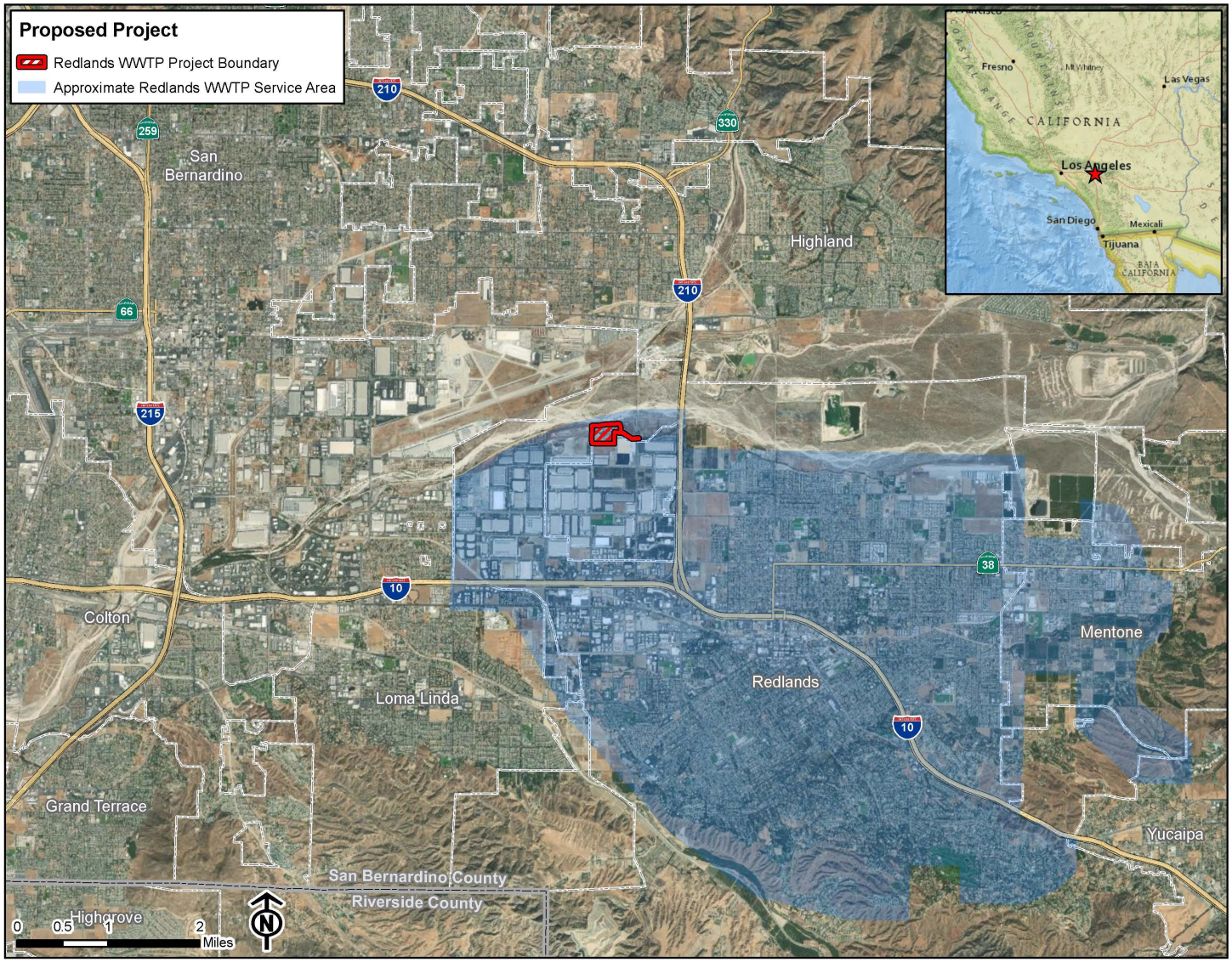


Figure 4. Hydrological Features Map

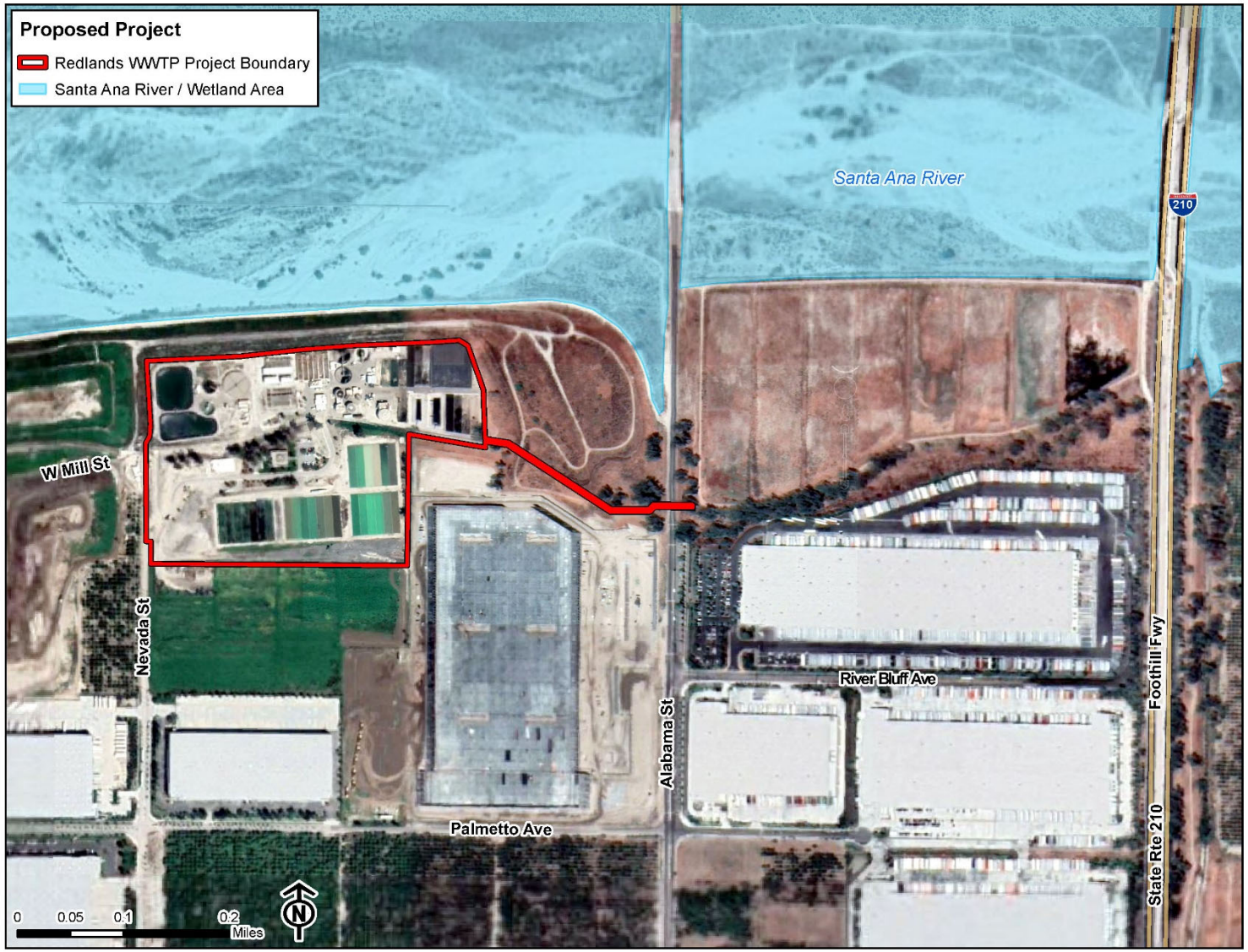


Figure 5. Soil Survey Map

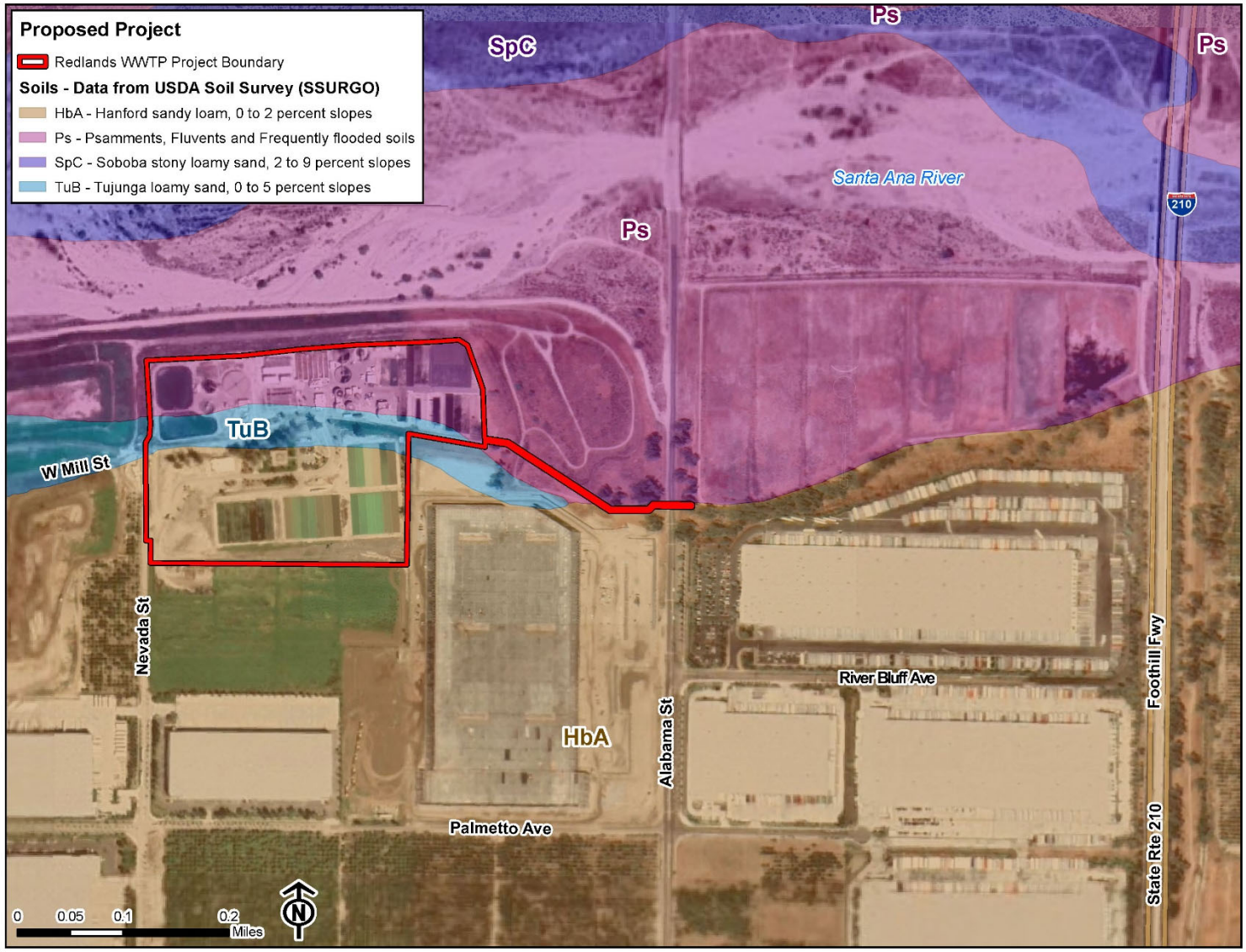
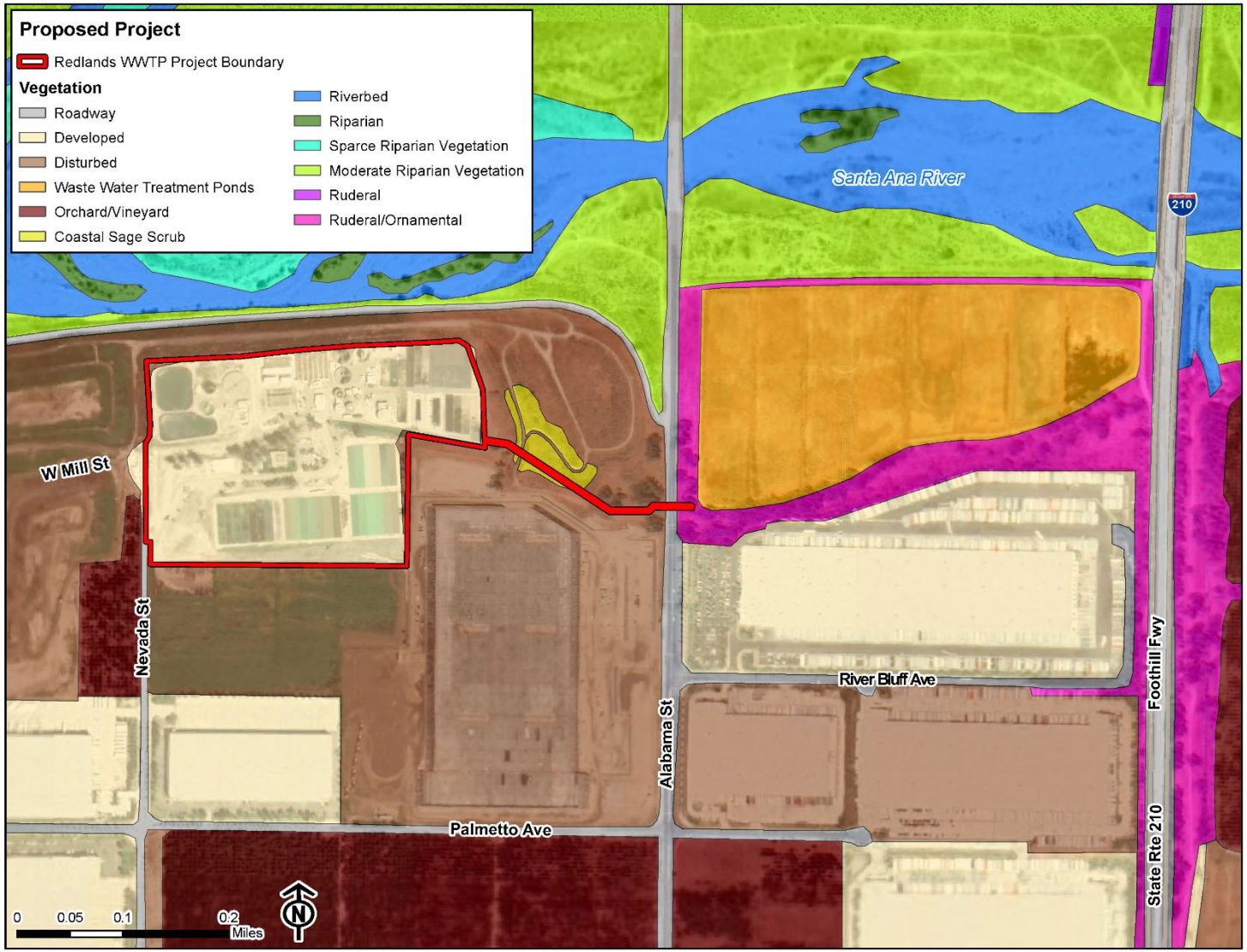


Figure 6. Vegetation Map



Attachment B: Site Photographs

Photo 1. Planned location for Pump Station and Centrate Equalization Tank, looking north. Note area is developed and devoid of vegetation.

Photo 2. Planned location for Pump Station and Centrate Equalization Tank, looking south. Note area is developed and devoid of vegetation.

Photo 3. Planned location for SWBD-M Electrical Building, looking southwest.
This site was formerly a farmer dump site, and old cans and materials may be buried underneath. Vegetation at this location is mainly ruderal with planted eucalyptus and pine.

Photo 4. Planned location for SWBD-M Electrical Building, looking southeast.
This site is dominated with ruderal vegetation and planted eucalyptus and pine trees.

Photo 5. Planned location for MCC-C/MCC-CA Electrical Building, looking south.
Note that area is nearly devoid of vegetation.

Photo 6. Planned location for Fine Screens, looking east.
Note that area is nearly devoid of vegetation.

Photo 7. Looking east to plateau from southeast gate.
Note that the area is disturbed with annual grasses on the slope of the plateau.

Photo 8. On top of the plateau, looking north towards the Santa Ana River.
Note the swath of CSS habitat in the lower portion of the photo bordered by annual grasses.

Photo 9. Looking north at eucalyptus trees just east of Alabama Street

Photo 10. Looking west towards Alabama Street from the eastern side of percolation pond fence line. Note the area is comprised of annual grasses and eucalyptus trees.

Photo 11. Area adjacent to front gate entrance where landscaping improvements are planned, looking north. Note that entryway area is planned for improvements, including an entry monument, gate, and beautification of landscaping.

Photo 12. Area adjacent to front gate entrance where landscaping improvements are planned, looking south.

Photo 13. Looking west toward Nevada Street from southern portion of the main Redlands WWTP building property. Tree plantings are planned for this area of the southern boundary of the WWTP.

Photo 14. Looking east from southern portion of the main Redlands WWTP building property. Tree plantings are planned for this area of the southern boundary of the WWTP.

Photo 15. Looking east at the southeast corner of the main Redlands WWTP building property. Tree plantings are planned for this area. Note presence of stockpiles. California ground squirrels were observed entering piles in this area.

Photo 16. Looking north from southeast corner of the main Redlands WWTP building property. Tree plantings are planned for this area of the lower eastern boundary of the WWTP.

Photo 17. Looking southeast toward hillside planned for slope protection landscaping improvements.

Photo 18. Looking east, just south of main office building at Redlands WWTP. This area is planned for landscaping improvements.

Photo 19. Looking north toward proposed access road location, east of main office building at Redlands WWTP at intersection of main entrance road.

Photo 20. Looking west toward main entrance of Redlands WWTP, just south of main office building. Areas along main entrance road are planned for landscaping improvements.

Photo 21. Looking east, just south of main office building,
just before main entrance road turns to the north.
Areas along main entrance road are planned for landscaping improvements.

Photo 22. Looking north toward main office building.
Areas around building are planned for landscaping improvements. A patio and walkway to the plant operations area are planned on the north side of the building.

Photo 23. Looking from the east at north side of building where walkway and patio improvements are planned.

Photo 24. Looking at south side of building where walkway and patio improvements are planned.

Attachment C: CNDDB Search Results

Selected Elements by Scientific Name

California Department of Fish and Wildlife

California Natural Diversity Database

Query Criteria: Quad IS (Redlands (3411712))
 AND Taxonomic Group IS (Dune OR Scrub OR Herbaceous OR Marsh OR Riparian OR Woodland OR Forest OR Alpine OR Inland Waters OR Marine OR Estuarine OR Riverine OR Palustrine OR Fish OR Amphibians OR Reptiles OR Birds OR Mammals OR Mollusks OR Arachnids OR Crustaceans OR Insects OR Ferns OR Gymnosperms OR Monocots OR Dicots OR Lichens OR Bryophytes OR Fungi)

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Accipiter cooperii Cooper's hawk	ABNKC12040	None	None	G5	S4	WL
Aimophila ruficeps canescens southern California rufous-crowned sparrow	ABPBX91091	None	None	G5T3	S3	WL
Anniella stebbinsi Southern California legless lizard	ARACC01060	None	None	G3	S3	SSC
Antrozous pallidus pallid bat	AMACC10010	None	None	G4	S3	SSC
Arenaria paludicola marsh sandwort	PDCAR040L0	Endangered	Endangered	G1	S1	1B.1
Arizona elegans occidentalis California glossy snake	ARADB01017	None	None	G5T2	S2	SSC
Aspidoscelis hyperythra orange-throated whiptail	ARACJ02060	None	None	G5	S2S3	WL
Aspidoscelis tigris stejnegeri coastal whiptail	ARACJ02143	None	None	G5T5	S3	SSC
Athene cunicularia burrowing owl	ABNSB10010	None	None	G4	S3	SSC
Berberis nevinii Nevin's barberry	PDBER060A0	Endangered	Endangered	G1	S1	1B.1
Bombus crotchii Crotch bumble bee	IIHYM24480	None	Candidate Endangered	G3G4	S1S2	
Calochortus plummerae Plummer's mariposa-lily	PMLIL0D150	None	None	G4	S4	4.2
Centromadia pungens ssp. laevis smooth tarplant	PDAST4R0R4	None	None	G3G4T2	S2	1B.1
Chaetodipus fallax fallax northwestern San Diego pocket mouse	AMAFD05031	None	None	G5T3T4	S3S4	SSC
Chloropyron maritimum ssp. maritimum salt marsh bird's-beak	PDSCR0J0C2	Endangered	Endangered	G4?T1	S1	1B.2
Chorizanthe parryi var. parryi Parry's spineflower	PDPGN040J2	None	None	G3T2	S2	1B.1
Coccyzus americanus occidentalis western yellow-billed cuckoo	ABNRB02022	Threatened	Endangered	G5T2T3	S1	

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Crotalus ruber red-diamond rattlesnake	ARADE02090	None	None	G4	S3	SSC
Cuscuta obtusiflora var. glandulosa Peruvian dodder	PDCUS01111	None	None	G5T4?	SH	2B.2
Dipodomys merriami parvus San Bernardino kangaroo rat	AMAFD03143	Endangered	Candidate Endangered	G5T1	S1	SSC
Dipodomys stephensi Stephens' kangaroo rat	AMAFD03100	Endangered	Threatened	G2	S2	
Dodecahema leptoceras slender-horned spineflower	PDPGN0V010	Endangered	Endangered	G1	S1	1B.1
Empidonax traillii extimus southwestern willow flycatcher	ABPAE33043	Endangered	Endangered	G5T2	S1	
Eremophila alpestris actia California horned lark	ABPAT02011	None	None	G5T4Q	S4	WL
Eriastrum densifolium ssp. sanctorum Santa Ana River woollystar	PDPLM03035	Endangered	Endangered	G4T1	S1	1B.1
Eugnosta busckana Busck's gallmoth	IILEM2X090	None	None	G1G3	SH	
Eumops perotis californicus western mastiff bat	AMACD02011	None	None	G4G5T4	S3S4	SSC
Icteria virens yellow-breasted chat	ABPBX24010	None	None	G5	S3	SSC
Imperata brevifolia California satintail	PMPOA3D020	None	None	G4	S3	2B.1
Lanius ludovicianus loggerhead shrike	ABPBR01030	None	None	G4	S4	SSC
Lasiurus xanthinus western yellow bat	AMACC05070	None	None	G4G5	S3	SSC
Lepidium virginicum var. robinsonii Robinson's pepper-grass	PDBRA1M114	None	None	G5T3	S3	4.3
Malacothamnus parishii Parish's bush-mallow	PDMAL0Q0C0	None	None	GXQ	SX	1A
Neolarra alba white cuckoo bee	IIHYM81010	None	None	GH	SH	
Neotoma lepida intermedia San Diego desert woodrat	AMAFF08041	None	None	G5T3T4	S3S4	SSC
Nyctinomops femorosaccus pocketed free-tailed bat	AMACD04010	None	None	G5	S3	SSC
Oncorhynchus mykiss irideus pop. 10 steelhead - southern California DPS	AFCHA0209J	Endangered	None	G5T1Q	S1	
Perognathus longimembris brevinasus Los Angeles pocket mouse	AMAFD01041	None	None	G5T2	S1S2	SSC

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Phrynosoma blainvillii coast horned lizard	ARACF12100	None	None	G3G4	S3S4	SSC
Polioptila californica californica coastal California gnatcatcher	ABPBJ08081	Threatened	None	G4G5T3Q	S2	SSC
Rana muscosa southern mountain yellow-legged frog	AAABH01330	Endangered	Endangered	G1	S1	WL
Rhinichthys osculus ssp. 3 Santa Ana speckled dace	AFCJB3705K	None	None	G5T1	S1	SSC
Ribes divaricatum var. parishii Parish's gooseberry	PDGRO020F3	None	None	G5TX	SX	1A
Riversidian Alluvial Fan Sage Scrub Riversidian Alluvial Fan Sage Scrub	CTT32720CA	None	None	G1	S1.1	
Setophaga petechia yellow warbler	ABPBX03010	None	None	G5	S3S4	SSC
Southern Coast Live Oak Riparian Forest Southern Coast Live Oak Riparian Forest	CTT61310CA	None	None	G4	S4	
Southern Sycamore Alder Riparian Woodland Southern Sycamore Alder Riparian Woodland	CTT62400CA	None	None	G4	S4	
Spea hammondii western spadefoot	AAABF02020	None	None	G2G3	S3	SSC
Taxidea taxus American badger	AMAJF04010	None	None	G5	S3	SSC
Thamnophis hammondii two-striped gartersnake	ARADB36160	None	None	G4	S3S4	SSC
Vireo bellii pusillus least Bell's vireo	ABPBW01114	Endangered	Endangered	G5T2	S2	

Record Count: 51

Attachment D: IPaC Search Results

IPaC Information for Planning and Consultation **U.S. Fish & Wildlife Service**

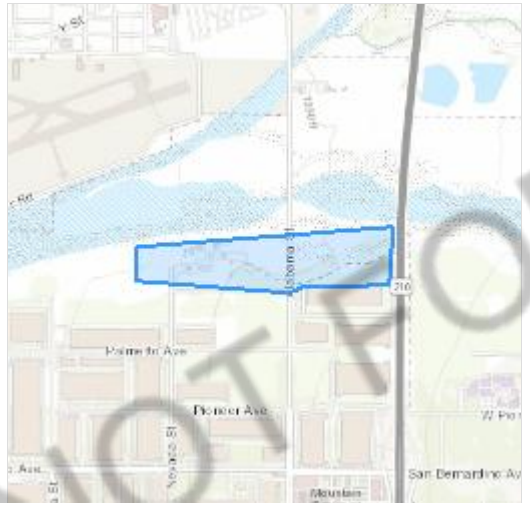
IPaC resource list

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

San Bernardino County, California



Local office

Carlsbad Fish And Wildlife Office

(760) 431-9440
(760) 431-5901

2177 Salk Avenue - Suite 250
Carlsbad, CA 92008-7385

http://www.fws.gov/carlsbad/

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.

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
San Bernardino Merriam's Kangaroo Rat Dipodomys merriami parvus Wherever found There is **final** critical habitat for this species. Your location overlaps the critical habitat. https://ecos.fws.gov/ecp/species/2060	Endangered
Stephens' Kangaroo Rat Dipodomys stephensi (incl. D. cascus) Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/3495	Endangered

Birds

NAME	STATUS
Coastal California Gnatcatcher Polioptila californica californica Wherever found There is **final** critical habitat for this species. The location of the critical habitat is not available. https://ecos.fws.gov/ecp/species/8178	Threatened

Least Bell's Vireo Vireo bellii pusillus — Endangered
Wherever found
There is **final** critical habitat for this species. The location of the critical habitat is not available.
https://ecos.fws.gov/ecp/species/5945

Southwestern Willow Flycatcher Empidonax traillii extimus — Endangered
Wherever found
There is **final** critical habitat for this species. The location of the critical habitat is not available.
https://ecos.fws.gov/ecp/species/6749

Fishes

NAME	STATUS
Santa Ana Sucker Catostomus santaanae	Threatened

There is **final** critical habitat for this species. The location of the critical habitat is not available.
https://ecos.fws.gov/ecp/species/3785

Flowering Plants

NAME	STATUS
Nevin's Barberry Berberis nevinii	Endangered

Wherever found
There is **final** critical habitat for this species. The location of the critical habitat is not available.
https://ecos.fws.gov/ecp/species/8025

San Diego Ambrosia Ambrosia pumila — Endangered
Wherever found
There is **final** critical habitat for this species. The location of the critical habitat is not available.
https://ecos.fws.gov/ecp/species/8287

Santa Ana River Woolly-star Eriastrum densifolium ssp. sanctorum — Endangered
Wherever found
No critical habitat has been designated for this species.
https://ecos.fws.gov/ecp/species/6575

Slender-horned Spineflower Dodecahema leptoceras — Endangered
Wherever found
No critical habitat has been designated for this species.
https://ecos.fws.gov/ecp/species/4007

Critical habitats

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

This location overlaps the critical habitat for the following species:

NAME	TYPE
San Bernardino Merriam's Kangaroo Rat Dipodomys merriami parvus https://ecos.fws.gov/ecp/species/2060#crithab	Final

Migratory birds

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

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described below.

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:

- Birds of Conservation Concern http://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php
- Measures for avoiding and minimizing impacts to birds http://www.fws.gov/birds/management/project-assessment-tools-and-guidance/conservation-measures.php
- Nationwide conservation measures for birds http://www.fws.gov/migratorybirds/pdf/management/nationwidestandardconservationmeasures.pdf

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

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

NAME	BREEDING SEASON (IF A BREEDING SEASON IS INDICATED FOR A BIRD ON

YOUR LIST, THE BIRD MAY BREED IN YOUR PROJECT AREA SOMETIME WITHIN THE TIMEFRAME SPECIFIED, WHICH IS A VERY LIBERAL ESTIMATE OF THE DATES INSIDE WHICH THE BIRD BREEDS ACROSS ITS ENTIRE RANGE. "BREEDS ELSEWHERE" INDICATES THAT THE BIRD DOES NOT LIKELY BREED IN YOUR PROJECT AREA.)

Allen's Hummingbird Selasphorus sasin — Breeds Feb 1 to Jul 15

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/9637

Burrowing Owl Athene cunicularia — Breeds Mar 15 to Aug 31

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/9737

Clark's Grebe Aechmophorus clarkii — Breeds Jan 1 to Dec 31

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Common Yellowthroat Geothlypis trichas sinuosa — Breeds May 20 to Jul 31

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/2084

Costa's Hummingbird Calypte costae — Breeds Jan 15 to Jun 10

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/9470

Golden Eagle Aquila chrysaetos — Breeds Jan 1 to Aug 31

This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.
https://ecos.fws.gov/ecp/species/1680

Lawrence's Goldfinch Carduelis lawrencei — Breeds Mar 20 to Sep 20

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/9464

Nuttall's Woodpecker Picoides nuttallii — Breeds Apr 1 to Jul 20

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/9410

Oak Titmouse Baeolophus inornatus — Breeds Mar 15 to Jul 15

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/9656

Rufous Hummingbird selasphorus rufus — Breeds elsewhere

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/8002

Song Sparrow Melospiza melodia — Breeds Feb 20 to Sep 5

This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA

Spotted Towhee Pipilo maculatus clementae — Breeds Apr 15 to Jul 20
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/4243

Tricolored Blackbird Agelaius tricolor — Breeds Mar 15 to Aug 10
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/3910

Wrentit Chamaea fasciata — Breeds Mar 15 to Aug 10
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Probability of Presence Summary

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

Probability of Presence (■)

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

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

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in

week 12 is 0.25.

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

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

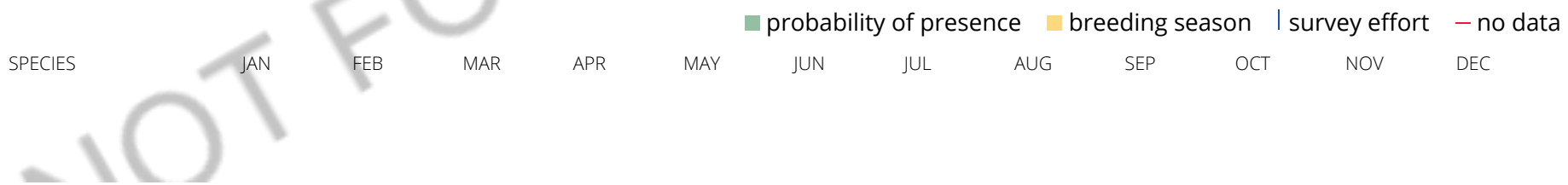
Breeding Season (▪)
Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

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.

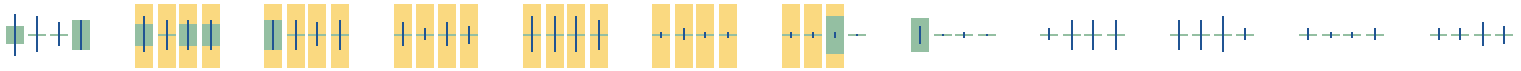
To see a bar's survey effort range, simply hover your mouse cursor over the bar.

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.



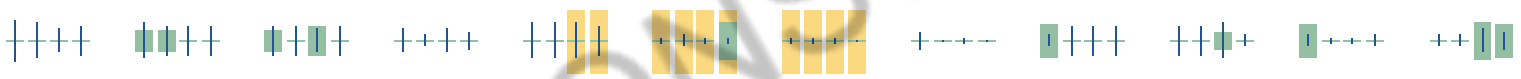
Allen's Hummingbird BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)



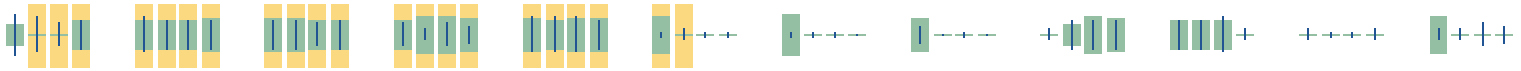
Burrowing Owl BCC - BCR (This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA)

Clark's Grebe BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)

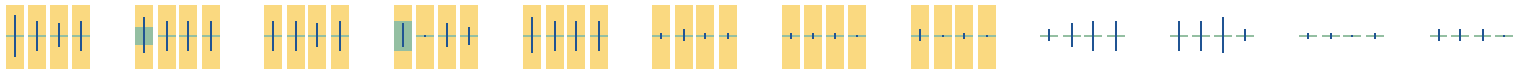
Common Yellowthroat BCC - BCR (This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA)



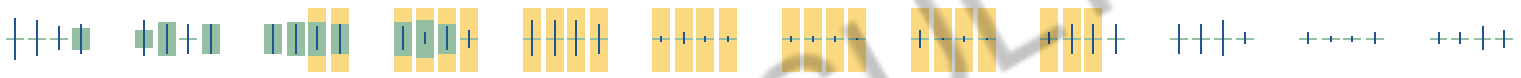
Costa's Hummingbird BCC - BCR (This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA)



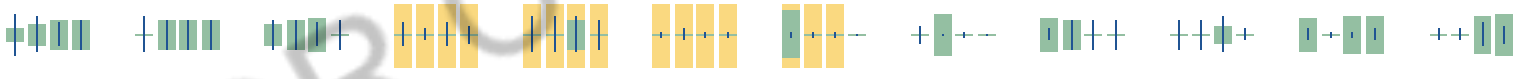
Golden Eagle Non-BCC Vulnerable (This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.)

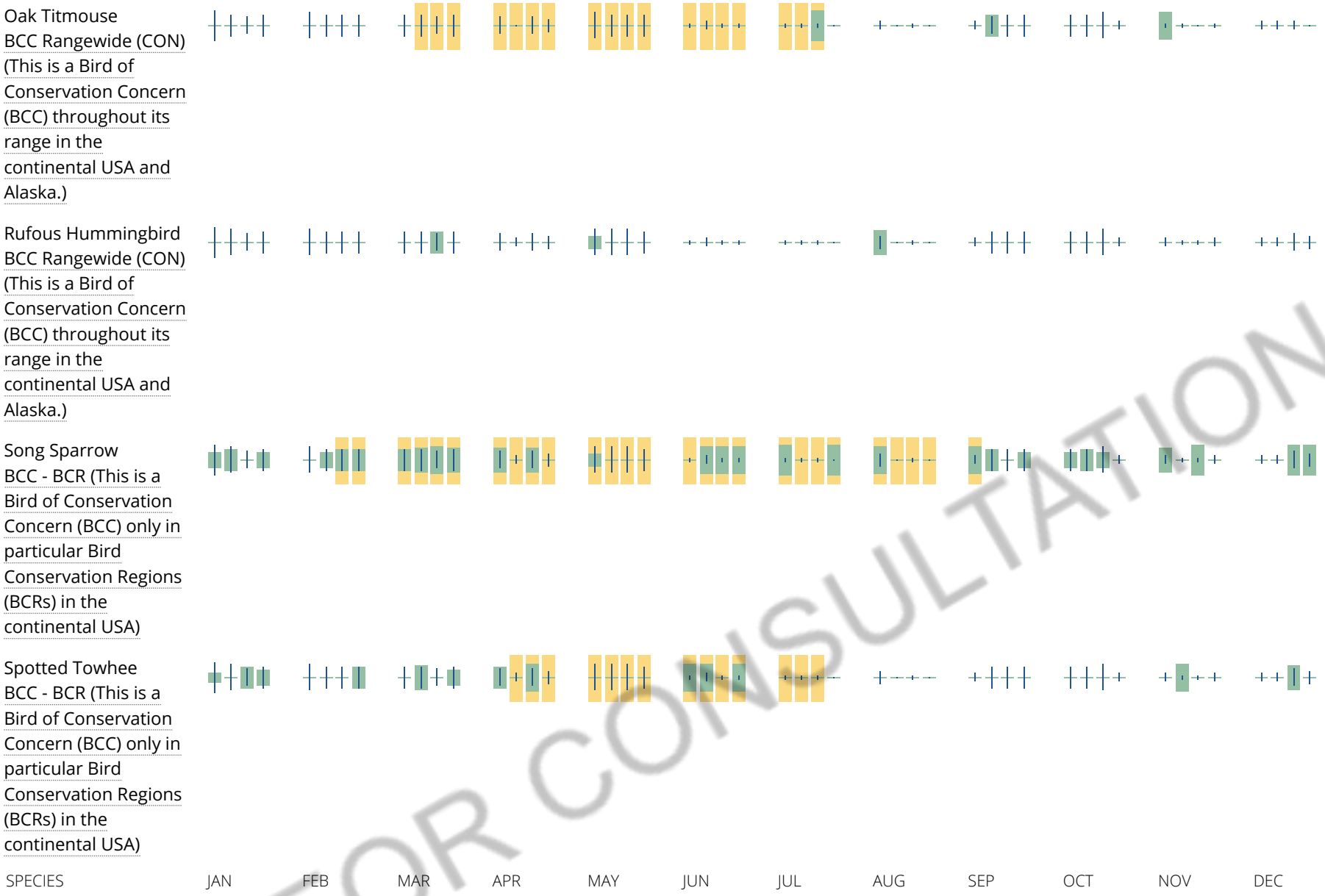


Lawrence's Goldfinch BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)



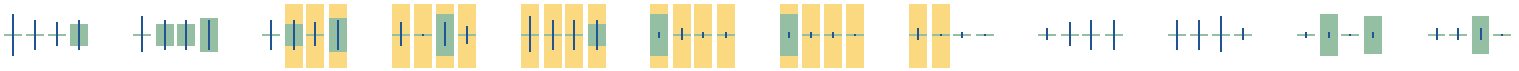
Nuttall's Woodpecker BCC - BCR (This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA)





Tricolored Blackbird
BCC Rangewide (CON)
(This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)

Wrentit
BCC Rangewide (CON)
(This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)



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 migratory birds potentially occurring in my specified location?

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

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

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds

that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the AKN Phenology Tool.

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

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

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

How do I know if a bird is breeding, wintering, migrating or present year-round in my project area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may refer to the following resources: The Cornell Lab of Ornithology All About Birds Bird Guide, or (if you are unsuccessful in locating the bird of interest there), the Cornell Lab of Ornithology Neotropical Birds guide. If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

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

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

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

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the Northeast Ocean Data Portal. The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf project webpage.

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

What if I have eagles on my list?

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

Proper Interpretation and Use of Your Migratory Bird Report

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

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

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

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

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

This location overlaps the following wetlands:

RIVERINE

R5UBF

A full description for each wetland code can be found at the National Wetlands Inventory website

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.

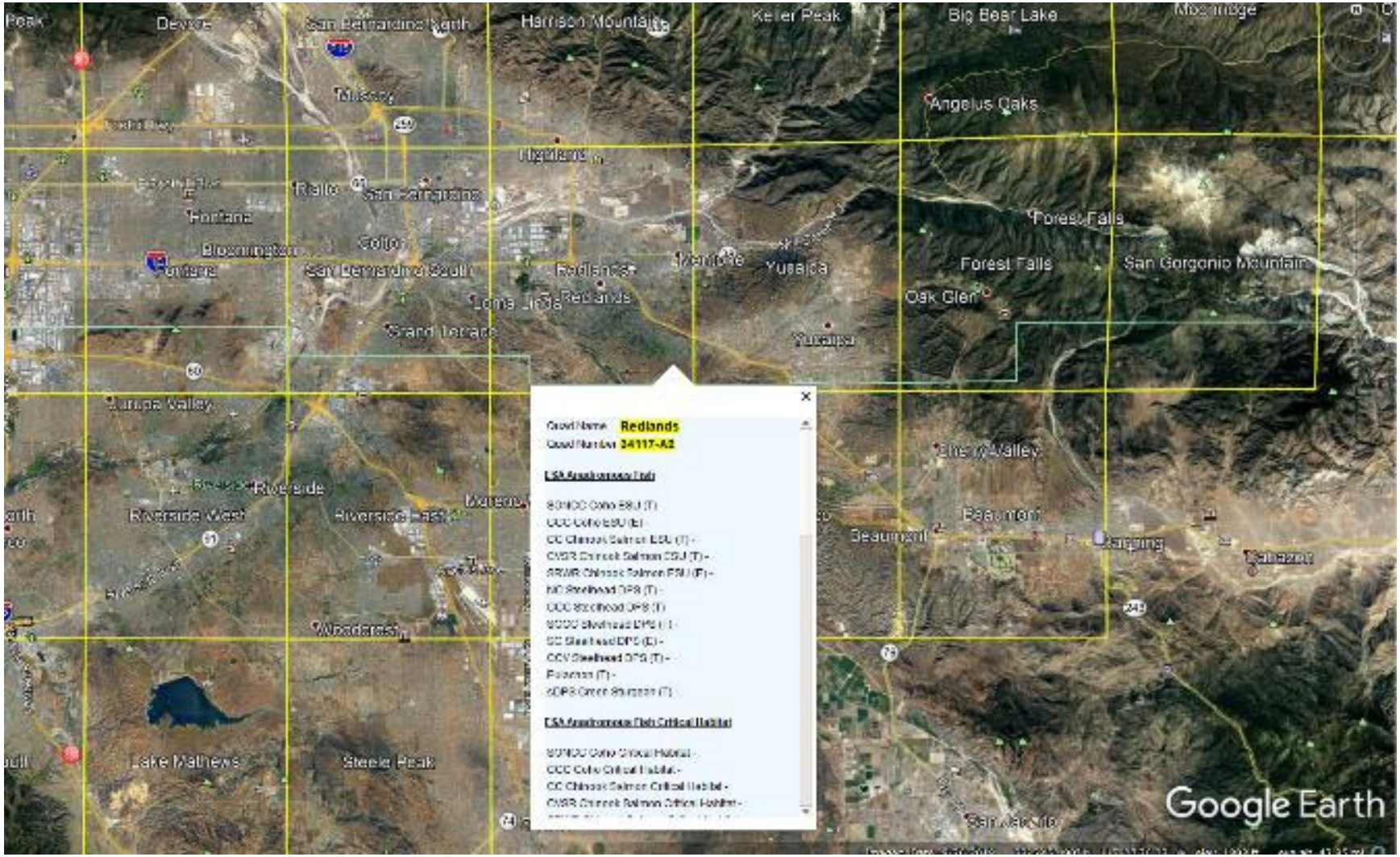
Data exclusions

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.

Attachment E: National Marine Fisheries Service List



Quad Name **Redlands**
Quad Number **34117-A2**

ESA Anadromous Fish

SONCC Coho ESU (T) -
CCC Coho ESU (E) -
CC Chinook Salmon ESU (T) -
CVSR Chinook Salmon ESU (T) -
SRWR Chinook Salmon ESU (E) -
NC Steelhead DPS (T) -
CCC Steelhead DPS (T) -
SCCC Steelhead DPS (T) -
SC Steelhead DPS (E) -
CCV Steelhead DPS (T) -
Eulachon (T) -
sDPS Green Sturgeon (T) -

ESA Anadromous Fish Critical Habitat

SONCC Coho Critical Habitat -
CCC Coho Critical Habitat -
CC Chinook Salmon Critical Habitat -
CVSR Chinook Salmon Critical Habitat -
SRWR Chinook Salmon Critical Habitat -
NC Steelhead Critical Habitat -
CCC Steelhead Critical Habitat -
SCCC Steelhead Critical Habitat -
SC Steelhead Critical Habitat -
CCV Steelhead Critical Habitat -
Eulachon Critical Habitat -
sDPS Green Sturgeon Critical Habitat -

ESA Marine Invertebrates

Range Black Abalone (E) -
Range White Abalone (E) -

ESA Marine Invertebrates Critical Habitat

Black Abalone Critical Habitat -

ESA Sea Turtles

East Pacific Green Sea Turtle (T) -
Olive Ridley Sea Turtle (T/E) -
Leatherback Sea Turtle (E) -
North Pacific Loggerhead Sea Turtle (E) -

ESA Whales

Blue Whale (E) -
Fin Whale (E) -
Humpback Whale (E) -
Southern Resident Killer Whale (E) -
North Pacific Right Whale (E) -
Sei Whale (E) -
Sperm Whale (E) -

ESA Pinnipeds

Guadalupe Fur Seal (T) -
Steller Sea Lion Critical Habitat -

Essential Fish Habitat

Coho EFH -
Chinook Salmon EFH -
Groundfish EFH -
Coastal Pelagics EFH -
Highly Migratory Species EFH -

Appendix C
Historic Property Identification Report

HISTORIC PROPERTY IDENTIFICATION REPORT

WASTEWATER TREATMENT PLANT FACILITY ASSESSMENT PROJECT CITY OF REDLANDS, SAN BERNARDINO COUNTY, CALIFORNIA

Prepared for: **Parsons**
100 W. Walnut Street
Pasadena, CA 91124

Prepared by: **Paleo Solutions, Inc.**
911 S. Primrose Ave., Unit N
Monrovia, CA 91016

Dean M. Duryea, Jr., M.A., RPA and Evelyn N. Chandler, M.A.

Principal Investigator: Evelyn N. Chandler, M.A.

July 20, 2021

Historic Property Identification Report
Wastewater Treatment Plant Facility Assessment Project
City of Redlands, San Bernardino County, California

Prepared For:

Parsons
100 W. Walnut Street
Pasadena, CA 91124

Prepared By:

Dean M. Duryea, Jr., M.A., RPA and Evelyn N. Chandler, M.A.
Paleo Solutions
911 S. Primrose Avenue, Unit N
Monrovia, California 91016

July 20, 2021

U.S. Geological Survey 7.5-Minute Quadrangle:
Redlands, California (1996)

PLSS:
Unsectioned portion San Bernardino Land Grant, San Bernardino BM

Area Surveyed: approximately 86.36 Acres

Cultural Resources Identified:

Redlands WWTP

Keywords: Cultural Resources Survey, Ethnohistory, History, Prehistory, Serrano, Historic-era Foundation, San Bernardino County, Redlands

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APPENDICES

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EXECUTIVE SUMMARY

The City of Redlands (City) is applying to the State Water Regional Control Board (SWRCB) for a State Revolving Fund (SRF) loan to upgrade and update the Wastewater Treatment Facility (Project). The SRF Loan Program is partially funded by the U.S. Environmental Protection Agency (EPA); therefore, the Project will have both state and federal funding. The purpose of the proposed Project is to complete an assessment of the wastewater treatment process components, make recommendations for improvements or repairs and implement repairs and upgrades to the facility to forgo future repairs and updates for the next 20 to 30 years. The SWRCB, Division of Financial Assistance, is the Responsible (Lead) Agency for the project. The Project is subject to compliance with the California Environmental Quality Act (CEQA) because it requires approval by a State agency and is subject to compliance with Section 106 of the National Historic Preservation Act (NHPA) because it will receive federal funding.

The approximately 81-acre Project is located at 1950 Nevada Street in the City of Redlands in San Bernardino County, California. Since 1962, the City has owned and operated the City of Redlands Water Reclamation Facility. The original wastewater treatment plant (WWTP) was constructed in 1962. In 1971, the California Regional Water Quality Control Board (RWQCB) instituted new discharge requirements. The WWTP underwent an extensive expansion and modification in 1972. The facility has undergone several updates and additional construction episodes since then: 1987, 2004, and 2010. The current plant has an average flow of 5.8 million gallons per day (mgd). The Project involves upgrade to the existing WWTP with a state-of-the-art 9.5 mgd membrane bioreactor (MBR) filtration complex (MBR system) and includes improvements for reliability and redundancy. Utility work and pipeline installation would typically include trenching to a maximum depth of 15 feet in a corridor approximately 15 feet wide. Excavations required for the prefabricated buildings foundations would have a maximum depth of 2 feet.

The cultural resources investigation included a search of the Sacred Lands File, records search, historic map review, and pedestrian survey were completed. Results from the Sacred Lands File search from the Native American Heritage Commission (NAHC) was received on May 9, 2019 and a records search was completed at the South Central Coastal Information Center (SCCIC) on April 30, 2019. The NAHC indicated that the Sacred Lands File search was positive. However, no specific information on the location or nature of the resource was provided. The NAHC recommended that the San Manuel Band of Mission Indians (SMBMI) be contacted for more information. Project notification letters were sent by the City to nine Native American Tribes with an invitation to consult on the Project under Assembly Bill (AB) 52. To date, responses have been received from four Tribes, including the SMBMI. Additional consultation under AB 52 is on-going and anticipated to conclude on July 29, 2021.

No cultural resources were identified within the Project area from the records search. An archaeological field survey and inventory of the built environment of the WWTP property and percolation ponds was completed on May 6, 2019. Because the facility was originally built in 1962 and subsequent updates were completed in 1972, those features, buildings and structures were documented as a single site, the historic core of the Redlands WWTP. A total of 38 features were documented as part of this effort. No prehistoric resources were identified during this effort. On May 3, 2021, survey was conducted of the newly-added force main pipeline between the main WWTP facility and the percolation ponds. One water-fitting structure (Feature 39) was identified during that survey and recorded as an additional feature of the Redlands WWTP site.

As part of this study, an evaluation of the Redlands WWTP was completed for eligibility to the National Register of Historic Places (NRHP), the California Register of Historical Resources (CRHR), and local designation as a City of Redlands Historic Resource. As a result, the site is recommended as not eligible

for inclusion in the NRHP, the CRHR, or for local listing. No Historic Properties will be affected and no further work on this resource is required.

The areas within the Santa Ana River drainage are not conducive towards prehistoric site preservation, despite the potential for accretional deposition. The soils that compose the terrace above the river in the southern portion of the WWTP property may have buried sites, but the property has had heavy disturbances from the construction and expansion of the Redlands WWTP over time and intact subsurface deposits are not expected to exist.

In the unlikely event that subsurface archaeological materials are identified during ground-disturbing activities, work shall be halted within 100 feet (30 meters) of the find. A qualified archaeologist shall be retained to record and evaluated the find. If the unanticipated discovery is determined to be a historic property under Section 106 of the NHPA or a historical resource or unique archaeological resource under CEQA, the City shall notify the SHPO, consulting Native American groups, and the Advisory Council within 48 hours of the discovery. The archaeologist shall develop a mitigation or treatment plan in consultation with the City that satisfies the requirements of Section 106 of the NHPA and Public Resources Code (PRC) Section 21083.2 and Section 15064.5 of the CEQA Guidelines. The mitigation/treatment plan shall include recordation, on-site preservation, data recovery and curation, and/or other measures to protect or preserve the significance of the resource. Work shall not resume until the City has given authorization to resume work.

In the unlikely event that human remains are encountered, all activity within the work location shall be halted, and the City and San Bernardino County Coroner shall be notified immediately, with procedures implemented to comply with CEQA Guidelines Section 15064.5(e), California Health and Safety Code Section 7050.5(b), and California PRC 5097.98.

1.0 UNDERTAKING DESCRIPTION

1.1 PROJECT LOCATION

The Project is located in the City of Redlands, San Bernardino County, California (Figure 1). The Project is located on unsectioned portion of the San Bernardino Land Grant on the Redlands 7.5' U.S. Geological Survey topographic quadrangle (Figure 2). The approximately 80.85-acre project is the current property of the Redlands WWTP. It is located at 1950 Nevada Street in north Redlands, north of Interstate 10, and west of Interstate 210 (Foothill Freeway). The Project includes the main WWTP facility located on Nevada Street and the alignment of the force main pipeline extending from the main facility to the percolation ponds east of Alabama Street. The Project is situated along the Santa Ana River, which flows from the east to west on the north side of the Project.

1.2 PROJECT DESCRIPTION

The purpose of the proposed project is to complete an assessment of the wastewater treatment process components, make recommendations for improvements or repairs necessary to handle existing inflow based on the assessment, prepare an implementation plan for suggested work, and complete the design of resulting projects(s) to maintain the WWTP at its current capacity and allow the City to forgo future improvements for the next 20 to 30 years.

WWTP Facility Upgrades. The Project involves upgrade to the existing WWTP with a state-of-the-art 9.5 mgd MBR filtration complex (MBR system) and includes the necessary improvements for reliability and redundancy. An MBR system is a widely used sanitation system designed to settle solids, use microbes to digest sludge, and separate sludge from treated effluent, which then is clean enough to be discharged back into the water table. Construction of the upgrades and improvements is estimated to require approximately 24 months. This would include earthwork on approximately 75,000 square feet within the current property. Construction would include the installation of five prefabricated buildings, each of which would be approximately 400 square feet in area, a new mixing system for the peak storage ponds as well as proper pedestrian access to the bottom of the ponds, a new centrate equalization tank, and replacement and upgrades of pumps. Excavations required for the prefabricated buildings foundations would have a maximum depth of 2 feet. Proposed landscaping includes planting of approximately 50 trees along the east side of the frontage road and the along the southern and eastern perimeter of the facility. Other site improvements include beautification and an entry monument at the Nevada Street entrance, landscaping along the existing access road from Nevada Street, walkway and patio improvements, informational exhibits, and a small access road west of the main operations building. Project construction would require approximately 6,500 linear feet of utility trenching. Utility work would typically include trenching to a maximum depth of 15 feet in a corridor approximately 15 feet wide.

Redundant Pipelines. The Project also involves construction of four redundant pipelines to increase system reliability. A 300-foot-long pipeline will be constructed from the headworks located at the center of the plant and will trend northeasterly and then northerly to tie-in to the primary clarifiers. A 375-foot-long pipeline will be constructed from the primary clarifiers and will trend westerly to the peak storage ponds at the northwestern section of the plant. A 220-foot-long pipeline will be constructed along the northern edge of the plant from aeration basin to membrane basins. A 1,200-foot-long, 27-inch diameter force main pipeline will be constructed from the effluent pump station and will trend southerly and then easterly through the drying ponds, approximately 10 feet from and roughly parallel to the existing pipeline, and across Alabama Street to the southwest corner of the percolation ponds. The new force main pipeline will end in a valve vault with a tee between the two pipelines before the first percolation pond. Trenching for the pipelines will impact a maximum depth of 15 feet and a width of 15 feet.

1.3 PROJECT AREA OF POTENTIAL EFFECTS (APE)

The Project's APE is defined as the geographic extent where WWTP improvement activities will occur, including access and staging areas and includes 81 acres. This includes the main WWTP facility and the force main pipeline that connects the WWTP facility and the percolation ponds to the east (Figure 3). The APE includes all areas where potential direct and indirect effects may occur. The vertical APE extends to a maximum of 15 feet below ground surface.

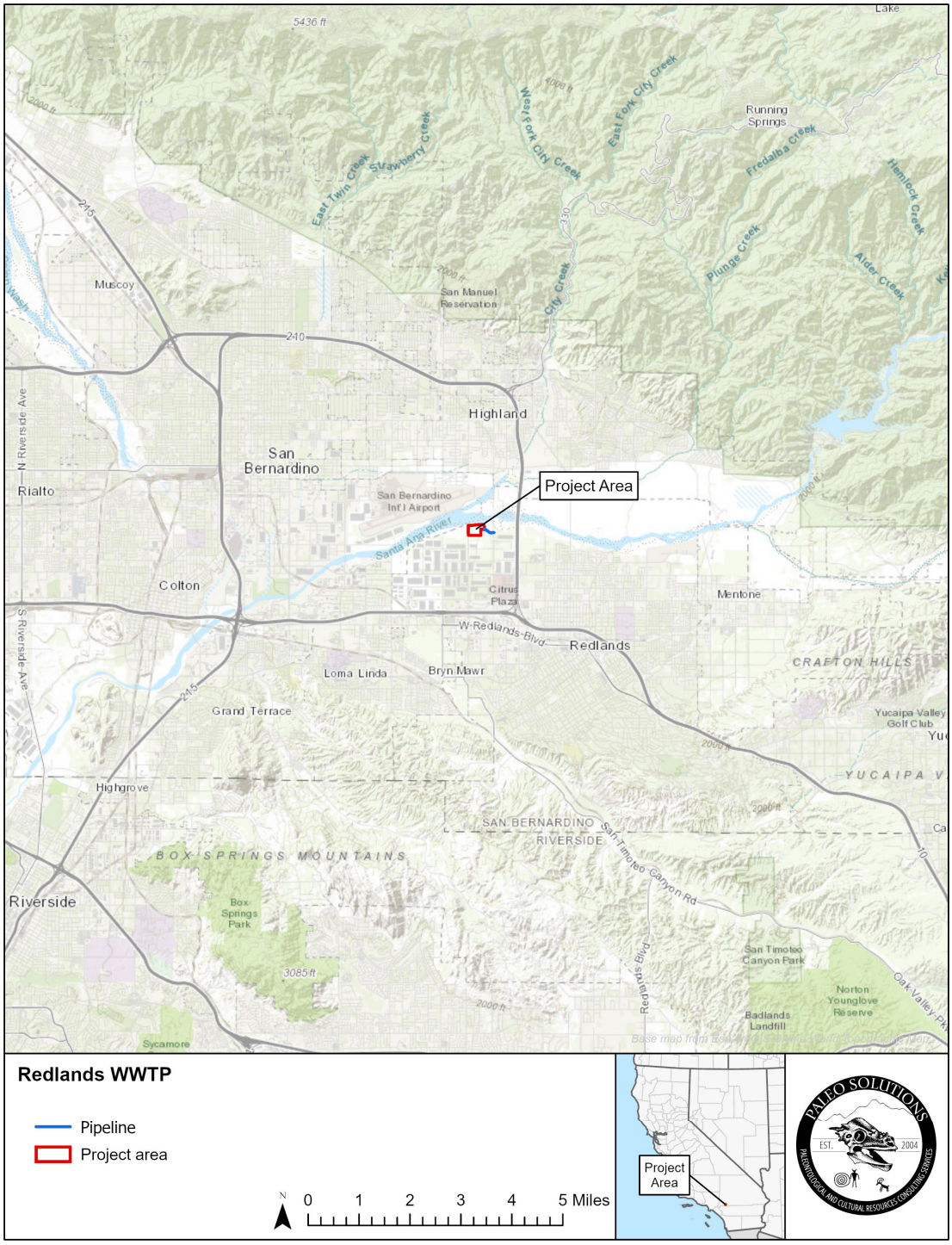

Figure 1. Project Vicinity Map

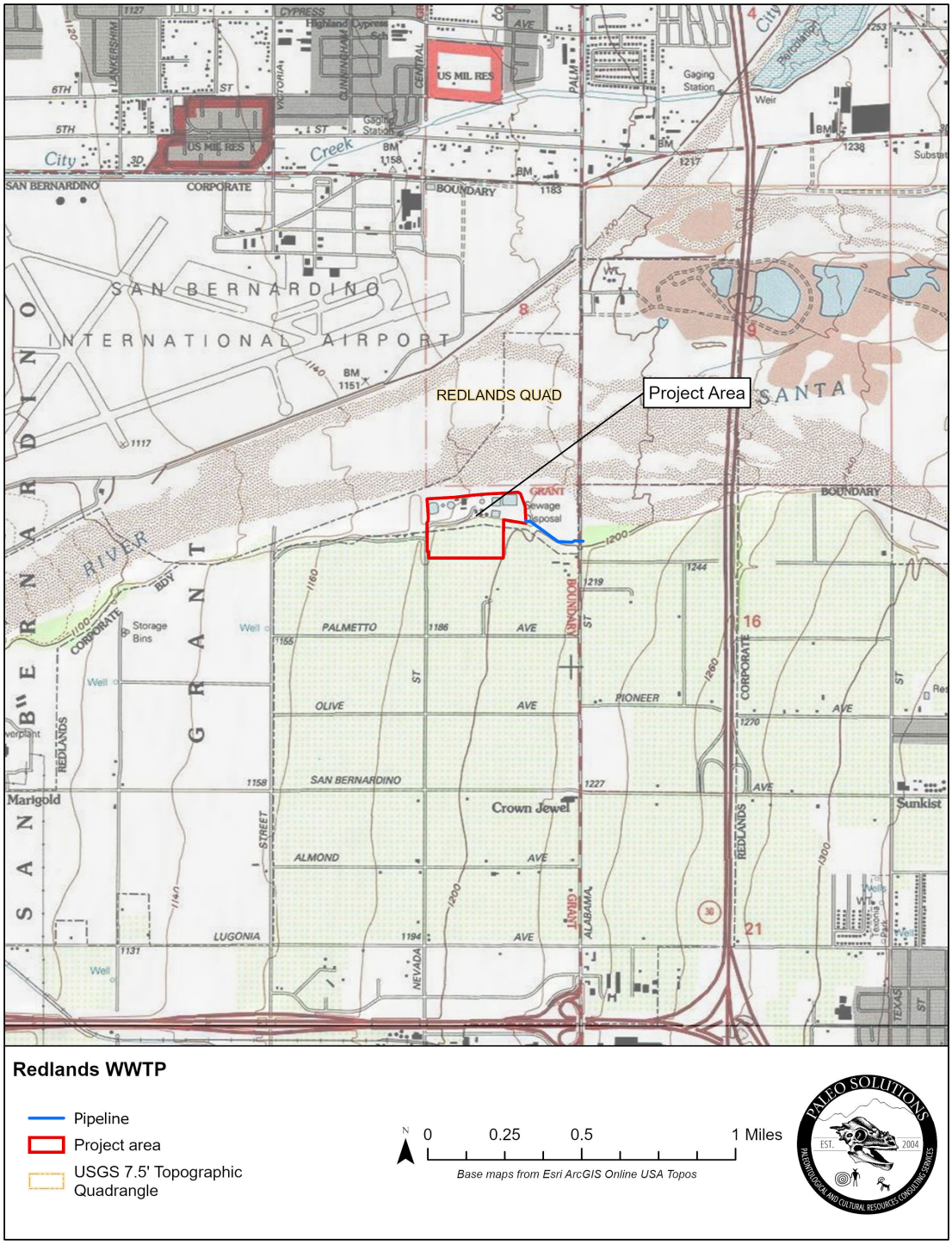

Figure 2. Project Location Map

Figure 3. Project APE Map

2.0 REGULATORY SETTING

2.1 FEDERAL REGULATIONS

This investigation was completed under the provisions of Section 106 of the NHPA. The NHPA establishes a federal program for the preservation of historic properties throughout the country. Historic properties are defined as those resources that are listed in or eligible for listing in the NRHP. Section 106 of the NHPA, and its implementing regulations, 36 CFR Part 800 "Protection of Historic Properties," requires that federal agencies must take into account the effects of their actions on historic properties and must afford the Advisory Council on Historic Preservation (ACHP) a reasonable opportunity to comment on their actions.

The Section 106 process includes five steps: (1) initiating the Section 106 process, (2) identifying historic properties, (3) assessing adverse effects, (4) resolving adverse effects, and (5) implementing the project and any stipulations in an agreement document.

To determine whether an undertaking could affect NRHP-listed or -eligible properties, cultural resources (including archaeological, historical, and architectural properties) must be inventoried and evaluated for listing in the NRHP. For a property to be considered for inclusion in the NRHP, it must meet the criteria for evaluation set forth in 36 CFR § 60.4, as follows:

> The quality of significance in American history, architecture, archaeology, engineering, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association, and:
>
> a) that are associated with events that have made a significant contribution to the broad patterns of our history;
> b) that are associated with the lives of persons significant in our past;
> c) that embody the distinctive characteristics of a type, period, or method of construction or that represent the work of a master or that possess high artistic values or that represent a significant and distinguishable entity whose components may lack individual distinction; or
> d) that have yielded, or may be likely to yield, information important in prehistory or history.

Among other criteria considerations, a property that has achieved significance within the last 50 years is not considered eligible for inclusion in the NRHP unless certain exceptional conditions are met.

Under 36 CFR § 800.5(1), an adverse effect to a historic property is found when an undertaking may alter, directly or indirectly, any of the characteristics of a historic property that qualify the property for inclusion in the NRHP in a manner that would diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association. Adverse effects may include reasonably foreseeable effects caused by the undertaking that may occur later in time, be farther removed in distance, or be cumulative.

Section 106 affords consulting Native American Tribes, the ACHP, and the State Historic Preservation Officer (SHPO) a reasonable opportunity to comment on any undertaking that would adversely affect historic properties. Consultation with Native American tribes and SHPO occurs throughout the Section 106 process. The ACHP can be invited to participate in the Section 106 review process by any of the consulting parties, and typically assists in identifying or negotiating appropriate treatments for the resolution of adverse effects to historic properties that cannot be avoided through project redesign.

The U.S. Secretary of the Interior (SOI) has published professional qualification standards under 36 CFR Part 61 to define the minimum education and experience required to complete cultural resources assessments and identification under Section 106 of the NRHP. These standards are applied to cultural resources assessments and studies at the state level.

2.2 STATE REGULATIONS

This investigation was completed under the provisions of CEQA. Sections 21083.2 and 21084.1 of the Statutes of CEQA, PRC Section 5024.1, and Section 15064.5 of the CEQA Guidelines were also used as basic guidelines for the cultural resource study (Governor's Office of Planning and Research 1998). AB 52 of 2014 amended PRC Section 5097.94 and added PRC Sections 21073, 21074, 21080.3.1, 21080.3.2, 21082.3, 21083.09, 21084.2, and 21084.3. AB 52 established that "tribal cultural resource" (TCRs) must be considered under CEQA and provided for additional Native American consultation requirements for the lead agency. The California Health and safety Code 7050.5(b) also applies to this study.

PRC 5024.1 requires evaluation of historical resources to determine their eligibility for listing on the CRHR. In California, the term "historical resource" includes but is not limited to "any object, building, structure, site, area, place, record, or manuscript which is historically or archaeologically significant, or is significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California" (California PRC Section 5020.1(j)). Historical resources also include any site described in a local register of historic resources, or identified as significant in a historical resources survey (meeting the requirements of California PRC Section 5024.1(q)).

The purposes of the CRHR are to maintain listings of the state's historical resources and to indicate which properties are to be protected from substantial adverse change (Office of Historic Preservation 1997). The criteria for listing resources on the CRHR were expressly developed to be in accordance with previously established criteria developed for listing on the National Register of Historic Places. A resource is determined significant if it:

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

Among other criteria considerations, a property that has achieved significance within the last 45 years is not considered eligible for inclusion in the CRHR.

Under CEQA, if an archaeological site is not a historical resource but meets the definition of a "unique archeological resource" as defined in PRC Section 21083.2, then it should be treated in accordance with the provisions of that section. A unique archaeological resource is defined as follows:

1) Containing information needed to answer important scientific research questions with a demonstrable public interest in that information.
2) A special and particular quality such as being the oldest of its type or the best available example of its type.

3) Being directly associated with a scientifically recognized important prehistoric or historic event or person (PRC Section 21083.2(g)).

Section 21074 describes a TCR as a site, feature, place, cultural landscape, sacred place, or object that is considered of cultural value to a California Native American Tribe and that is either:

- On or determined to be eligible for the California Register of Historical Resources or a local historic register; or
- A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Section 5024.1.

Assembly Bill (AB) 52 formalizes the lead agency–tribal consultation process, requiring the lead agency to initiate consultation with California Native American groups that are traditionally and culturally affiliated with the project site, including tribes that may not be federally recognized. Lead agencies are required to begin consultation prior to the release of a negative declaration, mitigated negative declaration, or environmental impact report.

> Section 1 (a)(9) of AB 52 establishes that "a substantial adverse change to a tribal cultural resource has a significant effect on the environment." Effects on TCRs should be considered under CEQA. Section 6 of AB 52 adds Section 21080.3.2 to the PRC, which states that parties may propose mitigation measures "capable of avoiding or substantially lessening potential significant impacts to a tribal cultural resource or alternatives that would avoid significant impacts to a tribal cultural resource." Further, if a California Native American tribe requests consultation regarding project alternatives, mitigation measures, or significant effects to tribal cultural resources, the consultation shall include those topics (PRC Section 21080.3.2[a]). The environmental document and the mitigation monitoring and reporting program (where applicable) shall include any mitigation measures that are adopted (PRC Section 21082.3[a]).

The California Health and Safety Code Section 7050.5(b) specifies protocol when human remains are discovered. Specifically, burials or human remains found either inside or outside a known cemetery are not to be disturbed or removed unless by authority of law, and the area of a discovery of human remains should remain undisturbed until the County Coroner is notified and has examined the remains prior to determining the appropriate course of action.

2.3 LOCAL REGULATIONS

The City of Redlands provides policies for the preservation of historic and cultural resources within Chapter 2 of the 2017 City of Redlands General Plan.

Section 2.2 Cultural Resources. The Cultural Resources section describes the long history of human occupation of the Redlands area. There are several resources that are listed on the NRHP and CRHR as well as California Historical Landmarks and Points of Historical Interest within the City. In addition, the City maintains a list of local historical resources through the Development Services Department. This list includes 8 historic/ scenic districts, 747 properties, and 630 properties contributing to historic districts. The General Plan also states that archaeological and paleontological resources are protected under CEQA as cultural resources.

> **Goal for being a Distinctive City:** Enhance Redlands as a distinctive community, unique in the Inland Empire, combining a "small town feeling" with historic architecture and a rich cultural heritage while welcoming innovation and adapting to the needs of future generations.

Principles:

2-P.8: Identify, maintain, protect, and enhance Redlands' cultural, historic, social, economic, architectural, agricultural, archaeological, and scenic heritage. In so doing, Redlands will preserve its unique character and beauty, foster community pride, conserve the character and architecture of its neighborhoods and commercial and rural areas, enable citizens and visitors to enjoy and learn about local history, and provide a framework for making appropriate physical changes.

2-P.9: Provide incentives to protect, preserve, and maintain the city's heritage.

2-P.10: Foster an understanding and appreciation of history and architecture.

2-P.11: Encourage retention of the character of existing historic structures and urban design elements that define the built environment of the city's older neighborhoods.

2-P.12: Encourage retention of historic structures in their original use or reconversion to their original use where feasible. Encourage sensitive, adaptive reuse where the original use is no longer feasible.

2-P.13: Encourage preservation of and public access to defined and established significant scenic vistas, viewpoints, and view corridors.

2-P.14: Coordinate preservation of historic resources with policies designed to preserve neighborhoods and support the affordability of housing in historical structures.

2-P.15: Balance the preservation of historic resources with the desire of property owners of historic structures to adopt energy efficient strategies.

2-P.16: Work with local paleontologists to identify significant non-renewable paleontological resources.

2-P.17: Protect archaeological and paleontological resources for their aesthetic, scientific, educational, and cultural values

Actions:

Historic City Properties

2-A.36: Maintain and improve City-owned historic buildings and houses in an architecturally and environmentally sensitive manner.

2-A.37: Maintain and improve Redlands' streets, trees, streetlights, parkways, parks, stone curbs, ditches, walls, and citrus groves in a manner that enhances the city's beauty and historic fabric.

2-A.38: Use exemplary design quality and sensitivity to surrounding historic structures in new City construction, public works, entry ways, and City signs.

Archaeological and Paleontological Resources

2-A.71: Using an annually updated Archaeological Resource Sensitivity Map, review proposed development projects to determine whether a site contains known prehistoric or historic cultural resources and/or to determine the potential for discovery of additional cultural resources.

2-A.72: Require that applicants for projects identified by the South Central Coastal Information Center as potentially affecting sensitive resource sites hire a consulting archaeologist to develop an archaeological resource mitigation plan and to monitor the project to ensure that mitigation measures are implemented.

2-A.73: Require that areas found during construction to contain significant historic or prehistoric archaeological artifacts be examined by a qualified consulting archaeologist (RPA certified) or historian for appropriate protection and preservation.

2-A .74: Proactively coordinate with the area's native tribes in the review and protection of any tribal cultural resources dis-covered at development sites.

2-A.75: Require, as a standard condition of approval, that project applicants provide an assessment as to whether grading for the proposed project would impact underlying soil units or geologic formations that have a moderate to high potential to yield fossiliferous materials, prior to issuance of a grading permit. If the potential for fossil discovery is moderate to high, require applicants to provide a paleontological monitor during rough grading of the project.

2-A.76: Establish a procedure for the management of paleontological materials found on-site during a development, including the following provisions:

i. If materials are found on-site during grading, require that work be halted until a qualified professional evaluates the find to determine if it represents a significant paleontological resource.

ii. If the resource is determined to be significant, the paleontologist shall supervise removal of the material and determine the most appropriate archival storage of the material.

iii. Appropriate materials shall be prepared, catalogued, and archived at the applicant's expense and shall be retained within San Bernardino County if feasible

3.0 NATURAL AND CULTURAL CONTEXT

3.1 ENVIRONMENTAL SETTING

The Project is broadly located the San Bernardino Valley, a broad river valley that is part of the Upper Santa Ana River Basin. The Upper Santa Ana River Basin is bounded by the San Bernardino Mountains, part of the Transverse Ranges to the north, and the Redlands Badlands and Box Springs Mountains to the south. The Santa Ana River flows from the San Bernardino Mountains into the valley and continuing southwest through the Jurupa Valley and the Santa Ana Mountains and Chino Hills into Orange County. The topography in the more immediate vicinity of the project area is characterized by a high energy alluvial river corridor, that is seasonally flooded, typically in the winter, and after summer thunderstorms. The project area is on an alluvial terrace on the south side of the river, generally flat with a slight slope from south to north. The elevation of the project area varies approximately from approximately 1,168 to 1,195 feet above mean sea level (amsl) in the main part of the WWTP property, and approximately 1,187 to 1,224 feet amsl in the percolation ponds.

The project area is very geologically active. The San Andreas Fault passes along the foothills of the San Bernardino Mountains before turning north through the Cajon Pass. On the south side of the San Bernardino Valley, two other active faults, the San Jacinto and Crafton Hills faults run northwest to southeast and west to east, respectively. The San Andreas Fault marks the area where the North American Plate and the Pacific Plate meet, aiding in the creation of the Transverse Ranges. These mountains began to rise from this tectonic activity around 11 million years ago. The Santa Ana River Basin is a large catchment basin for the several creeks, streams, and river that flow intermittently depending on winter snow fall in the mountains and summer monsoonal rains. The Santa Ana River drainage is mainly a lateral accretional environment characterized by high energy and volume alluvial deposits from the Quaternary and Holocene periods.

Soil components found in the project area are defined by the Natural Resources Conservation Service Soil Survey Geographic database are Hanford series, Tujunga series, Psamments, Fluevents, and other frequently flooded soils (Soil Survey Staff 2019). The Hanford soils are sandy loam found on the terrace above the river channel. Tujunga series loamy sand is located along the terrace edge and just below the terrace in the main part of the WWTP. The Psamments, Fluevents, and other frequently flooded soils are poorly sorted sandy alluvium with high gravel and cobble content, and heavily disturbed by active alluvial processes.

The Project is bounded by the Santa Ana River to the north. The vicinity of the Project has historically been agricultural, mainly citrus orchards, but in recent decades the land has been developed into industrial warehouses. The plant life of the project area consists of native flora such as sage, chaparral and native grasses and forbs, as well as introduced species such as eucalyptus.

3.2 CULTURAL SETTING

The Project is located in the Southern California interior, which has a cultural history extending back at least 10,000 years before present (BP) and has been extensively researched and documented.

3.2.1 Prehistoric Overview

Humans have lived within California for at least 10,000 years, and several chronologies have been proposed to divide different periods of habitation and development. The commonly used chronology (Wallace 1955) divides this time span into the Early Period (10,000 years BP to 8,000 years BP), the Milling Stone Period (8,000 years BP to 3,000 years BP), the Intermediate Period (3,000 years BP to AD 1000), the Late Prehistoric Period (AD 1000 to 1770), and the Historic Period (1770 to present). Different patterns and types of material culture represent each of these periods.

Large projectile points from the Early Period indicate subsistence on large animals, although it is likely that the diet also included smaller game and harvested plants. Sites representing this period have been found mostly inland at prehistoric lakebeds (e.g., China Lake, Tulare Lake) (Wallace 1955). Few Early Period sites have been documented in Southern California, mostly on Channel Islands, and along the San Dieguito River.

The Milling Stone Period is characterized by milling stones and manos used in the preparation of plant and seed-based foods. Terrestrial game supplemented the diet during this time (Wallace 1978:28). This period is also characterized as being extremely resilient and long-lasting. During this period and in subsequent cultural periods, the inland areas of the Southern California exhibit cultural assemblages from both the coastal cultures as well as the Mojave Desert/ Great Basin cultures.

During the Intermediate Period, subsistence expanded to a greater diversity of plant foods. Tools used during this period included mortars and pestles to process plant-based foods (Wallace 1978:30). In the Southern California interior, many sites exhibit Milling Stone Period assemblages until roughly 1,000 years BP (Sutton and Gardner 2010). Takic speakers from the Central Valley entered Southern California around 3,500 BP. By around years 1,000 BP, Takic speakers had moved into interior Southern California (Sutton 2009)

During the Late Prehistoric Period, the native inhabitants lived throughout much of Southern and Central California in semi-permanent villages with a complex trade network among groups. Subsistence was based primarily on fauna, supplemented by some plant foods, including acorns. Larger villages served as trade centers, and shell beads were introduced as currency for the exchange of goods, which was supported by a strong artistic tradition in bone, shell, stone, and basketry (Chartkoff and Chartkoff 1988:181; Grant 1965, 1978).

The Historic Period is marked by the first periods of contact and exploration by European settlers along the California coast beginning in the 16th century. This period saw the decimation of native peoples throughout California due to disease, incorporation into the mission system, and loss of territory and traditional cultural practices (Castillo 1978).

Few prehistoric archaeological resources have been recorded in the vicinity of the Project. This may be due in part to the location of the Project next to the Santa Ana River and periodic flooding, which has eroded or buried prehistoric sites along its channel.

3.2.2 Ethnographic Overview

The Project area is within traditional lands of the Serrano. The Serrano people inhabited the San Gabriel and San Bernardino Mountains, the Mojave Desert to the north and south into the San Bernardino Valley. Serrano is a dialect of the Serran sub-group of the Takic language group within the Uto-Aztecan family of languages (Bean and Smith 1978).

The Serrano lived in several different environmental zones that they could use to exploit a variety of resources. The Serrano were mainly hunters and gatherers who occasionally fished. Game that was hunted included bighorn sheep, deer, antelope, rabbits, small rodents, and various birds. Vegetable staples consisted of acorns, piñon nuts, bulbs and tubers, shoots and roots, berries, mesquite, barrel cacti, and Joshua tree (Bean and Smith 1978).

A variety of materials were used for hunting, gathering, and processing food, as well as for shelter, clothing, and luxury items. Shells, wood, bone, stone, plant materials, and animal skins and feathers were used for making baskets, pottery, blankets, mats, nets, bags and pouches, cordage, awls, bows, arrows, drills, stone pipes, musical instruments, and clothing (Bean and Smith 1978).

Settlement locations were determined by water availability, and most Serranos lived in small villages near water sources. Houses and ramadas were round and constructed of poles covered with bark and tule mats (Kroeber 1925). Most Serrano villages also had a ceremonial house used as a religious center. Other structures within the village might include granaries and sweathouses (Bean and Smith 1978).

The Serrano were loosely organized along patrilineal lines and associated themselves with either the *Tukum* (wildcat) or the *Wahilyam* (coyote) moiety. Organization of individual bands of Serrano was considered by Kroeber (1925) to be similar to political groups. Tribes, as opposed to bands, were larger in numbers and more socially complex, and can be distinguished from each other by having distinct dialects based on spatial discreteness.

Partly due to their mountainous inland territory, contact between Serrano and European-Americans was minimal prior to the early 1800s. In 1819, a *capilla* (chapel) was established near present-day Redlands and was used to relocate many Serrano to Mission San Gabriel. However, small groups of Serrano remained in the area northeast of the San Gorgonio Pass and were able to preserve some of their native culture. Today, many Serrano live on the Morongo and San Manuel Indian reservations (Bean and Smith 1978; Bean and Vane 2002).

There are no known ethnographic resources such as villages in the vicinity of the Project. The San Manuel Reservation is located in Highland about 4.5 miles north of the Project.

3.2.3 Historic Overview

Europeans first sailed up the coast of California in 1542 as part of a Spanish expedition led by the Portuguese captain, Juan Rodriguez Cabrillo. Spain would not resume in-depth exploration and settlement of the region until much later, when Russian and French encroachment threatened Spain's interests in the territories known as Alta California (Upper California). The return of Spanish presence in California was marked by the 1769 expedition led by Captain Gaspar de Portola (Treutlein 1968:291). This was the start of the Spanish Period (1769 to 1821) of California history. During this period, Spain began to establish a system of pueblos, presidios, ranchos, and missions along the California coast to bolster Spanish settlement and presence. The Spanish Franciscan missionaries established a system of 21 missions along El Camino Real, the main north-south travel route. The missions subsumed much of the Native American population during the process, leading to their decline and increasingly hostile relationships between the Europeans and the Native Americans (Castillo 1978; Cleland 1941).

The Mexican Revolution in 1821 initiated the Mexican Period (1821 to 1848), but initially saw little change to the mission system and way of life. In the 1830s, the missions were secularized and divided into large land grants called ranchos. The Mexican government granted ranchos throughout California to soldiers, settlers, and government officials (Castillo 1978). During this time, Euro-American explorers traversed the Sierra Nevada Mountains, including Jedidiah Smith, Pete Skene Ogden of the Hudson's Bay Fur Company, and Captain Joseph Reddeford Walker.

In 1848, the Treaty of Guadalupe Hidalgo ended the Mexican-American War and marked the start of the American Period (1848 to present). That same year, gold was discovered near Sacramento and spurred the California Gold Rush, bringing thousands of miners and settlers to California, most of whom settled in the northern portion of the state (Castillo 1978; Cleland 1941).

The City of Redlands

Redlands is located on a portion of the land known during the Mexican Period as Rancho San Bernardino, which was granted by the Mexican government to Don Antonio Maria Lugo and his three sons in 1842. In 1851, the Lugo family sold a portion of the rancho to Mormon settlers, who founded the City of San Bernardino (Cleland 1941; Moore, F. 1987; Richards 1966).

The area of present-day Redlands that lies north of what is now Colton Avenue was sparsely settled in the 1850s, during the Mormon Period, and called Lugonia, after the Lugo family of Rancho San Bernardino. During the 1860s and 1870s, much of the land in Lugonia was planted in vineyards. The arrival of the Southern Pacific Railroad in Colton in 1875 and the Atchison, Topeka, and Santa Fe Railroad in San Bernardino in 1885 increased communications, travel, and shipping. The Southern Pacific did not pass through Redlands, the rail company instead built its line through San Timoteo Canyon to the south on its way to Yuma and points east. The California Southern Railroad, a subsidiary of the Atchison, Topeka, and Santa Fe Railroad, built a loop line from San Bernardino through Redlands, Mentone, and Highland in 1888 (Horne 1998). A real estate boom brought about by

inexpensive rail fares and aggressive real estate promotions was in progress by the late 1880s. Many new families began to arrive and numerous small towns, including Redlands, were founded. The Redlands Colony was formed in 1881 by Frank E. Brown, a civil engineer from Connecticut, and Edward G. Judson, a businessman from New York. The original settlement comprised 160 acres centered on the present-day intersection of Center Street and Cypress Avenue and was sparsely populated. As a result of the real estate boom, the present central business district around Orange and State Streets was platted and lots were auctioned in 1887 (Dumke 1944:122). By 1888 there were 200 buildings including a hotel and five restaurants, and the community had grown to encompass several thousand acres (Kupfer 1979; Moore. F. 1987; Moore, W. 1983). Redlands was surrounded by citrus groves and vineyards that were irrigated by water from Big Bear Reservoir (Dumke 1944:123).

The new City of Redlands was subdivided from the beginning in anticipation of a quickly growing population, but the economic depression of the 1890s resulted in most residential development prior to World War II taking place in the area south of present-day Redlands Boulevard. In the Lugonia district, north of Redlands Boulevard, development was sporadic, with residential lots interspersed with large parcels of agricultural fields, which, by the turn of the Twentieth century, were mostly citrus groves (Mermilliod 2002).

The Redlands WWTP was built on the outskirts and the northern boundary of the town in 1962 along the Santa Ana River. During this period much of the area remained citrus orchards and other crops along with farmhouses and few residences. Until the 1990s the area was largely agrarian. Since then, the area has developed rapidly from agriculture to large-scale warehouses and logistics services. Much of the arable land today around the Project has been converted into warehouses and industrial developments.

Redlands Wastewater Treatment Plant

Modern wastewater treatment to control pollution and sewage became a major part of government management in the United States in the early 20th century. However, wastewater treatment facilities did not become major infrastructure facilities until after World War II. The Federal Water Pollution Control Act was passed in 1948 to develop urban wastewater management throughout the United States (Burian et al 2000; Colorado University 2019). By 1960, over half of the U.S. population had access to some form of wastewater treatment. Before the passage of the Clean Water Act in 1972, most sewage was treated through "Primary treatment", a process of removing heavier solids from the sewage before the sewage was pumped back into the local aquifer. Starting in 1972, wastewater treatment plants across the country were upgraded to meet the new standards (Lofrano and Brown 2010; Colorado University 2019).

The Redlands Sewage Treatment Facility was first built in 1962 and was composed of several buildings, tanks and structures that cleaned the solids from the liquids and pumped the cleaned liquid back into the Santa Ana River. A total of two buildings, a control building, and a garage, two primary clarifiers, one primary digester, one reserve digester, five drying beds, several ancillary pump stations or housings, an access road and a concrete-lined ditch remain from this initial period of construction.

In 1972, the facility was updated to include additional structures, tanks, drying beds, ponds, pumps, and other apparatus to incorporate more intensive cleaning of water as mandated from environmental legislation like the Clean Water Act and the standards from the Environmental Protection Agency (EPA). A total of seven additional buildings (the effluent pump station, the dissolved air filtration (DAFT) building, the sludge pump station, the digester control building, the blower building, the headworks building, and the peak pond pump station), the headworks facility, the aeration basins and blower facility, one additional primary clarifier, two secondary clarifiers, one additional digester, one methane storage tank, two de-gassing ponds, one trickling filter tank, one trickling filter clarifier, a peak

pond, a peak pond pump station, a DAFT system tank and pump station, an effluent pump station, five drying basins, and eight percolation ponds (off Alabama Street) were built during this period of construction, and remain present today.

Since 1972, the facility has undergone several updates and additional construction episodes: 1987, 2004, and 2010. Some treated wastewater is pumped to percolation ponds in which the treated water saturates back into the local aquifer, while other treated water is distributed to Mountainview Power Company and others for power generation and irrigation purposes.

4.0 LITERATURE REVIEW

4.1 RECORDS SEARCH METHODS

A records search was conducted on April 30, 2019 at the South Central Coastal Information Center (SCCIC) of the California Historical Resources Information System (CHRIS) at California State University, Fullerton in order to identify previously-recorded cultural resources within the project area and within a 1 mile radius. The records search reviewed reports, site records, and the Historic Property Data File, which identifies resources listed on or determined eligible for listing on the NRHP, the CRHR, and local registers. It also included a review of resources listed as California Historical Landmarks and California Points of Historical Interest. Historic GLO, and USGS maps were reviewed as well as historic aerials to gather information on the building history of the project area over time and assess the potential for encountering resources older than the WWTP itself. The results of the records search are provided in Appendix A.

4.2 RECORDS SEARCH RESULTS

4.2.1 Previously Conducted Cultural Resources Studies

The records search identified 33 previous investigations have been completed within 1 mile of the project area between 1977 and 2014. Of these, five investigations partially overlap portions of the project area. All 33 investigations are detailed in Table 1 and the five studies that overlapped the project area are discussed below.

Table 1. Previous Investigations within One Mile of the Project Area

CHRIS Report No. (SB-)	Year	Author(s)	Title	Affiliation	Proximity to Project Area
00574	1977	Stephen R. Hammond, And Lois M. Webb	Cultural Resources Survey: Route 30 Between Interstate Route 10 And Arden Avenue, San Bernardino County, California		Outside
01055	1980	Stephen R. Hammond	Archaeological Survey Report: Route 30 Between Third Street and Route 10 At Tennessee Street		Outside

CHRIS Report No. (SB-)	Year	Author(s)	Title	Affiliation	Proximity to Project Area
01783	1988	David Hornbeck, and Howard Botts	Seven Oaks Dam Project: Water Systems	Area Location Systems	Outside
01808	**1988**	**R. Paul, Hampson, Jerrel Sorensen, Susan K. Goldberg, Mark T. Swanson, and Jeanne E. Arnold**	**Cultural Resources Survey, Upper Santa Ana River, California**	**Greenwood & Associates and Infotec**	**Inside**
02062	**1990**	**John M. Foster**	**Archival Research for Cultural Resources: Old Webster Quarry, SEIR, San Bernardino County**	**Greenwood & Associates**	**Inside**
02260	1991	David Carmichael	Documentary Research and Field Reconnaissance Relating to Cultural Resources at Norton Air Force Base, California	Norton Air Force Base	Outside
02466	1991	Michael K. Lerch	Cultural Resources Assessment of Tentative Tract 15304, City of Redlands, San Bernardino County, California	Michael K. Lerch & Associates	Outside
02486	1991	Roger G. Hatheway, John Romani, and Joanne Sanfilippo	An Architectural Determination of Eligibility/Significance Report and An Archaeological Survey for The Marigold Business Park	Hatheway & Associates	Outside
02625	1992	Karen K Swope, and Michael K. Lerch	Cultural Resources Assessment of The Barton Center of Redlands, Marigold Farms, City of Redlands, San Bernardino County, California	Michael K. Lerch & Associates	Outside
02792	1993	Mason, Roger D. And Jeanette A. Mckenna	Cultural Resources Survey for The Cities Pavilion Project, Redlands, CA	Chambers Group, Inc	Outside

CHRIS Report No. (SB-)	Year	Author(s)	Title	Affiliation	Proximity to Project Area
02853	1991	John M. Foster, James J. Schmidt, Carmen A. Weber, Gwendolyn R. Romani, and Roberta S. Greenwood	Cultural Resource Investigation: Inland Feeder Project, MWD of Southern CA	Greenwood & Associates	Outside
02857	1994	Marilyn Mlazovsky	Pilot Rock Conservation Camp		Outside
03064	1995	Laurie White and Robert S. White	An Archaeological Assessment of the 124+/- Acre Concept Plan 5 Citrus Plaza Project, Redlands, CA	Archaeological Associates	Outside
03141	**1995**	**Bruce Love**	**Alabama Street All-Weather Crossing**	**CRM Tech**	**Inside**
03750	2000	Bruce Love	Westside Landfill Expansion Project	CRM Tech	Outside
03856	2003	David Brunzell	Archaeological Monitoring Program, 1429 Shay Road, Big Bear City, CA 92314	The Brunzell Age	Outside
04048	**2001**	**Bruce Love**	**Identification and Evaluation of Historic Properties: City of Redlands Recycled Water Project in The City of Redlands, San Bernardino County, CA**	**CRM Tech**	**Inside**
04104	2004	Jeanette A. Mckenna	An Architectural Review of Standing Structures Located Within the Proposed Redlands Unified School District's Proposed New School Site, Redlands, San Bernardino County, CA	Mckenna Et Al	Outside
04592	2005	Bai "Tom" Tang, Michael Hogan, Casey Tibbett, and John J. Eddy	Historical/Archaeological Resources Survey Report: ABT-Haskell Company Composting Plan Site Near the City of Redlands, San Bernardino County, California		Outside
04594	2005	Lorna Billat	Hwy 30/Ca-8817a		Outside

CHRIS Report No. (SB-)	Year	Author(s)	Title	Affiliation	Proximity to Project Area
04596	2004	Jeanette Mckenna	A Phase I Cultural Resources Investigation of the Oakmont Industrial Group Project Area, Approximately 14.3 Acres in the Redlands Area of San Bernardino County, California		Outside
04600	2004	Michael Dice	Phase I Cultural Resources Survey of a 73.45 Acre Property in Unincorporated San Bernardino County, APN: 0292-052-01, -03, -04, -06, -08, -10, -11, -12, -16 near Nevada Street/Almond Avenue, Section 13 of Township 1 North Range 6 West, County of San Bernardino, California		Outside
04811	2006	Jeanette A. McKenna	Supplemental research and Documentation of 1042 Pioneer Ave. and 1074 Pioneer Ave., Redlands, San Bernardino Co., California		Outside
04831	2005	David Brunzell, and Curt Duke	Cultural Resource Assessment: Upper Santa Ana River Wash Land Management and Habitat Conservation Plan, San Bernardino County, California	LSA Associates, Inc.	Outside
05164	2005	Robert White, and Laura White	A Cultural Resources Assessment of A 17.86 Acre Parcel Located Northeast of The Intersection of Pioneer Avenue and Nevada Street, Near Redlands, San Bernardino County		Outside
05165	2005	Bai Tang, Michael Hogan, Mariam Dahdul, Casey Tibbet, Daniel Ballester, and Terri Jacqueman	Historical/ Archaeological Resources Survey Report - Haskell Project 2130 Nevada Street, Near the City of Redlands San Bernardino County, California		Outside
05167	2006	Michael Hogan	Historical/Archaeological Resources Survey: Trojan Groves, Assessor's Parcel Nos. 0167-091-09 through -12, City of Redlands, San Bernardino County, California		Outside

CHRIS Report No. (SB-)	Year	Author(s)	Title	Affiliation	Proximity to Project Area
05788	2006	Jennifer M. Sanka	Phase I Cultural Resource Assessment and Paleontological Records Review, Redlands Commerce Center Project, Redlands, San Bernardino County, California		Outside
05857	2008	Jennifer M. Sanka	Phase I Cultural Resource Assessment and Paleontological Records Review, Holy Name of Jesus Catholic Church Project, Redlands, San Bernardino County, California		Outside
06758	2004	Christopher Lee	Cultural Resources Technical Report: Emergency Protection, County of San Bernardino, and City of Rancho Cucamonga		Outside
07460	2012	Daniel M. Perez, Daniel Ballester, and Nina Gallardo	Identification and Evaluation of Historic Properties; Discharge Ditches at San Bernardino International Airport, City of San Bernardino, San Bernardino County, California	CRM Tech	Outside
07663	2014	Jeanette A. McKenna	A Phase I Cultural Resources Investigation for the Newland Homes 30.94 Acre Property in the City of Redlands, San Bernardino County, California		Outside
07823	2014	Bai "Tom" Tang	Due-Diligence Historical/Archaeological Resources Survey: Third Street Between Victoria Avenue and Palm Avenue Between the Cities of Highland and San Bernardino, San Bernardino County, California	CRM Tech	Outside
07959	1998	Roger G. Hatheway	Determination of Eligibility for 50 Buildings in the City of San Bernardino	Hatheway and Associates	Outside
08097	**2014**	**Shelly Long**	**Archaeological Survey Report State Route 210 Mixed Flow Lane Addition from Highland Avenue to San Bernardino Avenue, Cities of Highland, San Bernardino, Redlands and Portions of San Bernardino County, California**	**ICF International**	**Partially Inside**

Previous Studies within the Project APE

Below are descriptions of previous cultural resources studies that overlapped all or portions of the Project APE. These summaries describe the level of effort and results of the previous studies.

SB-01808 (1988)

This project was completed for the U.S. Army Corps of Engineers to inventory 10,000-acres of land within the Santa Ana River drainage from Mentone to Norco, California (Hampson et al. 1988). The study provided information that there were no prehistoric sites within the project area in either Riverside or San Bernardino counties. There were 25 prehistoric sites within one mile of the project area in Riverside County, and 14 prehistoric sites within one mile of the project in San Bernardino County. There were 23 historic sites within or immediately adjacent to the project area in San Bernardino County, and an additional four historic sites within and one immediate adjacent to the project area. A total of 9 prehistoric sites, 53 historic sites, 2 multicomponent, and 6 historic isolates were documented as a part of this study. No resources were found in the vicinity of the current project area. The percolation ponds were within the project boundary as part of this survey; however, it does not appear to have been surveyed due to heavy vegetation.

SB-02062 (1990)

This study was an archival research document for P&D Technologies for a proposed sand and gravel mining and processing facility located in the City of Highland (Foster 1990). This study was a records search addendum to the previous work completed by Hampson et al (1988). The records search area incorporated a large area within the Santa Ana River drainage including the percolation ponds of the WWTP. The records search resulted in 12 previously recorded historic resources with 17 additional potentially historic resources within the records search area. None of the identified resources overlaps the current Project area.

SB-03141 (1995)

This study was completed for the California Department of Transportation (Caltrans) for the reconstruction and widening of Alabama Street over the Santa Ana River (Love 1995). A portion of the western side of the percolation ponds was included in this project area. A historic property survey report (HPSR) and archaeological survey report (ASR) were completed in lieu of this proposed project. No previously recorded sites or any new archaeological sites were encountered during the study.

SB-4048 (2001)

This survey and evaluation of historic properties for the EPA, the City of Redlands, and Tom Dodson and Associates was completed for a proposed recycled water project (Love 2001). Three parcels including the main part of the WWTP off Nevada Street were surveyed. Two previously identified historic resources: CA-SBR-7139H and CA-SBR-9991H were identified and relocated. Both resources were recommended not eligible for both the NRHP and CRHR, yet these resources were recommended eligible as resources of local historic interest. No new resources were found within the survey areas. Neither previously recorded resource is found within the current WWTP Project area; however, CA-SBR-9991H is adjacent to the current project area along Nevada Street.

SB-08097 (2014)

Completed for the Cities of Highland, San Bernardino, and Redlands; unincorporated San Bernardino County; Caltrans; and the San Bernardino Associated Governments (SANBAG), this ASR was prepared for a proposed project to widen State Route 210 from Sterling Avenue in San Bernardino to

San Bernardino Avenue in Redlands (Long 2014). This project's study area overlaps the east end of the percolation ponds for the WWTP. A total of 48 resources were recorded within 1 mile of the APE of that study. No resources were found within the current WWTP Project area.

4.2.2 Previously Identified Cultural Resources within One Mile of the Project Area

The SCCIC records search identified 24 previously-documented resources within 1 mile of the Project area, including four historic-age (i.e., 50 years old or older) built environment resources, 19 historic-age sites, and one prehistoric isolated find consisting of a lithic biface. None of the previously-recorded resources are located within the Project area. All 24 resources are detailed in Table 2, below.

Table 2. Previously-Documented Resources within One Mile of the Project Area

Primary No. (P-36-)	Trinomial (CA-SBR-)	Age and Type	NRHP Eligibility Status	Resource Description	Proximity to Project Area
006084	CA-SBR-6084H	Historic Site	N/A	AH04 (Privies/ dumps/trash scatters)	Outside
006095	CA-SBR-6095H	Historic Site	N/A	AH04 (Privies/ dumps/trash scatters)	Outside
006096	CA-SBR-6096H	Historic Site	N/A	AH04 (Privies/ dumps/trash scatters)	Outside
006097	CA-SBR-6097H	Historic Site	N/A	AH04 (Privies/ dumps/trash scatters)	Outside
007052	CA-SBR-7052H	Historic Built Environment, Historic Site	N/A	AH02 (Foundations/ structure pads); AH06 (Water conveyance system); HP02 (Single family property); HP04 (Ancillary building)	Outside
007139	CA-SBR-7139H	Historic site	N/A	AH06 (Water conveyance system); AH07 (Roads/ trails/ railroad grades); AH16 (Other)	Outside
007765	CA-SBR-7765H	Historic Site	N/A	AH06 (Water conveyance system); AH16 (Other)	Outside
007766	CA-SBR-7766H	Historic Site	N/A	AH06 (Water conveyance system); AH16 (Other)	Outside
7767	CA-SBR-7767H	Historic Site	N/A	AH06 (Water conveyance system); AH11 (Walls/fences); AH16 (Other)	Outside
007768	CA-SBR-7768H	Historic Site	N/A	AH02 (Foundations/ structure pads); AH05 (Wells/cisterns); AH06 (Water conveyance system); AH11 (Walls/fences); AH15 (Standing	Outside

Primary No. (P-36-)	Trinomial (CA-SBR-)	Age and Type	NRHP Eligibility Status	Resource Description	Proximity to Project Area
				structures); AH16 (Other)	
008135	CA-SBR-8135H	Historic Site	N/A	AH06 (Water conveyance system)	Outside
008137	CA-SBR-8137H	Historic Site	N/A	AH03 (Landscaping/ orchard); AH15 (Standing structures)	Outside
009990	CA-SBR-9990H	Historic Site	N/A	AH02 (Foundations/ structure pads); AH05 (Wells/cisterns)	Outside
009991	CA-SBR-9991H	Historic Site	N/A	AH03 (Landscaping/ orchard); HP30 (Trees/vegetation)	Outside
012468	CA-SBR-12260H	Historic Site	N/A	AH06 (Water conveyance system)	Outside
012531		Historic Built Environment	N/A	HP02 (Single family property)	Outside
012532		Historic Built Environment	N/A	HP02 (Single family property)	Outside
012852	CA-SBR-12386H	Historic Site	N/A	AH03 (Landscaping/ orchard); AH04 (Privies/dumps/trash scatters); AH06 (Water conveyance system)	Outside
013514		Historic Built Environment	N/A	HP02 (Single family property)	Outside
013775	CA-SBR-12663H	Historic Site	N/A	AH04 (Privies/ dumps/trash scatters); AH06 (Water conveyance system)	Outside
013783	CA-SBR-12669H	Historic Site	N/A	AH06 (Water conveyance system)	Outside
032488	CA-SBR-32488H	Historic Site	N/A	AH06 (Water conveyance system)	Outside
032489	CA-SBR-32489H	Historic Site	N/A	AH06 (Water conveyance system)	Outside
060203		Prehistoric Isolate	N/A	AP16 (Other)	Outside

4.3 HISTORIC MAP REVIEW

Historic aerials and topographic maps of the Project area were reviewed prior to the field research. Historic aerials are available from 1930, 1952, 1959, 1966, 1979, 1990, and 1994 (FrameFinder 2019) and USGS topographic maps from 1899, 1954, 1967, 1988, and 1996 (USGS 2019). Historic aerials of the area from 1930 to 1966, shows the vicinity of the Project was largely agricultural with several large orchards south of the Santa Ana River drainage. After 1966 the first WWTP has been built, with two primary clarifying tanks, a central control building (maintenance building today), two digesters, drying beds, and aeration tanks on the edge of the riverbed. After 1979, the aerial shows that the WWTP

expanded to include several other structures, tanks, drying beds, and buildings. On the east side of Alabama Street, the percolation ponds have been constructed. By 1990 and 1994, the WWTP has expanded south to incorporate an area that was historically an orchard. Several drying beds, a new access road, and a large control building were constructed here. According to the San Bernardino Property Information System, this orchard was located on two parcels: 0292041360000 and 0292041370000. These two parcels were transferred to the City of Redlands in 1985.

The historic topographic maps from 1899 to 1967 shows that the vicinity of the Project area was largely undeveloped and agricultural. Alabama Street is apparent at least since 1899, Palmetto Avenue and Nevada Street are apparent since 1954. There are five structures or homes located on orchard lands adjacent to the location of the 1966 WWTP. There are three homes on an unnamed dirt road west of the WWTP on the terrace edge above the Santa Ana River, a home on an unnamed street north of Palmetto Avenue and south of the WWTP, and a home on the west side of Alabama Street southeast of the WWTP. None of these homes are within the current Project area. In 1966, an unnamed dirt road is evident bisecting the area where the percolation ponds would be built. By 1967, that east-west dirt road has disappeared. There is no indication of the percolation ponds on any of the topographic maps. Additional buildings are depicted on the 1988 and 1996 maps south of the WWTP near existing farmhouses, outside the current Project area. The Foothill Highway (I-210) is depicted on the 1996 map east of the percolation ponds.

4.4 TRIBAL CONSULTATION

A search of the Sacred Lands File was conducted by the NAHC on May 9, 2019. The search request resulted in a positive finding for the Project area. No information on the location or nature of the find was included in the response. The NAHC recommended that the San Manuel Band of Mission Indians be contacted for more information. The NAHC also provided a Tribal Consultation List of 14 contacts representing 13 Native American groups.

Project notification letters were sent by the City on April 15, 2021 to ten individuals representing seven Native American Tribes, including the following:

- Agua Caliente Band of Cahuilla Indians (ACBCI)
- Morongo Band of Mission Indians
- Quechan Tribe of the Fort Yuma Reservation (Quechan Tribe)
- San Manuel Band of Mission Indians (SMBMI)
- Santa Rosa Band of Cahuilla Indians
- Serrano Nation of Mission Indians
- Soboba Band of Luiseno Indians

Two additional letters were sent on May 26, 2021 to individuals representing the following Native American Tribes:

- Gabrieleno Band of Mission Indians – Kizh Nation
- Torres Martinez Desert Cahuilla Indians

The letters included a detailed project description, summary of the cultural resources investigations conducted, maps of the project area, and an invitation to consult on the Project under AB 52. To date, responses have been received from the ACBCI, Quechan Tribe, SMBMI, and Gabrieleno Band of Mission Indians.

On April 21, 2021, the Historic Preservation Officer of the Quechan Tribe sent an email to the City stating that the Tribe has no comments on the Project and defers to more local Tribes.

On April 21, 2021, Ryan Nordness, Cultural Resources Analyst for the SMBMI send an email to the City stating that the Project exists within Serrano ancestral territory and is of interest to the Tribe. Mr. Nordness further stated that, due to the location and nature of the proposed Project and the Tribe's knowledge of the area, the SMBMI does not have any concerns with implementation of the Project as planned, but requested that five mitigation measures be included in the permits/plans/conditions for the Project. Mr. Nordness requested copies of the Project's permit/plans/conditions to the SMBMI may review the included mitigation language. On April 26, 2021, Mr. Nordness sent a second email to the City stating that the Project is not located in close proximity to any known sacred lands, but the Tribe is interested in consulting on the Project under AB 52.

On May 20, 2021, the City received a letter from the Lacy Padilla, Archaeologist with the Tribal Historic Preservation Office of the ACBCI stating that the Project is within the Tribe's Traditional Use Area. The Tribe has requested formal government-to-government consultation under AB 52, a copy of the SCCIC records search with associated survey reports and site records, and copies of any cultural resources documentation generated in connection with the Project.

On June 3, 2021, the Gabrieleno Band of Mission Indians requested formal government-to-government consultation under AB 52.

Consultation under AB 52 concluded on October 8, 2021. Copies of correspondence with the NAHC, City, and tribal groups is provided in Appendix B.

5.0 FIELD INSPECTION/SURVEY METHODS AND RESULTS

5.1 FIELD METHODS

Paleo Solutions archaeologist Dean Duryea, Jr., M.A./RPA conducted an intensive field survey of the approximately WWTP facility and percolation ponds on May 6, 2019. That survey included a total of 80.85 acres. Mr. Duryea employed a selective survey and documentation standard to document the historic built environment of the WWTP, photo-documenting features, structures, and buildings from the 1962 and 1972 building phases. Survey of open land was completed for areas that did not have any built environment or heavy disturbances.

On May 3, 2021, Paleo Solutions archaeologist Antonio Cortez conducted a field survey of the newly-added force main pipeline that connects the WWTP facility and the percolation ponds to the east. The proposed pipeline alignment was surveyed to a width of 30 meters (100 feet) on either side of the centerline of the pipeline, for a total survey corridor width of 60 meters (200 feet). The total survey area for the proposed pipeline included 5.5 acres.

The vast majority of the WWTP facility has been disturbed and/or developed; therefore, standard pedestrian survey techniques could not be accomplished. Open areas (less than 18 acres total) that were surveyed for surface manifestations of cultural resources include the periphery of the percolation ponds, the property boundary of the WWTP, open areas around modern drying beds and the modern control

building on the terrace above the original WWTP, and the proposed force main pipeline alignment (see Figure 3). Surveyed areas were closely inspected for evidence of prehistoric or historic-age archaeological materials and historic-age structures or features using pedestrian transects spaced no more than 15 meters apart. While the entire property was inspected for historic-age and prehistoric resources, less than 25 percent of the Project area has open, undisturbed ground that could provide an opportunity for intensive survey.

The Project area boundaries during the May 2019 and May 2021 surveys were verified using a hand-held global positioning system (GPS) unit. The setting and disturbances were recorded and photo-documented using a digital camera. All photographs and documentation are on file at the Paleo Solutions' Monrovia, California office.

Cultural resources such as structures, features, and artifact scatters were recorded and mapped using an iPad with the ESRI Collector software. Structural features were measured and photographed. A short narrative and description of each building, structure, object, features, and artifact locus was written, defining the relationship within the WWTP complex. Examination of the interior of structures and features was not conducted for most features due to limited access or safety precautions. When feasible, interiors were checked and found to contain machinery and items associated with the WWTP. Applicable notes were recorded. All site constituents were recorded in detail. Survey activities and results was summarized using the Survey123 application on an iPad.

5.2 FIELD RESULTS

The Project area is almost entirely developed as the WWTP. All historic-age buildings and structures were recorded and evaluated as one resource (the Redlands WWTP). Additional pre-WWTP historic-age features and artifacts were discovered during the course of this field study. These features and artifacts were recorded as part of the Redlands WWTP site. No prehistoric resources were documented during the field survey.

Redlands WWTP

The 1962 WWTP remains largely intact. A total of two buildings, a control building and a garage (the present maintenance shop and line maintenance department building), two primary clarifiers, one primary digester, one reserve digester, five drying beds, several ancillary pump stations or housings, an access road (Mill St.) and a concrete-lined ditch remain from this initial period of construction. In 1972, the facility was updated to include additional structures, tanks, drying beds, ponds, pumps, and other apparatus to incorporate more intensive cleaning of water as mandated from environmental legislation like the Clean Water Act and the standards from the EPA. A total of seven additional buildings (the effluent pump station, the a dissolved air floatation thickener/ waste sludge (DAFT/WS) pump station, the sludge pump station, the digester control building, the blower building, the headworks building, and the peak pond pump station), the headworks facility, the aeration basins and blower facility, one additional primary clarifier, two secondary clarifiers, one additional digester, one methane storage tank, two de-gassing ponds, one trickling filter tank, one trickling filter clarifier, a peak pond, a peak pond pump station, DAFT/ WS tank, an effluent pump station, five drying basins, and eight percolation ponds (off Alabama St.) were built during this period of construction, and remain present today. Since 1972, the facility has undergone several updates and additional construction episodes: 1987, 200, and 2010. All treated wastewater is pumped to percolation ponds in which the treated water saturates back into the local aquifer.

A total of 38 historic-age features (Features 1 to 37 and Feature 39) associated with the 1962 and 1972 periods of construction of the WWTP were recorded (Figures 4 through 15). In addition, two elements

of the previous land use prior to establishment of the WWTP were identified and recorded as feature 38 and Locus 1 (see Figure 4). These features and artifacts date to the mid-Twentieth century and represent agricultural activities. The first discovery is the remnant of a concrete pad and steel base for a wind machine (Feature 38). The pad has been removed from its original location and is partly demolished. The location of the foundation does not correspond with any aerial or topographic map. It was likely associated with the orchard that was historically located on the terrace above and south of the WWTP that was demolished in the 1990s.

The other discovery was a historic trash concentration (Locus 1) located along the top of the terrace above the digesters and methane storage tank. The artifact concentration consists of domestic trash from the mid-Twentieth century including several complete bottles. All of this trash appears to be a secondary deposit from a nearby residence located outside the Project area.

A California Department of Parks and Recreation (DPR) 523 site record was prepared and is included in Appendix C. All 38 features and Locus 1 are described below.

Feature 1: Building 2, Maintenance Building. This building was the Control Building, according to 1962 and 1972 plans. It is a one-story rectangular building with an entrance on the west side, a garage door on the east side, and a garage door on the northwest corner. The building is built of cinder blocks and concrete, built on a concrete pad; it has a flat roof with two swamp coolers, a bathroom on the exterior on the south side, and an air compressor on the east side. The layout of the building is a garage/ workshop (originally office/ laboratory) in the middle with two offices on the south side, a secondary garage and maintenance/ storage room on the north side. The building measures 74 feet (ft.) (N-S) x 45 ft. (E-W) x 10 ft. tall.

Feature 2: Building 10, Line Maintenance Department Building. This building was the Garage, according to 1962 and 1972 plans. It is a one-story rectangular building with an entrance on the west side, and a covered storage area on the east side with two Conex storage lockers. The building is built of cinder blocks and concrete, built on a concrete pad; it has a flat roof, and wood treatments around the windows and doorway on the west side. The building measures 37 ft. (N-S) x 22 ft. (E-W) x 10 ft. tall.

Feature 3: Building 3, Headworks Building. This building houses the pumps and electronics for the headworks facility, which takes in the raw sewage and begins the process of cleaning and reclamation, according to the 1972 plans. It is a rectangular building built at the rear of the headworks structure. The structure is located south of the primary clarifying tanks (Feature 22a). It is built of cinder blocks and concrete with a flat roof and has doors on the west side of the building. The building shares the same concrete foundation as the headworks structure (Feature 11). The building measures 37 ft. (N-S) x 15 ft. (E-W) x 10 ft. tall.

Feature 4: Building 4, Filter-Clarifier Pond Pump Station. This building houses the electronics, controls, and pumps for the peak pond, clarifier tanks and filters, according to the 1972 plans. It was built just east of the peak storage pond (Feature 34), and adjacent to the filter clarifying tank (Feature 24). It is built of cinder blocks and concrete with a flat roof and has doors on the south and east sides of the building. Three pumps are located on the north side of the building. The building measures 36 ft. (N-S) x 14 ft. (E-W) x 10 ft. tall and appears unused.

Feature 5: Building 5, Digester Control Building. This building houses the controls and electronics for Digesters 1 and 2 and the Reserve Digester, according to the 1972 plans. It was built between Digesters 1 and 2 (Features 14 and 16). It is a one and half story rectangular building with Digester 1 on the north side and Digester 2 on the south side. It is built of cinder blocks and concrete with a flat

roof and has doors on the east and west side of the building. There is a steel gangway over the building connecting both digesters. The building measures 26 ft. (N-S) x 29 ft. (E-W) x 13 ft. tall.

Feature 6: Building 6, Blower Building. This building houses the controls, electronics, and blowers for aerating the treated sewage for nitrification, according to the 1972 plans. It was built north of Maintenance Building (Feature 1). It is a one-story rectangular building that is connected to the aeration tanks. It is built of cinder blocks and concrete with a flat roof and has doors on the west and south sides of the building. A secondary annex structure was added to the east side sometime in the modern past. The building measures 42 ft. (E-W) x 23 ft. (N-S) x 11 ft. tall.

Feature 7: Building 7, Return Sludge Pump Station. This building houses the pump station for the waste sludge and return sludge that has been denitrified, according to the 1972 plans. It is a one-story rectangular building with entrances on the north and south sides. It is built of cinder blocks and concrete with a flat roof and has been built below the present ground surface. It is built at least two feet below the surface. The structure has an open grating and sump area on the west side. The building measures 40 ft. (N-S) x 27 ft. (E-W) x 6 ft. tall.

Feature 8: Chlorination Station. This open building housed chlorination equipment in 1972, but it is a maintenance shed today. Equipment and materials are laid down on the west and south sides of the structure along with two Conex storage lockers. The structure is located just south of the trickling filter tank (Feature 23). The structure is open on the north side with the west wall and half the south wall built of cinder blocks and concrete. The rest of the south wall and east wall is constructed of I-beams and corrugated sheeting. The roof is flat and constructed of corrugated sheeting. Equipment and materials are stored inside the structure. The building measures 55 ft. (E-W) x 15 ft. (N-S) x 12 ft. tall.

Feature 9: Building 8, DAFT/ WS Thickener Pump Station. This structure houses the electronics, pumps for waste sludge to be further combined as a process of separating liquids from solids, according to the 1972 plans. It is located directly east of Digester 1 (Feature 16). The structure is built on a concrete pad, built of steel I-beams and cinder blocks with a corrugated steel roof. Along the wall is an array of electronics for managing power to the various facilities and structures. There are no walls on the west, south and east sides. There is an odd pyramid shaped structure on the south side of the structure, that is no longer in use. According to the 1972 plans, this structure was to burn off waste gas. The WS pump station is connected to the sludge thickener tank (Feature 31). The structure measures 26 ft. (E-W) x 24 ft. (N-S) x 9 ft. tall.

Feature 10: Building 11, Stand-by Power Facility. This structure is an open-framework building housing electronics and a generator in case of emergencies, according to the 1972 plans. These electronics and generator come on-line in the event of a power outage. The structure is built on a concrete pad, built of steel I-beams and cinder blocks with a corrugated steel roof. Along the wall is an array of electronics for managing power to the various facilities and structures. A power generator is located within a metal storage locker also under the roof. There are no walls on the west, north or east sides. It is located next to the Effluent Pump Station (Feature 29). The building measures 28 ft. (E-W) x 15 ft. (N-S) x 9 ft. tall. Appears unused.

Feature 11: Headworks. This structure is the facility that encounters raw sewage first and begins the process of separating solids from liquids. The headworks machinery is modern, but the structure is much the same as the 1972 plans. The concrete foundation and structure are from 1972. The structure's footprint measures 98 ft. (E-W) x 30 ft. (N-S) x 9 ft. tall. There are underground elements to this structure, which were not recorded due to limited access.

Feature 12a/b: Primary Clarifier Tanks 1/ 2. These structures are two large, long tanks that separate floating solids from settling solids from the effluent after going through the headworks. These two tanks were built in 1962. These tanks are steel tanks built into reinforced concrete with two concrete and steel walkways or gangways at either end going across the tanks, and gangways going along the edges and between the two tanks. Three concrete structural supports have been built across each tank. Guardrails have been built around each tank. A motor operates a baffle and gears between the two tanks to agitate the sewage and help settle the sludge. At the west end of the tank is a skimming trough and weir troughs for floating waste. The sludge is then pumped out into a secondary clarifier tank. A sludge pump station is located to the east of the tanks. It is underground. On the east end is an open grating with running effluent underneath that flows the untreated effluent into the tanks. On the west end is the sorted effluent, that moves onto other facilities within the WWTP. Both tanks and surrounding grated areas measure 105 ft. (E-W) x 38 ft. (N-S) x ~11 ft. deep. Tank 1 was empty during this recording. The east end has a chain drive for the agitators and the motor to connect and the tank dips down another 12 feet to siphon the settled sludge.

Feature 13: Sludge Pump Room. This structure is underground and only the skylight and entrance could be seen during this recording. It was built in 1962 to pump sludge to the primary clarifier tanks (Feature 12 a/b). It was built directly behind the tanks on the east end. According to the 1962 plans, it is an underground rectangular structure with a stairway on the southeast corner and a skylight directly above the room. The structure's footprint measures 24 ft. (E-W) x 29 ft. (N-S) x 14 ft. under the ground.

Feature 14: Digester 2. This cylindrical structure was originally Digester 1, according to the 1962 plans. In 1972, it was renamed Digester 2. It is located east of Building 2 (Feature 1), and presently connected to Building 5 (Feature 5). It a steel and concrete cylindrical structure on a concrete foundation with steel piping on the exterior. It is connected to the reserve digester (Feature 15) located directly east. The structure measures 45 ft. (diameter) x 28 ft. tall.

Feature 15: Reserve Digester. This cylindrical structure was originally the Secondary Digester, according to the 1962 plans. It is located directly east of Digester 2 (Feature 14). It a steel and concrete cylindrical structure on a concrete foundation with steel piping on the exterior. A steel gangway connects both digesters together at the top. The structure measures 45 ft. (diameter) x 28 ft. tall.

Feature 16: Digester 1. This cylindrical structure was built in 1972. It is located east of Building 2 (Feature 1), and presently connected to Building 5 (Feature 5). It is a steel and concrete cylindrical structure on a concrete foundation with steel piping on the exterior. It is connected to the reserve digester (Feature 15) located to the southeast. The structure measures 45 ft. (diameter) x 28 ft. tall.

Feature 17: Secondary Clarifying Tank 1. This cylindrical structure was originally named the Nitrification Clarifier #1, according to the 1972 plans. It is a cylindrical concrete structure with a steel center structure that rotates a rake boom to agitate the effluent. It is located north of Secondary Clarifier Tank 2 (Feature 18) and adjacent to Building 7 (Feature 7). A steel gangway connects both clarifier tanks together. A concrete and steel grate distribution structure is located just east of both tanks (Feature 19). The structure measures 86 ft. (diameter) x 3 ft. above the ground surface. According to the 1972 plans, the structure is at least 18 ft. deep.

Feature 18: Secondary Clarifying Tank 2. This cylindrical structure was originally named the Nitrification Clarifier #2, according to the 1972 plans. It is a cylindrical concrete structure with a steel center structure that rotates a rake boom to agitate the effluent. It is located south of Secondary Clarifier Tank 1 (Feature 17) and adjacent to Building 7 (Feature 7). A steel gangway connects both clarifier tanks together. A concrete and steel grate distribution structure is located just east of both

tanks (Feature 19). The structure measures 86 ft. (diameter) x 3 ft. above the ground surface. According to the 1972 plans, the structure is at least 18 ft. deep.

Feature 19: Distribution Structure. This concrete and steel grate structure is located east of Secondary Clarifier Tanks 1 and 2 (Features 17 and 18). It is a cruciform structure made of reinforced concrete with an open steel grate on top with running effluent underneath. It distributes effluent from the aerator tanks to the secondary clarifying tanks. The structure measures 16 ft. (NE-SE) x 16 ft. (NW-SW) x 6 ft. tall.

Feature 20: Methane Gas Storage Tank. This tank was designed to store methane produced from the digesters according to the 1972 plans. The stored methane would be burned off or sold for energy. The methane tank is located southeast of the digesters (Features 14 to 16). It was relocated from the location of Digester 1 (Feature 16), according to the 1972 plans. The tank is 12 ft. diameter x 45 feet long and located on three concrete supports. A concrete pad directly north of the tank consists of piping, motors, gauges, and instruments panels for monitoring methane into the tank. The concrete pad measures 14 ft (E-W) x 8 ft. (N-S). The tank is no longer in use.

Feature 21: Aeration Basins. This structure was originally named the Nitrification Basins, according to 1972 plans. It is located north of Building 2 (Feature 1), and it is connected to Building 6 (Feature 6). This structure is a series of six narrow tanks, each 120 ft. long (N-S) x 20 ft. wide (E-W). Each tank is connected by sluice gates and valves and air is pumped into each tank from the Blower Building (Feature 6). Each tank interior is separated by three aluminum baffles. The structure is constructed of reinforced concrete, built above ground ranging from 6 – 9 ft. in height above the present ground surface. The tanks are accessed from two stairwells on the southwest and southeast corners. A series of steel grate walkways are constructed between each tank and to the Blower Building (Feature 6). All the walkways are protected with guardrails. A concrete influent distribution box structure is located on the north end of the basins. This rectangular structure is a small pump room for influent and effluent. It measures 18 ft. (E-W) x 13 ft. (N-S), and 8 ft. tall. The basin's footprint measures 157 ft. (E-W) x 130 ft. (N-S) x 14 ft. below the ground.

Feature 22a/b: Primary Clarifying Tank 3 and Diversion Box. The main structure is the third primary clarifying tank (Feature 22a) built next to Primary Clarifying Tank 1 (Feature 12a), according to the 1972 plans. It is a long, narrow steel tank built into reinforced concrete south of the other primary clarifying tanks, and north of the modern Primary Clarifying Tank 4. There are walkways on the west and east ends and walkways between the other tanks, and guardrails have been installed around the edge of the tank. A series of baffles are built within the tank to move the effluent to skim floating solids while sludge settles and is pumped from the bottom. A motor to move these agitators is located on the east end of the tank. At the west end of the tank is a skimming trough and weir troughs for floating waste. The structure's footprint measures 127 ft. (E-W) x 28 ft. (N-S) x 12 ft. below the ground. A diversion box structure (Feature 22b) is located to the east of the tank. It is a reinforced concrete structure measuring about 10 ft. (E-W) x 8 ft. (N-S) with a short stairway on the east side and an open grating surface on top. It is about 2 ft. above the ground. It diverts some sewage from the pump room into Tank 3.

Feature 23: Trickling Filter Tank. This structure is a very large cylindrical structure used to spray effluent over rocks or some sort of substrate that treats effluent by cleaning the waste with biofilm on the substrate, according to the 1972 plans. This structure is located northwest of the primary clarifying tanks (Feature 12a/b). This cylindrical reinforced concrete structure has a central structure made of steel with four arms reinforced with steel cables and a substrate interior. The structure measures 134 ft. (diameter) x 6 ft. above the ground surface. According to the 1972 plans, the structure is at least 5 ft. deep. This feature appears to be unused.

Feature 24: Filter Clarifier Tank. This structure is a large cylindrical structure used to filter sludge from effluent after going through the trickling filter tank, according to the 1972 plans. This structure is located east of Building 4 (Feature 4). The structure is constructed of reinforced concrete with a large central structure in the middle made of steel that rotates a large rake that agitates the sludge. A steel gangway is located on the southeast side and connects to the central structure. A guardrail has been installed around the edge of the structure. The structure measures 77 ft. (diameter) x 1-2 ft. above the ground surface. According to the 1972 plans, the structure is at least 14 ft. deep. This feature appears to be unused.

Feature 25: Filter Pump Station. This pump station would control effluent entering the trickling filter and filter clarifier tanks (Features 23 and 24) and is located south of those two tanks. It is constructed of reinforced concrete with a concrete foundation and a concrete gate operation structure and three large pumps. The structure's footprint measures 29 ft. (E-W) x 23 ft. (N-S) x 1 ft. above the ground. The upright gate structure measures 18 ft. (N-S) x 11 ft. (E-W) x 12 ft. above the ground. There are guardrails and aluminum grating on top of the gate structure. This feature appears to be unused.

Feature 26: Drying Bed. This feature is labeled a sludge bed on the 1962 plans. It is the last remaining of four 1962 drying bed on the south side of an access road east of the digesters. The other drying beds from this period of construction were demolished to make room for Digester 3. The drying bed is a concrete structure with a ramp on the north end and filled with drying treated sludge. The structure measures 140 ft. (N-S) x 40 ft. (E-W) x ~3 ft. below the ground.

Feature 27a-d: Drying Beds. These features are labeled sludge beds on the 1962 plans. The drying beds are concrete structures with a ramp on the south end and filled with drying treated sludge. Each drying bed measures 140 ft. (N-S) x 40 ft. (E-W) x ~3 ft. below the ground. The westernmost drying bed appears no longer in use. Overall these drying beds measure 160 ft (E-W) x 140 ft. (N-S) in area.

Feature 28a-c: Drying Beds. These features are labeled sludge beds on the 1972 plans. The drying beds are concrete structures with a ramp on the south end and filled with drying treated sludge. Features A and B both measure 210 ft. (N-S) x 38 ft. (E-W) x ~3 ft. below the ground. The easternmost drying bed (Feature 28c) is shorter measuring 190 ft. (N-S). Overall these drying beds measure 114 ft (E-W) x 210 ft. (N-S) in area.

Feature 29: Final Effluent Pump Station. This pump station is located north of Building 11 (Feature 10) and was part of the final stage of filtration for treated effluent before it was pumped into the percolation pits, according to the 1972 plans. This pump station was constructed on a concrete pad with two large pumps and motors and two large pipes and electrical equipment. The concrete pad measures 29 ft (E-W) x ~18 ft. (N-S) in area.

Feature 30: DAFT/ WS Tank. This structure is labeled the Waste Sludge Thickener Tank on the 1972 plans. It would further combine particles of sludge caught in the effluent matrix during treatment. This tank is connected to the pump house of Building 8 (Feature 9). It is a cylindrical concrete tank and is located adjacent to Digesters 1 and 2 and Building 5 (Features 5, 14, and 16). The structure's footprint measures 25 ft. (diameter) x 11 ft. above the ground. There is a stairway on the north side of the structure to gain access to the top of the structure.

Feature 31a-d: Drying Beds. These features are labeled Sludge Beds, according to the 1972 plans. The drying beds are east of the Degasification Ponds (Features 32 and 33). The drying beds are concrete structures with a ramp on the south end and filled with drying treated sludge. Each drying bed measures

slightly longer from west to east: 186 to 212 ft. (N-S) x 40 ft. (E-W) x ~3 ft. below the ground. Overall these drying beds measure 160 ft (E-W) x 212 ft. (N-S) in area.

Feature 32: Degasification Pond 1. This feature is labeled Supernatant Degasification Facility 1, according to the 1972 plans. This structure is located east of the Feature 26 (Drying Bed). It is a reinforced concrete reservoir that is sloped towards the middle and has an aluminum gangway on the south end with a small pump station labeled supernatant decant box on the 1972 plans. This small structure is located on the south side of the reservoir. Overall this feature measures 156 ft. (N-S) x 81 ft (E-W) x 10 ft. deep.

Feature 33: Degasification Pond 2. This feature is labeled Supernatant Degasification Facility 2, according to the 1972 plans. This structure is located directly east of the Degasification Pond 1 (Feature 32). It is a reinforced concrete reservoir that is sloped towards the middle and has an aluminum gangway on the south end with a small pump station labeled supernatant decant box on the 1972 plans. This small structure is located on the south side of the reservoir. Overall this feature measures 181 ft. (N-S) x 81 ft (E-W) x 10 ft. deep.

Feature 34: Peak Pond. This large reservoir is labeled the Peak Storage Pond, according to the 1972 plans. It is a large, lined reservoir west of Building 4 (Feature 4) and served to store primary clarifier effluent during treatment processes. There is a cable guardrail around the boundary of the feature. The lining is a heavy plastic, and the pond is bounded by asphalt. Overall this feature measures 215 ft. (N-S) x 185 ft (E-W) x 8 ft. deep.

Feature 35: Percolation Ponds. These large ponds are located east of Alabama Street, according to the 1972 plans. The earthen reservoirs are rectangular in shape and vary in size and elevation. The easternmost pond is higher in elevation but is also the smallest pond. The westernmost pond is lowest in elevation and the largest. There are eight ponds. Each pond is separated by an earthen berm and large pipes to pump water into each pond on the south ends of the ponds. These ponds extend from Alabama St. to I-210 (Foothill Freeway). A dirt road bounds the entire area. Each pond can be accessed by a slope on the southern end of each pond. The entire percolation area is roughly 2,360 (E-W) x 1,190 (N-S) area. Each pond varies in size from 1,050 ft. (N-S) to 400 ft. (N-S), and 225 ft. (E-W) to 350 ft. (E-W).

Feature 36: WWTP Access Road. This one-lane asphalt road is labeled "Mill Street" according to Google Maps. However, according to the 1962 plans, this road is simply labeled Access Road. It is a one-lane asphalt road that was constructed from the end of Nevada Street into the WWTP property and terminates at Building 2 (Feature 1). The road is 20 ft. wide with 3 ft. asphalt curbs. The road is 850 ft. long.

Feature 37: Drainage Ditch. This concrete-lined drainage ditch is located along the base of the slope on the southern edge of the historic-age WWTP, according to 1962 and 1972 plans. The ditch was 3 ft. wide at the top and 2 ft. deep according to the 1962 plans. During the 1972 update to the WWTP, the drainage was enlarged on the east side of the expanded property. The ditch is rectangular in cross-section, measuring 8 ft. across and 2 feet deep. The ditch transitions into a vee-shape at Degasification Pond 1 (Feature 32). This vee-shaped ditch extends across the property to the Headworks (Feature 11) where the ditch goes into an underground storm drain system. The vee-shaped ditch is 5 feet wide and 2 feet deep.

Feature 38: Concrete Pad. A concrete pad located on the slope above the WWTP. This pad has been moved from its original location, which was on the terrace above the WWTP to the east. It a square-shaped concrete pad, measuring 5 x 5 ft. and 4 inches thick. It has a large steel base for a wind machine.

Likely, this concrete pad was used in an orchard for a wind machine. Inscribed into the concrete are the words, "Armstrong Ranch/ circle 4/ 1958". It has been partially demolished.

Feature 39: Water Fitting Access Structure. This structure was identified along the proposed alignment for the force main pipeline, about halfway between the main WWTP facility and the percolation ponds to the east. The concrete structure measures 2.5 feet in diameter by 3 feet tall. There is a ladder in the opening that leads to a water fitting. The feature is in line with an existing buried pipeline that not visible within the project area.

Locus 1: Refuse Deposit. This artifact concentration is located on the edge of a river terrace above the WWTP, east of the modern utility road. This artifact concentration consists of mid-20th Century trash including glass fragments, metal fragments, whiteware ceramic sherds, plastic fragments, and several complete glass bottles. All of this trash is piled into several small push piles, probably created during the construction of modern drying beds located south on the terrace of the WWTP. Four bottles were analyzed for dating purposes. All of these bottles are amber glass beer bottles, with maker's marks: "Obear-Nestor", Owens-Illinois, "Ball" and unknown brand with a keystone symbol, all dating from the mid-20th Century (Briggs 2018; Lockhart et al. 2018).

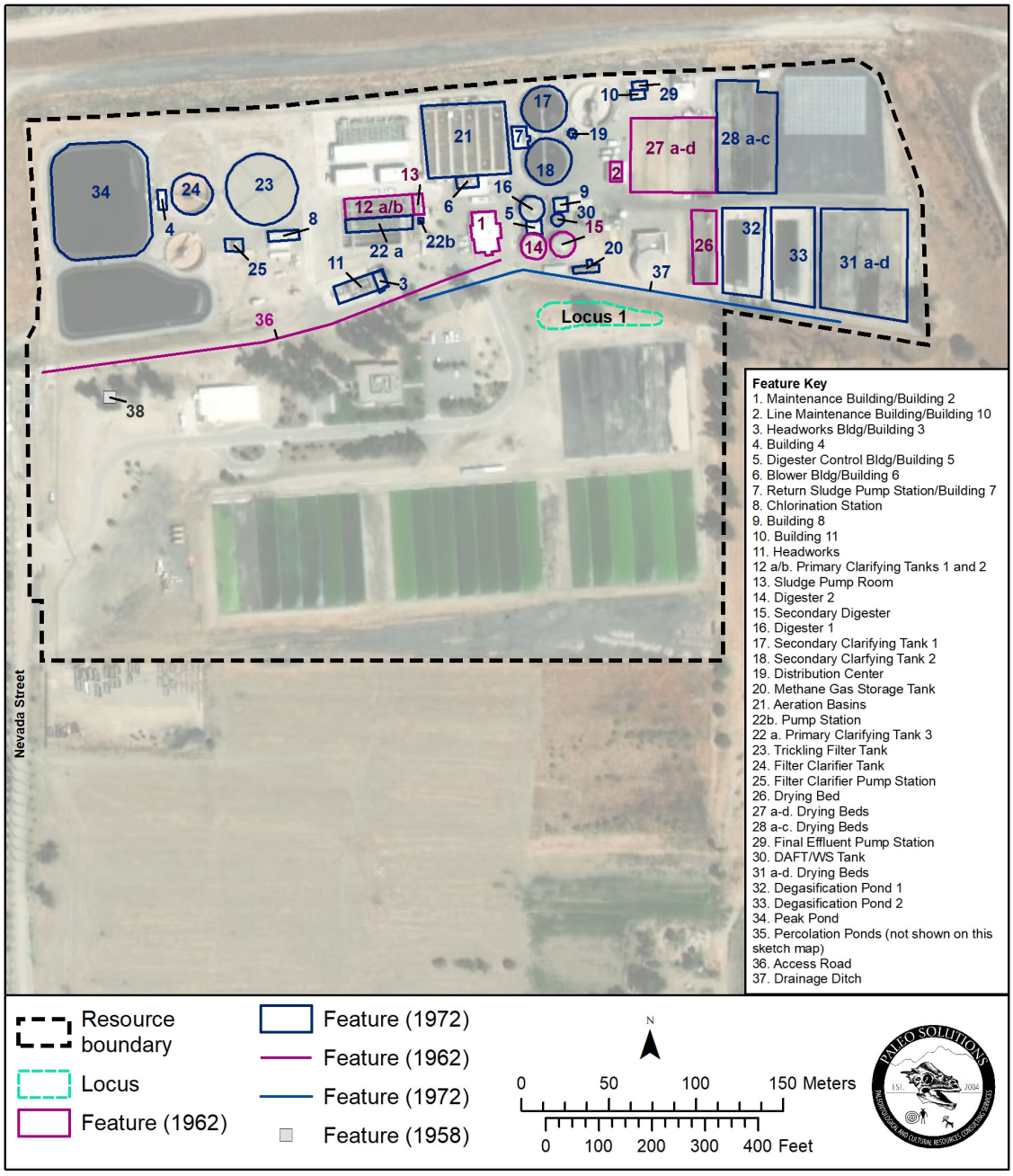

Figure 4. Location of Historic-Age Features within Redlands WWTP Facility

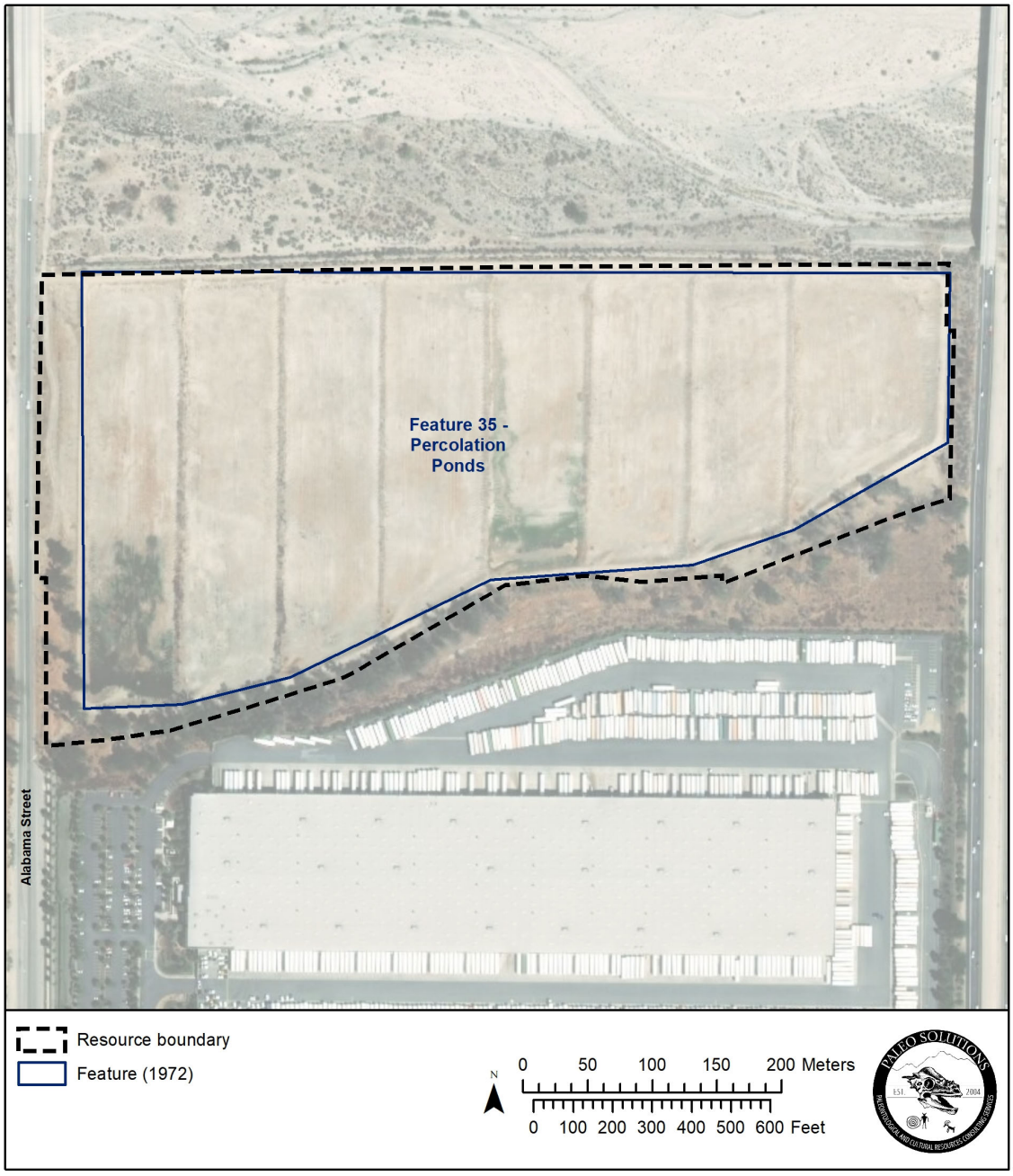

Figure 5. Percolation Ponds (Feature 35) in Redlands WWTP Site.

Figure 6. Overview of WWTP, Digester Tank 2 and Reserve Digester and Methane Gas Storage Tank (1972), looking northeast. Note artifact locus on terrace edge above WWTP, on left side of image.

Figure 7. Overview of Percolation Ponds (1972), looking southeast.

Figure 8. Overview of Drying Beds (1962), looking north.

Figure 9. Overview of Building 11 (Stand-by Power Facility) and the Final Effluent Pump Station (1972), looking northwest.

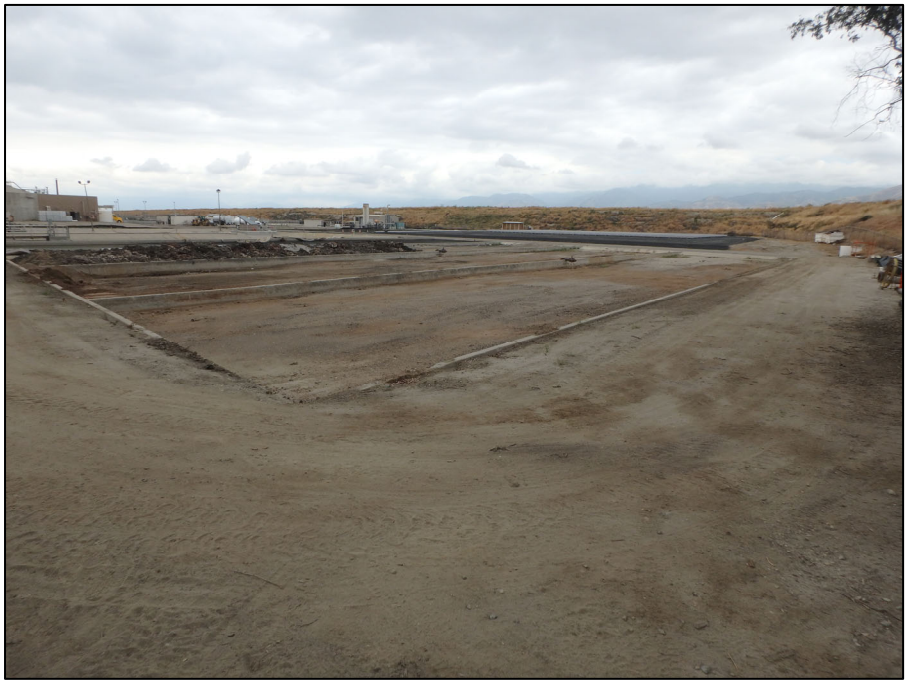

Figure 10. Overview of Drying Beds (1972), looking northwest.

Figure 11. Overview of Building 8 (DAFT/ WS Pump Station), and DAFT/ WS Tank (1972), looking southeast.

Figure 12. Overview of Building 3 (Headworks Building) and Headworks (1972), looking northwest.

Figure 13. Overview of project area, modern drying beds, looking northwest.

Figure 14. Overview of Feature 39, Water Fitting Access Structure, looking north.

Figure 15. Close-Up of Interior of Feature 39.

6.0 RESOURCE EVALUATION

6.1 EVALUATION METHODS

Paleo Solutions conducted an evaluation of WWTP property for eligibility to the NRHP, the CRHR, and for local designation as a City of Redlands Historic Resource. Evaluations of eligibility for the NRHP were made using the four NRHP eligibility criteria, A through D, developed by the National Park Service for assessing the historical significance of cultural resources (see Section 2.1, Federal Regulations, above). At least one criterion of the National Register Criteria of Evaluation must be met for a property to be considered eligible to the NRHP (National Park Service 1991).

Similarly, the CRHR uses four eligibility criteria for evaluation of potential historic resources, (see Section 2.2, State Regulations, Above). At least one criterion must be met for a property to be considered eligible to the CRHR (California Department of Parks and Recreation 1998a).

In addition to historical significance, a property must have integrity to be eligible for the NRHP or the CRHR. Integrity is the property's ability to convey its demonstrated historical significance. Seven individual elements comprise integrity (Table 3). It is not required that a historic property display all these qualities. A property must display at least two of these aspects of integrity to be considered eligible for the NRHP or the CRHR (National Park Service 1991; California Department of Parks and Recreation 1998a, 1998b).

Table 3. Qualities of Integrity Related to Eligibility for the CRHR.

Quality	Description
Location	The place where the resource was constructed, or the historic event occurred.
Design	The combination of elements creating the resource's form, plan, space, structure, and style.
Setting	The physical environment of the resource.
Materials	The physical elements combined at a particular period of time and in a particular pattern or configuration to form a historical resource.
Workmanship	The physical evidence of the craft of a particular culture or people during any given period.
Feeling	The resource's expression of the aesthetic or historic sense of a particular period of time.
Association	The direct link between an important historic event or person and the resource.

Source: California Department of Parks and Recreation 1998a

The City of Redlands maintains its own designation program for historic and scenic properties. There are 11 eligibility criteria that a property may satisfy to be considered for designation as a City of Redlands Historic Resource. While it is possible for a property to be eligible under multiple criteria, only one must be satisfied to merit designation as a City of Redlands Historic Resource (ARG 2017). The 11 criteria include:

A. It has significant character, interest, or value as part of the development, heritage or cultural characteristics of the City of Redlands, state of California, or the United States;
B. It is the site of a significant historic event;
C. It is strongly identified with a person or persons who significantly contributed to the culture, history, or development of the city;

D. It is one of the few remaining examples in the city possessing distinguishing characteristics of an architectural type or specimen;
E. It is a notable work of an architect or master builder whose individual work has significantly influenced the development of the city;
F. It embodies elements of architectural design, detail, materials, or craftsmanship that represents a significant architectural innovation;
G. It has a unique location or singular physical characteristics representing an established and familiar visual feature of a neighborhood, community, or the city;
H. It has unique design or detailing;
I. It is a particularly good example of a period or style;
J. It contributes to the historical or scenic heritage or historical or scenic properties of the city (to include, but not be limited to, landscaping, light standards, trees, curbings, and signs);
K. It is located within a historic and scenic or urban conservation district, being a geographically definable area possessing a concentration of historic or scenic properties which contribute to each other and are unified aesthetically by plan or physical development.

6.2 EVALUATION RESULTS

6.2.1 NRHP and CRHR Evaluation

The historic components of the Redlands WWTP consists of several buildings, structures, infrastructure, and features dating from both 1962 and 1972. These elements are historic in age, in good condition, and in several cases are still maintained, repaired, updated, and in use as a major functional facility for the WWTP. The buildings and structures that are still in use that date from 1962 include: primary clarifier tanks 1 and 2, Digester 2, Reserve Digester, Building 1 (Maintenance Building), Building 10 (Line Maintenance Building), access road (Mill Street), the underground sludge pump room, and the 1962 drying beds (of which five remain). The buildings and structures that are still in use from 1972 include: primary clarifying tank 3, Digester 1, Building 3 (Headworks Building), Headworks foundation (the structure and equipment are modern), secondary clarifying tanks 1 and 2, Building 5 (Digester Control Building), Building 6 (blower building), Building 7 (Sludge pump station), Building 8 (DAFT/ WS pump station), DAFT/ WS tank, aeration basins, effluent pump station, the chlorination facilities structure (maintenance shed), 1972 drying beds, degassing ponds 1 and 2, the peak pond, the drainage ditch, the percolation ponds, and the water fitting access structure (Feature 39). Structures that are no longer in use and date from 1972 include: Building 4 (peak pond pump station), trickling filter tank, trickling filter clarifier, the trickling filter pump station, the standby power facility, and the methane gas storage tank.

The historic-age components of the Redlands WWTP retain a large amount of integrity from 1962 and 1972; however, subsequent updates to the facility has diminished the original composition of the facility. The facility has remained in its location since 1962 and remained in the outskirts of the City, although the area has undergone modern development from agricultural fields and orchards into industrial warehouses, losing some of its setting and feeling. The facility retains much of the original design. Updates are functional, utilitarian, and industrial; the historic components have not changed significantly since their construction in 1962 and 1972. The facility has not radically changed its materials, although materials now deemed toxic, like asbestos, have either been removed or are no longer in use. The reinforced concrete, steel, and aluminum building materials are still used today to repair and maintain the historic-age buildings and structures. These buildings along with the modern buildings and structures convey a feeling of industrial-scale water reclamation and sewage control.

These buildings and structures are representative of industrial architecture common to the modern era. When these buildings and structures were updated in 1972, this facility was "state of the art" and one of the most modern and large wastewater facilities in the Inland Empire, according to Ron Kisling, the Wastewater Operations Manager.

Research indicates that the Redlands WWTP was built on a river terrace and later was expanded to overlap a historic-age orchard. The Redlands WWTP site was evaluated for NRHP and CRHR eligibility as a whole, including the 37 features associated with the WWTP and one feature and refuse concentration that pre-date the WWTP construction.

The WWTP facility was constructed with the intention of modernizing sewage treatment for the population of Redlands, a common industrial practice in the mid to late 20th Century. The property today is composed of historic-age and modern buildings, structures, and infrastructure that represents a major engineering facility for the City of Redlands. However, the Redlands WWTP and the orchard that pre-dates the WWTP are not tied to any individual person or significant event in history. Therefore, ***the Redlands WWTP site is not eligible for the NRHP under Criteria A or B or the CRHR under Criteria 1 or 2***.

None of these buildings and structures at the Redlands WWTP embody distinctive characteristics of a type, period, region, or method of construction, and it does not represent the work of an important individual or possess high artistic values. The 1972 facility may represent a technique and technology representative of a technical process that is important in modern-day convention: the cleaning and recycling of sewage water for reuse according to modern standards. However, the movement for reclaimed water was a nationwide standard in response to several federal regulations that prompted the construction of wastewater treatment facilities across the United States between the 1940s and 1970s (Burian et al 2000; Lofrano and Brown 2010; Colorado University 2019. The process was not invented or started at the Redlands WWTP, and the Redlands WWTP facilities are not unique in construction type or materials. Similarly, the pre-WWTP concrete pad and refuse deposit are typical of agricultural features and are ubiquitous in the region. They do not embody distinctive characteristics or method of construction. Therefore; ***the site is not eligible for the NRHP under Criterion C or the CRHR under Criterion 3***.

The WWTP-related features are common to wastewater treatment facilities and cannot provide important information beyond the level of current documentation and research. The two finds that predate the WWTP (Feature 38, concrete pad, and Locus 1, refuse deposit) have been heavily disturbed and moved out of their original location. They are not unique for the time period and cannot provide important information about the local history of the area. Therefore, ***the site, is not eligible for the NRHP under Criterion D or the CRHR under Criterion 4***.

Because the site does not meet any of the criteria necessary for inclusion in the NRHP or the CRHR, as described above, the Redlands WWTP site is recommended not eligible for either register.

7.2.2 City of Redlands Historic Resource Evaluation

As stated above, the Redlands WWTP was built with the intention of modernizing sewage treatment for the population of Redlands, a common industrial practice in the mid to late 20th Century. Although some of the features were 'State of the Art' in 1972 for such facilities, the Redlands WWTP does not possess significant character, interest, or value as part of the development, heritage or cultural characteristics of the City of Redlands, state of California, or the United States and does not qualify as a City of Redlands Historic Resource under Criterion A. It is not associated with a significant event or person who significantly contributed to the culture, history or development of the city and is not

eligible under Criteria B or C. It does not possess distinguishing characteristics of an architectural type or specimen, is not a notable work of an architect or master builder, and does not embody elements of architectural design, detail, materials, or craftsmanship that represents a significant architectural innovation. Therefore, it is not eligible under Criteria D, E, or F. It is located on the outskirts of town and is generally obscured from public view, so it does not represent an established and familiar visual feature of a neighborhood, community, or the city. In fact, it remains hidden today with no outward sign of the facility until you drive into it. It is surrounded by large earthen berms on the north, west and east sides. Therefore, it is not eligible under Criterion G. The design and materials of the Redlands WWTP are common for such facilities; it does not contain a unique design or detailing and is not a good example of a particular period or style. Therefore, it is not eligible under Criteria H or I. It does not contribute to the historical or scenic heritage of the city and it is not located within a historic and scenic or urban conservation district. Therefore, it is not eligible under Criteria J or K. Because the site does not meet any of the criteria necessary for designation as a City of Redlands Historic Resource, **the WWTP is recommended not eligible for local listing**.

7.0 SUMMARY AND RECOMMENDATIONS

This cultural resource assessment was conducted for the proposed WWTP Facility Assessment Project in compliance with Section 106 of the NHPA, CEQA, and local requirements. To identify cultural resources that could be affected by the proposed project, Paleo Solutions conducted a cultural resources records search with the SCCIC, a search of the Sacred Lands File with the NAHC, and an intensive field survey and built environment documentation of the Project area.

The records search identified 33 previous investigations and 24 previously documented resources within one mile of the Project area. No resources were identified within the Project area as a result of the records search. A search of the Sacred Lands File resulted in a positive finding for the Project area. No information on the location or nature of the find was included in the response. The NAHC recommended that the SMBMI be contacted for more information. The NAHC also provided a Tribal Consultation List of 14 contacts representing 13 Native American groups. Project notification letters were sent by the City to nine Native American Tribes with an invitation to consult on the Project under AB 52. Responses were received from the ACBCI, Quechan Tribe, the SMBMI, and Gabrieleno Band of Mission Indians – Kizh Nation. The SMBMI have stated that the Project is not in close proximity to any known sacred resources. The ACBCI, SMBMI, and Gabrieleno Band of Mission Indians – Kizh Nation have requested consultation for the Project under AB 52. The Quechan Tribe is deferring to more local tribes. Consultation under AB 52 is ongoing and anticipated to conclude on July 29, 2021.

An intensive field survey of the current project area was completed by Paleo Solutions on May 6, 2019 with a supplemental survey of the newly-added force main pipeline conducted on May 3, 2021. As a result of the surveys and background research, the Redlands WWTP was recorded as a historic-age site. A total of 38 historic-age features (Features 1 to 37 and Feature 39) associated with the 1962 and 1972 periods of construction of the WWTP were recorded. In addition, two elements of the previous land use prior to establishment of the WWTP were identified (Feature 38, concrete pad, and Locus 1, refuse deposit).

As part of this study, an evaluation of historic-age Redlands WWTP resource was completed for eligibility to the NRHP, the CRHR, and local designation as a City of Redlands Historic Resource. As a result, the site is recommended as not eligible for inclusion in the NRHP, the CRHR, or for local listing. No further work on this resource is required. The Project will have no effect to historic properties under Section 106 of the NHPA and no impact to historical resources under CEQA.

The areas within the Santa Ana River drainage are not conducive towards prehistoric site preservation due to constant flooding events that erode the riverbanks. No prehistoric resources have been recorded in the vicinity. The soils that compose the terrace above the river in the southern portion of the WWTP property may have a potential for buried sites, but the property has had heavy disturbances from the construction and expansion of the WWTP over time and intact subsurface deposits are not expected to exist.

In the unlikely event that subsurface archaeological materials are identified during ground-disturbing activities, work shall be halted within 100 feet (30 meters) of the find. A qualified archaeologist shall be retained to record and evaluated the find. If the unanticipated discovery is determined to be a historic property under Section 106 of the NHPA or a historical resource or unique archaeological resource under CEQA, the City shall notify the SHPO, consulting Native American groups, and the Advisory Council within 48 hours of the discovery. The archaeologist shall develop a mitigation or treatment plan in consultation with the City that satisfies the requirements of Section 106 of the NHPA and PRC Section 21083.2 and Section 15064.5 of the CEQA Guidelines. The mitigation/treatment plan shall include recordation, on-site preservation, data recovery and curation, and/or other measures to protect or preserve the significance of the resource. Work shall not resume until the City has given authorization to resume work.

In the unlikely event that human remains are encountered, all activity within the work location shall be halted, and City and the San Bernardino County Coroner notified immediately, with procedures implemented to comply with CEQA Guidelines Section 15064.5(e), California Health and Safety Code Section 7050.5(b), and California PRC 5097.98.

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APPENDIX A
RECORD SEARCH RESULTS
(CONFIDENTIAL)

APPENDIX B
TRIBAL CORRESPONDENCE
(CONFIDENTIAL)

APPENDIX C

DPR 523 SITE RECORD

(CONFIDENTIAL)

Appendix D
Paleontological Inventory Report

PALEONTOLOGICAL INVENTORY REPORT

WASTEWATER TREATMENT PLANT FACILITY ASSESSMENT PROJECT

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July 20, 2021

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1.0 EXECUTIVE SUMMARY

This Paleontological Inventory Report was prepared by Paleo Solutions, Inc. (Paleo Solutions) under contract to Parsons on behalf of the City of Redlands (City) for the Wastewater Treatment Plant (WWTP) Facility Assessment Project (Project). The purpose of this study is to identify potential impacts to paleontological resources resulting from construction of the Project. The State Water Regional Control Board (SWRCB), Division of Financial Assistance, is the Responsible (Lead) Agency for the Project. None of the federal crosscutting regulations for the Project apply to paleontological resources. The Project is subject to compliance with the California Environmental Quality Act (CEQA), state and local regulations, and best practices in mitigation paleontology (Murphey et al., 2014).

The approximately 80.85-acre Project is located at 1950 Nevada Street in the City of Redlands in San Bernardino County, California. Since 1962, the City has owned and operated the City of Redlands Water Reclamation Facility. The original wastewater treatment plant (WWTP) was constructed in 1962. In 1971, the California Regional Water Quality Control Board (RWQCB) instituted new discharge requirements. The WWTP underwent an extensive expansion and modification. The facility has undergone several updates and additional construction episodes: 1987, 1989, 2003, and 2006. The current plant has an average flow of 5.8 million gallons per day (mgd). The Project involves upgrade to the existing WWTP with a state-of-the-art 9.5 mgd membrane bioreactor (MBR) filtration complex (MBR system) and includes improvements for reliability and redundancy. Utility work and pipeline installation would typically include trenching to a maximum depth of 15 feet in a corridor approximately 15 feet wide. Excavations required for the prefabricated buildings foundations would have a maximum depth of 2 feet.

The paleontological study for the Project consisted of an analysis of existing data, which included a review of geologic maps, published and unpublished literature, and results of a museum records search and online database searches. According to geologic mapping by Morton and Miller (2006), the Project area is underlain by late Holocene-age very young wash deposits (Qw, Qw1) and middle Holocene-age young axial-channel deposits (Qya3). Additionally, previous geotechnical studies have identified unmapped artificial fill varying in thickness from 2 to 15 feet within the Project area. Although not mapped at the surface, Pleistocene-age deposits may underlie the artificial fill or Holocene-age sediments at shallow or unknown depths. Based on the analysis of existing data, there are no documented paleontological localities within the boundaries of the Project area. However, numerous scientifically significant fossils are known from Pleistocene-age deposits throughout San Bernardino County. According to the Bureau of Land Management (BLM) Potential Fossil Yield Classification (PFYC) system (BLM, 2016), late Holocene-age very young wash deposits (Qw, Qw1), middle Holocene-age young axial-channel deposits (Qya3), and unmapped artificial fill all have a low paleontological potential (PFYC 2), increasing with depth. Based on this assessment and the depth of anticipated ground-disturbing activities, Project activities within the Project area may potentially result in significant impacts to paleontological resources during excavation.

Based on the results of this paleontological assessment, we recommend part-time monitoring (i.e., spot-checking) when ground disturbing activities impact sediments at 8 feet below ground surface or deeper to check for the presence of Pleistocene-age deposits. If Pleistocene-age deposits are observed at depth and impacted by Project excavations, then monitoring efforts should be increased to full-time. If only artificial fill, late Holocene-age very young wash deposits (Qw, Qw1), and middle Holocene-age young axial-channel deposits (Qya3) are observed, then spot-checking can be reduced or ceased at the discretion of a Qualified Paleontologist in consultation with the City. Any subsurface bones or potential fossils that are unearthed during construction should be evaluated by a Qualified Paleontologist.

2.0 INTRODUCTION

This Paleontological Inventory Report was prepared by Paleo Solutions under contract to Parsons on behalf of the City. The purpose of this study is to identify potential impacts to paleontological resources resulting from construction of the Project. All work was conducted in compliance of CEQA, state and local regulations, and best practices in mitigation paleontology (Murphey et al., 2014). A Project summary is provided in Table 1.

2.1 PROJECT DESCRIPTION

The purpose of the proposed project is to complete an assessment of the wastewater treatment process components, make recommendations for improvements or repairs necessary to handle existing inflow based on the assessment, prepare an implementation plan for suggested work, and complete the design of resulting projects(s) to maintain the WWTP at its current capacity and allow the City to forgo future improvements for the next 20 to 30 years.

WWTP Facility Upgrades. The Project involves upgrade to the existing WWTP with a state-of-the-art 9.5 mgd MBR filtration complex (MBR system) and includes the necessary improvements for reliability and redundancy. An MBR system is a widely used sanitation system designed to settle solids, use microbes to digest sludge, and separate sludge from treated effluent, which then is clean enough to be discharged back into the water table. Construction of the upgrades and improvements is estimated to require approximately 24 months. This would include earthwork on approximately 75,000 square feet within the current property. Construction would include the installation of five prefabricated buildings, each of which would be approximately 400 square feet in area, a new mixing system for the peak storage ponds as well as proper pedestrian access to the bottom of the ponds, a new centrate equalization tank, and replacement and upgrades of pumps. Excavations required for the prefabricated buildings foundations would have a maximum depth of 2 feet. Proposed landscaping includes planting of approximately 50 trees along the east side of the frontage road and the along the southern and eastern perimeter of the facility. Other site improvements include beautification and an entry monument at the Nevada Street entrance, landscaping along the existing access road from Nevada Street, walkway and patio improvements, informational exhibits, and a small access road west of the main operations building. Project construction would require approximately 6,500 linear feet of utility trenching. Utility work would typically include trenching to a maximum depth of 15 feet in a corridor approximately 15 feet wide.

Redundant Pipelines. The Project also involves construction of four redundant pipelines to increase system reliability. A 300-foot-long pipeline will be constructed from the headworks located at the center of the plant and will trend northeasterly and then northerly to tie-in to the primary clarifiers. A 375-foot-long pipeline will be constructed from the primary clarifiers and will trend westerly to the peak storage ponds at the northwestern section of the plant. A 220-foot-long pipeline will be constructed along the northern edge of the plant from aeration basin to membrane basins. A 1,200-foot-long, 27-inch diameter force main pipeline will be constructed from the effluent pump station and will trend southerly and then easterly through the drying ponds, approximately 10 feet from and roughly parallel to the existing pipeline, and across Alabama Street to the southwest corner of the percolation ponds. The new force main pipeline will end in a valve vault with a tee between the two pipelines before the first percolation pond. Trenching for the pipelines will impact a maximum depth of 15 feet and a width of 15 feet.

2.2 PROJECT LOCATION

The Project is located in the City of Redlands, San Bernardino County, California (Figure 1). The Project is located on unsurveyed portion of the San Bernardino Land Grant on the Redlands 7.5' U.S. Geological Survey topographic quadrangle (Figure 2). The approximately 80.85-acre project is the current property of the Redlands WWTP. It is located at 1950 Nevada Street in north Redlands, north of Interstate 10, and west of Interstate 210 (Foothill Freeway). The Project is located on the main WWTP facility and alignment of the force main pipeline extending from the main facility to the percolation ponds east of Alabama Street. The Project is located along the Santa Ana River, which flows from the east to west on the north side of the Project. According to geologic mapping by Morton and Miller (2006), the Project area is underlain by late Holocene-age very young wash deposits (Qw, Qw1) and middle Holocene-age young axial-channel deposits (Qya3).

Table 1. Wastewater Treatment Plant Facility Assessment Project Summary

Project Name	Wastewater Treatment Plant Facility Assessment Project
Project Description	Construction would include the installation of five prefabricated buildings, each of which would be approximately 400 square feet in area, a new mixing system for the peak storage ponds as well as proper pedestrian access to the bottom of the ponds, a new centrate equalization tank, and replacement and upgrades of pumps. Excavations required for the prefabricated buildings foundations would have a maximum depth of 2 feet. Proposed landscaping includes planting of approximately 50 trees along the east side of the frontage road and the along the southern and eastern perimeter of the facility. Other site improvements include beautification and an entry monument at the Nevada Street entrance, landscaping along the existing access road from Nevada Street, walkway and patio improvements, informational exhibits, and a small access road west of the main operations building. Project construction would require approximately 6,500 linear feet of utility trenching. Utility work would typically include trenching to a maximum depth of 15 feet in a corridor approximately 15 feet wide. Additionally, four redundant pipelines will be constructed to increase system reliability. A 300-foot-long pipeline will be constructed from the headworks located at the center of the plant and will trend northeasterly and then northerly to tie-in to the primary clarifiers. A 375-foot-long pipeline will be constructed from the primary clarifiers and will trend westerly to the peak storage ponds at the northwestern section of the plant. A 220-foot-long pipeline will be constructed along the northern edge of the plant from aeration basin to membrane basins. A 1,200-foot-long, 27-inch diameter force main pipeline will be constructed from the effluent pump station and will trend southerly and then easterly through the drying ponds, approximately 10 feet from and roughly parallel to the existing pipeline, and across Alabama Street to the southwest corner of the percolation ponds. The new force main pipeline will end in a valve vault with a tee between the two pipelines before the first percolation pond. Trenching for the pipelines will impact a maximum depth of 15 feet and a width of 15 feet.
Project Area	The Project is located in the City of Redlands, San Bernardino County, California. The approximately 80.85-acre project is the current property of the Redlands WWTP. It is located at 1950 Nevada Street in north Redlands, north of Interstate 10, and west of Interstate 210 (Foothill Freeway). The Project is located on the main WWTP facility and alignment of the force main pipeline extending from the main facility to the percolation ponds east of Alabama Street. The Project is located along the Santa Ana River, which flows from the east to west on the north side of the Project.

Location (PLSS)	**Quarter-Quarter**	**Section**	**Township**	**Range**
	Unsectioned	Unsectioned	Unsectioned	Unsectioned
	N/A	9	T1S	R3W
	N/A	16	T1S	R3W
Land Owner	City of Redlands			
Topographic Map(s)	Redlands (1978), CA USGS 7.5' Quadrangle			
Geologic Map(s)	Morton, D.M., Miller, F.K., 2006, Geologic Map of the San Bernardino and Santa Ana 30' x 60' quadrangles, California: U.S. Geological Survey, Open-File Report 2006-1217, scale 1:100,000.			
Geologic Unit(s) and Age	**Geologic Unit**	**Map Symbol**	**Age**	**Paleontological Potential (PFYC)**
	Unmapped artificial fill	N/A	Recent	2 (Low)
	Very young wash deposits	Qw, Qw1	late Holocene	2 (Low)
	Young axial-channel deposits	Qya3	middle Holocene	2 (Low)
Previously Documented Fossil Localities within the Project Area	None			
Recommendation(s)	Based on the results of this paleontological assessment, we recommend part-time monitoring (i.e., spot-checking) when ground disturbing activities impact sediments at 8 feet below ground surface or deeper to check for the presence of Pleistocene-age deposits. If Pleistocene-age deposits are observed at depth and impacted by Project excavations, then monitoring efforts should be increased to full-time. If only artificial fill, late Holocene-age very young wash deposits (Qw, Qw1), and middle Holocene-age young axial-channel deposits (Qya3) are observed, then spot-checking can be reduced or ceased at the discretion of a Qualified Paleontologist in consultation with the City. Any subsurface bones or potential fossils that are unearthed during construction should be evaluated, recorded, and reported by a Qualified Paleontologist.			

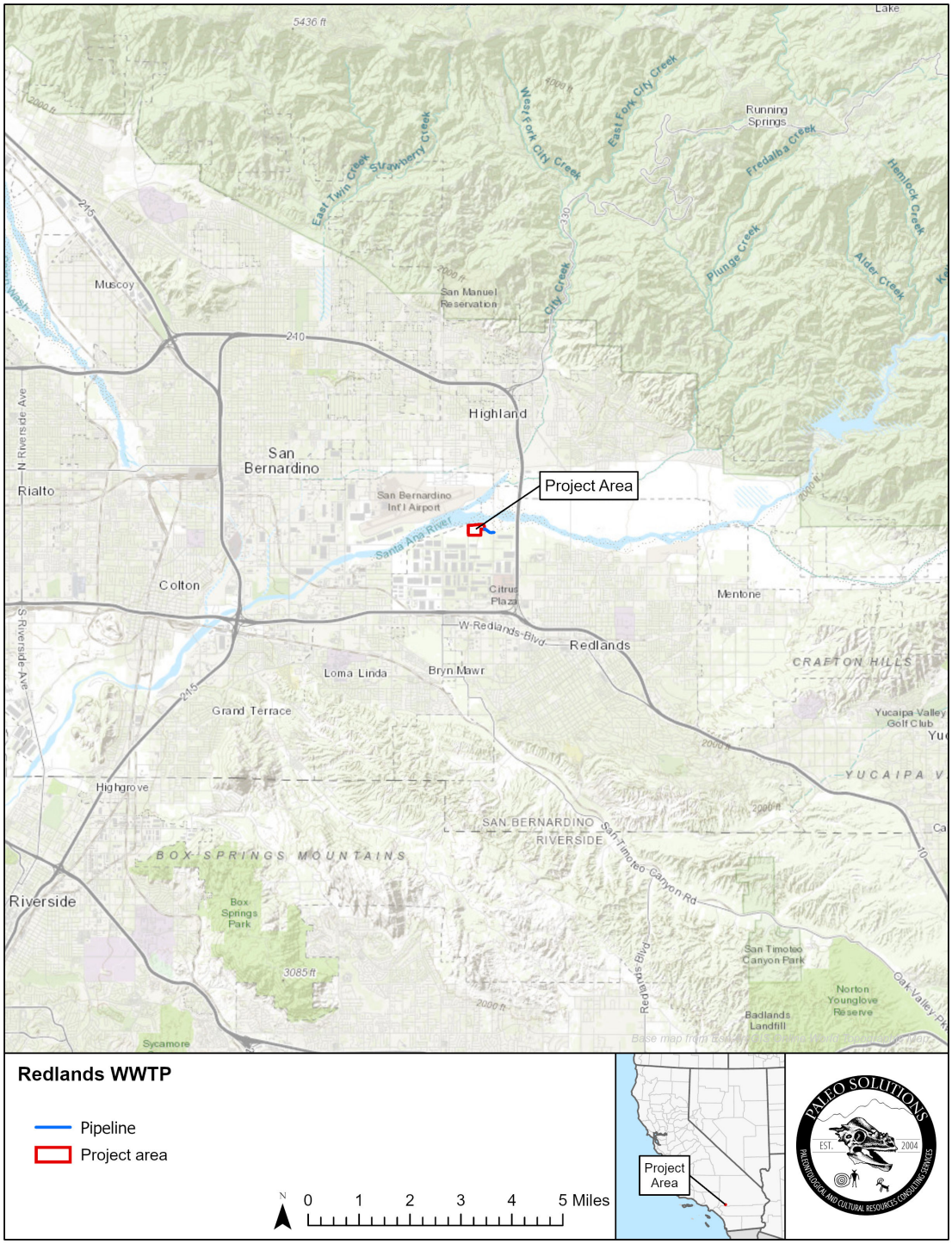

Figure 1. Project Location Map

Figure 2. Project Vicinity Map

3.0 DEFINITION AND SIGNIFICANCE OF PALEONTOLOGICAL RESOURCES

As defined by Murphey and Daitch (2007): "Paleontology is a multidisciplinary science that combines elements of geology, biology, chemistry, and physics in an effort to understand the history of life on earth. Paleontological resources, or fossils, are the remains, imprints, or traces of once-living organisms preserved in rocks and sediments. These include mineralized, partially mineralized, or unmineralized bones and teeth, soft tissues, shells, wood, leaf impressions, footprints, burrows, and microscopic remains. Paleontological resources include not only fossils themselves, but also the associated rocks or organic matter and the physical characteristics of the fossils' associated sedimentary matrix.

The fossil record is the only evidence that life on earth has existed for more than 3.6 billion years. Fossils are considered non-renewable resources because the organisms they represent no longer exist. Thus, once destroyed, a fossil can never be replaced. Fossils are important scientific and educational resources because they are used to:

- Study the phylogenetic relationships amongst extinct organisms, as well as their relationships to modern groups;
- Elucidate the taphonomic, behavioral, temporal, and diagenetic pathways responsible for fossil preservation, including the biases inherent in the fossil record;
- Reconstruct ancient environments, climate change, and paleoecological relationships;
- Provide a measure of relative geologic dating that forms the basis for biochronology and biostratigraphy, and which is an independent and corroborating line of evidence for isotopic dating;
- Study the geographic distribution of organisms and tectonic movements of land masses and ocean basins through time;
- Study patterns and processes of evolution, extinction, and speciation; and
- Identify past and potential future human-caused effects to global environments and climates."

Fossil resources vary widely in their relative abundance and distribution and not all are regarded as significant. According to BLM Instructional Memorandum (IM) 2009-011, a "Significant Paleontological Resource" is defined as:

> "Any paleontological resource that is considered to be of scientific interest, including most vertebrate fossil remains and traces, and certain rare or unusual invertebrate and plant fossils. A significant paleontological resource is considered to be of scientific interest if it is a rare or previously unknown species, it is of high quality and well-preserved, it preserves a previously unknown anatomical or other characteristic, provides new information about the history of life on earth, or has an identified educational or recreational value. Paleontological resources that may be considered not to have scientific significance include those that lack provenience or context, lack physical integrity due to decay or natural erosion, or that are overly

> redundant or are otherwise not useful for research. Vertebrate fossil remains and traces include bone, scales, scutes, skin impressions, burrows, tracks, tail drag marks, vertebrate coprolites (feces), gastroliths (stomach stones), or other physical evidence of past vertebrate life or activities" (BLM, 2008).

Vertebrate fossils, whether preserved remains or track ways, are classified as significant by most state and federal agencies and professional groups (and are specifically protected under the California Public Resources Code]). In some cases, fossils of plants or invertebrate animals are also considered significant and can provide important information about ancient local environments. Assessment of significance is also subject to the CEQA criterion that the resource constitutes a "unique paleontological resource or site."

The full significance of fossil specimens or fossil assemblages cannot be accurately predicted before they are collected, and in many cases, before they are prepared in the laboratory and compared with previously collected fossils. Pre-construction assessment of significance associated with an area or formation must be made based on previous finds, characteristics of the sediments, and other methods that can be used to determine paleoenvironmental and taphonomic conditions.

4.0 LAWS, ORDINANCES, REGULATIONS, AND STANDARDS

This section of the report presents the applicable state and local regulatory requirements pertaining to paleontological resources that apply to this Project. None of the federal crosscutting regulations for the Project apply to paleontological resources.

4.1 STATE REGULATORY SETTING

4.1.1 California Environmental Quality Act (CEQA)

The procedures, types of activities, persons, and public agencies required to comply with the CEQA are defined in the Guidelines for Implementation of CEQA (State CEQA Guidelines), as amended on March 18, 2010 (Title 14, Section 15000 et seq. of the California Code of Regulations) and further amended January 4th, 2013 and again December 28, 2018. One of the questions listed in the CEQA Environmental Checklist is: "Would the project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?" (State CEQA Guidelines Appendix G, Section VII, Part F).

4.1.2 State of California Public Resources Code

The State of California Public Resources Code (Chapter 1.7), Sections 5097 and 30244, includes additional state level requirements for the assessment and management of paleontological resources. These statutes require reasonable mitigation of adverse impacts to paleontological resources resulting from development on state lands, and define the excavation, destruction, or removal of paleontological "sites" or "features" from public lands without the express permission of the jurisdictional agency as a misdemeanor. As used in Section 5097, "state lands" refers to lands owned by, or under the jurisdiction of, the state or any state agency. "Public lands" is defined as lands owned by, or under the jurisdiction of, the state, or any city, county, district, authority, or public corporation, or any agency thereof.

4.2 LOCAL REGULATORY SETTING

4.2.1 San Bernardino County

The Conservation Element of the San Bernardino County General Plan (2007) contains one goal (CO 3) and one map (Paleontologic Resources Overlay Map, noted in the General Plan as "not available yet"), as well as three programs regarding paleontological resources within the County. Goal CO 3 requires that the County will preserve and promote its historic and prehistoric cultural heritage. Three programs within the General Plan delineate the required County actions regarding paleontological resources. In areas of potential but unknown sensitivity, field surveys prior to grading will be required to establish the need for paleontologic monitoring. Projects requiring grading plans that are located in areas of known fossil occurrences, or demonstrated in a field survey to have fossils present, will have all rough grading (cuts greater than 3 feet) monitored by trained paleontologic crews working under the direction of a qualified professional, so that fossils exposed during grading can be recovered and preserved. Fossils include large and small vertebrate fossils; the latter recovered by screen washing of bulk samples. Finally, a report of findings with an itemized accession inventory will be prepared as evidence that monitoring has been successfully completed. A preliminary report will be submitted and approved prior to granting of building permits, and a final report will be submitted and approved prior to granting of occupancy permits. The adequacy of paleontologic reports will be determined in consultation with the Curator of Earth Science, San Bernardino County Museum.

4.2.2 City of Redlands

The City of Redlands General Plan 2035 (City of Redlands, 2017) contains two policies and two actions regarding paleontological resources within the Cultural Resources section. Policy 2-P.16 states project proponents shall work with local paleontologists to identify significant non-renewable paleontological resources, and Policy 2-P.17 states that archaeological and paleontological resources shall be protected for their aesthetic, scientific, educational, and cultural values. Action 2-A.75 states that as a standard condition of approval, that project applicants shall provide an assessment as to whether grading for the proposed project would impact underlying soil units or geologic formations that have a moderate to high potential to yield fossiliferous materials, prior to issuance of a grading permit. If the potential for fossil discovery is moderate to high, the City shall require applicants to provide a paleontological monitor during rough grading of the project. Action 2-A.76 requires establishment of a procedure for the management of paleontological materials found on-site during a development, including the following provisions:

- If materials are found on-site during grading, require that work be halted until a qualified professional evaluates the find to determine if it represents a significant paleontological resource;

- If the resource is determined to be significant, the paleontologist shall supervise removal of the material and determine the most appropriate archival storage of the material; and

- Appropriate materials shall be prepared, catalogued, and archived at the applicant's expense and shall be retained within San Bernardino County if feasible.

5.0 METHODS

The paleontological study for the Project consisted of an analysis of existing data, which included a review of geologic maps, published and unpublished literature, and results of a museum records

search and online database searches. The goal of this report is to identify potential impacts to paleontological resources resulting from construction of the Project. Mathew Carson, M.S., authored this report. Barbara Webster, M.S., prepared the GIS maps. Geraldine Aron, M.S., oversaw all work as the Paleontological Program Director and Principal Investigator.

Copies of this report were submitted to Parsons, the City, and SWRCB. Paleo Solutions retained an archival copy of all Project information.

5.1 ANALYSIS OF EXISTING DATA

Paleo Solutions reviewed geologic mapping of the Project area by Morton and Miller (2006). The geology underlying the Project area was reviewed, as well as any geologic units occurring within a quarter-mile radius. The literature reviewed included published and unpublished scientific papers. The museum records search was performed at the Western Science Center (WSC). The results of the museum records search were received by the WSC on May 7, 2019 (see confidential Appendix A). The museum records search was supplemented by a review of the online University of California Museum of Paleontology (UCMP) database and the Paleobiology Database (PBDB).

5.2 CRITERIA FOR EVALUATING PALEONTOLOGICAL POTENTIAL

The PFYC system was developed by the BLM (BLM, 2016). Because of its demonstrated usefulness as a resource management tool, the PFYC has been utilized for many years for projects across the country, regardless of land ownership. It is a predictive resource management tool that classifies geologic units on their likelihood to contain paleontological resources on a scale of 1 (very low potential) to 5 (very high potential). This system is intended to aid in predicting, assessing, and mitigating paleontological resources. The PFYC ranking system is summarized in Table 2.

Table 2. Potential Fossil Yield Classification (BLM, 2016)

BLM PFYC Designation	Assignment Criteria Guidelines and Management Summary (PFYC System)
1 = Very Low Potential	Geologic units are not likely to contain recognizable paleontological resources.
	Units are igneous or metamorphic, excluding air-fall and reworked volcanic ash units.
	Units are Precambrian in age.
	Management concern is usually negligible, and impact mitigation is unnecessary except in rare or isolated circumstances.
2 = Low Potential	Geologic units are not likely to contain paleontological resources.
	Field surveys have verified that significant paleontological resources are not present or are very rare.
	Units are generally younger than 10,000 years before present.
	Recent eolian deposits.
	Sediments exhibit significant physical and chemical changes (i.e., diagenetic alteration) that make fossil preservation unlikely.
	Management concern is generally low, and impact mitigation is usually unnecessary except in occasional or isolated circumstances.
3 = Moderate Potential	Sedimentary geologic units where fossil content varies in significance, abundance, and predictable occurrence.
	Marine in origin with sporadic known occurrences of paleontological resources.
	Paleontological resources may occur intermittently, but these occurrences are widely scattered.
	The potential for authorized land use to impact a significant paleontological resource is known to be low-to-moderate.

BLM PFYC Designation	Assignment Criteria Guidelines and Management Summary (PFYC System)
	Management concerns are moderate. Management options could include record searches, pre-disturbance surveys, monitoring, mitigation, or avoidance. Opportunities may exist for hobby collecting. Surface-disturbing activities may require sufficient assessment to determine whether significant paleontological resources occur in the area of a proposed action and whether the action could affect the paleontological resources.
4 = High Potential	Geologic units that are known to contain a high occurrence of paleontological resources.
	Significant paleontological resources have been documented but may vary in occurrence and predictability.
	Surface-disturbing activities may adversely affect paleontological resources.
	Rare or uncommon fossils, including nonvertebrate (such as soft body preservation) or unusual plant fossils, may be present.
	Illegal collecting activities may impact some areas.
	Management concern is moderate to high depending on the proposed action. A field survey by a qualified paleontologist is often needed to assess local conditions. On-site monitoring or spot-checking may be necessary during land disturbing activities. Avoidance of known paleontological resources may be necessary.
5 = Very High Potential	Highly fossiliferous geologic units that consistently and predictably produce significant paleontological resources.
	Significant paleontological resources have been documented and occur consistently.
	Paleontological resources are highly susceptible to adverse impacts from surface disturbing activities.
	Unit is frequently the focus of illegal collecting activities.
	Management concern is high to very high. A field survey by a qualified paleontologist is almost always needed and on-site monitoring may be necessary during land use activities. Avoidance or resource preservation through controlled access, designation of areas of avoidance, or special management designations should be considered.
U = Unknown Potential	Geologic units that cannot receive an informed PFYC assignment.
	Geological units may exhibit features or preservational conditions that suggest significant paleontological resources could be present, but little information about the actual paleontological resources of the unit or area is unknown.
	Geologic units represented on a map are based on lithologic character or basis of origin, but have not been studied in detail.
	Scientific literature does not exist or does not reveal the nature of paleontological resources.
	Reports of paleontological resources are anecdotal or have not been verified.
	Area or geologic unit is poorly or under-studied.
	BLM staff has not yet been able to assess the nature of the geologic unit.
	Until a provisional assignment is made, geologic units with unknown potential have medium to high management concerns. Field surveys are normally necessary, especially prior to authorizing a ground-disturbing activity.

6.0 ANALYSIS OF EXISTING DATA

The Project area is located within the northern-most portion of the Peninsular Ranges Geomorphic Province (Harden, 2004). A geomorphic province is a geographical area of distinct landscape character, with related geophysical features, including relief, landforms, orientations of valleys and

mountains, type of vegetation, and other geomorphic attributes (Harden, 2004). Attributes of the Peninsular Ranges Geomorphic Province consist of northwest-southeast-trending, fault-bounded discrete blocks, with mountain ranges, broad intervening valleys, and low-lying coast plains (Yerkes et al., 1965; Norris and Webb, 1990). Specifically, the Project area is located along the Santa Ana River within the San Bernardino Basin, which is bound by the San Andreas Fault Zone to the northeast and the San Jacinto Fault Zone to the southwest. The San Bernardino Basin is one of the several blocks making up the Peninsular Ranges Geomorphic Province.

Within California, the province extends approximately 125 miles from the Transverse Ranges and the Los Angeles Basin south to the Mexican border, extending southward approximately 775 miles toward to the tip of Baja California, and it is bound on the east by the right-slip San Andreas Fault Zone, the Eastern Transverse Ranges, and the Colorado Desert (Norris and Webb, 1990; Hall, 2007). Most of the geomorphic province is located offshore and includes the Santa Catalina and San Clemente islands (Hall, 2007). Topographically on the mainland, the Peninsular Ranges are steeper on the eastern slopes, where they are truncated by normal faults like the Elsinore or San Jacinto faults, and are more gradual on their western slopes toward the Pacific Ocean, similar to the topography of the Sierra Nevada (Norris and Webb, 1990; Prothero, 2017). Within the province, the highest elevations are found in the eastern-most block, with San Jacinto Peak reaching approximately 10,805 feet in elevation and various summits of the Santa Rosa Mountains averaging 6,000 feet in elevation (Norris and Webb, 1990). Westward toward the coast, elevations are less dramatic.

The pre-Phanerozoic history of the Peninsular Ranges is not represented within the province, and few locations contain rocks older than the Mesozoic (Norris and Webb, 1990), and sparse Paleozoic strata within the Peninsular Ranges is in stark contrast to the Sierra Nevada, which contains thick sections of Paleozoic rocks. The oldest pre-batholithic rocks in the Peninsular Ranges are Paleozoic in age and consist of metamorphosed remnants of a stable carbonate platform (now marble and schist) on a passive continental margin that existed along western North America at that time (Harden, 2004). Moreover, late Paleozoic limestone is present near Riverside (Norris and Webb, 1990), further supporting the presence of a shallow marine environment prior to the Mesozoic. Most of the geologic history of the Peninsular Ranges is represented by Mesozoic-age plutonic rocks and Cenozoic-age uplift, erosion, and sedimentary deposition in basins (Sylvester and O'Black Gans, 2016).

During the Triassic and Jurassic, marine sedimentary rocks composed of sandstone and shale were deposited in turbidite sequences along a submarine fan (Harden, 2004). Throughout the Jurassic and Cretaceous, the continental margin became active as the Farallon Plate, which ferried old island arcs, subducted beneath the North American Plate, creating a large pluton complex (i.e., batholith) beneath the surface that rose into the upper crust and intruded into Paleozoic and Mesozoic sedimentary and volcanic rocks (Harden, 2004; Sylvester and O'Black Gans, 2016). The large complex of batholiths resulted in the formation of the San Marcos Gabbro, Bonsall Tonalite, and Woodson Mountain Granodiorite among others in the Peninsular Ranges (Norris and Webb, 1990). Contact metamorphism from the plutons metamorphosed older sedimentary and volcanic rocks into marble, slate, schist, quartzite, gneiss, and metavolcanic rocks (Sylvester and O'Black Gans, 2016). The timing of the Peninsular Ranges Batholith is similar to that of the Sierra Nevada, ranging in age from 70 to 120 million years ago (Norris and Webb, 1990). The batholith complex originally formed south of the Mexican border but has since moved along the right-slip San Andreas Fault over the past 40 million years (Prothero, 2017). During the Late Cretaceous through the Paleogene, the Peninsular Ranges Batholith was uplifted and eroded into a broad plain, where fluvial systems transported sediments westward across the plain and onto the seafloor (Sylvester and O'Black Gans, 2016). Sedimentary rocks were deposited in a forearc basin by turbidity currents representing both deep and shallow marine and nonmarine environments, including the marine Williams, Ladd, and

Rosario formations and the nonmarine Trabuco Formation, with extensive exposures in the western flank of the Santa Ana Mountains (Norris and Webb, 1990; Harden, 2004).

Throughout the Cenozoic, thick sections of sedimentary rocks were deposited in large basins, such as the Los Angeles, Imperial, and offshore basins, due to erosion (Norris and Webb, 1990). Most exposures of early Tertiary strata are restricted to the coastal margins, with a maximum thickness of approximately 4,500 feet in the Santa Ana Mountains (Norris and Webb, 1990). Most Cenozoic strata represent nonmarine depositional environments; however, approximately 600 feet of marine sediments are present near San Diego (Norris and Webb, 1990). Thick nonmarine deposits formed during the Oligocene, followed by a pause of sedimentation at the end of the Oligocene due to tectonic uplift (Norris and Webb, 1990). By the beginning of the Miocene, most of the Farallon Plate had been subducted beneath the North American Plate, and the Pacific Plate came into contact with the North American Plate (Sylvester and O'Black Gans, 2016). As the Pacific Plate slid northwest along the North American Plate, a section of forearc basin was rafted, rotated clockwise approximately 110 degrees, and carried north approximately 130 miles; while carried northward, the forearc basin was compressed and formed the Transverse Ranges located immediately north of the Peninsular Ranges (Sylvester and O'Black Gans, 2016). Additionally, movement along the San Jacinto Fault Zone, which bifurcates from the San Andreas Fault Zone in an area north of the Peninsular Ranges, occurred in the middle to late Tertiary through the Quaternary, with a right-slip and vertical motion resulting in approximately 18 miles of lateral displacement (Norris and Webb, 1990). During this time, thick accumulations of nonmarine sediments filled basins, as well as coastal and offshore areas, in the northern Peninsular Ranges during the Pliocene, with up to 7,000-foot-thick sections of siltstone, sandstone, and conglomerate in the Mount Eden and San Timoteo canyons (Norris and Webb, 1990). Despite widespread volcanism elsewhere in southern California during the late Tertiary, little volcanism occurred within the Peninsular Ranges during this time (Norris and Webb, 1990). Throughout the Quaternary, fluvial and lacustrine sediments continued to fill basins within the province, with restricted volcanic and marine terrace deposits along the coast (Norris and Webb, 1990).

6.1 LITERATURE SEARCH

Geologic mapping by Morton and Miller (2006) indicates that the Project area is immediately underlain by late Holocene-age very young wash deposits (Qw, Qw1) and middle Holocene-age young axial-channel deposits (Qya3) at the surface (Figure 3). However, older (e.g., Pleistocene-age) deposits may underlie the Holocene-age sediments at shallow or unknown depths within the Project area. Additionally, although not mapped at the surface, artificial fill is also present within the Project area based on the results of previous geotechnical studies of the site (LeRoy Crandall and Associates, 1972; 1987).

6.1.1 Very Young Wash (Qw, Qw1) and Axial-Channel Deposits (Qya3)

According to Morton and Miller (2006), late Holocene-age very young wash deposits (Qw, Qw1) and middle Holocene-age young axial-channel deposits (Qya3) are mapped at the surface within the Project area (Figure 3).

Very young wash deposits (Qw, Qw1) consist of unconsolidated sand and gravel deposits in active washes, including ephemeral river channels of axial-valley streams and channels on active surfaces of alluvial fans, with fresh flood scours and channel-and-bar morphology (Morton and Miller, 2006). Grain shape ranges from angular to rounded, with larger clasts tending to be more rounded than smaller clasts, and clasts derived from local bedrock or reworked older alluvial deposits (Morton and Miller, 2006). Low elevation terraces in or marginal to channelized washes or streams and rivers are

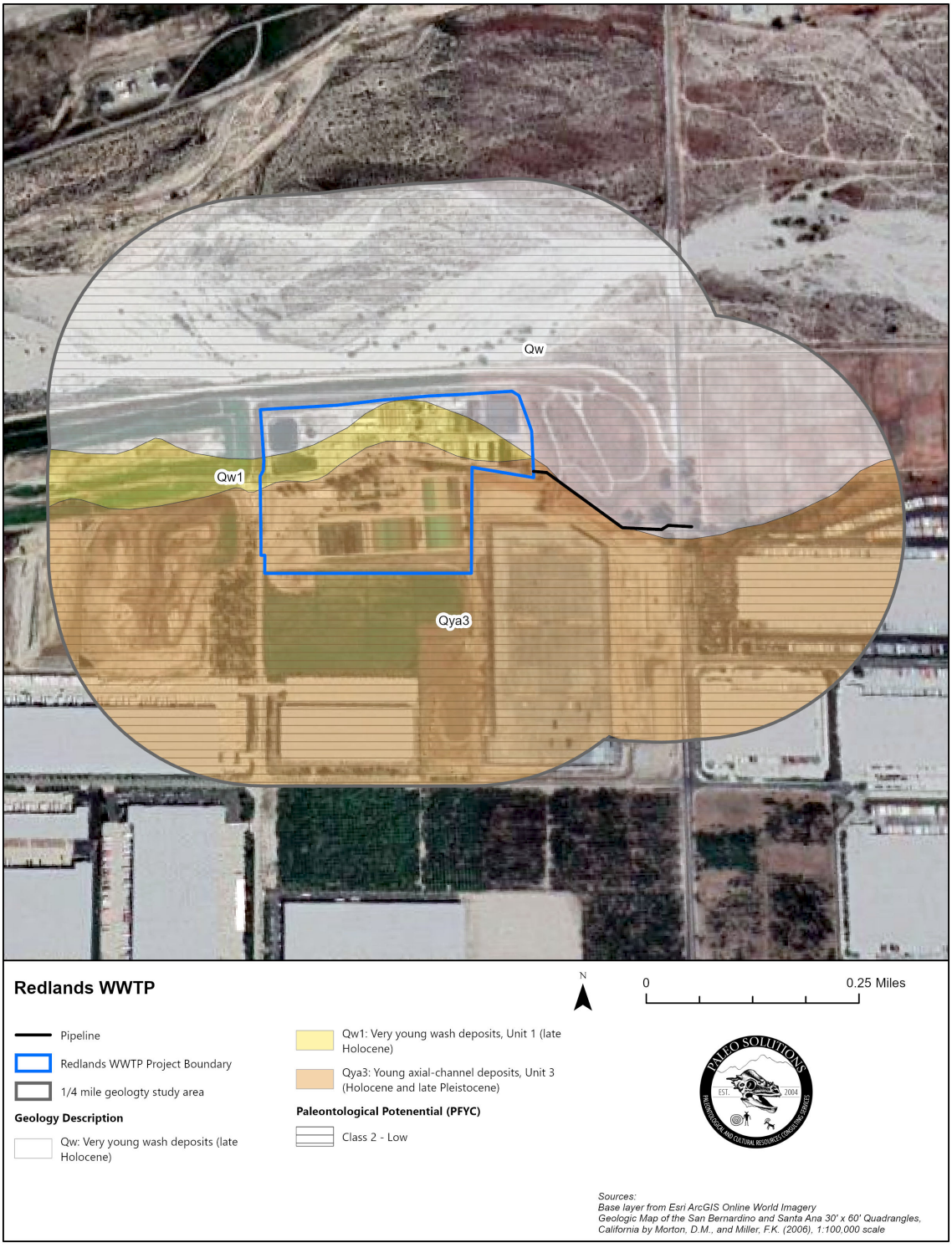

Figure 3. Project Geology and Paleontological Potential

also present and consist of vegetated channels abandoned by modern stream flows (Morton and Miller, 2006).

Young axial-channel deposits (Qya3) consist of terrace risers standing 1 to 2 meters above active washes and are approximately 2 to 5 meters thick (Morton and Miller, 2006). These deposits consist of pale brown and very pale brown, fine- to coarse-grained sand and pebbly sand that coarsens up-stream to poorly sorted fine- to coarse-grained sand and sandy pebble to small-cobble gravel (Morton and Miller, 2006).

Holocene-age sediments are typically too young to contain fossilized material (Society of Vertebrate Paleontology [SVP], 2010), but they may overlie sensitive older (e.g., Pleistocene-age) deposits at shallow or unknown depths. Ice Age taxa have been recovered from Pleistocene-age deposits of San Bernardino County, including specimens of rodents (*Peromyscus* sp., *Dipodomys ordii*, *Neotoma* sp., *Thomomys* sp., among others), rabbits (*Lepus* sp.), horse (*Equus conversidens*), badger (*Taxidea taxus*), cats (*Smilodon* sp., *Puma concolor*), mammoth (*Mammuthus* sp.), camel (*Camelops* sp.), llama (*Hemiauchenia* sp.), giant ground sloth (*Nothrotheriops* sp., *Megalonyx* sp.), and tortoise (*Opherus agassizi*), as well as bison, antelope, and many other taxa of mammals (Jefferson, 1991; Reynolds, 1991; Brattstrom, 1961). A review of the UCMP (2019) paleontological locality database indicates that Pleistocene-age fossils have been recovered from San Bernardino County, including plants (*Juniperus* sp.) and vertebrates, such as wolf (*Canis* sp., *Canis dirus*), bobcat (*Lynx rufus*), fox (*Urocyon cinereoargenteus*), horse (*Equus* sp.), camel (*Camelops* sp., *Camelops hesternus*, *Camelus* sp.), llama (*Tanupolama stevensi*), bighorn sheep (*Ovis canadensis*), skunk (*Spilogale* sp.), rabbit (*Lepus californicus*), pika (*Ochotona* sp.), ring-tailed cat (*Bassariscus astutus*), rodent (*Marmota flaviventris*, *Microtus* sp., *Lemmiscus curtatus*, *Neotoma cinerea*, *Dipodomys* sp., *Chaetodipus* sp., *Baiomys* sp., *Sciurus* sp., *Spermophilus* sp., *Otospermophilus* sp., *Thomomys* sp.), bird (*Buteo* sp.), lizard (*Crotaphytus* sp., *Cnemidophorus tigris*, *Sceloporus occidentalis*), tortoise (*Hesperotestudo* sp., *Gopherus agassizii*), and amphibian. According to the PBDB (2019) fossil locality database, there are no Pleistocene-age fossil locality records within the vicinity of the Project area.

Late Holocene-age very young wash deposits (Qw, Qw1) and middle Holocene-age young axial-channel deposits (Qya3) are assigned low paleontological potential (PFYC 2) at the surface using BLM (2016) guidelines. However, they have a moderate paleontological potential in the subsurface since there is potential for these deposits to be conformably underlain by older, paleontologically sensitive geologic units at shallow or unknown depths.

6.1.2 Unmapped Artificial Fill

Although it is not mapped at the surface by Morton and Miller (2006), the Project area is at least partially underlain by artificial fill. Geotechnical studies previously conducted at the wastewater treatment facility indicate that the Project area is underlain by artificial soils ranging between 2 to 15 feet thick (LeRoy Crandall and Associates, 1972; 1987). At the time of these geotechnical studies, artificial fill soils consisted of poorly compacted silty sand, silt, and sand containing some debris (LeRoy Crandall and Associates, 1972; 1987). Fossils discovered in artificial fill lack scientific context, and therefore, are generally not considered to be scientifically significant. Thus, artificial fill and any previously disturbed sediments have low paleontological potential (PFYC 2). However, there is potential for these deposits to be conformably underlain by Holocene-age sediments or older paleontologically sensitive geologic units at shallow or unknown depths.

6.2 PALEONTOLOGICAL RECORDS SEARCH RESULTS

According to the WSC, no paleontological resources have been recorded from within the bounds of the Project area or within a 1-mile buffer of the Project area (Radford, 2019).

7.0 IMPACTS TO PALEONTOLOGICAL RESOURCES

Impacts on paleontological resources can generally be classified as either direct, indirect, or cumulative. Direct adverse impacts on surface or subsurface paleontological resources are the result of destruction by breakage and crushing as the result of surface disturbing actions including construction excavations. In areas that contain paleontologically sensitive geologic units, ground disturbance has the potential to adversely impact surface and subsurface paleontological resources of scientific importance. Without mitigation, these fossils and the paleontological data they could provide if properly recovered and documented, could be adversely impacted (damaged or destroyed), rendering them permanently unavailable to science and society.

Indirect impacts typically include those effects which result from the continuing implementation of management decisions and resulting activities, including normal ongoing operations of facilities constructed within a given project area. They also occur as the result of the construction of new roads and trails in areas that were previously less accessible. This increases public access and therefore increases the likelihood of the loss of paleontological resources through vandalism and unlawful collecting. Human activities that increase erosion also cause indirect impacts to surface and subsurface fossils as the result of exposure, transport, weathering, and reburial.

Cumulative impacts can result from incrementally minor but collectively significant actions taking place over a period of time. The incremental loss of paleontological resources over time as a result construction-related surface disturbance or vandalism and unlawful collection would represent a significant cumulative adverse impact because it would result in the destruction of non-renewable paleontological resources and the associated irretrievable loss of scientific information.

Based on the analysis of existing data, there are no documented paleontological localities within the boundaries of the Project area. The Project area is underlain by late Holocene-age very young wash deposits (Qw, Qw1) and middle Holocene-age young axial-channel deposits (Qya3), as mapped by Morton and Miller (2006), and unmapped artificial fill, which varies in thickness and is present from 2 to 15 feet within the WWTP Facility area; however, older (e.g., Pleistocene-age) deposits may underlie the Holocene-age sediments and artificial fill at shallow or unknown depths within the Project area. Throughout San Bernardino County, numerous scientifically significant fossils have been recorded from Pleistocene-age deposits. Based on this assessment, Project activities within the Project area at depths greater than 8 feet below ground surface may potentially result in significant impacts to paleontological resources during excavation.

8.0 RECOMMENDATIONS

The Project area is underlain by late Holocene-age very young wash deposits (Qw, Qw1), middle Holocene-age young axial-channel deposits (Qya3), and unmapped artificial fill. These geologic units have a low paleontological potential within the Project area; however, they may be underlain by Pleistocene-age geologic units, which have a moderate potential for paleontological resources, at shallow or unknown depth. Based on the depth of artificial fill, which varies from 2 to 15 feet below ground surface, the maximum depth of planned ground-disturbing activities (e.g., approximately 15 feet), and the policies and actions stated in the City of Redlands General Plan 2035 (City of Redlands, 2017), we recommend part-time monitoring (i.e., spot-checking) when ground disturbing activities impact sediments at 8 feet below ground surface or deeper to check for the presence of Pleistocene-

age deposits. If Pleistocene-age deposits are observed at depth and impacted by Project excavations, then monitoring efforts should be increased to full-time. If only artificial fill, late Holocene-age very young wash deposits (Qw, Qw1), and middle Holocene-age young axial-channel deposits (Qya3) are observed, then spot-checking can be reduced or ceased at the discretion of a Qualified Paleontologist in consultation with the City. Any subsurface bones or potential fossils that are unearthed during construction should be evaluated, recorded, and reported by a Qualified Paleontologist. Paleontological resources determined to be significant, or potentially significant, shall be subject to fossil recovery, laboratory analysis, and museum curation (through a curation agreement with the San Bernardino County Museum, or another appropriate repository).

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APPENDIX A. MUSEUM RECORDS SEARCH

Confidential Appendix

WESTERN SCIENCE CENTER

May 7, 2019

Paleo Solutions
Barbara Webster
911 S. Primrose Ave., Unit N
Monrovia, CA 91016

Dear Ms. Webster,

This letter presents the results of a record search conducted for the Parsons Wastewater Treatment Facility Project in San Bernardino, San Bernardino County, California. The project site is located north of San Bernardino Avenue and west of Interstate 210 on both sides of Alabama Street partially in Section 16, Township 1 South, Range 3 West on the Redlands USGS 7.5 minute quadrangle.

The geologic units underlying this project are mapped primarily as very young alluvial wash deposits dating from the late Holocene period, with the southern border of the project area mapped as young axial channel deposits dating from the late Pleistocene to Holocene period (Morton & Miller, 2006). While alluvial wash deposits can be paleontologically sensitive, it is unlikely that any paleontological material will be found in the relatively modern late Holocene units. These units are considered to be of low paleontological sensitivity, with the exception of the older deposits dating to the late Pleistocene on the southern border of the project area. The Western Science Center does not have localities within the project area or within a 1 mile radius, but does have fossil localities in similarly mapped late Pleistocene units associated with numerous projects in Riverside County that resulted in fossil specimens.

Any fossils recovered from the Parsons Wastewater Treatment Facility Project area would be scientifically significant. If significant excavation activity associated with development of the project area would impact the paleontologically sensitive late Pleistocene alluvial units at the southern end of the project area it would be the recommendation of the Western Science Center that a paleontological resource mitigation program be put in place to monitor the site.

If you have any questions, or would like further information about similar late Pleistocene alluvial deposit projects, please feel free to contact me at dradford@westerncentermuseum.org

Sincerely,

Darla Radford
Collections Manager

2345 Searl Parkway ♦ Hemet, CA 92543 ♦ phone 951.791.0033 ♦ fax 951.791.0032 ♦ WesternScienceCenter.org

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Appendix E
FEMA Flood Zone Maps

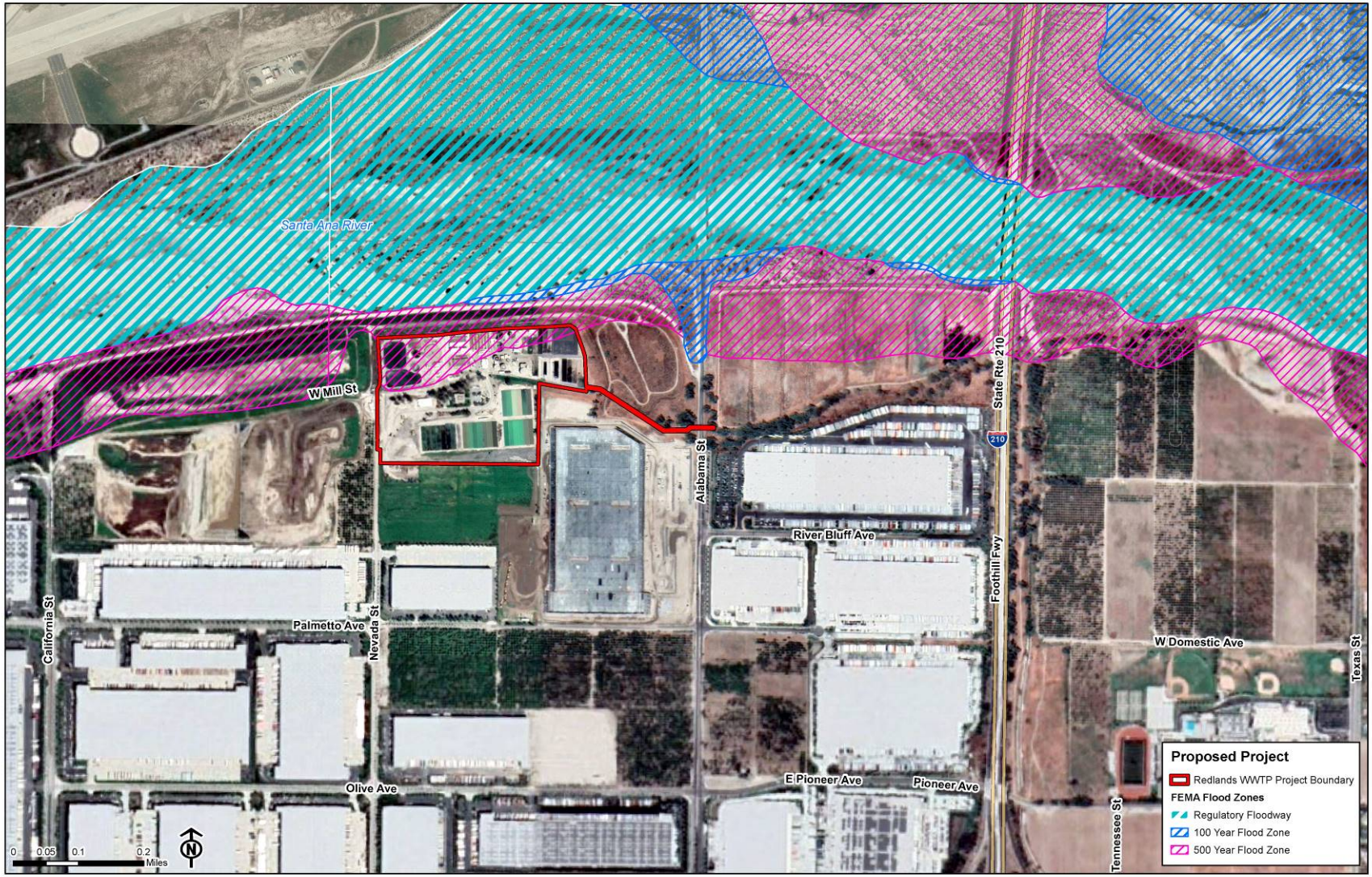

Figure E-1. FEMA Floodplains at and near the Redlands WWTP

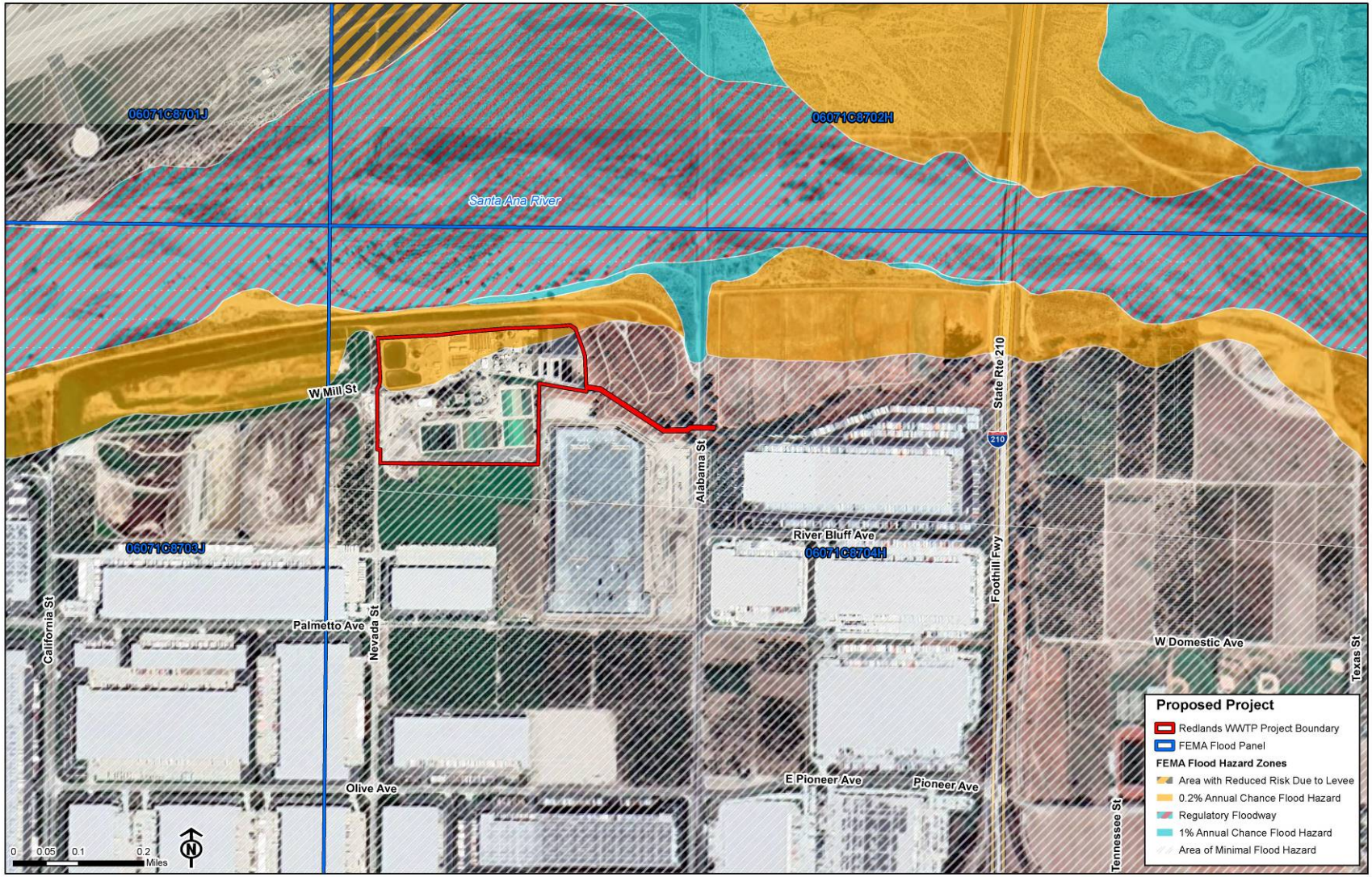

Figure E-2. FEMA Flood Zones at and near the Redlands WWTP

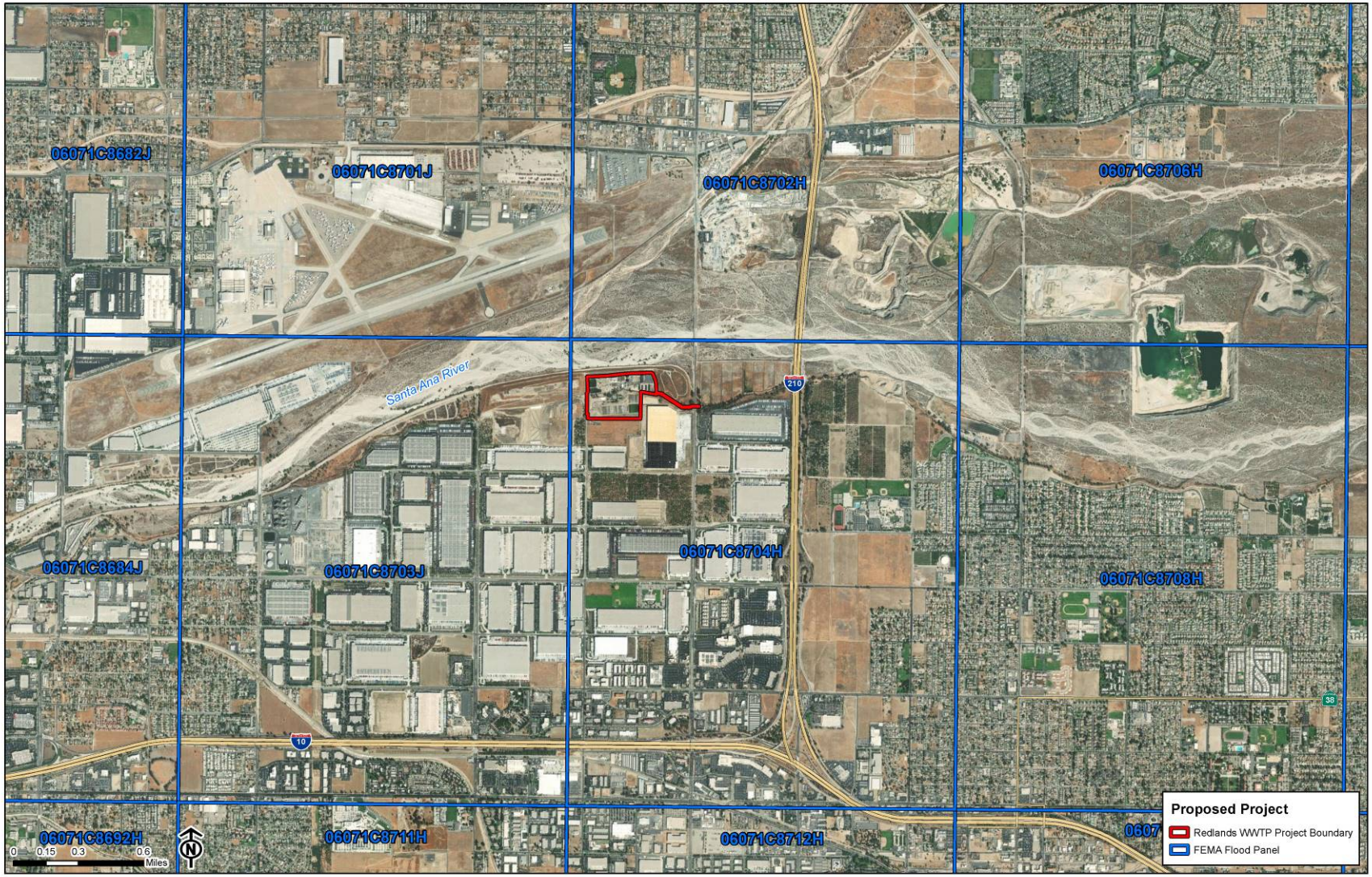

Figure E-3. FEMA Flood Panels at and near the Redlands WWTP

Appendix F
Mitigation Monitoring and Reporting Program

MITIGATION MONITORING AND REPORTING PROGRAM: UPGRADE OF THE CITY OF REDLANDS WASTEWATER TREATMENT PLANT REDLANDS, CALIFORNIA

Section 21081.6 of the Public Resources Code, enacted by passage of Assembly Bill 3180 (Cortese Bill), requires public agencies approving projects with significant environmental impacts to adopt a Mitigation Monitoring and Reporting Program (MMRP). This objective of the program is to ensure that mitigation measures adopted to avoid or mitigate potentially significant environmental impacts are implemented. Section 21081.6 of the Public Resources Code requires all state and local agencies to establish monitoring and reporting programs whenever approval of a project relies upon a Mitigated Negative Declaration (MND) or an Environmental Impact Report (EIR).

In accordance with these requirements, this MMRP has been prepared to ensure that mitigation measures identified in the Initial Study/Mitigated Negative Declaration for the proposed upgrade of the City of Redlands Wastewater Treatment Plant (or subsequent revisions thereto) are implemented in an effective and timely manner, and that identified impacts are avoided or mitigated to a level of insignificance. This MMRP identifies responsible parties for the mitigation program and includes a detailed discussion of monitoring and reporting procedures for each mitigation measure.

I. Responsible Party

The City of Redlands Municipal Utilities and Engineering Department, or its designee, would be responsible for:

- Implementing and reporting mitigation measures in this program
- Ensuring that mitigation measures are accomplished in an environmentally responsible manner
- Ensuring that the status of mitigation measures is reported in accordance with this program
- Ensuring that the cost of mitigation is included in its budget
- Ensuring that mitigation measures are properly carried out by designated and qualified personnel, which may include specialty contractors
- Program oversight

Mitigation measures would be included in applicable Request for Proposals, contractor specifications, plans, drawings, and procedures issued for construction of the proposed upgrade of the City of Redlands Wastewater Treatment Plant that is within the scope of this project.

II. Mitigation Requirements

Based on the findings of the Initial Study/Mitigated Negative Declaration, mitigation measures are not required for aesthetics, agriculture and forestry resources, air quality, energy, greenhouse gases, hazards and hazardous materials, hydrology and water quality, land use and planning, mineral resources, noise, population and housing, public services, recreation, transportation, utilities and service systems, and wildfire. Specific mitigation measures are

required for biological resources (BIO-), cultural resources (CUL-), geology and soils (GEO-), and tribal cultural resources (TCR-). Potentially significant impacts in these environmental resource areas would be avoided or minimized with implementation of specific mitigation measures summarized in Table F-1.

Table F-1. Summary of Mitigation Measures

CATEGORY	MITIGATION MEASURE	MITIGATION MEASURE	INITIAL STUDY SECTION
Biological Resources	BIO-1	Preconstruction Nesting Bird Survey	2.3.IV (a,d)
	BIO-2	Preconstruction Nesting Raptor Survey	2.3.IV (a,d)
	BIO-3	Nesting Bird/Burrowing Owl Awareness Training	2.3.IV (a,d)
	BIO-4	Tree Protection	2.3.IV (a,d)
	BIO-4	Soil Stabilization and Erosion Control	2.3.IV (a,d)
	BIO-5	Preconstruction Burrowing Owl Survey	2.3.IV (a,d)
	BIO-6	Preconstruction Burrowing Mammal Survey	2.3.IV (a,d)
	BIO-7	Bat Precautions	2.3.IV (a,d)
Cultural Resources	CUL-1	Unanticipated Discovery of Archaeological Materials	2.3.V (b)
	CUL-2	Unanticipated Discovery of Human Remains	2.3.V (c)
Geology and Soils	GEO-1	Paleontological Resources Monitoring and Mitigation	2.3.VII (f)
Tribal Cultural Resources	TCR-1	Unanticipated Discovery of Tribal Cultural Resources	2.3.XVIII (b)
	TCR-2	Monitoring and Treatment Plan	2.3.XVIII (b)
	TCR-3	Ongoing Coordination and Documents and Reports	2.3.XVIII (b)

III. Schedule and Reporting Frequency

Table F-2 describes the method for executing each of the mitigation measures, the organization responsible for implementing the measure, the organization responsible for funding the measure, estimated completion date for each measure, frequency of reporting, and impact significance after mitigation. Due to possible funding conditions and other external factors, project construction could be delayed. These delays may also affect the start and completion of mitigation measures.

The monitoring and completion of each mitigation measure would be documented on a Mitigation Monitoring Report form (see Exhibit F-1). This form would be filled out by the appropriate individual responsible for monitoring the mitigation (e.g., in the event of an inadvertent discovery of archaeological materials, paleontological materials, human remains or tribal cultural resources) as described in Table F-2. Supplemental recordkeeping, report

preparation, and documentation would be required for some mitigation measures. The Mitigation Monitoring Report form would be filled out by the appropriate individual verifying that steps to prevent or minimize environmental degradation have been completed as described in Table F-2. Monitoring reports would be submitted to the City Municipal Utilities and Engineering Department, retained in the City's project files, and be available for inspection upon request. Completion of these forms would demonstrate and document compliance with Public Resources Code 21081.6.

Table F-2. Implementation of Mitigation Measures

MITIGATION NO.	MITIGATION MEASURE	METHOD FOR EXECUTION OF MITIGATION	ENTITY RESPONSIBLE FOR MITIGATION MONITORING	COMPLETION DATE	FREQUENCY OF REPORTING	SIGNIFICANCE AFTER MITIGATION
BIO-1	Preconstruction Nesting Bird Survey	For construction in areas containing mature trees or potential habitat for nesting birds, and that is initiated between February 1 and September 1, a Qualified Biologist shall conduct a preconstruction nesting bird survey to determine if any nesting birds (including burrowing owl [BUOW]) are present on the work site. This survey would be initiated within 30 days before the start of construction. The survey report would include a finding of whether monitoring during construction would be required. Should nesting birds be found, an exclusionary buffer would be established by the Qualified Biologist around each nest site. Buffer size would be determined by bird species. The Qualified Biologist would be responsible for surveys, providing nesting bird identification, implementation of identified protection measures, and coordination with applicable resource agencies. The buffer would be clearly marked in the field by construction personnel under guidance of the contractor's	Redlands MUE	30 days before start of construction	Upon completion of survey for each construction location	Less than Significant

Table F-2. Implementation of Mitigation Measures

MITIGATION NO.	MITIGATION MEASURE	METHOD FOR EXECUTION OF MITIGATION	ENTITY RESPONSIBLE FOR MITIGATION MONITORING	COMPLETION DATE	FREQUENCY OF REPORTING	SIGNIFICANCE AFTER MITIGATION
		Qualified Biologist, in coordination with the United States Fish and Wildlife Service (USFWS) and California Department of Fish and Wildlife (CDFW). Construction or clearing shall not be conducted within this zone until the Qualified Biologist determines that the young have fledged or the nest is no longer active.				
BIO-2	Preconstruction Nesting Raptor Survey	A preconstruction survey for nesting raptors shall be conducted by a Qualified Biologist within the limits of project disturbance, 7 days prior to the onset of construction activities. Any active nest found during survey efforts shall be mapped on the construction plans. If nesting activity is present, the active site shall be protected until nesting activity ends to ensure compliance with Section 3503.5 of the California Fish and Game Code. Nesting activity for raptors in the region normally occurs from February 1 to August 31. If no active nests are found, no further mitigation would be required. Results of the surveys shall be	Redlands MUE	7 days before start of construction	Upon completion of survey for each construction location	Less than Significant

Table F-2. Implementation of Mitigation Measures

MITIGATION NO.	MITIGATION MEASURE	METHOD FOR EXECUTION OF MITIGATION	ENTITY RESPONSIBLE FOR MITIGATION MONITORING	COMPLETION DATE	FREQUENCY OF REPORTING	SIGNIFICANCE AFTER MITIGATION
		provided to CDFW. To protect an active nest site, the following restrictions on construction would be required between February 1 and August 31 (or until nests are no longer active, as determined by a Qualified Biologist): (1) clearing limits shall be established a minimum of 300 feet in any direction from any occupied nest and (2) access and surveying shall be restricted within 200 feet of any occupied nest. Any encroachment into the 300-/200-foot buffer area around the active nest shall only be allowed if it is determined by a Qualified Biologist that the proposed activity shall not disturb the nest occupants. Construction during the non-nesting season can occur only at the buffer areas if a Qualified Biologist determines that fledglings have left the nest.				
BIO-3	Nesting Bird/ Burrowing Owl Awareness Training	For work within areas considered potential nesting habitat, the construction contractor(s) shall ensure that the workers' environmental awareness training	Redlands MUE	Before the start of construction	After the start of construction	Less than Significant

Table F-2. Implementation of Mitigation Measures

MITIGATION NO.	MITIGATION MEASURE	METHOD FOR EXECUTION OF MITIGATION	ENTITY RESPONSIBLE FOR MITIGATION MONITORING	COMPLETION DATE	FREQUENCY OF REPORTING	SIGNIFICANCE AFTER MITIGATION
		program includes a short instructional presentation on nesting birds that is to be presented to all construction personnel at the start of earthwork.				
BIO-4	Tree Protection	Trimming of mature trees that are located near construction areas (within 50 feet) shall be conducted outside of the bird nesting season (February 15 to September 1). Trees shall be flagged as an environmentally sensitive area by a Qualified Biologist. A City of Redlands Landscape Architect, or designated representative, shall approve the species proposed for planting onsite.	Redlands MUE	Before the start of the bird nesting season (February 15 to September 1)	After trimming	Less than Significant
BIO-5	Preconstruction Burrowing Owl Survey	A preconstruction survey shall be conducted by a Qualified Biologist within 30 days prior to any phase of construction in the areas identified as potential BUOW habitat and in accordance with the survey requirements detailed in the Staff Report on Burrowing Owl (CDFG, 2012). If no active burrows are found, no further mitigation shall be required. Any active burrow found during	Redlands MUE	Before the start of construction	After the preconstruction survey If active burrows are found, after completion of construction and completion of mitigation	Less than Significant

Table F-2. Implementation of Mitigation Measures

MITIGATION NO.	MITIGATION MEASURE	METHOD FOR EXECUTION OF MITIGATION	ENTITY RESPONSIBLE FOR MITIGATION MONITORING	COMPLETION DATE	FREQUENCY OF REPORTING	SIGNIFICANCE AFTER MITIGATION
		preconstruction survey efforts shall be mapped and provided to the construction foreman so that all work is stopped in the immediate area of the occupied burrow. No disturbance shall occur within 160 feet of occupied burrows during the nonbreeding season (September 1 through January 31) or within 250 feet during the breeding season (February 1 through August 31). If BUOW must be moved away from the disturbance area, passive relocation is preferable to trapping. Relocation shall be implemented only during the nonbreeding season by a Qualified Biologist and would occur in coordination with CDFW. BUOW shall be excluded from burrows in the immediate impact zone by installing one-way doors in burrow entrances. One-way doors shall be left in place for 48 hours to ensure BUOW have left the burrow before excavation. An effort shall be made to preserve foraging habitat contiguous with occupied burrow sites for each pair of breeding BUOW or for every				

Table F-2. Implementation of Mitigation Measures

MITIGATION NO.	MITIGATION MEASURE	METHOD FOR EXECUTION OF MITIGATION	ENTITY RESPONSIBLE FOR MITIGATION MONITORING	COMPLETION DATE	FREQUENCY OF REPORTING	SIGNIFICANCE AFTER MITIGATION
		single unpaired resident bird. Additional compensatory mitigation for BUOW shall be required only if BUOW found within 250 feet of construction activities during preconstruction surveys cannot be avoided during construction. This may include offsite mitigation through the improvement or addition of BUOW habitat. In this event, further coordination with CDFW is required.				
BIO-6	Preconstruction Burrowing Mammal Survey	A preconstruction survey shall be conducted within 30 days of ground disturbance for sensitive burrowing mammals (i.e., American badger, San Bernardino kangaroo rat, Stephen's kangaroo rat, or Los Angeles pocket mouse) to avoid impacting these animals. Active burrows identified during the preconstruction survey shall be flagged for avoidance until authorization from USFWS and CDFW is obtained to move listed species from the construction area. In addition to flagging burrows for avoidance, an exclusionary buffer of at least 100 feet shall be set at	Redlands MUE	Before the start of construction	After the preconstruction survey If burrowing mammals are found, after completion of construction and completion of mitigation	Less than Significant

Table F-2. Implementation of Mitigation Measures

MITIGATION NO.	MITIGATION MEASURE	METHOD FOR EXECUTION OF MITIGATION	ENTITY RESPONSIBLE FOR MITIGATION MONITORING	COMPLETION DATE	FREQUENCY OF REPORTING	SIGNIFICANCE AFTER MITIGATION
		the discretion of the Qualified Biologist to avoid potential impacts to sensitive burrowing animals.				
BIO-7	Bat Precautions	During construction, when nightwork is required, lighting during the early evening twilight hours adjacent to open space areas shall be minimized or avoided to the greatest extent possible. Permanent night lighting for the project shall be directed away from natural open space areas.	Redlands MUE	During night construction	After construction	Less than Significant
CUL-1	Unanticipated Discovery of Archaeological Materials	In the unlikely event subsurface archaeological materials are identified during ground-disturbing activities, work shall be halted within 60 feet of the find. A qualified archaeologist shall be retained to record and evaluate the find. If the unanticipated discovery is determined to be a historic property under Section 106 of the NHPA or a historical resource or unique archaeological resource under CEQA, the City shall notify the State Historic Preservation Officer (SHPO), consulting Native American groups (including the San Manual Band of Mission Indians), and the	Redlands MUE	During ground-disturbing activities	If archaeological materials are found, after completion of ground-disturbing activities and implementation of mitigation or treatment plan	Less than Significant

Table F-2. Implementation of Mitigation Measures

MITIGATION NO.	MITIGATION MEASURE	METHOD FOR EXECUTION OF MITIGATION	ENTITY RESPONSIBLE FOR MITIGATION MONITORING	COMPLETION DATE	FREQUENCY OF REPORTING	SIGNIFICANCE AFTER MITIGATION
		Advisory Council on Historic Preservation within 48 hours of the discovery. The archaeologist shall develop a Monitoring and Treatment Plan in consultation with the City and affected tribes that satisfies the requirements of Section 106 of the NHPA and PRC Section 21083.2 and Section 15064.5 of the CEQA Guidelines. The Monitoring and Treatment Plan shall include recordation, onsite preservation, data recovery and curation, and/or other measures to protect or preserve the significance of the resource. Work shall not resume until the City has given authorization to resume work.				
CUL-2	Unanticipated Discovery of Human Remains	In the unlikely event human remains or funerary objects are encountered, all activity within the work location shall be halted within 100 feet of the find, and the City and the San Bernardino County Coroner notified immediately, in accordance with the procedures in CEQA Guidelines Section 15064.5(e), California Health and Safety Code Section 7050.5(b), and California PRC Section 5097.98. If	Redlands MUE	During ground-disturbing activities	If human remains as found, after treatment or reburial of the remains	Less than Significant

Table F-2. Implementation of Mitigation Measures

MITIGATION NO.	MITIGATION MEASURE	METHOD FOR EXECUTION OF MITIGATION	ENTITY RESPONSIBLE FOR MITIGATION MONITORING	COMPLETION DATE	FREQUENCY OF REPORTING	SIGNIFICANCE AFTER MITIGATION
		the Coroner determines the remains to be of Native American origin, he or she shall notify the Native American Heritage Commission (NAHC). The NAHC shall then identify the most likely descendant (MLD) to be consulted regarding treatment and/or repatriation of the remains. The MLD shall be granted access to examine the remains and then has 48 hours to provide recommendations for the treatment or reburial of the remains. If the MLD fails to make a recommendation within 48 hours of being granted access to the remains, the City shall rebury the remains in a location that would not be subject to further disturbance.				
GEO-1	Paleontological Resources Monitoring and Mitigation	Part-time monitoring (i.e., spot-checking) shall be conducted when ground-disturbing activities (i.e., utility trenching) impact sediments at 8 feet below ground surface or deeper to check for the presence of Pleistocene-age deposits. If Pleistocene-age deposits are observed at depth and would be impacted by planned excavations,	Redlands MUE	During earthwork that is 8 feet or more below the ground surface	At completion of ground-disturbing activities at 8 feet or more below the ground surface If paleontological	Less than Significant

Table F-2. Implementation of Mitigation Measures

MITIGATION NO.	MITIGATION MEASURE	METHOD FOR EXECUTION OF MITIGATION	ENTITY RESPONSIBLE FOR MITIGATION MONITORING	COMPLETION DATE	FREQUENCY OF REPORTING	SIGNIFICANCE AFTER MITIGATION
		then monitoring efforts shall be increased to full time. If only artificial fill, late Holocene-age very young wash deposits (Qw, Qw1), and/or middle Holocene-age young axial-channel deposits (Qya3) are observed, then spot-checking can be reduced or ceased at the discretion of a qualified paleontologist in consultation with the City. Any subsurface bones or potential fossils that are unearthed during construction should be evaluated, recorded, and reported by a qualified paleontologist. Paleontological resources determined to be significant, or potentially significant, shall be subject to fossil recovery, laboratory analysis, and museum curation (through a curation agreement with the San Bernardino County Museum, or another appropriate repository).			resources are found, after fossil recovery, laboratory analysis, and museum curation	
TCR-1:	Monitoring and Unanticipated Discovery of Tribal Cultural Resources	A Tribal Monitor from the Consulting Tribe(s) shall be onsite to monitor all project-related earthmoving work. Prior to the initiation of construction activities,	Redlands MUE	During ground-disturbing activities	If tribal cultural resources are discovered	Less than Significant

Table F-2. Implementation of Mitigation Measures

MITIGATION NO.	MITIGATION MEASURE	METHOD FOR EXECUTION OF MITIGATION	ENTITY RESPONSIBLE FOR MITIGATION MONITORING	COMPLETION DATE	FREQUENCY OF REPORTING	SIGNIFICANCE AFTER MITIGATION
		a rotating schedule of Tribal Monitor(s) shall be established. In the event that potential tribal cultural resources are discovered during project activities, all work in the immediate vicinity of the find (within a 60-foot buffer) shall cease and a qualified archaeologist meeting Secretary of Interior standards shall be hired to assess the find. Work on the other portions of the project outside of the buffered area may continue during this assessment period. The Consulting Tribe(s) Cultural Resources Department shall be contacted and provided information regarding the nature of the find, so as to allow Tribal input with regards to significance and treatment. Should the find be deemed significant, as defined by CEQA (as amended, 2015), a tribal cultural resources Monitoring and Treatment Plan shall be created, in coordination with the Consulting Tribe(s) and all subsequent finds of tribal cultural resources shall be				

Table F-2. Implementation of Mitigation Measures

MITIGATION NO.	MITIGATION MEASURE	METHOD FOR EXECUTION OF MITIGATION	ENTITY RESPONSIBLE FOR MITIGATION MONITORING	COMPLETION DATE	FREQUENCY OF REPORTING	SIGNIFICANCE AFTER MITIGATION
		subject to this Plan.				
TCR-2	Monitoring and Treatment Plan	If significant pre-contact and/or historic-era tribal cultural resources are discovered and avoidance cannot be ensured, a Monitoring and Treatment Plan shall be developed in coordination with Consulting Tribes, the drafts of which shall be provided to the Consulting Tribe(s) for review and comment. The tribal monitor(s) and/or archaeologist shall monitor the remainder of the project and implement the Plan accordingly.	Redlands MUE	During ground-disturbing activities	If tribal cultural resources are discovered	Less than Significant
TCR-3	Ongoing Coordination and Documents and Reports	The City shall, in good faith, coordinate with the Consulting Tribe(s) throughout the life of the project for any tribal cultural resources. Any and all archaeological/cultural documents created as part of the project and may be legally disclosed in accordance with applicable law (e.g., isolate records, site records, survey reports, testing reports) shall be supplied to the Consulting Tribe(s).	Redlands MUE	Throughout project construction	If archaeological/ cultural documents are created as part of the project	Less than Significant

EXHIBIT F-1
MITIGATION MONITORING REPORT FORM

MITIGATION MONITORING REPORT
SECTION 21081.6 PUBLIC RESOURCES CODE

Lead Agency City of Redlands Municipal Utilities and Engineering Department 35 Cajon Street, Suite 15A Redlands, California 92373	Page ____ of ____

Project Name

UPGRADE OF THE CITY OF REDLANDS WASTEWATER TREATMENT PLANT

Location City of Redlands Wastewater Treatment Plant 1950 Nevada Street Redlands, California 92373	File No.

Mitigation Measure No. _____

Mitigation Description:

Monitoring Frequency	Reporting Requirement

Remarks

The information contained in this report is an independent evaluation based on my personal observations and information provided to me. In accordance with Section 21081.6 of the California Public Resources Code, I hereby certify under penalty of perjury that the information contained herein is true and correct to the best of my knowledge.

Name of Person Completing Form _____ Title _____

Signature _____ Date Signed _____

Form Received by: _____ Signature: _____

Title: _____ Department/Division: _____ Date Rec'd: _____

Compliance Acceptance: ☐ Yes ☐ No Date Rec'd by Report Recipient: _____Mitigation Completed: ☐ Yes ☐ No Date Completed: _____
Monitoring Completed: ☐ Yes ☐ No Date Completed: _____

Attach additional sheets if necessary.