

# Yuba City Aquifer Storage and Recovery Well System

*Public Review Draft*  
Initial Study/Mitigated Negative Declaration

December 2024 | 02632.00013.001

*Prepared for:*

**City of Yuba City**  
1201 Civic Center Boulevard  
City of Yuba City, CA 95993

*Prepared by:*

**HELIX Environmental Planning, Inc.**  
1180 Iron Point Road, Suite 130  
Folsom, CA 95630

This page intentionally left blank

# TABLE OF CONTENTS

---

<b><u>Section</u></b>	<b><u>Page</u></b>
Initial Study Information Sheet .....	1
<b>1.0 INTRODUCTION .....</b>	<b>3</b>
<b>2.0 PROJECT BACKGROUND .....</b>	<b>3</b>
<b>3.0 PROJECT PURPOSE AND NEED .....</b>	<b>4</b>
<b>4.0 PROJECT SETTING.....</b>	<b>4</b>
4.1. Project Location .....	4
4.2. Environmental Setting .....	5
<b>5.0 PROJECT DESCRIPTION .....</b>	<b>5</b>
5.1. Project Components .....	5
5.2. Project Construction .....	7
5.3. Project Operation .....	7
<b>6.0 REQUIRED APPROVALS .....</b>	<b>8</b>
6.1. City of Yuba City .....	8
6.2. Other Agencies.....	9
<b>7.0 ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED .....</b>	<b>10</b>
<b>8.0 DETERMINATION .....</b>	<b>11</b>
<b>9.0 ENVIRONMENTAL INITIAL STUDY CHECKLIST.....</b>	<b>12</b>
I. AESTHETICS .....	13
II. AGRICULTURE AND FORESTRY RESOURCES.....	15
III. AIR QUALITY .....	17
IV. BIOLOGICAL RESOURCES .....	31
V. CULTURAL RESOURCES .....	44
VI. ENERGY .....	53
VII. GEOLOGY AND SOILS .....	55
VIII. GREENHOUSE GAS EMISSIONS .....	60
IX. HAZARDS AND HAZARDOUS MATERIALS.....	67
X. HYDROLOGY AND WATER QUALITY .....	71
XI. LAND USE AND PLANNING.....	77
XII. MINERAL RESOURCES .....	78
XIII. NOISE .....	79

## TABLE OF CONTENTS (cont.)

---

XIV.	POPULATION AND HOUSING .....	85
XV.	PUBLIC SERVICES.....	86
XVI.	RECREATION.....	89
XVII.	TRANSPORTATION .....	90
XVIII.	TRIBAL CULTURAL RESOURCES .....	93
XIX.	UTILITIES AND SERVICE SYSTEMS .....	97
XX.	WILDFIRE.....	101
XXI.	MANDATORY FINDINGS OF SIGNIFICANCE .....	103
<b>10.0</b>	<b>MITIGATION MONITORING AND REPORTING PROGRAM.....</b>	<b>105</b>
<b>11.0</b>	<b>LIST OF PREPARERS .....</b>	<b>106</b>
<b>12.0</b>	<b>REFERENCES .....</b>	<b>107</b>

### LIST OF TABLES

<b><u>No.</u></b>	<b><u>Title</u></b>	<b><u>Page</u></b>
1	Sutter County Attainment Status.....	18
2	Project Construction Schedule.....	22
3	Project Construction Equipment.....	22
4	Air Quality Significance Thresholds.....	24
5	Maximum Daily Construction Emissions.....	27
6	Maximum Daily Operational Emissions .....	28
7	Previous Studies Conducted within 0.5-Mile of the Project Site .....	45
8	Previously Recorded Cultural Resources within 0.5-Mile of the Project Site .....	48
9	Construction GHG Emissions.....	64
10	Operational GHG Emissions.....	65

### LIST OF APPENDICES

A	Figures
B	CalEEMod Output
C	Biological Resources Assessment
D	Cultural Resources Assessment
E	Geotechnical Engineering Report
F	Noise Modeling Output
G	Mitigation Monitoring and Reporting Program



## ACRONYMS AND ABBREVIATIONS

---

AB	Assembly Bill
ADT	Average Daily Trips
ASR	Aquifer Storage Recovery
ASRS	ASR Systems
AFY	Acre-feet per year
amsl	above mean sea level
APE	Area of Potential Effect
APN	Assessor's Parcel Number
BMP	Best Management Practice
BRA	Biological Resources Assessment
CAA	Clean Air Act
CAAQS	Clean Air Quality Standards
CalEEMod	California Emissions Estimator Model
CalEPA	California Environmental Protection Agency
CALGreen	California Green Building Standards Code
CAP	Climate Action Plan
CAPCOA	California Air Pollution Control Officers Association
CARB	California Air Resources Board
CCAA California	California Clean Air Act
CDFA	California Department of Food and Agriculture
CDFW	California Department of Fish and Wildlife
CDPH	California Department of Public Health
CEC	California Energy Commission
CESA	California Endangered Species Act
CEQA	California Environmental Quality Act
CH <sub>4</sub>	Methane
City	City of Yuba City
CMU	Concrete Masonry Unit
CNDDB	California Natural Diversity Data Base
CNEL	Community Noise Equivalent Level
CNPS	California Native Plant Society
CO	Carbon Monoxide
CO <sub>2</sub>	Carbon Dioxide
CO <sub>2</sub> e	Carbon Dioxide equivalent
CRA	Cultural Resources Assessment
CRPR	California Rare Plant Rank
CWA	Clean Water Act
CY	cubic yards
dB	Decibels
dBA	A-weighted Decibels
DBH	Diameter at Breast Height

## ACRONYMS AND ABBREVIATIONS (cont.)

---

DOC	California Department of Conservation
DPM	Diesel Particulate Matter
DPR	Development Review Process
DTSC	California Department of Toxic Substance Control
DWR	Department of Water Resources
EIR	Environmental Impact Report
EO	Executive Order
EPA	Environmental Protection Agency
FCV	Flow Control Valves
FEMA	Federal Emergency Management Agency
FESA	Federal Endangered Species Act
FHSZ	Fire Hazard Severity Zone
FRAQMD	Feather River Air Quality Management District
GHG	greenhouse gas
gpm	gallons per minute
GSP	Groundwater Sustainability Plan
GWP	Global Warming Potential
HCP	Habitat Conservation Plan
HFC	Hydrofluorocarbons
Hp	horsepower
Hz	Hertz
IPaC	Information for Planning and Consultation
IPCC	Intergovernmental Panel on Climate Change
IS/MND	Initial Study/Mitigated Negative Declaration
KW	kilowatt
kWh	kilowatt hours
L <sub>DN</sub>	Day-Night Sound Level
L <sub>EQ</sub>	Equivalent Continuous Noise Level
L <sub>MAX</sub>	Maximum Noise Level
LRA	Local Responsibility Area
LSCE	Luhdorff and Scalmanini Consulting Experts
m	meter
MBTA	Migratory Bird Treaty Act
MCC	Motor Control Center
mgd	million gallons per day
MT	metric tons

## ACRONYMS AND ABBREVIATIONS (cont.)

---

N <sub>2</sub> O	Nitrous Oxide
NAAQS	National Ambient Air Quality Standards
NAHC	Native American Heritage Commission
NCCP	Natural Community Conservation Plan
NEIC	Northeast Information Center
NMFS	National Marine Fisheries Service
NO <sub>2</sub>	Nitrogen Dioxide
NO <sub>x</sub>	Nitrogen Oxides
NPDES	National Pollutant Discharge Elimination System
NRCS	Natural Resources Conservation Service
NSLU	Noise Sensitive Land Use
O <sub>3</sub>	Ozone
OEHHA	Office of Environmental Health Hazard Assessment
OHP	Office of Historic Preservation
OSHA	Occupational Safety and Health Administration
Pb	lead
PFC	Perfluorocarbons
PG&E	Pacific Gas & Electric
PLC	Programmable Logic Controller
PM	Particulate Matter
PM <sub>10</sub>	Coarse Particulate Matter (particles 10 microns or less in diameter)
PM <sub>2.5</sub>	Fine Particulate Matter (particles 2.5 microns or less in diameter)
PPV	Peak Particle Velocity
QSD	Qualified SWPPP Developer
RCNM	Roadway Construction Noise Model
RD	Reclamation District
ROG	Reactive Organic Gases
RWQCB	Regional Water Quality Control Board
SAA	Streambed Alteration Agreement
SACOG	Sacramento Area Council of Governments
SB	Senate Bill
SEL	Sound Exposure Level
SF <sub>6</sub>	Sulfur Hexafluoride
SLCPs	Short-Lived Climate Pollutants
SIP	State Implementation Plan
SLF	Sacred Lands File
SMARA	Surface Mining and Reclamation Act
SO <sub>2</sub>	Sulfur Dioxide
SPL	Sound Pressure Level

## ACRONYMS AND ABBREVIATIONS (cont.)

---

SR	State Route
SRA	State Responsibility Area
SSC	Species of Special Concern
SVAB	Sacramento Valley Air Basin
SVAQEEP	Sacramento Valley Air Quality Emissions Evaluation Program
SWPPP	Stormwater Pollution Prevention Plan
SWRCB	State Water Resources Control Board
TAC	Toxic Air Contaminants
TCR	Tribal Cultural Resource
USACE	U.S. Army Corps of Engineers
USDOT	U.S. Department of Transportation
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
VFD	Variable Frequency Drive
VMT	vehicle miles traveled
WTP	Water Treatment Plant
WWSMP	Wastewater System Master Plan
WQC	Water Quality Certification
YCFD	Yuba City Fire Department

**Initial Study Information Sheet**

1. Project title: Yuba City Aquifer Storage and Recovery Well System
2. Lead agency name and address: City of Yuba City  
1201 Civic Center Boulevard  
Yuba City, CA 95993
3. Contact person and phone number: William Jow, Assistant Engineer  
(530) 822-4638
4. Project location: 701 Northgate Drive  
Yuba City, CA 95991
5. Project sponsor's name and address: Yuba City Public Works Department
6. General plan designation: Public & Semi Public
7. Zoning: R-1: Low Density Residential

8. Description of project:

The Yuba City Aquifer Storage and Recovery Well System Project (proposed project) includes the construction and operation of an aquifer storage recovery (ASR) well at the existing City-owned water treatment plant (WTP). Construction of the ASR well would allow for underground storage of excess treated surface water and for the recharge of the groundwater aquifer during low demand winter months. The water stored in the ASR well could be recovered as needed to meet short-term demands and supplement existing water supplies. The proposed ASR well would be covered by a 1,440-square-foot (sf) well shade structure. Flush water from the new ASR well would be directed to the center existing WTP filter backwash pond. The recovered raw water from the new ASR well would connect into the existing Well Number (No.) 1 discharge pipeline that routes to the existing WTP flash mixing tank for treatment through the WTP process. The potable water intended for the operational recharge mode would be conveyed by a proposed 12-inch pipeline that would connect the new ASR well to an existing 12-inch potable water main pipeline underneath Live Oak Boulevard.

Mechanical piping and electrical infrastructure would be located within the well shade structure. Fiber optic cabling would be installed within the same trench as the raw water recovery discharge pipeline. The fiber optic cables would connect to existing handholes in a maintenance building located in the central eastern portion of the WTP site. The proposed project would tie into an existing Pacific Gas and Electric (PG&E) 12 kilovolt (kV) utility pole located north of the well shade structure. Depending on the anticipated electrical loads, a stepdown transformer would be located just east of the well shade structure on a pad or on the existing electrical pole.

9. Surrounding land uses and setting:

The project is located within the City of Yuba (City) in eastern Sutter County. The proposed project would be located at the City-owned WTP located at 701 Northgate Drive, Yuba City, CA. The approximately 28-acre project site encompasses the entire WTP, identified as Assessor's Parcel Number

(APN) 51-020-009. Construction of the ASR well would be located in the northeastern corner of project site, north of the existing filter backwash ponds and solar panel array, and the anticipated project impact area is approximately 4.8 acres.

The area of the new ASR well has been previously cleared and grubbed and has an elevation of approximately 60 feet (ft) above mean sea level (amsl). The project site includes two existing production wells (Well No. 1 and Well No. 2), two existing dewatering wells, and six monitoring wells. The project site is surrounded by Live Oak Boulevard and agricultural fields to the east; Northgate Drive, commercial uses, and single-family residential homes to the south; Albert Powell High School, Northridge Park, and single-family residential homes to the west; and Twin Rivers Charter School to the north.

10. Other public agencies whose approval is required (e.g., permits, financing approval, or participation agreement):
  - State Water Resources Control Board (SWRCB)
  - United States Environmental Protection Agency (USEPA)
  - Sutter County Department of Environmental Health
11. Have California Native American tribes traditionally and culturally affiliated with the project area requested consultation pursuant to Public Resources Code Section 21080.3.1? If so, is there a plan for consultation that includes, for example, the determination of significance of impacts to tribal cultural resources, procedures regarding confidentiality, etc.?

Formal invitations to participate in Assembly Bill (AB) 52 consultation for the proposed project were sent by the City to nine tribal representatives on August 19, 2024. The representatives included:

- Glenda Nelson, Chairperson, Estom Yumeka Maidu Tribe of the Enterprise Rancheria
- Richard Johnson, Chairman, Nevada City Rancheria Nisenan Tribe
- Shelly Covert, Tribal Secretary, Nevada City Rancheria Nisenan Tribe
- Saxon Thomas, Tribal Council Member, Nevada City Rancheria Nisenan Tribe
- Tina Goodwin, Chairperson, Pakan'yani Maidu of Strawberry Valley Rancheria
- Gene Whitehouse, Chairperson, United Auburn Indian Community of the Auburn Rancheria
- Cultural Preservation Department, Wilton Rancheria
- Dahlton Brown, Executive Director of Administration, Wilton Rancheria
- Herbert Griffin, Executive Director of Cultural Preservation, Wilton Rancheria

On October 11, 2024, the City received a "return to sender" letter that was addressed to Tina Goodwin, Chairperson, of the Pakan'yani Maidu of Strawberry Valley Rancheria. The City then emailed the formal invitation to Chairperson Goodwin on October 18, 2024. As of the date of this IS/MND, no responses have been received.

## 1.0 INTRODUCTION

The Yuba City Aquifer Storage and Recovery Well System Project would include construction and operation of an ASR well at the City-owned WTP. This Initial Study/Mitigated Negative Declaration (IS/MND) has been prepared to satisfy the requirements of the California Environmental Quality Act (CEQA; Public Resources Code Section 21000 et seq.) and CEQA Guidelines (14 California Code of Regulations [CCR] 15000 et seq.). CEQA requires that all State and local government agencies consider the environmental consequences of projects over which they have discretionary authority before they approve or implement those projects.

The IS/MND is a public document used by the decision-making Lead Agency to determine whether a project may have a significant effect on the environment. The City will act as the Lead Agency and will use the IS/MND to determine whether the proposed project has a significant effect on the environment. This IS/MND relies on CEQA Guidelines Sections 15064 in its determination of the significance of the environmental impacts. Per Section 15064, the finding as to whether a project may have one or more significant impacts shall be based on substantial evidence in the record, and that controversy alone, without substantial evidence of a significant impact, does not trigger the need for an Environmental Impact Report (EIR).

The following technical reports, quantified analysis, and/or surveys were used in preparation of this IS/MND and are incorporated by reference:

- Air Quality Modeling; California Emissions Estimator Model (CalEEMod) Output (HELIX 2024a)
- Biological Resources Assessment (HELIX 2024b)
- Cultural Resources Assessment (HELIX 2024c)
- Geotechnical Report (Blackburn 2024)
- Noise Modeling Output (HELIX 2024d)

## 2.0 PROJECT BACKGROUND

In 2010, Carollo Engineers, Pueblo Water Resources, Inc., and ASR Systems, LLC completed the Yuba City ASR Feasibility Assessment Report (2010 Feasibility Report) which evaluated the construction of two new ASR wells to help the City meet its increasing water supply needs (Carollo 2010). Two aquifers at depths less than 600 feet at the WTP site were identified as potential ASR storage zones: the Upper Aquifer with an estimated recovery yield of 2,800 gallons per minute (gpm) or 4 million gallons per day (mgd), and the Lower Aquifer with an estimated recovery yield of 1,750 gpm (2.5 mgd). It was recommended to construct one or two ASR wells in the Upper Aquifer, or stack two separate ASR wells to reach both aquifers at a single location within the WTP site. The report validated the feasibility of ASR and identified additional analyses that would be required to determine which ASR construction option provides the greatest benefit to the City. The additional analyses included confirmation of groundwater movement and velocity within both aquifers and the analysis of geophysical, flowmeter, and video logs from the City's existing production wells at the WTP.

In 2023, Carollo, ASR Systems, LLC, and Luhdorff and Scalmanini Consulting Engineers (LSCE), with assistance from the City, collected additional data from existing WTP monitoring wells, production Well No. 1, and the recently installed production Well No. 2. Water surface elevations and samples were used to better describe the seasonal fluctuations in the water surface elevation, horizontal velocity, direction of flow, and water quality in the upper and lower target aquifers.

City staff provided direction to proceed with the design and construction of a single ASR well rather than two separate ASR wells as the next step in the project. The proposed ASR well would be operated with the specific goal of aquifer recharge and recovery.

## **3.0 PROJECT PURPOSE AND NEED**

The City has a current water demand of 29,600 acre feet per year (AFY) and estimates that an additional 2,000 to 3,000 AFY would be required to meet future demands. The City receives surface water from the Feather River through multiple water rights contracts; however, the City has been unable to use all of the allocated water which may result in future surface water allocation reductions and puts the City at risk of not meeting future demands. To fully make use of the City's water rights and establish a resilient long-term water supply, the City is pursuing the construction of a new ASR well. Construction of the proposed ASR well would allow for underground storage of excess treated surface water and for the recharge of the groundwater aquifer during low demand winter months. The water stored in the ASR well could be recovered as needed to meet short-term demands and supplement existing water supplies.

The proposed ASR system would achieve the following objectives:

- Store large volumes of treated surface water and recharge the groundwater aquifer during low demand winter months;
- Extract and recover stored water from the aquifer for treatment and distribution;
- Meet the City's increasing potable water demand;
- Create a potable surface water zone in the aquifer around the well as the injected water may be superior in drinking water quality versus the native groundwater for the zone into which the water will be injected;
- Create a network of source water injection and extraction wells on the City's WTP site; and
- Have the ability to operate as a production well for the extraction of native groundwater.

## **4.0 PROJECT SETTING**

### **4.1. Project Location**

The proposed project would be located at the City-owned WTP located at 701 Northgate Drive, Yuba City, CA. The approximately 28-acre project site encompasses the entire WTP, identified as APN 51-020-009. The proposed ASR well would be constructed in the northeastern corner of project site, north of the existing filter backwash ponds and solar panel array, and the anticipated project impact area is approximately 4.8 acres. See Figure 1, Site and Vicinity Map, Figure 2, Aerial Map, and Figure 4, Impact Footprint Map (Note: All figures are included as Appendix A).



The project site is surrounded by Live Oak Boulevard and agricultural fields to the east; Northgate Drive, commercial uses, and single-family residential homes to the south; Albert Powell High School, Northridge Park, and single-family residential homes to the west; and Twin Rivers Charter School to the north.

## **4.2. Environmental Setting**

The project site is an existing City-owned WTP. The area of the new ASR well has been previously cleared and grubbed and has an elevation of approximately 60 ft amsl. The project site includes two existing production wells (Well No. 1 and Well No. 2), two existing dewatering wells, and six monitoring wells.

According to the City General Plan, the project site is designated as Public & Semi Public. This designation includes schools, government offices, corporation yards, hospitals, city, and public facilities (City 2004). The project site is zoned Low Density Residential (R-1). The purpose of Low Density Residential (R-1) zoning is to provide areas for the low-density residential neighborhoods that have adequate services and amenities which will support a desirable and stable living environment.

# **5.0 PROJECT DESCRIPTION**

The proposed project would include construction and operation of an ASR well which would allow for underground storage of excess treated surface water and for the recharge of the groundwater aquifer during low demand winter months. The water stored in the ASR well could be recovered as needed to meet short-term demands and supplement existing water supplies.

## **5.1. Project Components**

### **ASR Well**

The proposed project includes construction and operation of a new ASR well at the City-owned WTP. The ASR well would be constructed with a sanitary seal to protect from possible surface water contamination during a 100-year flood event or an event reaching above any recorded highest flood level, in compliance with California Well Standards, Bulletin 74-90. To avoid potential conflicts with other wells drilled at an incline, the proposed ASR well would be constructed approximately 100 ft away from nearby wells. See Figure 3, Site Plan, for the proposed location of the ASR well.

### **Well Shade Structure**

The proposed ASR well would be covered by a 1,440-sf well shade structure. The proposed well shade structure may consist of a prefabricated steel structure or a custom design that may include a standing seam metal roof with a roof hatch held up by posts, columns, braces, and shear walls and would be surrounded with an all-weather gravel surface. The well shade structure would not be enclosed.

### **Waste to Drain**

Flush water from the new ASR well would be directed to the center existing WTP filter backwash pond. An outlet pipeline and energy dissipating structure with a buried shutoff valve would be installed inside the pond as directed by WTP staff. A heavy-duty stainless steel insect screen would be installed across

the opening of the downward facing outlet to prevent access from large insects and animals. A flanged tee stub-out would be included for a future discharge connection to the westernmost backwash pond.

### **Raw Water Recovery**

The recovered water from the new ASR well would connect into the existing Well No. 1 discharge pipeline that routes to the existing WTP flash mixing tank for treatment through the WTP process. Check valves installed at the discharge ends of each well would prevent the backflow of water when the other well is in operation. Additionally, the City noted that the existing check valve at Well No. 1 was replaced in early 2024 and is anticipated to effectively prevent operational interference between the wells.

### **Potable Water Recharge**

The potable water intended for the operational recharge mode would be routed by a 12-inch pipeline to the new ASR well from an existing 12-inch potable water main pipeline underneath Live Oak Boulevard.

### **Pump/Mechanical Infrastructure**

Mechanical piping would be located within the well shade structure, including the well head, pump motor, flow control valves (FCV), backflow protection devices, strainer, sampling ports, check valve, air valves, and instrumentation including magnetic flow meter and pressure transmitters.

The end cap of the well would be located approximately 530 feet below the surface, and installation would require the digging of a 36-inch diameter borehole to a depth of 600 feet below the surface. The first 50 feet below the surface would be excavated to create a 48-inch diameter borehole to hold the conductor casings as well as a sanitary seal made of sand and/or cement grout.

### **Electrical Infrastructure**

Electrical infrastructure would be located within the well shade structure, including the motor control center (MCC), variable frequency drive (VFD), programmable logic controller (PLC) control panel, and support system equipment.

Fiber optic cabling would be installed within the same trench as the raw water recovery discharge pipeline. The fiber optic cables would connect to existing handholes in a maintenance building located in the central eastern portion of the WTP.

The project would tie into an existing PG&E 12 kV utility pole located north of the well shade structure. Depending on the anticipated electrical loads, a stepdown transformer would be located just east of the well shade structure on a pad or on the existing electrical pole.

### **Access and Security**

The City-owned WTP is surrounded by a 6-foot-tall chain link fence. The project site has three existing gates with security-controlled access: two automated gates are located on the southern side of the WTP on Northgate Drive, and a manually operated gate is located near the northeastern corner of the WTP on Live Oak Boulevard. The new ASR well would be accessed by the northeastern access gate on Live Oak Boulevard. The northeastern access gate would be replaced with an in-kind manual chain-link swing

gate and nearby portions of the chain link fence would also be replaced. An all-weather gravel road would be utilized to access the well shade structure from the northeastern access gate. Additionally, a dirt vehicle ramp would be constructed to connect the southwestern corner of the shade structure to the existing road between the existing filter backflush ponds and solar panel array.

Two security cameras would also be mounted onto the well shade structure to monitor for suspicious activity. One camera would be pointed towards the ASR equipment and the other would be pointed towards the northeastern access gate. The outdoor piping, valves, instrumentation, and interface screen would be locked and/or covered to protect them from vandalism and sun exposure.

## **Lighting**

Ceiling-mounted lights would be installed under the well shade structure canopy to illuminate the area. All exterior lighting would meet Title 24 requirements.

## **5.2. Project Construction**

### **Staging Area**

The construction staging areas would be located directly west of the proposed ASR well as well as within the southeastern portion of the WTP. Construction equipment and materials would be staged within the identified in Figure 4, Impact Footprint Map.

### **Construction Schedule and Equipment**

It is anticipated that the ASR well would be drilled between January 1, 2025, and March 2, 2025. Construction of the remainder of the ASR well system (well shade structure, connecting utilities, and associated infrastructure) is anticipated to begin July 20, 2025, and be completed on January 11, 2027. Construction activities would include the following: Well Drilling, Mobilization, Clearing and Grubbing, Rough Grading, Underground Utilities, Footing and Pad Construction, Aboveground Construction, and Fine Grading.

The following construction equipment would be used during the construction activities listed above: Bore/Drill Rigs, Tractors/Loaders/Backhoes, Generator Sets, Rough Terrain Forklift, Off-Highway Truck, Rubber Tired Dozers, Rollers, and Rubber Tired Loaders.

## **5.3. Project Operation**

### **Operational Maintenance**

Operational activities associated with the proposed project would include daily maintenance trips. Per the project engineer, one pickup truck would be used for maintenance resulting in two average daily trips (ADT).

### **ASR Well Operational Modes**

The ASR well's operation includes five automatic modes. Operation requires timing of the various valve operations and recharge rate set points and time delays based upon the hydraulic response of the

aquifer, as determined during initial well testing and operations. Some of the set point values may require periodic adjustment in the field based on operational experience. The five automatic modes are described in more detail below.

### **Recharge Mode**

The recharge mode would convey potable water by a 12-inch pipeline to the new ASR well from an existing 12-inch potable water main pipeline underneath Live Oak Boulevard. This mode would typically be used for the storage of excess water from the water main pipeline. would allow for underground storage of excess treated surface water and for the recharge of the groundwater aquifer during low demand winter months.

### **Recovery Mode**

The recovery mode would pump stored water from the ASR well into the existing Well No. 1 discharge pipeline that routes to the existing WTP flash mixing tank for treatment through the WTP process. This mode would typically be used in the summer or dry months to help resolve water shortages during high demand periods.

### **Backflush Mode**

The backflush mode would be used to purge stagnant water and unclog any debris of practices that may be present in the ASR well system. The backflush mode would be required at startup of the ASR pump during the first seasonal recovery, during extended recharge periods, and as needed due to closing during recharge mode. The wastewater from this mode would be directed to the existing WTP filter backwash pond.

### **Maintenance Mode (Off/Rest)**

The maintenance mode would be used only for short periods of time when performing system maintenance where the use of trickle flow mode is not possible.

### **Trickle Flow Mode**

The trickle flow mode would be used to inject a small trickle flow of chlorinated water downhole into the ASR well during extended periods of inactivity. This mode would help prevent biological growth and fouling within the ASR well system.

## **6.0 REQUIRED APPROVALS**

A listing and brief description of the approvals and/or regulatory permits required to implement the project are provided below. This environmental document is intended to address the environmental impacts associated with the following discretionary actions and approvals.

### **6.1. City of Yuba City**

- **Grading Permit**
- **Building Permit**

- **Consideration of the Environmental Document:** The City will act as the Lead Agency as defined by CEQA and will have authority to determine if the environmental document is adequate under CEQA and the State CEQA Guidelines.
- **Project Approval:** The City Council will consider approval of the project.

## 6.2. Other Agencies

- **United States Environmental Protection Agency (USEPA):** Issuance of Class V Well Permit.
- **State Water Resources Control Board – Division of Drinking Water:** SWRCB adopted general waste discharge requirements for ASR projects that recharge groundwater with treated drinking water under General Order No. 2012-0010-DWQ (ASR General Order). As the project would construct an ASR well, a general waste discharge permit would be obtained from the SWRCB DDW prior to construction. Additionally, a Design Occurrence/Water Supply Permit Amendment would be obtained by the SWRCB DDW.
- **Sutter County Department of Environmental Health:** Issuance of a Well Construction Permit.

## 7.0 ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED

The environmental factors checked below would be potentially affected by this project, involving at least one impact that is a “Potentially significant impact” or “Less than significant with mitigation” as indicated by the checklist on the following pages.

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

## 8.0 DETERMINATION

On the basis of this initial evaluation:

<input type="checkbox"/>	I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.
<input checked="" type="checkbox"/>	I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.
<input type="checkbox"/>	I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.
<input type="checkbox"/>	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.
<input type="checkbox"/>	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

\_\_\_\_\_  
Date

## 9.0 ENVIRONMENTAL INITIAL STUDY CHECKLIST

The lead agency has defined the column headings in the environmental checklist as follows:

- A. “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 EIR is required.
- B. “Less than significant impact with mitigation” applies where the inclusion of mitigation measures has reduced an effect from “Potentially significant impact” to a “Less than significant impact.” All mitigation measures are described, including a brief explanation of how the measures reduce the effect to a less than significant level. Mitigation measures from earlier analyses may be cross-referenced.
- C. “Less than significant impact” applies where the project does not create an impact that exceeds a stated significance threshold.
- D. “No impact” applies where a project does not create an impact in that category. “No impact” answers do not require an explanation if they are adequately supported by the information sources cited by the lead agency which 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).

The explanation of each issue identifies the significance criteria or threshold used to evaluate each question; and the mitigation measure identified, if any, to reduce the impact to less than significance. 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 [CEQA Guidelines Section 15063(c)(3)(D)]. Where appropriate, the discussion identifies the following:

- a) Earlier Analyses Used. Identifies where earlier analyses are available for review.
- b) Impacts Adequately Addressed. Identifies which effects from the checklist were within the scope of and adequately analyzed in an earlier document pursuant to applicable legal standards, and states 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,” describes the mitigation measures which were incorporated or refined from the earlier document and the extent to which they address site-specific conditions for the project.



## I. AESTHETICS

	Potentially significant impact	Less than significant impact with mitigation	Less than significant impact	No impact
Except as provided in Public Resources Code Section 21099, would the project:				
a) Have a substantial adverse effect on a scenic vista?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

### Environmental Setting

Yuba City consists of predominantly flat land within the Sacramento Valley and is bordered to the east by the Feather River and to the west by the Sacramento River. The project site is an existing City-owned WTP. The area of the new ASR well has been previously cleared and grubbed and has an elevation of approximately 60 ft amsl. The project site is surrounded by Live Oak Boulevard and agricultural fields to the east; Northgate Drive, commercial uses, and single-family residential homes to the south; Albert Powell High School, Northridge Park, and single-family residential homes to the west; and Twin Rivers Charter School to the north.

Live Oak Boulevard is designated a major arterial roadway and Northgate Drive is designated a collector street. Sutter County does not have any officially designated or eligible State scenic highways (Caltrans 2024).

### Impact Analysis

- a) Have a substantial adverse effect on a scenic vista?
- b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?

**No impact.** Scenic features in the area include the Feather River waterfront along with associated recreation areas to the east of the project site. The proposed project would include construction of an ASR well at a City-owned WTP. The proposed well shade structure would be constructed such that design features would be consistent other structures at the project site. Therefore, the proposed project would not have a substantial adverse effect on scenic features in the vicinity of the project site or on a scenic vista.

Yuba City does not have any officially designated or eligible State scenic highways; therefore, the proposed project would have no impact on scenic resources within a State scenic highway. No impact would occur for questions a) and b).

- c) If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?

**No impact.** The project site is within an urbanized area of the City. The project site is surrounded by Live Oak Boulevard and agricultural fields to the east; Northgate Drive, commercial uses, and single-family residential homes to the south; Albert Powell High School, Northridge Park, and single-family residential homes to the west; and Twin Rivers Charter School to the north. The project site is zoned R-1, Low Density Residential, and has a General Plan designation of Public & Semi-Public. Although the project site is zoned for low density residential use, this zoning designation allows for civic and institutional use, and a rezone would not be required for the proposed project. Therefore, construction of the proposed ASR well at the City-owned WTP would not conflict with applicable zoning or other regulations in the area and no impact would occur.

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

**Less than significant impact.** The proposed ASR well would include ceiling-mounted lights that would be installed under the well shade structure canopy to illuminate the area. Twenty percent of the lights would be photocell and 80 percent would be a manual switch with timer. All exterior lighting would meet the California Energy Commission's (CEC's) Title 24 requirements, including automatic shutoff and shielding to minimize light trespass onto neighboring properties and glare. Therefore, the proposed project would not create a new source of substantial light or glare that would adversely affect day or nighttime views, and the impact would be less than significant.

## II. AGRICULTURE AND FORESTRY RESOURCES

	Potentially significant impact	Less than significant impact with mitigation	Less than significant impact	No impact
Would the project:				
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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))?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Result in the loss of forest land or conversion of forest land to non-forest use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non- forest use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

### Environmental Setting

Agriculture is the most prominent open space use in the City. Agriculture also is an important contributor to the City's economy. Yuba City's location on the Feather and Sacramento River plains means that the soil is highly productive for agricultural use. The valley floor area between the Feather and Sacramento Rivers provides rich, course soils with abundant water that is ideal for the production of orchard crops; the areas further from the rivers have more clayey soils that are well suited to the production of rice (City 2004).

Land within the project area and its surroundings are predominantly developed. The project site is surrounded by Live Oak Boulevard and agricultural fields to the east; Northgate Drive, commercial uses, and single-family residential homes to the south; Albert Powell High School, Northridge Park, and single-family residential homes to the west; and Twin Rivers Charter School to the north. The proposed ASR well is located at a City-owned WTP.

According to the California Department of Conservation (DOC) California Important Farmland Finder Program, the project site is not mapped as farmland, forest land, or timberland; the project site is mapped as Urban and Built-Up Land (DOC 2024a). The project site is not located on Williamson Act contracted land.

## Impact Analysis

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

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

**No impact.** According to the California DOC Important Farmland Finder, the project site is mapped as Urban and Built-Up Land (DOC 2024a). Additionally, the project site is not located on Williamson Act contracted land. Therefore, the proposed project would not convert farmland to a non-agricultural use and would not conflict with existing zoning for agricultural use or a Williamson Act contract. No impact would occur for questions a) and b).

c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code Section 12220(g)), timberland (as defined by Public Resources Code Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104(g))?

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

**No impact.** The proposed project is mapped as Urban and Built-Up Land (DOC 2024a). Therefore, the proposed project would not conflict with existing zoning for forest land or timberland and would not result in the loss or conversion of forest land to non-forest use. No impact would occur for questions c) and d).

e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?

**No impact.** The proposed project would construct a new ASR well at an existing City-owned WTP. As noted in questions a) through d), the proposed project is mapped as Urban and Built-Up Land and would not conflict with or cause rezoning of farmland, forest land, or timberland. Therefore, no impact would occur.

### III. AIR QUALITY

	Potentially significant impact	Less than significant impact with mitigation	Less than significant impact	No impact
Where available, the significance criteria established by the applicable air quality management district or air pollution control district may be relied upon to make the following determinations. Would the project:				
a) Conflict with or obstruct implementation of the applicable air quality plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Expose sensitive receptors to substantial pollutant concentrations?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

The California Emissions Estimator Model (CalEEMod) version 2022.1 was used to quantify project-generated construction and operational emissions. The model output sheets are included in Appendix B to this IS/MND.

#### Environmental Setting

The project site is located in the northeastern portion of Sutter County, within the Sacramento Valley Air Basin (SVAB). Air quality in this portion of Sutter County is regulated by the U.S. Environmental Protection Agency (USEPA) at the federal level, by the California Air Resources Board (CARB) at the State level, and by the Feather River Air Quality Management District (FRAQMD) at the regional level.

The climate of Sutter County is subject to hot dry summers and mild rainy winters, which characterize the Mediterranean climate of the SVAB. Summer temperatures average approximately 90 degrees Fahrenheit during the day and 50 degrees Fahrenheit at night. Winter daytime temperatures average in the low 50s and nighttime temperatures are mainly in the upper 30s. During summer, prevailing winds are from the south. This is primarily because of the north-south orientation of the valley and the location of the Carquinez Straits, a sea-level gap in the coast range that is southwest of Sutter County.

#### Regulatory Setting

##### Criteria Pollutants

Air quality at the regional level is defined by ambient air concentrations of specific pollutants identified to be of concern with respect to health and welfare of the public. The Federal Clean Air Act requires the establishment of National Ambient Air Quality Standards (NAAQS) which identify concentrations of pollutants in the ambient air below which no adverse effects on the public health and welfare are anticipated. The California Clean Air Act permits the establishment of California Air Quality Standards

(CAAQS), which are at least as stringent as the NAAQS, and include an expanded list of pollutants. The list of pollutants for which NAAQS and CAAQS have been established are known as criteria pollutants.

In general, the criteria air pollutants of primary concern include the following compounds: ozone (O<sub>3</sub>); carbon monoxide (CO); Nitrogen dioxide (NO<sub>2</sub>); particulate matter (PM), which is further subdivided into coarse PM (particles 10 microns or less in diameter [PM<sub>10</sub>]) and fine PM (particles 2.5 microns or less in diameter [PM<sub>2.5</sub>]); sulfur dioxide (SO<sub>2</sub>); and lead (Pb). Criteria pollutants can be emitted directly from sources (primary pollutants; e.g., CO, SO<sub>2</sub>, PM<sub>10</sub>, PM<sub>2.5</sub>, and lead), or they may be formed through chemical and photochemical reactions of precursor pollutants in the atmosphere (secondary pollutants; e.g., ozone, NO<sub>2</sub>, PM<sub>10</sub>, and PM<sub>2.5</sub>). PM<sub>10</sub> and PM<sub>2.5</sub> can be both primary and secondary pollutants. The principal precursor pollutants of concern are reactive organic gases (ROGs)<sup>1</sup> and nitrogen oxides (NO<sub>x</sub>).

Regional air basins (or portions thereof) are classified as being in “attainment,” “nonattainment,” “maintenance,” or “unclassified” for each criteria air pollutant, based on whether the NAAQS or CAAQS have been achieved. The air quality attainment status of Sutter County is shown in Table 1, *Sutter County Attainment Status*. Sutter County is designated as attainment or unclassified for all NAAQS, and as nonattainment for the Ozone, PM<sub>2.5</sub>, and PM<sub>10</sub> CAAQS, and as attainment or unclassified for all other CAAQS.

**Table 1: SUTTER COUNTY ATTAINMENT STATUS**

Pollutant	State of California Attainment Status	Federal Attainment Status
Ozone	Nonattainment	Unclassified/Attainment
Coarse Particulate Matter (PM <sub>10</sub> )	Nonattainment	Unclassified
Fine Particulate Matter (PM <sub>2.5</sub> )	Nonattainment	Unclassified/Attainment
Carbon Monoxide	Attainment	Unclassified/Attainment
Nitrogen Dioxide	Attainment	Unclassified/Attainment
Lead	Attainment	Unclassified/Attainment
Sulfur Dioxide	Attainment	Unclassified/Attainment
Sulfates	Attainment	No Federal Standard
Hydrogen Sulfide	Unclassified	No Federal Standard
Visibility Reducing Particles	Unclassified	No Federal Standard

Source: CARB 2024a.

A wide variety of activities contribute to the emission of criteria air pollutants and precursors including fuel combustion, petroleum production, farming operations, and motor vehicles. Other contributions come from waste disposal, cleaning and surface coatings, solvent evaporation, and natural sources. Natural sources make up approximately five percent of Sutter County’s emissions totals. It should also be noted that farming operations in Sutter County contribute approximately 42 percent to the total PM emissions (County 2010a).

#### Feather River Air Quality Management District

The proposed project is located in the northeastern portion of Sutter County. As a regional agency, the FRAQMD works directly with local governments and cooperates actively with all federal and State

<sup>1</sup> CARB defines and uses the term ROGs while the USEPA defines and uses the term VOCs. The compounds included in the lists of ROGs and VOCs and the methods of calculation are slightly different. However, for the purposes of estimating criteria pollutant precursor emissions, the two terms are often used interchangeably.

government agencies. The FRAQMD develops rules and regulations, establishes permitting requirements for stationary sources, inspects emissions sources, and enforces such measures through educational programs or fines, when necessary.

#### Air Quality Plans

As required by the California Clean Air Act (CCAA), the FRAQMD has published air quality planning documents to address requirements to bring Sutter County into compliance with the federal and State ambient air quality standards. The Air Quality Attainment Plans are incorporated into the State Implementation Plan (SIP), which is subsequently submitted to the USEPA, the federal agency that administers the Federal Clean Air Act (CAA) of 1970, as amended in 1990.

The applicable air plan is the 2021 Northern Sacramento Valley Planning Area Triennial Air Quality Attainment Plan (2021 Plan) that was adopted on April 4, 2022 (SVAQEEP 2022). The FRAQMD also adopted a California Particulate Matter Plan to reduce emissions of coarse particulate matter (PM<sub>10</sub>) in accordance with Senate Bill (SB) 656 (FRAQMD 2005).

#### Rules and Regulations

The following rules promulgated by the FRAQMD would be applicable to the construction and/or operation of the proposed project (FRAQMD 2021).

##### Rule 3.0 – Visible Emissions

A person shall not discharge into the atmosphere from any single source of emissions whatsoever, any air contaminants for a period or periods aggregating more than three minutes in any one hour which is as dark or darker in shade as that designated as No. 2 on the Ringleman Chart.

##### Rule 3.15 – Architectural Coatings

The developer or contractor is required to use coatings that comply with the volatile organic compound content limits specified in the rule.

##### Rule 3.16 – Fugitive Dust Emissions

The developer or contractor is required to control dust emissions from earth moving activities, storage or any other construction activity to prevent airborne dust from leaving the project site.

- Yuba City General Plan

The Yuba City General Plan sets forth the following goals and policies relating to air quality, and which have potential relevance to the Project's CEQA review (City 2004):

- 8.6-I-1 Cooperate with other local, regional, and State agencies to achieve and maintain air quality standards.
- 8.6-I-2 Work with the Feather River Air Quality Management District to implement the regional Air Quality Management Plan.

- 8.6-I-4 Provide information to encourage the use of transportation modes that minimize motor vehicle use and resulting contaminant emissions.
- 8.6-I-6 Require applicants whose development would result in construction-related fugitive dust emissions to control such emissions as follows:
  - During clearing, grading, earth-moving, or excavation operations, fugitive dust emissions shall be controlled by regular watering, paving of construction roads, or other dust-preventive measures.
  - All material excavated or graded shall be sufficiently watered to prevent excessive amounts of dust.
  - Watering, with complete coverage, shall occur at least twice daily, preferably in the late morning and after work is done for the day.
  - All clearing, grading, earth-moving, or excavation activities shall cease when winds exceed 20 mph averaged over 1 hour.
  - All material transported off-site shall be either sufficiently watered or securely covered to prevent excessive amounts of dust.
  - The area disturbed by demolition, clearing, grading, earth-moving, or excavation operations shall be minimized at all times.
  - Portions of the construction site to remain inactive longer than a period of 3 months shall be seeded and watered until grass cover is grown.
  - All on-site roads shall be paved as soon as feasible or watered periodically or chemically stabilized.
- 8.6-I-7 Require applicants whose development would result in construction-related exhaust emissions to minimize such emissions by maintaining equipment engines in good condition and in proper tune according to manufacturer's specifications and during smog season (May through October) by not allowing construction equipment to be left idling for long periods.

#### Toxic Air Contaminants

Toxic air contaminants (TAC) are a diverse group of air pollutants that may cause or contribute to an increase in deaths or in serious illness, or that may pose a present or potential hazard to human health. TACs can cause long-term chronic health effects such as cancer, birth defects, neurological damage, asthma, bronchitis, or genetic damage, or short-term acute effects such as eye-watering, respiratory irritation (a cough), runny nose, throat pain, and headaches. TACs are considered either carcinogenic or noncarcinogenic based on the nature of the health effects associated with exposure to the pollutant. For carcinogenic TACs, there is no level of exposure that is considered safe, and impacts are evaluated in terms of overall relative risk expressed as excess cancer cases per one million exposed individuals. Noncarcinogenic TACs differ in that there is generally assumed to be a safe level of exposure below which no negative health impact is believed to occur. These levels are determined on a pollutant-by-pollutant basis.



The Health and Safety Code (§39655[a]) defines TAC as “an air pollutant which may cause or contribute to an increase in mortality or in serious illness, or which may pose a present or potential hazard to human health.” All substances that are listed as hazardous air pollutants pursuant to subsection(b) of Section 112 of the CAA (42 United States Code Sec. 7412[b]) are designated as TACs. Under State law, the California Environmental Protection Agency (CalEPA), acting through CARB, is authorized to identify a substance as a TAC if it determines the substance is an air pollutant that may cause or contribute to an increase in mortality or an increase in serious illness, or that may pose a present or potential hazard to human health.

#### Diesel Particulate Matter

Diesel engines emit a complex mixture of air pollutants, including both gaseous and solid material. The solid material in diesel exhaust is referred to as diesel particulate matter (DPM). Almost all DPM is 10 microns or less in diameter, and 90 percent of DPM is 2.5 microns or less in diameter (CARB 2024b). Because of their extremely small size, these particles can be inhaled and eventually trapped in the bronchial and alveolar regions of the lung. In 1998, CARB identified DPM as a TAC based on published evidence of a relationship between diesel exhaust exposure and lung cancer and other adverse health effects. DPM has a notable effect on California’s population—it is estimated that about 70 percent of the total known cancer risk related to air toxins in California is attributable to DPM (CARB 2024b).

#### Sensitive Receptors

CARB and the Office of Environmental Health Hazard Assessment (OEHHA) have identified the following groups of individuals as the most likely to be affected by air pollution: adults over 65, children under 14, infants (including in utero in the third trimester of pregnancy), and persons with cardiovascular and chronic respiratory diseases such as asthma, emphysema, and bronchitis (CARB 2005; OEHHA 2015). Some land uses are considered more sensitive to air pollution than others due to the types of population groups or activities involved and are referred to as sensitive receptors. Examples of these sensitive receptors are residences, schools, hospitals, and daycare centers.

The closest existing sensitive receptor locations to the project site are single-family residential homes, adjacent to the project site to the west of the proposed project site; the Twin Rivers Charter School, with outdoor recreation areas adjacent to the northwest corner of the project site and school building located approximately 140 feet to the north; and the Albert Powell High School, located adjacent to the west side of the project site. As shown on Figure 4, Impact Footprint Map, the project site borders Twin Rivers Charter School to the north and single-family residential homes to the west.

#### Methodology and Assumptions

Criteria pollutant and precursor emissions, and GHG emissions for the project construction activities and long-term operation were calculated using CalEEMod, Version 2022.1. CalEEMod is a Statewide land use emissions computer model designed to provide a uniform platform for government agencies, land use planners, and environmental professionals to quantify potential criteria pollutant emissions associated with both construction and operations from a variety of land use projects. The model was developed for the California Air Pollution Control Officers Association (CAPCOA) in collaboration with the California air districts. CalEEMod allows for the use of default data (e.g., emission factors, trip lengths, meteorology, source inventory) provided by the various California air districts to account for local requirements and conditions, and/or user-defined inputs. The model calculates emissions of criteria pollutants, Ozone precursors, and GHGs. The calculation methodology and input data used in CalEEMod can be found in

the CalEEMod User's Guide Appendices A, C, and D (CAPCOA 2024). The input data and subsequent construction and operation emission estimates for the proposed project are discussed below.

### Construction Assumptions

It is anticipated that the ASR well would be drilled between January 1, 2025, and March 2, 2025. Construction of the ASR well components is anticipated to begin July 20, 2025 and be completed on January 11, 2027. The construction activity schedule was estimated using data provided by the project engineer and is outlined in Table 2, *Project Construction Schedule*, below.

**Table 2: PROJECT CONSTRUCTION SCHEDULE**

Construction Activity	Construction Start Date	Construction End Date	Number of Working Days
Well Drilling	1/1/2025	3/2/2025	43
Mobilization	7/20/2025	8/3/2025	10
Clearing and Grubbing	8/4/2025	8/15/2025	10
Rough Grading	8/16/2025	9/15/2025	21
Underground Utilities	9/16/2025	10/15/2025	22
Footing and Pad Construction	10/16/2025	4/15/2026	130
Aboveground Construction	4/16/2026	1/11/2027	193
Fine Grading	10/1/2026	10/31/2026	22

Source: CalEEMod Output (Appendix B)

Construction equipment for each construction activity was provided by the project engineer. Table 3, *Project Construction Equipment*, below, presents a summary of the assumed equipment that would be involved in each activity of construction. Off-highway trucks included in the modeling would be a dump truck, a concrete pump truck, and a water truck.

**Table 3: PROJECT CONSTRUCTION EQUIPMENT**

Construction Activity	Equipment	Number
Well Drilling	Bore/Drill Rigs	1
	Tractors/Loaders/Backhoes	1
	Generator Sets	1
Mobilization	Rough Terrain Forklift	1
Clearing and Grubbing	Tractors/Loaders/Backhoes	1
	Off-Highway Truck	2
Rough Grading	Rubber Tired Dozers	1
	Tractors/Loaders/Backhoes	1
	Rollers	1
Underground Utilities	Off-Highway Trucks	2
	Tractors/Loaders/Backhoes	1
	Generator Sets	1
	Rubber Tired Loaders	1
Footing and Pad Construction	Off-Highway Trucks	1
	Tractors/Loaders/Backhoes	1
	Rubber Tired Loaders	1
Aboveground Construction	Off-Highway Trucks	1
	Tractors/Loaders/Backhoes	1
	Generator Sets	1
Fine Grading	Rubber Tired Dozers	1

Construction Activity	Equipment	Number
	Tractors/Loaders/Backhoes	1
	Rubber Tired Loaders	1
	Off-Highway Trucks	1

Source: CalEEMod Output (Appendix B)

Per the project engineer, 500 cubic yards (CY) of soil would be exported during rough grading of the project site. Worker and vendor trips were estimated based on data provided by the project engineer. Construction emissions modeling assumes the implementation of dust mitigation (watering exposed areas twice per day) to comply with the requirements of FRAQMD Rule 3.16, *Fugitive Dust Emissions*, and City General Plan Policy 8.6-I-6.

The project would require one CY of demolition and paving and 10 feet of restriping. However, as these construction activities would not be substantial, demolition, paving, and architectural coating were not included in CalEEMod.

#### Operational Assumptions

Operational activities associated with the proposed project would include daily maintenance trips. Per the project engineer, one pickup truck would be used for maintenance resulting in two average daily trips (ADT). The project would include one new pump with a 250 horsepower (hp) motor, that would run for six months out of the year. The new pump would require 726,110 kilowatt hours (kWh) per year of electricity, assuming the pump would run continuously for 4,380 hours per year at 80 percent of its rated capacity with an efficiency of 90 percent. The project would not result in increased use of water on the project site or an increase in solid waste generation. Operational emissions resulting from area source emissions (landscape equipment and the use of consumer products) were modeled using CalEEMod defaults.

#### Standards of Significance

According to Appendix G of the state CEQA Guidelines, a project would have a significant air quality environmental impact if it would:

1. Conflict with or obstruct implementation of the applicable air quality plan; or
2. Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable federal or state ambient air quality standard; or
3. Expose sensitive receptors to substantial pollutant concentrations; or
4. Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people.

Appendix G of the State CEQA Guidelines states that the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the above determinations. The FRAQMD has developed thresholds of significance for mass emissions of ROG, NO<sub>x</sub>, and PM<sub>10</sub>, which lead agencies within their jurisdiction can use to evaluate the air pollutant emissions impacts of land use projects. These criteria pollutant and precursor thresholds and other assessment recommendations are contained in FRAQMD's *Indirect Source Review Guidelines* (FRAQMD 2010). The

FRAQMD has not adopted thresholds of significance for a project's construction- or operational-period emissions of PM<sub>2.5</sub>.

Table 4, *Air Quality Significance Thresholds*, presents the FRAQMD ROG, NO<sub>x</sub>, and PM<sub>10</sub> significance thresholds. A project with daily emission rates below these thresholds would be considered to have a less than significant impact on air quality.

**Table 4: AIR QUALITY SIGNIFICANCE THRESHOLDS**

Maximum Daily Emissions Thresholds (pounds per day)		
Pollutant	Construction	Operation
ROG	25 <sup>1</sup>	25
NO <sub>x</sub>	25 <sup>1</sup>	25
CO	None	None
SO <sub>x</sub>	None	None
PM <sub>10</sub>	80	80
PM <sub>2.5</sub>	Not yet established	Not yet established

Source: FRAQMD 2010

<sup>1</sup> 25 pounds/day multiplied by project length, not to exceed 4.5 tons/year

ROG: reactive organic gas; NO<sub>x</sub>: nitrogen oxides; CO: carbon monoxide; PM<sub>10</sub>: coarse particulate matter with a diameter of 10 microns or less; PM<sub>2.5</sub>: fine particulate matter with a diameter of 2.5 microns or less; SO<sub>x</sub>: sulfur oxides

The FRAQMD distinguishes between two types of projects and refers to them as Type 1 and Type 2. Type 1 projects consist of land use projects in which an operational phase exists. Type 2 projects lack a land use component. Because the project would include some operational emissions sources, the project would be considered a Type 1 project.

If the operational emissions of a Type 1 project do not exceed the operational thresholds, and the construction emissions of NO<sub>x</sub> or ROG do not exceed the 25 lbs/day averaged over the length of the project, or the PM<sub>10</sub> emissions do not exceed 80 lbs/day, the FRAQMD recommends the following construction phase Standard Best Management Practices (BMPs):

1. Implement the Fugitive Dust Control Plan
2. Construction equipment exhaust emissions shall not exceed FRAQMD Regulation III, Rule 3.0, Visible Emissions limitation (40 percent opacity or Ringelmann 2.0)
3. The contractor shall be responsible to ensure that all construction equipment is properly tuned and maintained prior to and for the duration of onsite operation
4. Limiting idling time to 5 minutes – saves fuel and reduces emission. (State idling rule: commercial diesel vehicles- 13 CCR Chapter 10 Section 2485 effective 02/01/2005; off road diesel vehicles- 13 CCR Chapter 9 Article 4.8 Section 2449 effective 05/01/2008)
5. Utilize existing power sources (e.g., power poles) or clean fuel generators rather than temporary power generators.
6. Develop a traffic plan to minimize traffic flow interference from construction activities. The plan may include advance public notice of routing, use of public transportation, and satellite parking areas with a shuttle service. Schedule operations affecting traffic for off-peak hours. Minimize obstruction of through-traffic lanes. Provide a flag person to guide traffic properly and ensure safety at construction sites.
7. Portable engines and portable engine-driven equipment units used at the project work site, with the exception of on-road and off-road motor vehicles, may require CARB Portable Equipment

Registration with the State or a local district permit. The owner/operator shall be responsible for arranging appropriate consultations with the ARB or the FRAQMD to determine registration and permitting requirements prior to equipment operation at the site.

If the operational emissions of a Type 1 project do not exceed the operational thresholds, but the construction phase emissions exceed the construction thresholds of 25 lbs/day of NO<sub>x</sub> or ROG averaged over the length of the project and 80 lbs/day of PM<sub>10</sub>, the FRAQMD recommends the following Best Available Mitigation Measures for Construction Phase, below, in addition to the Standard BMPs:

1. All grading operations on a project should be suspended when winds exceed 20 miles per hour or when winds carry dust beyond the property line despite implementation of all feasible dust control measures.
2. Construction sites shall be watered as directed by the Department of Public Works or Air Quality Management District as necessary to prevent fugitive dust violations.
3. An operational water truck should be available at all times. Apply water to control dust as needed to prevent visible emissions violations and offsite dust impacts.
4. Onsite dirt piles or other stockpiled particulate matter should be covered, wind breaks installed, and water and/or soil stabilizers employed to reduce wind-blown dust emissions. Incorporate the use of approved non-toxic soil stabilizers according to manufacturer's specifications to all inactive construction areas.
5. All transfer processes involving a free fall of soil or other particulate matter shall be operated in such a manner as to minimize the free fall distance and fugitive dust emissions.
6. Apply approved chemical soil stabilizers according to the manufacturers' specifications, to all inactive construction areas (previously graded areas that remain inactive for 96 hours) including unpaved roads and employee/equipment parking areas.
7. To prevent track-out, wheel washers should be installed where project vehicles and/or equipment exit onto paved streets from unpaved roads. Vehicles and/or equipment shall be washed prior to each trip. Alternatively, a gravel bed may be installed as appropriate at vehicle/equipment site exit points to effectively remove soil buildup on tires and tracks to prevent/diminish track-out.
8. Paved streets shall be swept frequently (water sweeper with reclaimed water recommended; wet broom) if soil material has been carried onto adjacent paved, public thoroughfares from the project site.
9. Provide temporary traffic control as needed during all phases of construction to improve traffic flow, as deemed appropriate by the Department of Public Works and/or Caltrans and to reduce vehicle dust emissions. An effective measure is to enforce vehicle traffic speeds at or below 15 mph.
10. Reduce traffic speeds on all unpaved surfaces to 15 miles per hour or less and reduce unnecessary vehicle traffic by restricting access. Provide appropriate training, onsite enforcement, and signage.
11. Reestablish ground cover on the construction site as soon as possible and prior to final occupancy, through seeding and watering.
12. Disposal by Burning: Open burning is yet another source of fugitive gas and particulate emissions and shall be prohibited at the project site. No open burning of vegetative waste (natural plant growth wastes) or other legal or illegal burn materials (trash, demolition debris, et. al.) may be conducted at the project site. Vegetative wastes should be chipped or delivered to waste to energy facilities (permitted biomass facilities), mulched, composted, or used for firewood. It is unlawful to haul waste materials offsite for disposal by open burning.

## Impact Analysis

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

**Less than significant impact.** As discussed in *Standards of Significance*, above, the FRAQMD has established thresholds of significance for a project's criteria pollutant and precursor emissions. These significance thresholds have been established to assist lead agencies in determining whether a project may have a significant air quality impact during the preparation of an IS/MND. A project with daily emission rates below these thresholds would be considered to have a less than significant impact on air quality. A project with emissions lower than the thresholds would not conflict with or obstruct the implementation of FRAQMD's air quality plans for the attainment of the applicable NAAQS and CAAQS.

As shown in the discussion for question b) below, the project's construction and operational-generated emissions of ROG, NO<sub>x</sub>, and PM<sub>10</sub>, would not exceed FRAQMD thresholds. The project would not conflict with or obstruct the implementation of the applicable air quality plan, and the impact would be less than significant.

Long-range air quality planning throughout the State is based on population and employment growth assumptions. The project would not result in an increase in population or employment in the City or region. Therefore, the project would be consistent with the growth projections used to develop the FRAQMD's air quality plan. The project would not conflict with or obstruct implementation of the applicable air quality plans, and the impact would be less than significant.

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

**Less than significant impact.** Sutter County is designated as nonattainment for Ozone, PM<sub>2.5</sub>, and PM<sub>10</sub> with respect to the CAAQS. The FRAQMD has developed thresholds of significance for mass emissions of ROG, NO<sub>x</sub>, and PM<sub>10</sub>, which lead agencies within their jurisdiction can use to evaluate the air pollutant emissions impacts of land use projects. These criteria pollutant and precursor thresholds and other assessment recommendations are contained in FRAQMD's *Indirect Source Review Guidelines* (FRAQMD 2010). The FRAQMD has not adopted thresholds of significance for a project's construction- or operational-period emissions of PM<sub>2.5</sub>.

### Construction Emissions

CalEEMod version 2022.1 was used to quantify project-generated construction emissions. Assumptions included in the model are described in *Methodology and Assumptions* and the detailed model output sheets are included in Appendix B. It is anticipated that the ASR well would be drilled between January 1, 2025, and March 2, 2025. Construction of the ASR well system is anticipated to begin July 20, 2025, and be completed on January 11, 2027. The quantity, duration, and intensity of construction activity influence the amount of construction emissions and related pollutant concentrations that occur at any one time. As such, the emission forecasts provided herein reflect a specific set of conservative assumptions based on the expected construction scenario wherein a relatively large amount of construction activity is occurring in a relatively intensive manner. Because of this conservative assumption, actual emissions could be less than those forecasted. If construction is delayed or occurs over a longer time period, emissions could be reduced because of: (1) a more modern and cleaner-burning construction equipment fleet mix than assumed in CalEEMod; and/or (2) a less intensive buildout schedule (i.e., fewer daily emissions occurring over a longer time interval).

The project's construction period emissions of ROG, NO<sub>x</sub>, and PM<sub>10</sub> are compared to the FRAQMD construction thresholds in Table 5, *Daily Construction Emissions*. Construction emissions modeling assumed the implementation of dust mitigation (watering exposed areas twice per day) to comply with the requirements of FRAQMD Rule 3.16, *Fugitive Dust Emissions*.

**Table 5: DAILY CONSTRUCTION EMISSIONS**

Construction Activities	ROG <sup>1</sup> (pounds/day)	NO <sub>x</sub> <sup>1</sup> (pounds/day)	PM <sub>10</sub> <sup>2</sup> (pounds/day)	PM <sub>2.5</sub> <sup>2</sup> (pounds/day)
Well Drilling	0.3	3.2	0.1	0.1
Mobilization	0.1	0.6	<0.1	<0.1
Clearing and Grubbing	0.4	2.5	0.1	0.1
Rough Grading	1.5	12.4	3.1	1.8
Underground Utilities	0.5	4.1	0.2	0.2
Footing and Pad Construction	0.7	4.8	0.2	0.2
Aboveground Construction	0.2	1.8	0.1	0.1
Fine Grading	1.3	11.3	3.1	1.8
<b>Daily Emissions</b>	<b>0.3</b>	<b>2.7</b>	<b>3.1</b>	<b>1.8</b>
<i>Threshold</i>	25 <sup>3</sup>	25 <sup>3</sup>	80	N/A
<i>Exceed Threshold?</i>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>

Source: CalEEMod (output data is provided in Appendix B)

<sup>1</sup> Average daily emissions for ROG and NO<sub>x</sub>.

<sup>2</sup> Maximum daily emissions for PM<sub>10</sub> and PM<sub>2.5</sub>.

<sup>3</sup> 25 pounds/day multiplied by project length, not to exceed 4.5 tons/year

ROG = reactive organic gases; NO<sub>x</sub> = nitrogen oxides; PM<sub>10</sub> = particulate matter 10 microns or less in diameter; PM<sub>2.5</sub> = particulate matter 2.5 microns or less in diameter

As shown in Table 5, the proposed project construction period emissions of ROG, NO<sub>x</sub>, and PM<sub>10</sub> would not exceed the FRAQMD maximum daily emissions threshold. In addition, construction maximum annual emissions of ROG and NO<sub>x</sub> would be less than 0.5 tons per year and would not exceed the FRAQMD's threshold of 4.5 tons per year. Therefore, impacts related to construction-generated emissions of ROG, NO<sub>x</sub>, PM<sub>10</sub>, and PM<sub>2.5</sub> would be less than significant.

#### Operational Emissions

CalEEMod version 2022.1 was used to quantify project-generated operational emissions. Emissions generated from operational activities would include:

- Mobile emissions – combustion emissions from fuel evaporation, brake and tire wear, and road dust emission resulting from daily worker maintenance vehicle trips.
- Areas sources – combustion emissions from the use of maintenance equipment.
- Energy sources – emissions resulting from the use of a 250 hp electric pump would result in GHG emissions only (see Section 9.VIII, *Greenhouse Gas Emissions*).

The results of the modeling for project operational activities are shown in Table 6, *Maximum Daily Operational Emissions*. The project's operational emissions of ROG NO<sub>x</sub>, and PM<sub>10</sub> are compared to the FRAQMD operational thresholds.

**Table 6: MAXIMUM DAILY OPERATIONAL EMISSIONS**

<b>Source</b>	<b>ROG (pounds/day)</b>	<b>NO<sub>x</sub> (pounds/day)</b>	<b>PM<sub>10</sub> (pounds/day)</b>	<b>PM<sub>2.5</sub> (pounds/day)</b>
Mobile	<0.1	<0.1	<0.1	<0.1
Area	<0.1	0	0	0
<b>Maximum Daily Emissions</b>	<0.1	<0.1	<0.1	<0.1
<i>Thresholds</i>	25	25	80	N/A
<b><i>Exceed Thresholds?</i></b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>

Source: CalEEMod (output data is provided in Appendix B)

ROG = reactive organic gases; NO<sub>x</sub> = nitrogen oxides; PM<sub>10</sub> = particulate matter 10 microns or less in diameter;

PM<sub>2.5</sub> = particulate matter 2.5 microns or less in diameter

As shown in Table 6, the proposed project operational period emissions of ROG, NO<sub>x</sub>, and PM<sub>10</sub> would not exceed the FRAQMD thresholds. Therefore, impacts related to operational-generated emissions of ROG, NO<sub>x</sub>, PM<sub>10</sub>, and PM<sub>2.5</sub> would be less than significant.

### Impact Conclusion

As shown above, the project's daily construction and operational emissions would not exceed the FRAQMD thresholds. In accordance with FRAQMD recommendations, the proposed project should implement construction phase Standard BMPs. Implementation of the Standard BMPs would ensure compliance with FRAQMD Rule 3.16 and City General Plan Policy 8.6-I-6:

1. Implement the Fugitive Dust Control Plan
2. Construction equipment exhaust emissions shall not exceed FRAQMD Regulation III, Rule 3.0, Visible Emissions limitation (40 percent opacity or Ringelmann 2.0)
3. The contractor shall be responsible to ensure that all construction equipment is properly tuned and maintained prior to and for the duration of onsite operation
4. Limiting idling time to 5 minutes – saves fuel and reduces emission. (State idling rule: commercial diesel vehicles- 13 CCR Chapter 10 Section 2485; off road diesel vehicles- 13 CCR Chapter 9 Article 4.8 Section 2449)
5. Utilize existing power sources (e.g., power poles) or clean fuel generators rather than temporary power generators.
6. Develop a traffic plan to minimize traffic flow interference from construction activities. The plan may include advance public notice of routing, use of public transportation, and satellite parking areas with a shuttle service. Schedule operations affecting traffic for off-peak hours. Minimize obstruction of through-traffic lanes. Provide a flag person to guide traffic properly and ensure safety at construction sites.
7. Portable engines and portable engine-driven equipment units used at the project work site, with the exception of on-road and off-road motor vehicles, may require CARB Portable Equipment Registration with the State or a local district permit. The owner/operator shall be responsible for arranging appropriate consultations with the ARB or the FRAQMD to determine registration and permitting requirements prior to equipment operation at the site.

With implementation of the construction phase Standard Best Management Practices, project would not result in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment, and the impact would be less than significant.



c) Expose sensitive receptors to substantial pollutant concentrations?

**Less than significant impact.** CARB and OEHHA have identified the following groups of individuals as the most likely to be affected by air pollution: the elderly over 65, children under 14, infants (including in utero in the third trimester of pregnancy), and persons with cardiovascular and chronic respiratory diseases such as asthma, emphysema, and bronchitis (CARB 2005, OEHHA 2015). Some land uses are considered more sensitive to air pollution than others due to the types of population groups or activities involved and are referred to as sensitive receptor locations. Examples of these sensitive receptor locations are residences, schools, hospitals, and daycare centers.

As described above, the closest existing sensitive receptor locations to the project site are single-family residential homes, adjacent to the project site to the west of the proposed project site; the Twin Rivers Charter School, with outdoor recreation areas adjacent to the northwest corner of the project site and school building located approximately 140 feet to the north; and the Albert Powell High School, located adjacent to the west side of the project site. As shown on Figure 4, Impact Footprint Map, the project site borders Twin Rivers Charter School to the north and single-family residential homes to the west. Twin Rivers Charter School is located approximately 257 feet north of the proposed ASR well and approximately 140 feet north of the project impact footprint. The single-family residential homes are located approximately 885 feet west of the ASR well and approximately 185 feet west of the project impact footprint.

However, construction would not occur over the entire project site. Well drilling, footing and pad construction, and above ground construction would not require intensive use of heavy off-road construction equipment and would be concentrated near the proposed well location, as shown on Figure 4, Impact Footprint Map. Other activities with more intensive use of heavy construction activities would be shorter in duration: about three months for clearing and grubbing, rough grading; and underground utilities; and about one month for fine grading. These more intense activities would occur in the area identified as “Impact Footprint” as shown on Figure 4 and would be located approximately 140 feet from the Twin Rivers Charter School classroom buildings to the north, approximately 200 feet from the Albert Powell High School classroom buildings to the west, and approximately 185 feet from the closest residential properties to the west.

The primary pollutant of concern for localized concentrations would be the TAC DPM emitted by project off-road construction equipment. The dose (of TAC) to which receptors are exposed is the primary factor used to determine health risk. Dose is a function of the concentration of a substance in the environment and the extent of exposure a person has to the substance; a longer exposure period to a fixed quantity of emissions would result in higher health risks. Current models and methodologies for conducting cancer health risk assessments are associated with longer-term exposure periods (typically 30 years for individual residents based on guidance from OEHHA) and are best suited for the evaluation of long-duration TAC emissions with predictable schedules and locations. These assessment models and methodologies do not correlate well with the temporary and highly variable nature of construction activities. Cancer potency factors are based on animal lifetime studies or worker studies where there is long-term exposure to the carcinogenic agent. There is considerable uncertainty in trying to evaluate the cancer risk from projects that will only last a small fraction of a lifetime (OEHHA 2015).

In addition, concentrations of mobile source DPM emissions disperse rapidly and are typically reduced by 70 percent at approximately 500 feet (CARB 2005). Considering the short duration of intensive heavy construction equipment use, the intermittent nature of construction activities, the distance to sensitive

receptor locations, and the highly dispersive nature of DPM, construction of the project would not expose sensitive receptors to substantial DPM concentrations.

The proposed project would not exceed the applicable thresholds of significance for criteria pollutant emissions during construction and operation, as discussed under question b). As such, the proposed project would not expose nearby sensitive receptors to substantial emissions of criteria air pollutants. Once operational, the project would not be a source of TACs. Therefore, the project would not expose sensitive receptors to substantial pollutant concentrations, and the impact would be less than significant.

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

**Less than significant impact.** The project could produce odors during construction activities resulting from heavy diesel equipment exhaust. The odor of these emissions is objectionable to some; however, emissions would disperse rapidly from the project site and therefore should not be at a level that would affect a substantial number of people. Any odors emitted during construction activities would be temporary, short-term, and intermittent in nature, and would cease upon the facility maintenance. As a result, impacts associated with temporary odors during construction are not considered significant.

As an ASR well, the operation of the project would not result in odors affecting a substantial number of people. Solid waste would not be generated from project operation. The project would not result in other emissions (such as those leading to odors) adversely affecting a substantial number of people, and the impact would be less than significant.

#### IV. BIOLOGICAL RESOURCES

	Potentially significant impact	Less than significant impact with mitigation	Less than significant impact	No impact
Would the project:				
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Wildlife or US Fish and Wildlife Service?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

A Biological Resources Assessment (BRA) was prepared by HELIX in November 2024. The assessment is summarized below and is included as Appendix C to this IS/MND (HELIX 2024b).

##### Environmental Setting

The project site and surrounding area have a history of agricultural production. Based on a review of historic aerial imagery (Google Earth 2023), the project site has changed very little since 1993. Previously, the project site supported agriculture. Most of the land surrounding the project site in 1993 was orchard to the west, and south. Agricultural lands to the north and east dominate the landscape with some previous agricultural lands recently converted to residential areas. The Feather River and adjoining riparian habitat is located approximately 0.5-mile east of the project site. The project site supports no natural drainages, and all precipitation and other water from the WTP are routed into a stormwater drainage facility at the southeastern corner of the project site. Basins that store water are

located within the project site; however, these basins are contained and are cycled quarterly between wet and dry throughout the year.

The California Natural Diversity Data Base (CNDDB), California Native Plant Society (CNPS) Inventory of Rare and Endangered Plants, and U.S. Fish and Wildlife Service (USFWS) Information for Planning and Consultation (IPaC) databases were reviewed in December 2023 during preparation of the BRA (HELIX 2024b; Appendix C). The project site is characterized by urban/developed areas, consisting of the water treatment facility, constructed basins, barren areas, buildings, sheds, and associated ornamental vegetation. Aquatic resources are not present on the project site.

See Appendix C for detailed information on the regulatory framework, methodology of desktop reviews and on-site surveys, and detailed discussions of existing habitats communities on-site. The results and conclusions of the findings of the BRA are provided in the discussion of impacts below.

### **Methodology**

Biological studies conducted for the project site consisted of a special-status species evaluation that included a desktop review and database searches to identify known biological resources in the project site and vicinity, as well as a reconnaissance-level biological field survey.

#### **Special-Status Species Evaluation**

For the purposes of the BRA prepared for the proposed project, special-status species are those that fall into one or more of the following categories, including those:

- Listed as endangered or threatened under the FESA (including candidates and species proposed for listing);
- Listed as endangered or threatened under the CESA (including candidates and species proposed for listing);
- Designated as rare, protected, or fully protected pursuant to California Fish and Game Code;
- Designated as a SSC by the CDFW;
- Considered by CDFW to be a Watch List species with potential to become a SSC;
- Defined as rare or endangered under Section 15380 of the CEQA; or
- Having a California Rare Plant Rank (CRPR) of 1A, 1B, 2A, 2B, or 3.

In order to evaluate special-status species and/or their habitats with the potential to occur in the project site and/or be impacted by the proposed project, HELIX obtained lists of regionally occurring special-status species from the following information sources:

- California Department of Fish and Wildlife (CDFW). 2023. *California Natural Diversity Database* (CNDDB); For: *Yuba City, Wheatland, Browns Valley, Gridley, Honcut, Sutter, Loma Rica, Gilsizer Slough, and Olivehurst* USGS 7.5-minute series quadrangles, Sacramento, CA. Accessed [December 5, 2023];

- California Native Plant Society (CNPS). 2023. *Inventory of Rare and Endangered Plants* (online edition, v8-03 0.45) For: *Yuba City, Wheatland, Browns Valley, Gridley, Honcut, Sutter, Loma Rica, Gilsizer Slough, and Olivehurst* USGS 7.5-minute series quadrangles, Sacramento, CA. Accessed [December 5, 2023]; and
- U.S. Fish and Wildlife Service (USFWS). 2023. *Information for Planning and Consultation* (IPaC) Yuba City Aquifer Storage and Recover Project. Accessed [December 5, 2023].

Appendix B of the BRA (Appendix C of this IS/MND) includes these lists of special-status plant and animal species occurring in the project region and Appendix D of the BRA (Appendix C of this IS/MND) includes an evaluation of the potential for these species to occur on the project site.

### Biological Surveys

The biological survey was conducted on November 27, 2023, by HELIX Senior Scientist Patrick Martin. The weather during the field survey was clear and cool with an average temperature of around 60° F. The project site was systematically surveyed on foot to ensure total search coverage, with special attention given to portions of the project site with the potential to support special-status species and sensitive habitats. Binoculars were used to further extend site coverage and identify species observed. All plant and animal species observed were recorded, and all biological communities occurring on-site were characterized. Following the field survey, the potential for each species identified in the database query to occur within the project site was determined based on the site survey, soils, habitats present within the project site, and species-specific information.

### Regulatory Framework

#### Federal Laws, Regulations, and Policies

##### Endangered Species Act

The U.S. Congress passed the Federal Endangered Species Act (FESA) in 1973 to protect species that are endangered or threatened with extinction. FESA is intended to operate in conjunction with the National Environmental Policy Act (NEPA) to help protect the ecosystems upon which endangered and threatened species depend.

FESA prohibits the “take” of endangered or threatened wildlife species. “Take” is defined to include harassing, harming, pursuing, hunting, shooting, wounding, killing, trapping, capturing, or collecting wildlife species or any attempt to engage in such conduct (FESA Section 3 [(3) (19)]). Harm is further defined to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing behavioral patterns (50 CFR §17.3). Harass is defined as actions that create the likelihood of injury to listed species to such an extent as to significantly disrupt normal behavior patterns (50 CFR §17.3). Actions that result in take can result in civil or criminal penalties.

In the context of the proposed project, FESA consultation with the U.S. Fish and Wildlife Service (USFWS) and/or the National Marine Fisheries Service (NMFS) would be initiated if project activities resulted in the potential for take of a threatened or endangered species or if issuance of a Section 404 permit or other federal agency action could result in take of an endangered species or adversely modify critical habitat of such a species.

### Migratory Bird Treaty Act

The federal Migratory Bird Treaty Act (MBTA; 16 United States Code [USC], Sec. 703, Supp. I, 1989) regulates and prohibits taking, killing, possession of, or harm to migratory bird species listed in Title 50 CFR §10.13. The MBTA protects whole birds, parts of birds, and bird eggs and nests and prohibits the possession of all nests of protected bird species whether they are active or inactive. An active nest is defined as having eggs or young, as described by the Department of the Interior (April 16, 2003, Migratory Bird Permit Memorandum). Nest starts (nests that are under construction and do not yet contain eggs) are not protected from destruction. This international treaty for the conservation and management of bird species that migrate through more than one country is enforced in the United States by the USFWS. Additionally, as discussed below, §3513 of the California Fish and Game Code states that it is unlawful to take or possess any migratory non-game bird as designated in the MBTA. This provides California Department of Fish and Wildlife (CDFW) with enforcement authority for project-related impacts that would result in the “take” of bird species protected under the MBTA. Hunting of specific migratory game birds is permitted under the regulations listed in Title 50 CFR 20. The MBTA was amended in 1972 to include protection for migratory birds of prey (raptors).

### Bald and Golden Eagle Protection Act

The Bald and Golden Eagle Protection Act (Eagle Act) prohibits the taking or possession of and commerce in bald and golden eagles with limited exceptions. Under the Eagle Act, it is a violation to “take, possess, sell, purchase, barter, offer to sell, transport, export or import, at any time or in any manner, any bald eagle commonly known as the American eagle, or golden eagle, alive or dead, or any part, nest, or egg, thereof.” Take is defined to include pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, destroy, molest, and disturb. Disturb is further defined in 50 CFR Part 22.3 as “to agitate or bother a bald or golden eagle to a degree that causes, or is likely to cause, based on the best scientific information available (1) injury to an eagle, (2) a decrease in its productivity, by substantially interfering with normal breeding, feeding, or sheltering behavior, or (3) nest abandonment, by substantially interfering with normal breeding, feeding, or sheltering behavior.”

### Jurisdictional Waters

On May 25, 2023, the United States Supreme Court issued a decision in the case of *Sackett v. Environmental Protection Agency* (Supreme Court of the United States, 2023), which will ultimately influence how federal waters are defined. The May 25, 2023, Supreme Court decision in *Sackett v. Environmental Protection Agency* determined that “the Clean Water Act (CWA) extends to only those ‘wetlands with a continuous surface connection to bodies that are “waters of the United States” in their own right,’ so that they are ‘indistinguishable’ from those waters.” The U.S. Environmental Protection Agency (USEPA) and the U.S. Army Corps of Engineers (USACE) after review issued a final rule to replace the 2023 rule that amends the “Revised Definition of “Waters of the U.S.” to conform key aspects of the regulatory text to the U.S. Supreme Court’s May 25, 2023 decision in the case of *Sackett v. Environmental Protection Agency*.

Unless considered an exempt activity under Section 404(f) of the Federal Clean Water Act, any person, firm, or agency planning to alter or work in “waters of the U.S.,” including the discharge of dredged or fill material, must first obtain authorization from the USACE under Section 404 of the Clean Water Act (CWA; 33 USC 1344). Permits, licenses, variances, or similar authorization may also be required by other federal, state, and local statutes. Section 10 of the Rivers and Harbors Act prohibits the obstruction or

alteration of navigable waters of the U.S. without a permit from USACE (33 USC 403). Activities exempted under Section 404(f) are not exempted within navigable waters under Section 10.

The Clean Water Act (33 USC 1251-1376) provides guidance for the restoration and maintenance of the chemical, physical, and biological integrity of the nation's waters.

Section 401 requires that an applicant for a federal license or permit that allows activities resulting in a discharge to waters of the U.S. obtain state certification that the discharge complies with other provisions of CWA. The Regional Water Quality Control Board (RWQCB) administers the certification program in California and may require State Water Quality Certification before other permits are issued.

Section 402 establishes a permitting system for the discharge of any pollutant (except dredged or fill material) into waters of the U.S.

Section 404 establishes a permit program administered by USACE that regulates the discharge of dredged or fill material into waters of the U.S. (including wetlands). Implementing regulations by USACE are found in 33 CFR Parts 320-332. The Section 404 (b)(1) Guidelines were developed by the USEPA in conjunction with USACE (40 CFR Part 230), allowing the discharge of dredged or fill material for non-water dependent uses into special aquatic sites only if there were no practicable alternative that would have less adverse impacts.

#### State Laws, Regulations, and Policies

##### California Endangered Species Act

The California Endangered Species Act (CESA) (California Fish and Game Code Sections 2050 to 2097) is similar to the FESA. The California Fish and Wildlife Commission is responsible for maintaining lists of threatened and endangered species under CESA. CESA prohibits the take of listed and candidate (petitioned to be listed) species. "Take" under California law means to hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch capture, or kill (California Fish and Game Code, Section 86). The California Department of Fish and Wildlife (CDFW) can authorize take of a state-listed species under Section 2081 of the California Fish and Game Code if the take is incidental to an otherwise lawful activity, the impacts are minimized and fully mitigated, funding is ensured to implement and monitor mitigation measures, and CDFW determines that issuance would not jeopardize the continued existence of the species. A CESA permit must be obtained if a project will result in the "take" of listed species, either during construction or over the life of the project. For species listed under both FESA and CESA requiring a Biological Opinion under Section 7 of the FESA, CDFW may also authorize impacts to CESA species by issuing a Consistency Determination under Section 2080.1 of the Fish and Game Code.

##### California Code of Regulations Title 14 and California Fish and Game Code

The official listing of endangered and threatened animals and plants is contained in the California Code of Regulations Title 14 §670.5. A state candidate species is one that the California Fish and Game Code has formally noticed as being under review by CDFW to include in the state list pursuant to Sections 2074.2 and 2075.5 of the California Fish and Game Code.

Legal protection is also provided for wildlife species in California that are identified as "fully protected animals." These species are protected under Sections 3511 (birds), 4700 (mammals), 5050 (reptiles and amphibians), and 5515 (fish) of the California Fish and Game Code. These statutes prohibit take or

possession of fully protected species at any time. CDFW has informed non-federal agencies and private parties that they must avoid take of any fully protected species in carrying out projects. However, Senate Bill 618 (2011) allows the CDFW to issue permits authorizing the incidental take of fully protected species under the CESA, so long as any such take authorization is issued in conjunction with the approval of a Natural Community Conservation Plan that covers the fully protected species (California Fish and Game Code Section 2835).

#### California Environmental Quality Act

Under the California Environmental Quality Act of 1970 (Public Resources Code Section 21000 et seq.), lead agencies analyze whether projects would have a substantial adverse effect on a candidate, sensitive, or special-status species (Public Resources Code Section 21001(c)). These “special-status” species generally include those listed under FESA and CESA, and species that are not currently protected by statute or regulation, but would be considered rare, threatened, or endangered under the criteria included CEQA Guidelines Section 15380. Therefore, species that are considered rare are addressed under CEQA regardless of whether they are afforded protection through any other statute or regulation. The California Native Plant Society (CNPS) inventories the native flora of California and ranks species according to rarity; plants ranked as 1A, 1B, 2A, 2B, and 3 are generally considered special-status species under CEQA.

Although threatened and endangered species are protected by specific federal and state statutes, CEQA Guidelines Section 15380(d) provides that a species not listed on the federal or state list of protected species may be considered rare if it can be shown to meet certain specified criteria. These criteria have been modeled after the definition in FESA and the section of the California Fish and Game Code dealing with rare or endangered plants and animals. Section 15380(d) allows a public agency to undertake a review to determine if a significant effect on species that have not yet been listed by either the USFWS or CDFW (i.e., candidate species) would occur.

#### California Native Plant Protection Act

The California Native Plant Protection Act of 1977 (California Fish and Game Code Sections 1900-1913) requires all state agencies to use their authority to carry out programs to conserve endangered and otherwise rare species of native plants. Provisions of the act prohibit the taking of listed plants from the wild and require notification of CDFW at least 10 days in advance of any change in land use (other than changing from one agricultural use to another), which allows CDFW to salvage listed plants that would otherwise be destroyed.

#### Nesting Birds

California Fish and Game Code Subsections 3503 and 3800 prohibit the possession, take, or needless destruction of birds, their nests, and eggs, and the salvage of dead nongame birds. California Fish and Game Code Subsection 3503.5 protects all birds in the orders of Falconiformes and Strigiformes (birds of prey). Fish and Game Code Subsection 3513 states that it is unlawful to take or possess any migratory nongame bird as designated in the Migratory Bird Treaty Act or any part of such migratory nongame bird except as provided by rules and regulations adopted by the Secretary of the Interior under provisions of the Migratory Bird Treaty Act. The Attorney General of California has released an opinion that the Fish and Game Code prohibits incidental take.



### California Food and Agriculture Code Section 403

This section directs the California Department of Food and Agriculture (CDFA) to prevent the introduction and spread of injurious pests including noxious weeds.

CDFA Code Section 7271 designates the CDFA as the lead department in noxious weed management responsible for implementing state laws concerning noxious weeds. Representing a statewide program, noxious weed management laws and regulations are enforced locally in cooperation with the County Agricultural Commissioner.

Under state law, noxious weeds include any species of plant that is, or is liable to be, troublesome, aggressive, intrusive, detrimental, or destructive to agriculture, silviculture, or important native species, and difficult to control or eradicate, which the director, by regulation, designates to be a noxious weed (CDFA Code Section 5004).

### Jurisdictional Waters

Any action requiring a CWA Section 404 permit, or a Rivers and Harbors Act Section 10 permit, must also obtain a CWA Section 401 Water Quality Certification. The State of California Water Quality Certification (WQC) Program was formally initiated by the State Water Resources Control Board (SWRCB) in 1990 under the requirements stipulated by Section 401 of the Federal CWA. Although the CWA is a Federal law, Section 401 of the CWA recognizes that states have the primary authority and responsibility for setting water quality standards. In California, under Section 401, the State and Regional Water Boards are the authorities that certify that issuance of a federal license or permit does not violate California's water quality standards (i.e., that they do not violate Porter-Cologne and the Water Code). The WQC Program currently issues the WQC for discharges requiring USACE's permits for fill and dredge discharges within Waters of the United States, and also implements the State's wetland protection and hydromodification regulation program under the Porter Cologne Water Quality Control Act.

On May 28, 2020, the SWRCB implemented the State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State (Procedures) for inclusion in the forthcoming Water Quality Control Plan for Inland Surface Waters and Enclosed Bays and Estuaries and Ocean Waters of California (SWRCB 2019). The Procedures consist of four major elements:

- I. A wetland definition;
- II. A framework for determining if a feature that meets the wetland definition is a water of the state;
- III. Wetland delineation procedures; and
- IV. Procedures for the submittal, review, and approval of applications for Water Quality Certifications and Waste Discharge Requirements for dredge or fill activities.

Under the Procedures and the State Water Code (Water Code §13050(e)), "Waters of the State" are defined as "any surface water or groundwater, including saline waters, within the boundaries of the state." "Waters of the State" includes all "Waters of the U.S."

More specifically, a wetland is defined as: *"An area is wetland if, under normal circumstances, (1) the area has continuous or recurrent saturation of the upper substrate caused by groundwater, or shallow surface water, or both; (2) the duration of such saturation is sufficient to cause anaerobic conditions in the upper substrate; and (3) the area's vegetation is dominated by hydrophytes or the area lacks*

*vegetation.*” The wetland definition encompasses the full range of wetland types commonly recognized in California, including some features not protected under federal law, and reflects current scientific understanding of the formation and functioning of wetlands (SWRCB 2019).

Unless excluded by the Procedures, any activity that could result in discharge of dredged or fill material to Waters of the State, which includes Waters of the U.S. and non-federal Waters of the State, requires filing of an application under the Procedures.

#### California Fish and Game Code Section 1602 – Lake and Streambed Alteration Program

The CDFW is a trustee agency that has jurisdiction under Section 1600 et seq. of the California Fish and Game Code. Under Sections 1602 and 1603, a private party must notify CDFW if a proposed project will “substantially divert or obstruct the natural flow or substantially change the bed, channel, or bank of streambeds...except when the department has been notified pursuant to Section 1601.” Additionally, CDFW asserts jurisdiction over native riparian habitat adjacent to aquatic features, including native trees over four inches in diameter at breast height (DBH). If an existing fish or wildlife resource may be substantially adversely affected by the activity, CDFW may propose reasonable measures that will allow protection of those resources. If these measures are agreeable to the parties involved, they may enter into an agreement with CDFW identifying the approved activities and associated mitigation measures. Generally, CDFW recommends submitting an application for a Streambed Alteration Agreement (SAA) for any work done within the lateral limit of water flow or the edge of riparian vegetation, whichever is greater.

#### Local Laws, Regulation, and Policies

##### Yuba City General Plan

In addition to federal and State regulations described above, the City of Yuba City General Plan (General Plan) includes goals, objectives, and policies regarding biological resources within the City limits (City of Yuba City 2004). Applicable sections of the General Plan are listed below.

#### Guiding Policies from Section 8.4 G-1 through G-4 of the Yuba City General Plan:

1. Protect special-status species, in accordance with State regulatory requirements;
2. Protect and enhance the natural habitat features of the Feather River and new open space corridors within and around the urban growth area;
3. Preserve and enhance heritage oaks in the Planning Area;
4. Where appropriate, incorporate natural, wildlife habitat features into public landscapes, parks, and other public facilities; and
5. Support the preservation and enhancement of fisheries in the Feather River.

#### Implementing Policies from Section 8.4 I-1 through I-6 of the Yuba City General Plan:

1. Require protection of sensitive habitat areas and special status species in new development site designs in the following order: 1) avoidance; 2) onsite mitigation, and 3) offsite mitigation. Require assessments of biological resources prior to approval of any development within 300 feet of any creeks, sensitive habitat areas, or areas of potential sensitive status species;

2. Require preservation of oak trees and other native trees that are of a significant size, by requiring site designs to incorporate these trees to the maximum extent feasible;
3. Require, to the extent feasible, use of drought tolerant plants in landscaping for new development, including private and public projects; or
4. Require measures, as part of the Feather River Parkway Plan, to protect and enhance riparian zones, natural areas and wildlife habitat qualities; and establish and maintain a protection zone along the river where development shall not occur, except as part of the parkway enhancement (e.g., trails and bikeways). For park improvements, require a buffer zone along the river in which no grading or construction activities will occur, except as needed for shoreline uses such as boat docks;
5. Establish wildlife corridors in conjunction with implementation of the Feather River Parkway Plan to minimize wildlife-urban conflicts; and
6. Work with California Department of Fish and Game (now Wildlife) and other agencies to enhance and preserve fisheries in the Feather River.

### Impact Analysis

- 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?

**Less than significant impact with mitigation.** The biological reconnaissance survey was conducted on November 27, 2023, by HELIX Senior Scientist Patrick Martin. The project site was systematically surveyed on foot to ensure total search coverage, with special attention given to portions of the project site with the potential to support special-status species and sensitive habitats. All plant and animal species observed on-site during the surveys were recorded, and all biological communities occurring on-site were characterized. Following the field survey, the potential for each species identified in the database query to occur within the project site was determined based on the site survey, soils, habitats present within the project site, and species-specific information.

#### Plants

According to the database query, 11 listed and/or special-status plant species have the potential to occur in the vicinity of the project site (CDFW 2023). However, based on field observations, published information, and literature review, special-status plants do not have potential to occur within the project site since it is developed, managed, and landscaped. Many special-status plant species in the vicinity of the project site occur in vernal pools or other wetland habitats, clay soils or alkaline microsites, none of which are present within the project site itself. A Potential To Occur (PTO) table was created for the species as part of the BRA and is included as Appendix D of the BRA (Appendix C of this IS/MND).

#### Wildlife

Based on field observations, literature review, and published information, a total of two special-status wildlife species have the potential to occur in the project site: Swainson's hawk (*Buteo swainsoni*) and white-tailed kite (*Elanus leucurus*). In addition, other migratory birds and raptors protected under

federal, State, and local laws/policies also have potential to occur within the project site or nest in the vicinity of the project site. A PTO table was created for the species as part of the BRA and is included as Appendix D of the BRA (Appendix C of this IS/MND).

Swainson's hawk has the potential to occur in the project site due to the presence of suitable nesting habitat and known occurrences within five miles of the project site and suitable foraging habitat within 10 miles of the project site. Although no active nests were observed during the field survey, the project site and adjacent properties contain suitable habitat to support a variety of nesting birds within trees, shrubs, grass, and on bare ground. Active nests are protected by the California Fish and Game Code Section 3503.5 and the MBTA. Construction activities could result in disturbance of nest sites through temporary increases in ambient noise levels and increased human activity. In addition, vegetation clearing operations, including pruning or the removal of trees and shrubs, could impact nesting birds if these activities occur during the nesting season (February 1 to August 31). To avoid impacts to nesting birds, all ground-disturbing activities should be completed between September 1 and January 31, if feasible.

#### Swainson's Hawk

Tall trees in the project site could provide suitable nesting habitat for Swainson's hawk. There are several CNDDDB reported occurrences for this species within a 5-mile radius of the project site. Nearby CNDDDB reported occurrences document nesting along the Feather River (CDFW 2023). The nearest documented CNDDDB reported occurrence of this species nesting is located approximately one mile northeast of the project site, which documents nesting activity in riparian habitat along the Feather River in 2004 (CDFW 2023). Nesting success was not confirmed, but adults were documented at a nest that is described as located on the western side of the Feather River and surrounded on all sides by orchard (CDFW 2023).

There is potential for direct and indirect effects to Swainson's hawk if this species were to nest within or adjacent to the project site. However, implementation of Mitigation Measure BIO-1 would require pre-construction surveys to be conducted by a qualified biologist if vegetation removal and ground disturbing activities would begin during the nesting season. With implementation of Mitigation Measure BIO-1, potential impacts to Swainson's hawk would be less than significant.

#### White-Tailed Kite

White-tailed kite is a year-round resident in California in coastal areas and lowlands in the Central Valley. Population sizes increase during the non-breeding season due to the presence of over-wintering migrants. White-tailed kites prefer open stages of habitats dominated by herbaceous species (Zeiner et al. 1990). White-tailed kites will nest in tall trees adjacent to foraging habitat (Zeiner et al. 1990). White-tailed kites feed mainly on small mammals such as voles (*Microtus* spp.) but will take other small vertebrate and invertebrate prey.

Tall trees in the project site could provide suitable nesting habitat for white-tailed kite. Suitable nesting trees are also present on adjacent properties. The area surrounding the project site consists primarily of developed land and agricultural land, which is not an ideal foraging habitat for this species. While there are no CNDDDB records for this species within a 5-mile radius of the project site (CDFW 2023), white-tailed kite could nest in the project site during the nesting season.

There is potential for direct and indirect effects to white-tailed kite if this species were to nest within or adjacent to the project site. However, implementation of Mitigation Measure BIO-1 would require pre-construction surveys to be conducted by a qualified biologist if vegetation removal and ground disturbing activities would begin during the nesting season. With implementation of Mitigation Measure BIO-1, potential impacts to white-tailed kite would be less than significant.

#### Nesting Migratory Birds

Migratory birds are protected under the MBTA of 1918 (16 U.S.C. 703-711). The MBTA makes it unlawful to take, possess, buy, sell, purchase, or barter any migratory bird listed under 50 CFR 10; this also includes feathers or other parts, nests, eggs, or products, except as allowed by implementing regulations (50 CFR 21). Additionally, Section 3503 of the California Fish and Game Code states that it is unlawful to take, possess, or needlessly destroy the nest or eggs of any bird. Section 3503.5 specifically states that it is unlawful to take, possess, or destroy any raptors (i.e., hawks, owls, eagles, and falcons), including their nests or eggs; and Section 3513 specifically states that it is unlawful to take or possess any migratory nongame bird as designated in the MBTA or any part of such migratory nongame bird except as provided by rules and regulations adopted by the Secretary of the Interior under provisions of the MBTA.

A number of migratory birds and raptors have the potential to nest in or adjacent to the project site. Many birds were observed within the project site during the field survey and suitable nest locations are present including trees, shrubs, grass, and bare ground. Habitats such as cavities in trees and tree snags may provide habitat for cavity nesting birds. Therefore, nesting birds are expected to occur within the project site during the nesting season (generally February 1 to August 31).

As described above, the project could have potential effects on Swainson's hawk, white-tailed kite, or migratory birds and raptors during project construction. However, implementation of Mitigation Measure BIO-1 would require pre-construction surveys to be conducted by a qualified biologist if vegetation removal and ground disturbing activities would begin during the nesting season. With implementation of Mitigation Measure BIO-1, potential impacts to Swainson's hawk, white-tailed kite, and other nesting migratory birds and raptors would be less than significant.

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

**Less than significant impact.** The Feather River and adjoining riparian habitat is located approximately 0.5-mile east of the project site; however, hydric soils, riparian vegetation, and riparian habitat are absent from the immediate project area. According to CNDDDB, there are no recorded observations of natural communities of special concern with potential to occur within the project area or vicinity. Additionally, no natural communities of special concern were observed during the biological

reconnaissance survey. Therefore, implementation of the project would have a less than significant impact on riparian habitat or any other sensitive natural communities.

- 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?

**Less than significant impact.** Regulated aquatic resources do not occur in the project site, and there are no aquatic resources that would be considered a water of the U.S. or water of the State subject to USACE and RWQCB jurisdiction under Sections 404 and 401 of the CWA. Managed basins that hold water for the WTP occur in the project site; however, these two basins are constructed in uplands, and are actively managed as part of the WTP facility. The basins are cycled between wet and dry quarterly and do not meet the three parameters as a potential wetland. There are no aquatic resources or riparian habitat that would fall under the jurisdiction of Section 1600 of the California Fish and Game Code. Field work for a formal aquatic resource delineation was conducted in conjunction with the BRA; however, a formal aquatic resources delineation report was not completed nor provided to the USACE or RWQCB for verification as there were no aquatic resources observed on-site. The proposed project would have a less than significant impact on state or federally protected wetlands and would not fill any bodies of water.

- 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?

**Less than significant impact.** Wildlife corridors link areas of suitable wildlife habitat that are otherwise separated by rugged terrain, changes in vegetation, or human disturbance. The project site is fully fenced and bordered by major roadways, residential properties, commercial properties, orchards, and undeveloped wild lands along the Feather River. Therefore, the project site not considered a wildlife migration or movement corridor, and the impact would be a less than significant.

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

**Less than significant impact.** The City of Yuba City does not have specific mitigation or measures to protect oak trees; however, the General Plan includes Guiding Policy 8.4-G-3 and Implementing Policy 8.4-I.2 to protect native oaks (City of Yuba City 2004). Neither construction nor operation of the project would result in any impacts to oak trees or other trees in the project site, and there is no tree removal planned as a part of the proposed project. The project site includes native tree plantings along the perimeter, with large ornamental nonnative trees in the interior, and also includes trees native to California, such as coastal redwood trees. As no tree removal is proposed, the impact would be less than significant.

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

**No impact.** The project site is not within the boundaries of a Habitat Conservation Plan (HCP) or Natural Community Conservation Plan (NCCP). There would be no impact.

## Mitigation Measure

**BIO-1 Swainson's Hawk, White-tailed Kite, and Nesting Migratory Birds and Raptors.** If vegetation removal and ground disturbing activities begin during the nesting season (February 1 to August 31), a qualified biologist shall conduct a pre-construction survey of the project footprint for active nests. Additionally, the surrounding 500 feet shall be surveyed for active raptor nests, and up to a 0.25 mile for Swainson's hawk, where accessible. The pre-construction survey shall be conducted within three days before the commencement of ground-disturbing activities. If the pre-construction survey shows that there is no evidence of active nests, a letter report shall be prepared to document the survey, and no additional measures are recommended. If construction does not commence within three days of the pre-construction survey, or halts for more than three days, an additional survey shall be required before starting work.

If nests are found and considered to be active, the project biologist shall establish buffer zones to prohibit construction activities and minimize nest disturbance until the young have successfully fledged. Buffer width will depend on the species in question, surrounding existing disturbances, and specific site characteristics but may range from 20 feet for some songbirds to 500 feet for most raptors; if an active Swainson's hawk nest is observed, buffers may extend up to 0.25 mile if deemed necessary by the biologist on-site. If active nests are found within any trees slated for removal or active work areas, then an appropriate buffer shall be established around the area, and the area shall not be disturbed until a biologist determines that the nestlings have successfully fledged.

- Encroachment into the buffer may occur at the discretion of a qualified biologist. Any encroachment into the buffer shall be monitored by a qualified biologist to determine whether nesting birds are being impacted. Shall construction activities cause the nesting migratory bird or raptor to exhibit stress behaviors from adjacent construction activities, the exclusionary buffer shall be increased such that activities are far enough from the nest to stop this agitated behavior by the migratory bird or raptor. The exclusionary buffer shall remain in place until the chicks have fledged or as otherwise determined by a qualified biologist.

If construction activities are proposed to begin during the non-breeding season (September 1 through February 14), a survey is not required, and no further studies are necessary. However, a nesting bird survey outside of the nesting season may be warranted to identify potential raptor nests on-site since nests may be more easily observed from relatively long distances, giving the surveyor the opportunity to identify potential nest sites while some deciduous trees are dormant and without leaves.

A qualified biologist shall conduct environmental awareness training for all project-related personnel prior to the initiation of work. The training includes information on avoiding impacts to nesting birds as described above.

## V. CULTURAL RESOURCES

	Potentially significant impact	Less than significant impact with mitigation	Less than significant impact	No impact
Would the project:				
a) Cause a substantial adverse change in the significance of a historical resource pursuant to §15064.5?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Disturb any human remains, including those interred outside of dedicated cemeteries?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

A Cultural Resources Assessment (CRA) was prepared by HELIX in November 2024. The assessment is summarized below and is included as Appendix D to this IS/MND (HELIX 2024c).

### Environmental Setting

The Area of Potential Effects (APE) for the proposed project is defined as the geographic area where project activities may directly or indirectly cause changes in the character or use of historic properties of prehistoric or historic age, if any such properties exist. The APE for the current undertaking includes the entirety of the approximately 28-acre project site located in Yuba City, California. The APE is in the New Helvetia Land-Grant Section of the USGS 7.5-minute *Yuba City* Quadrangle Map.

### Methodology

#### Records Searches

HELIX requested a records search of the California Historical Resources Information System, Northeast Information Center (NEIC) at Chico State Enterprises, in Chico, California on November 7, 2023. The records search encompassed the approximate 28-acre APE and surrounding 0.5-mile area. The objective of the records search was to (1) identify prehistoric and historic resources previously documented in the APE and within 0.5 mile of the boundaries of the APE; (2) determine which portions of the APE may have been previously studied, when those studies took place, and how the studies were conducted; and (3) ascertain the potential for archaeological resources, historical resources, and human remains to be found in the APE. This search also included a review of the appropriate USGS topographic maps on which cultural resources are plotted, archaeological site records, building/structure/object records, and data from previous surveys and research reports. The California Points of Historical Interest, the California Historical Landmarks, the NRHP, CRHR, and the California State Historic Resources Inventory listings were also reviewed to ascertain the presence of designated, evaluated, and/or historic-era resources within the APE.

#### Native American Outreach

On November 16, 2023, HELIX requested a records search of the NAHC Sacred Lands File (SLF) to identify recorded locations of Native American sacred sites or human remains within the APE. A written response received from the NAHC on December 7, 2023, stated that the results of the SLF search



returned positive, and that HELIX should still reach out to nine Native American points of contacts to see if they had any additional information about cultural resources in the project vicinity which they would like to share. On January 3, 2024, HELIX sent letters to the nine tribal points of contact. On January 23, 2024, UAIC responded to HELIX's letter and requested contact information for the City as well as confirmation that the City would initiate consultation under AB 52. The City sent letters initiating AB 52 on August 19, 2024, and included the UAIC as a recipient. As of the date of this IS/MND, no other responses have been received from the other Native American contacts.

#### Cultural Resource Pedestrian Survey

On December 12, 2023, HELIX Archaeologists completed an intensive pedestrian survey of the APE. The survey involved the systematic investigation of the APE's ground surface by walking in parallel 10-meter (m) wide transects. During the survey, the ground surface was examined for artifacts (e.g., flaked stone tools, tool-making debris, stone milling tools, fire-affected rock, indigenous ceramics), soil discoloration that might indicate the presence of a indigenous cultural midden, soil depressions, and features indicative of the former presence of structures or buildings (e.g., standing exterior walls, postholes, foundations, wells) or historic debris (e.g., metal, glass, ceramics). Ground disturbances such as gopher holes, burrows, cut banks, and drainage banks were also visually inspected.

#### Records Searches

##### NEIC Previous Studies

HELIX's requested records search at the NEIC identified 16 cultural resource studies which have been previously conducted within a 0.5-mile radius of the project site. Four of these studies overlapped with at least a portion of the currently proposed APE. Each of the sixteen previously conducted investigations are described briefly in Table 7, while the four previous studies which at least partially overlap with the currently proposed APE are discussed below the table.

**Table 7: PREVIOUS STUDIES CONDUCTED WITHIN 0.5-MILE OF THE PROJECT SITE**

Report (starts with NEIC-)	Year	Author(s)	Title	Includes Project Site?	Affiliation
002969	1976	Storm, Donald J.	Cultural Resources Statement (A Combination of Many Small Projects done within the Yuba City – Marysville Area)	Yes	Storm, Donald J.
003134	1997	Shapiro, William, Keith Syda, and Lisa Shapiro	An Archaeological Assessment for the Sutter Levee District No. 1 Relief Well System in Sutter County, California	Yes	Pacific Legacy, Inc.
007165	2005	Quidachy, Karen and Scott Baxter	Cultural Resources Inventory Report for the Yuba City Water Treatment Plant, 24 to 30 MGD Water Supply Replacement Project, Sutter County, California	Yes	EN2 Resources, Inc.

Report (starts with NEIC-)	Year	Author(s)	Title	Includes Project Site?	Affiliation
013886	2016	Kim, Monte and Kathryn Haley	Sutter County Gaps Inventory and Finding of Effect Report – Feather River West Levee Project, Sutter County, California	Yes	ICF International
002666	1998	Deitz, Frank	Cultural Resources Assessment within Levee Districts 1 and 9, Maintenance Area 3, the East Levee of the Sutter Bypass, and the Wadsworth Canal, Sutter County, California (SAC 18)	No	U.S. Army Corps of Engineers
004658	2000	Nelson, Wendy J., Maureen Carpenter, and Kimberley L. Holanda	Cultural Resources Survey for the Level (3) Communications Long Haul Fiber Optics Project: Segment WP04: Sacramento to Redding	No	Far Western Anthropological Research Group
005722	2003	Harrington, Lori	An Archaeological Evaluation of the Willow Glen Care Center II, Sutter County, California	No	Cultural Research Associates
007362	2006	Arrington, Cindy and Bryon Bass	Cultural Resources Final Report of Monitoring and Findings for the Qwest Network Construction Project, State of California	No	SWCA
008954	2007	Grant, Joanne	Cultural Resources Report for Geotechnical Borings along the Feather River, Sutter Bypass, and Wadsworth Canal	No	URS Corporation
009500	2008	Grant, Joanne	Cultural Resources Survey Report for the Urban Levee Project	No	URS Corporation
009954	2008	Berg, John E., Sharon A. Waechter, Kimberly Carpenter, and Cindy Baker	Cultural Resources Inventory for the Pease-Marysville 60kV Transmission Line Project, Sutter and Yuba Counties, California	No	Far Western Anthropological Research Group, Inc. and PAR Environmental
012255	2013	Thomas, Jennifer and Naomi Scher	Cultural Resources Study of the Line-124A Replacement Project (MP 20.63-26.27), Sutter and Yuba Counties, California	No	Far Western Anthropological Research Group, Inc.
012293	2005	Baxter, R. Scott	National Register Evaluation of S.P.R.R. Grade, Yuba City, CA	No	Past Forward, Inc.
012490	2011	Blind, Heather and Barb Siskin	Cultural Resource Constraints Analysis for the Line 167 and Line 167-1 Gas Line Modernization Project, Butte and Sutter Counties, California	No	Garcia and Associates

Report (starts with NEIC-)	Year	Author(s)	Title	Includes Project Site?	Affiliation
014489	2010	Roark, Gabriel	Cultural Resources Inventory of the Yuba City Feather Rier Intake Screen, Yuba City, Sutter County, California – Revised Report	No	ICF International
014518	2017	Westwood, Lisa	Cultural Resources Inventory and Evaluation Report for Emergency Levee Repairs, Feather River Reaches 14-16, SPK-2017-00556, Sutter County, California	No	ECORP Consulting, Inc.

**Report NEIC-002969** – Cultural Resources Statement (A Combination of Many Small Projects done within the Yuba City – Marysville Area) was written by Donald J. Storm in 1976. The project prompting the cultural resource study associated with report NEIC-002969 involved the installation of sewer improvements within and underneath existing city streets, with a portion of the area studied within report NEIC-002969 encompassing the southern quarter of the currently proposed project site for the WTP project. The cultural investigation associated with report NEIC-002969 included a records search and field survey of the sewer project’s alignment, and did not encounter any prehistoric nor historic-era resources within the project site.

**Report NEIC-003134** – An Archaeological Assessment for the Sutter Levee District No. 1 Relief Well System in Sutter County, California was written by William Shapiro, Keith Syda, and Lisa Shapiro of Pacific Legacy in 1997. Under contract with the US Army Corps of Engineers (USACE) Sacramento District, Pacific Legacy staff examined a USACE water catchment basin designated Sac 03. The Sac 03 basin encompasses Reclamation District (RD) No. 1500 and the Tisdale Bypass within Sutter County, California. The purpose of the project was to identify and evaluate cultural properties at specific repair locations along the district levees which were recommended for repair prior to the 1998 rainy season. Associated borrow areas and staging areas for the levee repair project were also examined. The area of study for report NEIC-003134 included a corridor lying to the east of the currently proposed project site, just barely grazing the current project site’s eastern boundary line. The cultural investigation associated with report NEIC-003134 included a records search at the NEIC and pedestrian survey of the levee repair project’s site. These efforts did not identify any prehistoric or historic-era resources within the project site.

**Report NEIC-007165** – Cultural Resources Inventory Report for the Yuba City Water Treatment Plant, 24 to 30 MGD Water Supply Replacement Project, Sutter County, California, was written by Karen Quidachy and Scott Baxter of EN2 Resources Inc in 2005. This report was intended to support a planned project to install improvements to the water supply for the WTP, including a fish screen, and detailed the findings of the archaeological assessment of a 13.7-acre rectangular area which spans from just inside the project site of the currently proposed WTP project to the Feather River. The cultural investigation associated with report NEIC-007165 involved a records search at the NEIC and a pedestrian survey of the 13.7-acre APE. The single resource encountered during the study associated with report NEIC-007165 is resource P-51-000099 (CA-SUT-000099H), the Northern California/Southern Pacific Railroad grade, which lies well to the east of the project site and would not be impacted by implementation of the proposed project.

**Report NEIC-013886** – Sutter County Gaps Inventory and Finding of Effect Report – Feather River West Levee Project, Sutter County, California was written by Monte Kim and Kathryn Hayley of ICF International in 2016. The area studied within report NEIC-013886 included a corridor lying to the east of the currently proposed project site, just barely grazing the current project site’s eastern boundary line. The cultural resource investigation associated with report NEIC-013886 included a records search at the NEIC, Native American outreach, and a pedestrian survey of the Feather River West Levee Project’s APE. The two resources addressed within report NEIC– 013886 were resource 51-000099 (CA-SUT-000099H), the Northern California/Southern Pacific Railroad grade, and resource 51-000150 (CA-SUT-000150H), the Feather River West Levee, both of which lie to the east of the project site and would not be impacted by the proposed project.

#### Previously Recorded Resources

HELIX’s requested NEIC records search identified three previously recorded historic or indigenous-era resources located within a 0.5-mile radius of the currently proposed project site, none of which have been reported by the NEIC as lying within the project site. The resources within the project vicinity consist of three historic era resources, including the Northern California Railway/Southern Pacific Railroad Grade which has been converted to a Road and Irrigation System (51-000099), the Feather River West Levee (51-000150), and a series of Earthen Sewer Ponds (51-000240). These resources are described briefly below in Table 8.

**Table 8: PREVIOUSLY RECORDED CULTURAL RESOURCES WITHIN 0.5-MILE OF THE PROJECT SITE**

Primary	Trinomial	Year of Most Recent Examination	Recorder	Description	Within APE?
51-000099	CA-SUT-000099H	2013	Haley, Kathryn and Monte Kim	Historic Era – Northern California Railway/Southern Pacific Railroad, Railroad Grade Converted to Road and Associated Irrigation System	No
51-000150	CA-SUT-000150H	2018	Westwood, Lisa	Historic Era – Feather River West Levee	No
51-000240	CA-SUT-000240H	2010	Baxter, R. Scott	Historic Era – Earthen Sewer Ponds	No

#### Historic Map and Aerial Imagery Analysis

Historic maps encompassing the project area were examined to better understand historic period land uses and developments, and included a General Land Office records map of Township 15 North, Range 3 East, Mount Diablo Base Line and Meridian (1867); a *Marysville Calif.* 1:125,000 scale USGS quadrangle map (1888); and a *Yuba City Calif.* 1:31,680 scale USGS quadrangle map (1911). Neither of these maps revealed any past land uses that would inform this cultural resource assessment; only the Feather River and Southern Pacific Railway are depicted in the project vicinity.

HELIX staff also examined a series of historic aerial photographs dating from 1958 to 2020 to better understand historic-era development in the vicinity of the APE (NETROnline 2023). These photographs reveal that the project site was in agricultural use as early as 1958, and likely earlier, as well-established rows of what appear to be planted trees appear in the 1958 photograph. By 1958, Live Oak Boulevard

already served as a paved roadway that traversed from north to south just to the east of the currently proposed project site, and areas to the north, west, south, and east of the project site were also in a similar agricultural use. By 1973, the project site had been cleared of trees, and two water reservoirs had been constructed in the southern central portion of the currently proposed project site. These two reservoirs and associated ancillary structures would prove to remain on the project site through the present day, though they were eventually joined by an additional reservoir and accompanying ancillary structures to the adjacent east (added by 1998). By 1984, the project site had been landscaped with discrete patches of grass, and paved access roads and asphalt laydown areas were present in the southern portion of the project site. The 1984 photograph also indicates that adjacent areas south of the project site had been developed for light industrial and residential use, while the areas to the west, north, and east of the project site remained in agricultural use. By 1998, the two cylindrical water reservoirs (still present today) which still occupy the southern edge of the project site were constructed; the outline of the three retention ponds which now occupy the northern portion of the project site becomes clear; and the area adjacent to the west of the project site was in residential development, while a small park was constructed adjacent to the northwest of the project site. By 2005, the area adjacent to the north of the project site had been cleared. By 2009, an additional cylindrical reservoir had been added to the southeastern portion of the project site. Conditions remained relatively stable in the project vicinity from 2009 through to the present, with the sole exception of the development of the school complex to the adjacent north of the project site in 2016 (NETROnline 2023).

### **Native American Outreach**

HELIX used SLF to identify recorded locations of Native American sacred sites or human remains within the APE. A written response received from the NAHC on December 7, 2023, stated that the results of the SLF search returned positive, and that HELIX should still reach out to nine Native American points of contacts to see if they had any additional information about cultural resources in the project vicinity which they would like to share. On January 3, 2024, HELIX sent letters to the suggested points of contact. These Native American points of contact included:

- Glenda Nelson, Chairperson, Estom Yumeka Maidu Tribe of the Enterprise Rancheria
- Richard Johnson, Chairman, Nevada City Rancheria Nisenan Tribe
- Shelly Covert, Tribal Secretary, Nevada City Rancheria Nisenan Tribe
- Saxon Thomas, Tribal Council Member, Nevada City Rancheria Nisenan Tribe
- Tina Goodwin, Chairperson, Pakan'yani Maidu of Strawberry Valley Rancheria
- Gene Whitehouse, Chairperson, United Auburn Indian Community of the Auburn Rancheria
- Herbert Griffin, Executive Director of Cultural Preservation, Wilton Rancheria
- Dahlton Brown, Executive Director of Administration, Wilton Rancheria
- Cultural Preservation Department, Wilton Rancheria

On January 23, 2024, UAIC responded to HELIX's letter and requested contact information for the City as well as confirmation that the City would initiate consultation under AB 52. The City sent letters initiating AB 52 on August 19, 2024, and included the UAIC as a recipient. As of the date of this IS/MND, no other responses have been received from the other Native American contacts.

### **Intensive Pedestrian Survey**

HELIX archaeologists surveyed the APE on December 12, 2023. The pedestrian survey involved the systematic investigation of the APE's ground surface by walking in parallel 10-meter-wide transects.

During the pedestrian survey, the ground surface was examined for artifacts (e.g., flaked stone tools, tool-making debris, stone milling tools, fire-affected rock, prehistoric ceramics), soil discoloration that might indicate the presence of a prehistoric cultural midden, soil depressions, and features indicative of the former presence of structures or buildings (e.g., standing exterior walls, postholes, foundations, wells) or historic debris (e.g., metal, glass, ceramics). Ground disturbances such as gopher holes, burrows, cut banks, and drainage banks were also visually inspected.

During the survey, ground visibility was found to be moderate (between 60-80 percent), and the majority of the area within the APE was found to lie within the fenced boundaries of the Yuba City Water Treatment Plant. The survey area itself was a flat plot of land with signs of prior ground disturbance associated with the construction of water reservoirs, landscaping, and other WTP facility maintenance. Located within the southeast corner of the project site is a water retention pond with a large concrete cylinder extending from the ground. The cylinder is approximately 10 feet tall and extends out approximately 5 feet from the sidewall of the pond. Just west of, and almost adjacent to, this retention pond in the southeast corner of the property is a large "Clear Well" (or an enclosed tank that comprises the final storage tank in the WTP drinking water treatment system) surrounded by asphalt pavement. Just north of this feature is an open area characterized by push piles, indicative of recent disturbance of the ground surface in this area. These piles were located near the center of the WTP. Three large retention ponds are located in the north, northeast, and northwest portions of the WTP. At the time of the survey, the easternmost pond was found to be converted for use for several arrays of solar panels, while the westernmost pond was filled with rainwater. The central pond; however, was not filled with water at the time of HELIX's survey. An east-west-running tree line is just north of these water retention ponds the surveyor noted an east/west running tree line which provides a visual barrier between the WTP, and the school located to the adjacent north of the WTP facility. The northeast corner of the WTP site was found to have an access gate that leads out to Live Oak Boulevard. As the APE for this project also encompasses Live Oak Boulevard, as well as a strip of land along the eastern side of Live Oak Boulevard, these areas were also inspected. Photographs are included in Appendix D of the CRA (Appendix D of this IS/MND).

The HELIX field survey did not identify any archaeological or built-environmental cultural resources in the APE.

### **Impact Analysis**

- a) Cause a substantial adverse change in the significance of a historical resource pursuant to §15064.5?
- b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?

**Less than significant impact with mitigation.** The cultural resource investigation for the proposed project included a records search of the NEIC database, desktop archival research including historical map and aerial image analysis, Native American outreach, and an intensive pedestrian survey of the project area. The records search at the NEIC identified sixteen previously conducted cultural investigations in the vicinity of the APE, four of which included an examination of the currently proposed APE. Through their records searches, Native American outreach efforts, and pedestrian surveys of the area, these reports concluded that three resources had been recorded within 0.5-mile of the APE, and that none of these resources were reported by the NEIC as lying within the APE. Ultimately, the APE was

thoroughly inspected during HELIX's pedestrian survey, and no prehistoric or historic-era cultural materials or features were observed.

On November 16, 2023, HELIX requested that the NAHC conduct a search of their SLF for the presence of Native American sacred sites or human remains in the vicinity of the APE. A written response received from the NAHC on December 7, 2023, stated that the results of the Sacred Lands File search were positive and recommending that HELIX reach out to nine Native American tribal representatives who may also have knowledge of cultural resources within the project site. On January 3, 2024, HELIX sent letters to the nine Native American contacts that were recommended by the NAHC. The letters advised the tribes and specific individuals of the proposed project and requested information regarding cultural resources in the immediate area, as well as any feedback or concerns related to the proposed project. UAIC responded to HELIX's letter and requested contact information for the City as well as confirmation that the City would initiate consultation under AB 52. The City sent letters initiating AB 52 on August 19, 2024, and included the UAIC as a recipient. As of the date of this IS/MND, no other responses have been received from the other Native American contacts. For more information about AB 52 consultation between the City and tribal representatives, see Section 9.XVIII, *Tribal Cultural Resources*.

The results of records searches conducted by HELIX and the negative findings of the pedestrian survey led HELIX to recommend that there would be no effect on historical resources or historic properties, including archaeological and built-environment resources, as a result of project implementation. However, HELIX recommends that Mitigation Measure CUL-1, Accidental Discovery of Cultural Resources, be implemented to prepare the project team for the unlikely event that cultural resources are encountered during excavation and construction activities. Implementation of Mitigation Measure CUL-1 would include requirements to halt construction activities within 100 feet of the discovery, and for a qualified archaeologist to assess the resource and provide appropriate management recommendations. Therefore, with implementation of Mitigation Measure CUL-1, the impact on historical and archaeological resources pursuant to PRC Section 15064.5 would be less than significant for questions a) and b).

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

**Less than significant impact with mitigation.** Surveys conducted by HELIX staff did not find indications of precontact cultural resources. However, the possibility exists that ground-disturbing activities during construction may inadvertently uncover previously unknown buried human remains or cultural resources. Although it is highly unlikely that there would be an impact on human remains from construction of the proposed project, there is always the possibility that ground-disturbing activities during construction may uncover previously unknown buried human remains. Implementation of Mitigation Measure CUL-2, Accidental Discovery of Human Remains, would require compliance with PRC Section 5097.98 in the event of an accidental discovery or recognition of any human remains. The measure includes protocols to follow in the event of an accidental discovery of human remains during project construction such as halting further disturbance of the location, coordinating with the County Coroner, and coordinating with the NAHC to ensure the inadvertent discovery of human remains is less than significant. Therefore, with implementation of Mitigation Measure CUL-2, the impact would be less than significant.

## Mitigation Measures

**CUL-1      *Accidental Discovery of Cultural Resources.*** In the event that cultural resources are exposed during ground-disturbing activities, construction activities shall be halted within 100 feet of the discovery. Cultural resources could consist of but are not limited to stone, bone, wood, or shell artifacts, or features, including hearths, structural remains, or historic dumpsites. If the resources cannot be avoided during the remainder of construction, the retained archaeologist, who meets the Secretary of the Interior's *Professional Qualifications Standards*, shall assess the resource and provide appropriate management recommendations. If the discovery proves to be CRHR- or NRHP-eligible, additional documentation and analysis, such as data recovery excavation, may be warranted.

**CUL-2      *Accidental Discovery of Human Remains.*** Although considered highly unlikely, there is always the possibility that ground-disturbing activities during construction may uncover previously unknown human remains. In the event of an accidental discovery or recognition of any human remains, PRC Section 5097.98 shall be followed. Once project-related earthmoving begins and if there is a discovery or recognition of human remains, the following steps shall be taken:

1. There shall be no further excavation or disturbance of the specific location or any nearby area reasonably suspected to overlie adjacent human remains until the County Coroner is contacted to determine if the remains are Native American and if an investigation of the cause of death is required. If the coroner determines the remains are Native American, the coroner shall contact the NAHC within 24 hours, and the NAHC shall identify the person or persons it believes to be the "most likely descendant" of the deceased Native American. The most likely descendant shall make recommendations to the landowner or the person responsible for the excavation work, for means of treating or disposing of, with appropriate dignity, the human remains, and any associated grave goods as provided in PRC Section 5097.98, or
2. Where the following conditions occur, the landowner or their authorized representative shall rebury the Native American human remains and associated grave goods with appropriate dignity either in accordance with the recommendations of the most likely descendent or on the project site in a location not subject to further subsurface disturbance:
  - a. The NAHC is unable to identify a most likely descendent or the most likely descendent failed to make a recommendation within 48 hours after being notified by the commission;
  - b. The descendent identified fails to make a recommendation; or
  - c. The landowner or his authorized representative rejects the recommendation of the descendent, and the mediation by the NAHC fails to provide measures acceptable to the landowner.



## VI. ENERGY

	Potentially significant impact	Less than significant impact with mitigation	Less than significant impact	No impact
Would the project:				
a) Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

### Environmental Setting

PG&E is the primary energy utility purveyor within the City. An existing PG&E 12-kV utility pole is located on the project site.

### Impact Analysis

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

**Less than significant impact.** Energy consumed for proposed project construction would primarily consist of transportation fuels in the form of diesel and gasoline. Fuel consumption would result from the use of on-road and off-highway trucks for the transportation of construction materials, construction worker vehicles traveling to and from the proposed project site, and the use of off-road construction equipment. While construction activities would consume petroleum-based fuels, consumption of such resources would be temporary and would cease upon the completion of construction.

Operational activities associated with the proposed project would include daily maintenance trips. Per the project engineer, one pickup truck would be used for maintenance resulting in two ADT. The project would include one new pump with a 250 hp electric motor that would run for six months out of the year. The new pump would require approximately 726,110 kWh per year of electricity, as discussed in Section 9.III, *Air Quality*.

Additionally, the project would be required to comply with State idling rules: commercial diesel vehicles- 13 CCR Chapter 10 Section 2485; off road diesel vehicles- 13 CCR Chapter 9 Article 4.8 Section 2449, resulting in reduced transportation fuels.

Energy use and GHG emissions are closely related. As discussed in Section 9.VIII, *Greenhouse Gas Emissions*, project GHG emissions would be primarily associated with transportation fuels use and electricity use. The project GHG emissions would not exceed the construction and operational GHG threshold.

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

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

**Less than significant impact.** See the discussion under question a) above. The proposed project would not result in a substantial new demand for energy resources nor conflict with or obstruct any State or local plan for renewable energy or energy efficiency. Therefore, the impact would be less than significant impact.

## VII. GEOLOGY AND SOILS

	Potentially significant impact	Less than significant impact with mitigation	Less than significant impact	No impact
Would the project:				
a) Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i. Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
ii. Strong seismic ground shaking?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
iii. Seismic-related ground failure, including liquefaction?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
iv. Landslides?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Result in substantial soil erosion or the loss of topsoil?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

A Geotechnical Engineering Report was prepared by Blackburn Consulting on March 15, 2024. The Geotechnical Engineering Report is summarized below and is included as Appendix E to the IS/MND.

### Environmental Setting

#### Geologic Setting

Sutter County is part of the Great Valley geomorphic province, otherwise known as the Central Valley of California. The Central Valley stretches 500 miles in a generally northwest to southeast direction and averages about 40 miles in width between the Coast Ranges in the west and the Sierra Nevada in the

east. This area is characterized by flat-lying sedimentary rocks overlain by alluvial soils, which can be up to 200 feet deep near the Sacramento River (City 2004).

The project site is located within the north central portion of the approximately 50-mile-wide and 400-mile long Great Valley Geomorphic Province. The Great Valley province is a depositional basin, bound by the Sierra Nevada to the east, the Coast Ranges to the west, and the Klamath Mountains and Cascade Range to the north. The basin is a broad, elongated, northwest trending, structural trough that has been filled with a thick sequence of sediments (Blackburn Consulting 2024).

Published geologic mapping from the United States Geological Survey shows the project site is underlain by the Pleistocene age Upper Member of the Modesto Formation. The Upper Member of the Modesto Formation consists of unconsolidated un-weathered gravel, sand, silt, and clay (Blackburn Consulting 2024).

#### Faults and Seismicity

The project site is not located within the Alquist-Priolo Earthquake Fault Zone. The nearest major fault to the project site is the Hayward Fault, located approximately 90 miles southwest of the project site. A smaller fault zone, the Cleveland Hill Fault, is approximately 21 miles northeast of the project site (DOC 2024b).

#### Soils

According to the Natural Resources Conservation Service (NRCS) Web Soil Survey, the project site is made up of Conejo-Urban land complex with 0 percent slopes and a low to moderate risk of subsidence, MLRA 17 (NRCS 2023). Soils of the Conejo-Urban land complex are classified as lean clay up to 80 inches below the ground surface.

At the new well location, Blackburn Consulting encountered medium stiff lean clay and lean clay with sand to a depth of approximately 10 feet, underlain by medium dense, poorly graded sand and clay like sand to a depth of approximately 21 feet. Blackburn Consulting encountered very stiff lean clay with sand from 21 feet to the maximum depth explored of 21.5 feet.

In the shallow pipeline borings, Blackburn Consulting encountered stiff to hard lean clay and lean clay with sand to the maximum depth explored of 5 feet.

#### Groundwater

Blackburn Consulting did not encounter free groundwater to the maximum depth explored of 21.5 feet below ground surface at the new well location. Blackburn Consulting reviewed available groundwater monitoring data in two groundwater wells at the project site and estimated groundwater elevations ranging from about 30 to 42 feet which correspond to depths of approximately 18 to 35 feet below the proposed improvements. The depth to groundwater is anticipated to fluctuate seasonally with rainfall and the water level in the nearby Feather River, and it is anticipated that perched water could be encountered during winter and spring months (Blackburn Consulting 2024).

## Liquefaction

The potential for liquefaction, which is the loss of soil strength due to seismic forces, is dependent on soil types and density, depth to groundwater, and the duration and intensity of ground shaking. Although no specific liquefaction hazard areas have been identified in the City, liquefaction is possible where unconsolidated sediments and a high-water table coincide. It is reasonable to assume that due to the depth to groundwater within Yuba City, liquefaction hazards would be negligible.

## Dams

Oroville Dam is located approximately 27 miles northeast of the project site. The breach hazard for Oroville Dam is extremely high according to the California Department of Water Resources (DWR's) Division of Safety of Dams. However, the project site is not located within the Oroville Dam inundation zone.

## Impact Analysis

- a) Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:
  - i. Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42?
  - ii. Strong seismic ground shaking?

**Less than significant impact.** The proposed project would include construction and operation of an ASR well and associated infrastructure at an existing City-owned WTP site. The project site and its vicinity are located in an area traditionally characterized by relatively low seismic activity. The project site is not located in or adjacent to an Alquist-Priolo Earthquake Fault Zone and therefore, the potential for surface rupture or creep due to faulting at the project site would be very low. The nearest major fault is the Hayward Fault, located approximately 90 miles southwest of the project site. A smaller fault zone, the Cleveland Hill Fault is approximately 21 miles northeast of the site (DOC 2024b). Additionally, the Fault Activity Map of California and Geologic Map of California: Chico Sheet do not identify Historic or Holocene age faults (displacement within the last 11,700 years) within or immediately adjacent to the project site (Blackburn Consulting 2024).

As there are no known earthquake faults within the project site nor in the vicinity, the risk of seismic ground shaking is low. Therefore, the impact would be less than significant for questions ai) and aii).

- iii. Seismic-related ground failure, including liquefaction?

**Less than significant impact.** Liquefaction is a soil strength and stiffness loss phenomenon that typically occurs in loose, saturated cohesionless soils because of strong ground shaking during earthquakes. The potential for liquefaction at a site is usually determined based on the results of a subsurface geotechnical investigation and the groundwater conditions beneath the site. Hazards to buildings associated with liquefaction include bearing capacity failure, lateral spreading, and differential settlement of soils below foundations, which can contribute to structural damage or collapse.

According to the Geotechnical Engineering Report prepared by Blackburn Consulting, the project site is composed of medium-dense, stiff soils. Free groundwater was not encountered at the maximum depth explored of 21.5 feet below ground surface at the new well location. Available groundwater monitoring data was then reviewed and estimated at groundwater elevations ranging from about 30 to 42 feet, or approximately 18 to 35 feet below the proposed improvements. Due to the depth of groundwater, as well as the density and stiffness of the soil present on the project site, the potential for seismic-related ground failure, including liquefaction, would be negligible. Therefore, the impact would be less than significant.

iv. Landslides?

**Less than significant impact.** As the proposed project is located on the Sacramento Valley floor, no major geologic landforms exist on or near the project site that could result in a landslide event. The potential for landslides at the project site is minimal as the site is approximately 11 miles from the Sutter Buttes, which is considered to be in a low landslide hazard zone. Additionally, the local topography is relatively flat and level, with elevations ranging from 52 to 72 feet amsl. Therefore, landslides are unlikely at the project site, and the impact would be less than significant.

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

**Less than significant impact.** Earthmoving activities associated with the project would include well drilling, rough and fine grading, installation of underground utilities, footing and pad construction, and aboveground construction over an approximately 4.8-acre impact area. These activities could expose soils to erosion processes and the extent of erosion would vary depending on slope steepness and stability, vegetation and cover, concentration of runoff, and weather conditions. Projects that would disturb one or more acres of soil are required to obtain coverage under the General Permit for Discharges of Storm Water Associated with Construction Activity Construction General Permit Order 2009-0009-DWQ. The Construction General Permit requires the development of a Storm Water Pollution Prevention Plan (SWPPP) by a certified Qualified SWPPP Developer (QSD). Since the project would disturb greater than one acre of soil, a SWPPP would be prepared and construction BMPs would be implemented, per the requirements of the Construction General Permit.

Therefore, with preparation and implementation of the SWPPP, the project would not result in substantial soil erosion or the loss of topsoil and the impact would be less than significant.

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

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?

**Less than significant impact.** The project site consists of Conejo-Urban land complex soil with a 0 percent slope and a low to moderate risk of subsidence. The project site and surrounding areas do not contain substantial grade changes, and risks of landslides, lateral spreading, subsidence, liquefaction, and collapse are minimal. Additionally, the Geotechnical Engineering Report for the proposed project indicated that soil expansion potential is relatively low at the site.

The project includes the construction and operation of an ASR well and well shade structure and does not involve development of structures or facilities that could be affected by expansive soils or expose people to substantial risks to life or property. While construction of the proposed project would also require grading, the City would comply with the construction related BMPs and recommendations included in the Geotechnical Engineering Report, as well as relevant federal, State, and local policies. Therefore, the impact would be less than significant for questions c) and d).

- 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?

**No impact.** Septic installation or alternative wastewater disposal systems are not necessary for the project. Flush wastewater from the new ASR well would be directed to the center existing WTP filter backwash pond. Therefore, there would be no impact regarding the use of septic tanks or alternative wastewater disposal systems.

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

**No impact.** The project site is an existing City-owned WTP, which is comprised of highly disturbed land. There are no unique paleontological resources or sites or unique geologic features present on the project site. Therefore, the project would not directly or indirectly destroy any unique paleontological resources or sites or any unique geologic feature. There would be no impact.

## VIII. GREENHOUSE GAS EMISSIONS

	Potentially significant impact	Less than significant impact with mitigation	Less than significant impact	No impact
Would the project:				
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

CalEEMod version 2022.1 was used to quantify project-generated construction and operational emissions. The model output sheets are included in Appendix B to this IS/MND.

### Environmental Setting

Global climate change refers to changes in average climatic conditions on Earth, including temperature, wind patterns, precipitation, and storms. Global temperatures are moderated by atmospheric gases. These gases are commonly referred to as GHGs because they function like a greenhouse by letting sunlight in but preventing heat from escaping, thus warming the Earth's atmosphere.

GHGs are emitted by natural processes and human (anthropogenic) activities. Anthropogenic GHG emissions are primarily associated with (1) the burning of fossil fuels during motorized transport, electricity generation, natural gas consumption, industrial activity, manufacturing, and other activities; (2) deforestation; (3) agricultural activity; and (4) solid waste decomposition.

The GHGs defined under California's Assembly Bill (AB) 32, described below, include carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>), nitrous oxide (N<sub>2</sub>O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF<sub>6</sub>). Each GHG differs in its ability to absorb heat in the atmosphere based on the lifetime, or persistence, of the gas molecule in the atmosphere. Estimates of GHG emissions are commonly presented in carbon dioxide equivalents (CO<sub>2</sub>e), which weigh each gas by its global warming potential (GWP). Expressing GHG emissions in CO<sub>2</sub>e takes the contribution of all GHG emissions to the greenhouse effect and converts them to a single unit equivalent to the effect that would occur if only CO<sub>2</sub> were being emitted. GHG emissions quantities in this analysis are presented in metric tons (MT) of CO<sub>2</sub>e. For consistency with United Nations Standards, modeling, and reporting of GHGs in California and the U.S. use the GWPs defined in the Intergovernmental Panel on Climate Change's (IPCC) Fourth Assessment Report (IPCC 2007): CO<sub>2</sub> – 1; CH<sub>4</sub> – 25; N<sub>2</sub>O – 298.

### Regulatory Setting

#### GHG Reduction Regulations and Plans

The primary GHG reduction regulatory legislation and plans (applicable to the project) at the State, regional, and local levels are described below. Implementation of California's GHG reduction mandates



is primarily under the authority of CARB at the State level, FRAQMD at the regional level, and the City at the local level.

**Executive Order S-3-05:** On June 1, 2005, Executive Order (EO) S-3-05 proclaimed that California is vulnerable to climate change impacts. It declared that increased temperatures could reduce snowpack in the Sierra Nevada, further exacerbate California's air quality problems, and potentially cause a rise in sea levels. To avoid or reduce climate change impacts, EO S-3-05 calls for a reduction in GHG emissions to the year 2000 level by 2010, to year 1990 levels by 2020, and to 80 percent below 1990 levels by 2050. Executive Orders are not laws and can only provide the governor's direction to State agencies to act within their authority to reinforce existing laws.

**Assembly Bill 32 – Global Warming Solution Act of 2006:** The California Global Warming Solutions Act of 2006, widely known as AB 32, requires that CARB develop and enforce regulations for the reporting and verification of Statewide GHG emissions. CARB is directed by AB 32 to set a GHG emission limit, based on 1990 levels, to be achieved by 2020. The bill requires CARB to adopt rules and regulations in an open public process to achieve the maximum technologically feasible and cost-effective GHG emission reductions.

**Executive Order B-30-15:** On April 29, 2015, EO B-30-15 established a California GHG emission reduction target of 40 percent below 1990 levels by 2030. The EO aligns California's GHG emission reduction targets with those of leading international governments, including the 28-nation European Union. California is on track to meet or exceed the target of reducing GHG emissions to 1990 levels by 2020, as established in AB 32. California's new emission reduction target of 40 percent below 1990 levels by 2030 will make it possible to reach the goal established by EO S-3-05 of reducing emissions to 80 percent under 1990 levels by 2050.

**Senate Bill 32:** Signed into law by Governor Brown on September 8, 2016, Senate Bill (SB) 32 (Amendments to the California Global Warming Solutions Action of 2006) extends California's GHG reduction programs beyond 2020. SB 32 amended the Health and Safety Code to include Section 38566, which contains language to authorize CARB to achieve a Statewide GHG emission reduction of at least 40 percent below 1990 levels by no later than December 31, 2030. SB 32 codified the targets established by EO B-30-15 for 2030, which set the next interim step in the State's continuing efforts to pursue the long-term target expressed in EO B-30-15 of 80 percent below 1990 emissions levels by 2050.

**Assembly Bill 1279:** Approved by Governor Newsom on September 16, 2022, AB 1279, the California Climate Crisis Act, declares the policy of the State to achieve net zero GHG emissions as soon as possible, but no later than 2045, and achieve and maintain net negative GHG emissions thereafter, and ensure that by 2045, Statewide anthropogenic GHG emissions are reduced to at least 85 percent below the 1990 levels. AB 1279 anticipates achieving these policies through direct GHG emissions reductions, removal of CO<sub>2</sub> from the atmosphere (carbon capture), and an almost complete transition away from fossil fuels.

**California Air Resources Board Scoping Plan:** The Scoping Plan is a strategy CARB develops and updates at least once every five years, as required by AB 32. It lays out the transformations needed across our society and economy to reduce emissions and reach our climate targets. The current 2022 Scoping Plan is the third update to the original plan that was adopted in 2008. The initial 2008 Scoping Plan laid out a path to achieve the AB 32 mandate of returning to 1990 levels of GHG emissions by 2020, a reduction of approximately 15 percent below business as usual. The 2008 Scoping Plan included a mix of incentives,

regulations, and carbon pricing, laying out the portfolio approach to addressing climate change and clearly making the case for using multiple tools to meet California's GHG targets. The 2013 Scoping Plan assessed progress toward achieving the 2020 mandate and made the case for addressing short-lived climate pollutants (SLCPs). The 2017 Scoping Plan also assessed the progress toward achieving the 2020 limit and provided a technologically feasible and cost-effective path to achieving the SB 32 mandate of reducing GHGs by at least 40 percent below 1990 levels by 2030. On December 15, 2022, CARB approved the 2022 Scoping Plan for Achieving Carbon Neutrality (2022 Scoping Plan). The 2022 Scoping Plan lays out a path to achieve targets for carbon neutrality and reduce anthropogenic GHG emissions by 85 percent below 1990 levels no later than 2045, as directed by AB 1279. The actions and outcomes in the plan will achieve significant reductions in fossil fuel combustion by deploying clean technologies and fuels; further reductions in SLCPs; support for sustainable development; increased action on natural and working lands to reduce emissions and sequester carbon; and the capture and storage of carbon (CARB 2022).

**Feather River Air Quality Management District:** Currently the FRAQMD has not established thresholds of significance for GHG emissions, nor has it published any goals, implementation measures, or guidance regarding GHG. Instead, FRAQMD recommends local lead agencies refer to a paper entitled *CEQA and Climate Change* prepared by the California Air Pollution Control Officers Association (CAPCOA 2008).

**Sutter County Climate Action Plan:** The Sutter County Climate Action Plan (CAP) was designed under the premise that the County and the community it represents are uniquely capable of addressing emissions associated with sources under the County's jurisdiction and that the County's emission reduction efforts should coordinate with the state strategies of reducing emissions in order to accomplish these reductions in an efficient and cost-effective manner (County 2010b).

**Yuba City Efficiency Plan:** The City of Yuba City's Resource Efficiency Plan (Efficiency Plan) describes potential reductions in GHG emissions from new development by 2020 as compared to the 2020 unmitigated conditions. As of now, this reduction goal has been achieved. However, the City's Efficiency Plan does not describe post-2020 GHG reductions mandated by SB 32 and AB 1279.

The Efficiency Plan provides guidance on how to analyze GHG emissions and determines the significance of those emissions during CEQA review of proposed development projects. The Development Review Process (DPR) procedures for evaluating GHG impacts and determining significance for CEQA purposes will be streamlined by (1) applying an emissions level that is determined to be less than significant for small projects, and (2) utilizing Screening Tables to mitigate project GHG emissions that exceed the threshold level (City 2016).

**Yuba City General Plan:** The Yuba City General Plan sets forth the following goals and policies that address greenhouse gases and climate change and which have potential relevance to the project's CEQA review (City 2004):

- 8.6-I-4 Provide information to encourage the use of transportation modes that minimize motor vehicle use and resulting contaminant emissions.
- 8.6-I-7 Require applicants whose development would result in construction-related exhaust emissions to minimize such emissions by maintaining equipment engines in good condition and in proper tune according to manufacturer's specifications and during smog season (May through October) by not allowing construction equipment to be left idling for long periods.

8.6-I-8 Require applicants whose development would result in potential carbon monoxide (CO) “hot spot” impacts to consult with the City to ensure that schools, hospitals, or day care facilities are not located near such “hot spots.”

### **Methodology and Assumptions**

See Section 9.III, *Air Quality*, for a discussion on methodology and assumptions.

### **Standards of Significance**

Given the relatively small levels of emissions generated by a project in relationship to the total amount of GHG emissions generated on a national or global basis, individual projects are not expected to result in significant, direct impacts with respect to climate change. However, given the magnitude of the impact of GHG emissions on the global climate, GHG emissions from new development could result in significant, cumulative impacts with respect to climate change. Thus, the potential for a significant GHG impact is limited to cumulative impacts. According to Appendix G of the state CEQA Guidelines, the following criteria may be considered in establishing the significance of GHG emissions:

Would the project:

1. Generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment?
2. Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs?

The determination of significance is governed by CEQA Guidelines 15064.4, entitled “Determining the Significance of Impacts from Greenhouse Gas Emissions.” CEQA Guidelines Section 15064.4(a) states, “[t]he determination of the significance of greenhouse gas emissions calls for a careful judgment by the lead agency consistent with the provisions in Section 15064. A lead agency should make a good-faith effort, based to the extent possible on scientific and factual data, to describe, calculate or estimate the amount of greenhouse gas emissions resulting from a project. A lead agency shall have discretion to determine, in the context of a particular project, whether to ... [use a quantitative model or qualitative model]” (emphasis added). In turn, CEQA Guidelines Section 15064.4(b) clarifies that a lead agency should consider “Whether the project emissions exceed a threshold of significance that the lead agency determines applies to the project.” Therefore, consistent with CEQA Guidelines Section 15064.4, the GHG emissions analysis for the project appropriately relies upon a threshold based on the exercise of careful judgement and believed to be appropriate in the context of this project.

The FRAQMD has not established GHG thresholds of significance or other guidance for determining the significance of a land use development project’s GHG impacts. The Sacramento Metropolitan Air Quality Management District (SMAQMD) has adopted GHG emissions thresholds which consider a development project’s fair share contribution to the State’s post 2030 GHG reduction goals, including the 2045 net zero GHG emission goal mandated by AB 1279. For short-term construction GHG emissions, the guidance and threshold of significance from the SMAQMD were used. The SMAQMD recommends a bright line threshold of 1,100 MT CO<sub>2</sub>e per year to determine the significance of a project’s construction GHG emissions (SMAQMD 2020). Where a qualified GHG Reduction Plan has not been adopted by the lead agency, for operational period GHG emissions, the SMAQMD recommends a screening level of 1,100 MT CO<sub>2</sub>e per year. For all projects, regardless of project GHG emission levels, the SMAQMD requires the implementation of Tier 1 Best Management Practices (BMPs). Projects that do not

implement the Tier 1 Best Management Practices must conduct additional calculations to determine excess GHG emissions and provide measures either on-site or off-site to provide equivalent mitigation (SMAQMD 2020):

- BMP 1 - projects shall be designed and constructed without natural gas infrastructure.
- BMP 2 - projects shall meet the current CALGreen Tier 2 standards, except all electric vehicle capable spaces shall instead be electric vehicle ready.

For projects which exceed 1,100 MT CO<sub>2</sub>e per year operational screening level emissions, the SMAQMD requires implementation of Tier 2 BMPs (SMAQMD 2020):

- BMP 3 - residential projects shall achieve a 15 percent reduction in VMT per resident, office projects shall achieve a 15 percent reduction in VMT per worker compared to existing average VMT for the county, and retail projects shall achieve a no net increase in total VMT to show consistency with SB 743.

### Impact Analysis

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

**Less than significant impact.** GHG emissions would be generated by the project during construction (vehicle engine exhaust from construction equipment, on-road hauling trucks, and worker commuting trips) and during long-term operation (daily maintenance trips and use of 250 hp pump). GHG emissions were calculated using CalEEMod, as described in *Methodology and Assumptions*.

#### Construction Emissions

The project's construction period GHG emissions are compared to SMAQMD's construction GHG emission threshold in Table 9, *Construction GHG Emissions*. As shown in Table 9, the annual project construction emissions would not exceed SMAQMD's construction GHG emission threshold, and the impact would be less than significant.

**Table 9: CONSTRUCTION GHG EMISSIONS**

Year of Emissions	Emissions (MT CO <sub>2</sub> e)
2025	108.0
2026	139.0
2027	2.2
<b>Maximum Annual</b>	<b>249.2</b>
<i>SMAQMD Threshold</i>	<i>1,100</i>
<b><i>Exceed Threshold?</i></b>	<b><i>No</i></b>

Source: CalEEMod (output data is provided in Appendix B)

GHG = greenhouse gas; MT = metric tons; CO<sub>2</sub>e = carbon dioxide equivalent; SMAQMD = Sacramento Metropolitan Air Quality Management District

## Operational Emissions

The project's operational GHG emissions are compared to SMAQMD's operational GHG emission screening level in Table 10, *Operational GHG Emissions*. As shown in Table 10, project operational emissions would not exceed the SMAQMD operational GHG screening level.

**Table 10: OPERATIONAL GHG EMISSIONS**

<b>Emission Sources</b>	<b>2025 Emissions (MT CO<sub>2</sub>e)</b>
Mobile	1.4
Energy	67.8
<b>Total</b>	<b>69.3</b>
<i>SMAQMD Screening Level</i>	<i>1,100</i>
<b>Exceed Screening Level?</b>	<b>No</b>

Source: CalEEMod (output data is provided in Appendix B)

GHG = greenhouse gas; MT = metric tons; CO<sub>2</sub>e = carbon dioxide equivalent

To use the SMAQMD's land use development project GHG emissions significance criteria, SMAQMD requires all projects to implement the Tier 1 GHG reduction BMPs, regardless of the project's GHG emission levels. The project would not include natural gas appliances nor would construct natural gas infrastructure, as required under Tier 1 GHG reduction BMP 1. The project's gravel road that provides access to the ASR well would not include marked parking spaces. Therefore, Tier 1 GHG reduction BMP 2 to provide electric vehicle charging infrastructure per CALGreen Tier 2 would not be applicable to the project. Additionally, as the project would not exceed the 1,100 MT CO<sub>2</sub>e per year operational GHG screening level, implementation of Tier 2 BMPs is not required. Therefore, the impact would be less than significant.

## Impact Conclusion

The project's emissions would not exceed SMAQMD's GHG construction emission threshold and SMAQMD's operational GHG screening level. As no buildings are proposed under the project, no natural gas infrastructure would be constructed, as required under Tier 1 GHG reduction BMP 1. As no parking spaces are proposed under the project, Tier 1 GHG reduction BMP 2 would not be applicable. Additionally, as the project would not exceed the 1,100 MT CO<sub>2</sub>e per year operational GHG screening level, implementation of Tier 2 BMPs would not be required. Therefore, the project would not generate significant GHG emissions, either directly or indirectly, that may have a significant impact on the environment, and the impact would be less than significant.

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

**Less than significant impact.** There are numerous State plans, policies, and regulations adopted for the purpose of reducing GHG emissions. The original overall State plan and policy was AB 32, the California Global Warming Solutions Act of 2006. The quantitative goal of AB 32 was to reduce GHG emissions to 1990 levels by 2020. SB 32 extended the requirements of AB 32 by requiring further reductions of 40 percent below 1990 levels by 2030. AB 1279, the California Climate Crisis Act, was approved on September 16, 2022, and declares the policy of the State to achieve net zero GHG emissions as soon as possible, but no later than 2045, and achieve and maintain net negative GHG emissions thereafter, and to ensure that by 2045, Statewide anthropogenic GHG emissions are reduced to at least 85 percent

below the 1990 levels. The 2022 CARB Scoping Plan lays out a path to achieve targets for carbon neutrality and reduce anthropogenic GHG emissions by 85 percent below 1990 levels no later than 2045, as directed by AB 1279. Statewide plans and regulations such as GHG emissions standards for vehicles (AB 1493), the LCFS, and regulations requiring an increasing fraction of electricity to be generated from renewable sources are being implemented at the Statewide level; as such, compliance at the project level is not addressed. Therefore, the proposed project would not conflict with those plans and regulations.

The City's Efficiency Plan describes potential reductions in GHG emissions from new development by 2020 as compared to the 2020 unmitigated conditions (City 2016). As of 2019, the State has achieved the 2020 GHG reduction goal mandated by AR 32. However, the City's Efficiency Plan does not describe post-2020 GHG reductions mandated by SB 32 and AB 1279.

As discussed in question a) above, the project would not result in construction GHG emissions exceeding the SMAQMD threshold, and the project would implement applicable SMAQMD operational GHG reduction BMPs (Tier 1 BMP 1, no natural gas or natural gas infrastructure). The project would not result in an increase in regional population or employment growth. As a result, the project would be consistent with the growth assumptions used to develop applicable GHG reduction plans, including CARB's 2022 Scoping Plan and the City Efficiency Plan. Therefore, the project would not conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs, and the impact would be less than significant.

## IX. HAZARDS AND HAZARDOUS MATERIALS

	Potentially significant impact	Less than significant impact with mitigation	Less than significant impact	No impact
Would the project:				
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
g) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

### Environmental Setting

#### Hazardous Materials Contamination Sites

The following databases were reviewed for the project site and surrounding area to identify potential hazardous contamination sites: the State Water Resources Control Board's (SWRCB) GeoTracker tool (SWRCB 2024), California Department of Toxic Substance Control's (DTSC) EnviroStor online tool (DTSC 2024); and the United States Environmental Protection Agency (USEPA) Superfund National Priorities List (USEPA 2024). Based on the results of the databases reviewed, no hazardous waste sites are on the proposed project site.

### Hazardous Waste Management

The Sutter County Hazardous Waste Management Plan was adopted in 1990, as required by State law. The plan established a waste management hierarchy, which focused on waste reduction and minimization. The plan includes a comprehensive approach to management of hazardous waste in the County, including siting criteria for new waste management facilities, educational and enforcement efforts to minimize and control the hazardous waste stream, and policies to maintain a unified data base on businesses that generate waste. The Sutter County Community Services Department is the local agency responsible for enforcing a variety of hazardous material and waste requirements (City 2004).

### Airports

The nearest airport to the project site is Sutter County Airport located approximately 3 miles southeast of the project site.

### Emergency Response Plan

In September 2007, City Council of the City of Yuba City approved a Multi-Jurisdiction Multi-Hazard Mitigation Plan. The plan was developed in conjunction with the County of Sutter and in accordance with the California Disaster Mitigation Act of 2000.

### Sensitive Receptors

The schools closest to the project site are Twin Rivers Charter School, located approximately 120 feet to the north, and Albert Powell High School, located approximately 350 feet to the southwest. Northridge Park, a 4.4-acre community park with a play structure, picnic tables, and associated recreational facilities, is located immediately west of the project site at 1898 Clark Avenue, Yuba City.

### Impact Analysis

- a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?
- b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?

**Less than significant impact.** Construction of the project would involve the use of hazardous materials associated with construction equipment, such as diesel fuel, lubricants, and solvents. If spilled, these substances could pose a risk to the environment and to human health. Prior to commencing construction, the project applicant would prepare a SWPPP and implement construction-related BMPs. The operational phase of the project would involve the use of chlorinated water, which would be injected into the ASR well during extended periods of inactivity to prevent biological growth and fouling within the ASR well. Storage, handling, and distribution of chlorinated water would be monitored and would comply with all regulations set forth by the State Water Resources Control Board – Division of Drinking Water (DDW) and the City of Yuba City.

Additionally, water quality data from the monitoring wells indicated elevated levels of arsenic and manganese in both aquifers, as well as elevated levels of iron in the lower aquifer. From past experience at other ASR well sites, a buffer zone volume exceeding 70 days of production at the design production



capacity of the well has proven effective at resolving arsenic mobilization concerns while also ensuring recovery of water that meets drinking water standards in brackish aquifers. However, supplemental treatment for iron and manganese removal may still be necessary, either by adjusting pH and/or alkalinity of the recharge water, or through filtration of recovered water. This would ensure that no hazardous materials are released into the environment during operation of the proposed project.

The routine transport, use, and disposal of hazardous materials would be subject to local, State, and federal regulations to minimize risk and exposure. Additionally, the project applicant would comply with all California Division of Occupational Safety and Health (Cal/OSHA) regulations regarding maintenance and inspection of equipment, spill prevention, and spill remediation in order to reduce the potential for incidental release of pollutants or hazardous substances during construction and operation-related activities. Consequently, use of these materials for their intended purpose would not pose a significant risk to the public or environment, and impacts would be less than significant for questions a) and b).

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

**Less than significant impact.** The schools closest to the project site are Twin Rivers Charter School, located approximately 120 feet to the north, and Albert Powell High School, located approximately 350 feet to the southwest. Northridge Park, a 4.4-acre community park with a play structure, picnic tables, and associated recreational facilities, is located immediately west of the project site at 1898 Clark Avenue, Yuba City. However, as noted under question a) the routine transport, use, and disposal of hazardous materials are subject to local, State, and federal regulations to minimize risk and exposure. Compliance with these regulations governing the transport, use, and disposal of potentially hazardous materials would ensure that the impact would be less than significant.

- 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?

**No impact.** The proposed project would not be located on land that is listed as a hazardous materials site pursuant to Government Code Section 65962.5. A search of the DTSC EnviroStor database and the SWRCB Geotracker performed on September 12, 2024, determined that there are no known active hazardous waste generators or hazardous material spill sites within the project site or immediate surrounding vicinity. A search of the USEPA Superfund National Priorities List performed on October 25, 2024, determined that the project site is not located on or near a Superfund site. There would be 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?

**No impact.** The project is not located within an airport land use plan or within two miles of an airport. The closest airport or private airstrip to the project site is the Sutter County Airport, approximately 2.4 miles to the southwest. The Yuba County Airport is located approximately 4.6 miles southeast of the project site, and Beals Air Force Base is located approximately 9.6 miles east of the project site. Construction of a new ASR well and associated water infrastructure would not be a safety hazard for people working in the area. Additionally, construction noise would be short-term and temporary and

operation of the ASR well would not generate excessive noise for people residing or working in the project area. There would be no impact.

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

**Less than significant impact.** The proposed project includes construction and operation of a new ASR well at the City-owned WTP. The potable water intended for the operational recharge mode would be routed by a 12-inch pipeline to the new ASR well from an existing 12-inch potable water main pipeline underneath Live Oak Boulevard. As construction would be located on a portion of Live Oak Boulevard, a short-term and temporary road closure on Live Oak Boulevard may be required. However, road closure would be short-term and temporary, it would not impair or interfere with an emergency response plan or emergency evacuation plan.

Operational traffic would include daily maintenance visits, which would not be substantial or interfere with emergency evacuation routes. Therefore, the proposed project would have a less than significant impact on an adopted emergency response plan or emergency evacuation plan.

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

**No impact.** The proposed project would be located at an existing WTP in an urbanized area of Yuba City. The project site is located approximately 0.64 mile northeast of Yuba City Fire Station 2. Additionally, the project site is within a Local Responsibility Area (LRA) and is not located in or near state responsibility areas (SRA) or lands classified as very high fire hazard severity zones (VHFHSZ). Therefore, the project would not expose people or structures to a significant risk of loss, injury, or death involving wildfires and no impact would occur.

## X. HYDROLOGY AND WATER QUALITY

	Potentially significant impact	Less than significant impact with mitigation	Less than significant impact	No impact
Would the project:				
a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
ii. Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off- site?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
iii. Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional resources of polluted runoff?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
iv. Impede or redirect flood flows?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

### Environmental Setting

The proposed project is located within the greater Sacramento Valley Groundwater Basin in the Sutter Subbasin. The project site is in the Honcut Headwaters-Lower Feather River watershed (USGS Hydrologic Unit Code (HUC) 18020159). Feather River is located approximately 0.5 mile east of the project site.

Federal Emergency Management Agency (FEMA) flood insurance rate maps were reviewed for the project's proximity to a flood hazard zone. The proposed project is not located on or adjacent to a flood hazard zone. The proposed project is on FEMA panel 0603960005B effective 3/23/1984 (FEMA 2024).

## Regulatory Framework

Water quality is regulated according to the provisions of the CWA and the California Porter-Cologne Water Quality Control Act. RWQCB and California's SWRCB discharge permitting provisions of the Clean Water Act based on water quality criteria and guidelines. The Porter-Cologne Water Quality Control Act has also established enforceable water quality objectives to protect aquatic life from adverse impacts from various water quality constituents.

The USACE regulates discharged or fills into waters of the United States under Section 404 of the CWA via the Nationwide Permit. The USACE would also determine whether a particular aquatic feature is considered Waters of the US and whether it is subject to regulation under Section 404. Discharge or fill into Waters of the U.S. from construction activities must be in accordance with NPDES program established in Section 402 of the CWA. NPDES permits establish enforceable discharge limitations, monitoring, and reporting requirements, and require the permittee to perform BMPs.

Section 401 of the CWA specifies that any applicant for a federal license or permit to conduct any activity, including but not limited to the construction or operation of facilities that may result in any discharge into navigable waters, shall provide the federal licensing or permitting agency with a certification from the State in which the discharge originates or will originate from the State agency with jurisdiction over those waters that the proposed project will comply with water quality standards, meet water quality objectives, and comply with California anti-degradation policy.

In support of the CWA, the RWQCB prepared Basin Plans to establish water quality objectives as required by the California Water Code (Section 13240). The Basin Plan governing water quality for Sutter County is the Water Quality Control Plan for the Sacramento River Basin and San Joaquin River Basin, 1998, 4th edition, as amended. The Basin Plan establishes water quality objectives, and implementation programs to meet stated objectives and to protect the beneficial uses of water in the Sacramento-San Joaquin River Basin. Because Sutter County is located within the CVRWQCB's jurisdiction, all discharges to surface water or groundwater are subject to the Basin Plan requirements (County 2010a).

The Yuba City General Plan sets forth the following goals and policies regarding hydrology and water quality and which have potential relevance to the project's CEQA review:

8.5-G-1 Enhance the quality of surface water and groundwater resources and prevent their contamination.

8.5-G-3 Ensure that the City's drinking water continues to meet or exceed water quality standards.

8.5-I-2 Comply with the Central Valley Regional Water Quality Control Board's regulations and standards to maintain and improve the quality of both surface water and groundwater resources.

8.5-I-3 Continue to control stormwater pollution and protect the quality of the City's waterways, by preventing oil and sediment from entering the river.

8.5-I-4 Encourage State and regional agencies to monitor groundwater supplies and take steps to prevent overuse, depletion, and toxicity.

8.5-I-5 Continue to regularly monitor water quality to maintain high levels of water quality for human consumption and ecosystem health.

8.5-I-6 Protect waterways by prohibiting the dumping of debris and refuse in and near waterways and storm drains.

8.5-I-7 Require new construction to utilize best management practices such as site preparation, grading, and foundation designs for erosion control to prevent sediment runoff into waterways, specifically the Feather River. Best management practices include:

- Requiring that low berms or other temporary facilities be built between a construction site and drainage area to prevent sheet-flooding stormwater from entering storm drains and waterway
- Requiring installation of storm drains or other facilities to collect stormwater runoff during construction
- Requiring onsite retention where appropriate

8.5-I-9 If areas of groundwater contamination are identified, the City shall develop plans to limit further contamination and to protect public health.

8.5-I-10 Support the application of reclaimed water to reduce the demand on municipal water supplies, if economically feasible.

9.2-I-6 Control erosion of graded areas with revegetation or other acceptable methods.

9.3-G-1 Protect the community from risks to lives and property posed by flooding and stormwater runoff.

9.3-G-2 Collect and dispose of storm water in a safe and efficient manner.

### **Impact Analysis**

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

**Less than significant impact with mitigation.** The proposed project would include construction of an ASR well at a City-owned WTP. In September 2012, the SWRCB adopted general waste discharge requirements for ASR projects that recharge groundwater with treated drinking water under General Order No. 2012-0010-DWQ (ASR General Order). As the project would construct an ASR well, a general waste discharge permit would be obtained from the SWRCB DDW prior to construction. Additionally, a Design Occurrence/Water Supply Permit Amendment would be obtained by the SWRCB DDW, a Class V Well Permit would be obtained by USEPA, and a Well Drilling Permit would be obtained by the County Department of Environmental Health Services.

As outlined in Section 9.VII, *Geology and Soils*, as the project would disturb greater than one acre of soil, a SWPPP would be prepared and construction BMPs would be implemented, per the requirements of the Construction General Permit. As also noted in Section 9.VII, *Geology and Soils*, and outlined in the Geotechnical Engineering Report, Blackburn Consulting did not encounter free groundwater to the maximum depth explored of 21.5 feet below ground surface (Blackburn Consulting 2024). However, Balckburn Consulting anticipated that water could be encountered in excavations during winter and spring months. As outlined in Mitigation Measure HYD-1, *Dewatering Activates in Excavations*, pumps

could be used to dewater excavations if seepage and/or perched groundwater is encountered. With implementation of Mitigation Measure HYD-1, the potential for groundwater intrusion would be less than significant.

As all required permits would be obtained, a SWPPP would be prepared, and Mitigation Measure HYD-1 would be implemented, the project would not violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality, and the impact would be less than significant.

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

**Less than significant impact.** Currently, the DWR does not consider any of the groundwater subbasins underlying Sutter County to be in overdraft nor is the area negatively affected by land subsidence. The City overlies a portion of an unadjudicated basin, the Sacramento Valley Groundwater Basin, and Sutter Subbasin. The principal sources of groundwater recharge are stream percolation, deep percolation of rainwater, and percolation of irrigation water. The proposed project would include construction and operation of an ASR well which would allow for underground storage of excess treated surface water and for the recharge of the groundwater aquifer during low demand winter months. Therefore, due to the nature of the project, construction of the ASR well would not substantially decrease groundwater supplies.

In 2010, Carollo completed the *Yuba City ASR Feasibility Assessment Report* (2010 Feasibility Report) which evaluated the construction of two new ASR wells to help the City meet its increasing water supply needs. Two aquifers at depths less than 600 feet at the WTP site were identified as potential ASR storage zones: the Upper Aquifer and the Lower Aquifer. It was recommended to construct one or two ASR wells in the Upper Aquifer, or stack two separate ASR wells to reach both aquifers at a single location within the WTP site. In 2023, Carollo, ASR Systems, and LSCE, with assistance from the City, collected additional data from existing WTP monitoring wells, production Well No. 1, and the recently installed production Well No. 2. In 2024, City staff provided directions to proceed with the design and construction of one new ASR well (Well No. 3) rather than two separate ASR wells, which is proposed under the project.

Additionally, the City formed a groundwater sustainability agency (GSA), which overlies a portion of the Sacramento Valley Basin, Sutter Subbasin. The County received a grant to develop a groundwater sustainability plan (GSP) on behalf of all the GSAs within Sutter Subbasin, including the Yuba City GSA. On October 26, 2023, the DWR approved the GSP for the Sutter Subbasin. Therefore, as the proposed project is within City limits, it would comply with the Sutter Subbasin GSP requirements. Therefore, the project would not impede sustainable groundwater management of the basin, and the impact would be less than significant.

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

**Less than significant impact.** Earthmoving activities associated with the project would include well drilling, rough and fine grading, installation of underground utilities, footing and pad construction, and aboveground construction over an approximately 4.8-acre area. These activities could expose soils to erosion processes and the extent of erosion would vary depending on slope steepness and stability, vegetation and cover, concentration of runoff, and weather conditions. Projects that would disturb one or more acres of soil are required to obtain coverage under the General Permit for Discharges of Storm Water Associated with Construction Activity Construction General Permit Order 2009-0009-DWQ. The Construction General Permit requires the development of a SWPPP by a certified QSD. Since the project would disturb greater than one acre of soil, a SWPPP would be prepared and construction BMPs would be implemented, per the requirements of the Construction General Permit. Therefore, the project would not result in substantial erosion or siltation on and off-site and the impact would be less than significant.

- ii. Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off- site?
- iii. Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional resources of polluted runoff?
- iv. Impede or redirect flood flows?

**Less than significant impact.** The proposed project would include construction and operation of an ASR well which would allow for underground storage of excess treated surface water and for the recharge of the groundwater aquifer during low demand winter months. The water stored in the ASR well could be recovered as needed to meet short-term demands and supplement existing water supplies. The ASR well would be constructed at the City-owned WTP in an area that has been previously cleared and grubbed. Along with the ASR well the project would include construction of a 1,440-sf well shade structure. The well shade structure would add a minor amount of impervious surface to the area; however, it would not substantially increase the rate or amount of surface runoff which would result in flooding.

The area of impervious surface associated with the ASR well system would be limited to the well shade structure and aboveground pipelines. Therefore, the project would not require modification of the existing stormwater drainage system as stormwater runoff would not be anticipated to exceed the capacity of existing stormwater drainage systems.

Federal Emergency Management Agency (FEMA) flood insurance rate maps were reviewed for the proposed project's proximity to a 100-year floodplain. The proposed project is on FEMA panel 0603960005B effective 3/23/1984 (FEMA 2024). The proposed project is not located within a 100-year floodplain. As the proposed project is located outside of a mapped floodplain, implementation of the proposed project would not be anticipated to impede or redirect flood flows. Therefore, the impact would be less than significant for questions c.ii) through c.iv).

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

**No impact.** The proposed project site is not located within a tsunami or seiche zone and is not located within a FEMA special flood hazard area. Therefore, no impacts resulting from potential pollution of floodwaters within the proposed project area would occur.

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

**Less than significant impact.** The Water Quality Control Plan (Basin Plan) governing water quality for Sutter County is the Water Quality Control Plan for the Sacramento River Basin and San Joaquin River Basin, 1998, 4th edition, as amended. The Basin Plan establishes water quality objectives, and implementation programs to meet stated objectives and to protect the beneficial uses of water in the Sacramento-San Joaquin River Basin. As outlined under question a), all required permits would be obtained, a SWPPP would be prepared, and BMPs would be implemented. This would ensure compliance with the objectives outlined in the Basin Plan.

Additionally, as outlined under question b), the City formed a GSA, which overlies a portion of the Sacramento Valley Basin, Sutter Subbasin. Sutter County received a grant to develop a GSP on behalf of all the GSAs within Sutter Subbasin, including the Yuba City GSA. On October 26, 2023, the DWR approved the GSP for the Sutter Subbasin. As the proposed project is within City limits, it would comply with the Sutter Subbasin GSP requirements.

Therefore, the project would not conflict with or obstruct implementation of any water quality control plan or sustainable groundwater management plan and the impact would be less than significant.

### **Mitigation Measure**

**HYD-1 Dewatering during Excavation Activities.** In the event that seepage and/or perched groundwater is encountered during excavation activities associated with construction of the ASR well, the construction contractor shall use a sump pump or other appropriate dewatering method to dewater the work area. The construction contractor shall direct water encountered during construction to the center existing WTP filter backwash pond to ensure the excess water is managed on-site.



## XI. LAND USE AND PLANNING

	Potentially significant impact	Less than significant impact with mitigation	Less than significant impact	No impact
Would the project:				
a) Physically divide an established community?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Cause 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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

### Environmental Setting

The proposed project would be located at the City-owned WTP. The project site is designated as Public & Semi-Public by the City's General Plan. The Public & Semi-Public designation includes schools, government offices, corporation yards, hospitals, City, and public facilities. Average site development is assumed at 0.15 gross floor area to net site area (FAR). The maximum FAR is 1.0 (City 2004). The project site is zoned Low Density Residential (R-1). The purpose of Low Density Residential (R-1) zoning is to provide areas for the low-density residential neighborhoods that have adequate services and amenities which will support a desirable and stable living environment.

### Impact Analysis

a) Physically divide an established community?

**No impact.** The proposed project would include construction and operation of a new ASR well and its associated infrastructure at an existing City-owned WTP. The project would not divide an established community, and no impact would occur.

b) Cause 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?

**Less than significant impact.** The project site is designated as Public & Semi-Public by the City's General Plan and is zoned Low Density Residential (R-1) by the City (City 2004). The Public & Semi-Public land use designation allows for schools, government offices, corporation yards, hospitals, city, and public facilities. Although the project site is zoned R-1, this zoning designation allows for civic and institutional use. As the proposed project would be constructed at an existing City-owned WTP, there would be no conflict with any land use plan, policy, or regulation. Therefore, the impact would be less than significant.

## XII. MINERAL RESOURCES

	Potentially significant impact	Less than significant impact with mitigation	Less than significant impact	No impact
Would the project:				
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

### Environmental Setting

Mineral resources were not addressed in the Yuba City General Plan. However, according to the Sutter County General Plan Update Technical Background Report, the extraction of mineral resources in Sutter County has historically been limited to the extraction of clay, sand, soils, and rock. Sutter County has no deep-shaft mining activity. All mines in the County are open-pit type or surface mines which require the possession of a valid surface mining permit and reclamation plan under both the County's Surface Mining Code and the State's Surface Mining and Reclamation Act (SMARA; County 2008).

### Impact Analysis

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

**No impact.** The project site does not include any mineral resources (DOC 2024c). Additionally, the project site is not within or adjacent to any active mining operations (DOC 2024d). Therefore, implementation of the project would not result in the loss of availability of mineral resources or locally important mineral resource recovery site, and no impact would occur for questions a) and b).

### XIII. NOISE

	Potentially significant impact	Less than significant impact with mitigation	Less than significant impact	No impact
Would the project result in:				
a) Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Generation of excessive groundborne vibration or groundborne noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

#### Environmental Setting

##### Noise Metrics

All noise-level and sound-level values presented herein are expressed in terms of decibels (dB), with A weighting, abbreviated “dBA,” to approximate the hearing sensitivity of humans. Time averaged noise levels of one hour are expressed by the symbol “ $L_{EQ}$ ” unless a different time period is specified. Maximum noise levels are expressed by the symbol “ $L_{MAX}$ .” Some of the data also may be presented as octave-band-filtered and/or A-octave band-filtered data, which are a series of sound spectra centered on each stated frequency, with half of the bandwidth above and half of the bandwidth below, the stated frequency. These data are typically used for machinery noise analysis and barrier-effectiveness calculations. The Community Noise Equivalent Level (CNEL) is a 24-hour average, where noise levels during the evening hours of 7:00 p.m. to 10:00 p.m. have an added 5 dBA weighting, and sound levels during the nighttime hours of 10:00 p.m. to 7:00 a.m. have an added 10 dBA weighting. This is similar to the Day Night sound level ( $L_{DN}$ ), which is a 24-hour average with an added 10 dBA weighting on the same nighttime hours but no added weighting on the evening hours.

Because decibels are logarithmic units,  $S_{PL}$  cannot be added or subtracted through standard arithmetic. Under the decibel scale, a doubling of sound energy corresponds to a 3 dBA increase. In other words, when two identical sources are each producing sound of the same loudness, the resulting sound level at a given distance would be 3 dBA higher than from one source under the same conditions. For example, if one automobile produces an  $S_{PL}$  of 70 dBA when it passes an observer, two cars passing simultaneously would not produce 140 dBA—rather, they would combine to produce 73 dBA. Under the decibel scale, three sources of equal loudness together produce a sound level 5 dBA louder than one source.

Under controlled conditions in an acoustic laboratory, the trained, healthy human ear is able to discern 1 dBA changes in sound levels, when exposed to steady, single-frequency (“pure-tone”) signals in the mid-frequency (1,000 Hertz [Hz]–8,000 Hz) range. In typical noisy environments, changes in noise of 1 to 2 dBA are generally not perceptible. It is widely accepted, however, that people begin to detect sound level increases of 3 dB in typical noisy environments. Further, a 5 dBA increase is generally perceived as a distinctly noticeable increase, and a 10 dBA increase is generally perceived as a doubling of loudness.

#### Vibration Metrics

Ground-borne vibration consists of rapidly fluctuating motions or waves transmitted through the ground with an average motion of zero. Sources of ground-borne vibrations include natural phenomena and anthropogenic causes (e.g., explosions, machinery, traffic, trains, construction equipment). Vibration sources may be continuous (e.g., factory machinery) or transient (e.g., explosions). Peak particle velocity (PPV) is commonly used to quantify vibration amplitude in the evaluation of potential damage to structures. The PPV, with units of inches per second, is defined as the maximum instantaneous positive or negative peak of the vibration wave.

#### Noise Sensitive Land Uses

Noise-sensitive land uses (NSLUs) are land uses that may be subject to stress and/or interference from excessive noise, including residences, hospitals, schools, hotels, resorts, libraries, sensitive wildlife habitat, or similar facilities where quiet is an important attribute of the environment. Noise receptors (receivers) are individual locations that may be affected by noise. The closest existing NSLUs to the project site are single-family residential homes, adjacent to the project site to the west of the proposed project site; the Twin Rivers Charter School, with outdoor recreation areas adjacent to the northwest corner of the project site and school building located approximately 140 feet to the north; and the Albert Powell High School, located adjacent to the west side of the project site.

#### Regulatory Framework

##### Yuba City General Plan

The Noise and Safety Element of the City General Plan contains the following implementing policies that would be applicable to the project (City 2004).

*9.1-I-3: In making a determination of impact under CEQA) consider an increase of four or more DBA to be "significant" if the resulting noise level would exceed that described as normally acceptable for the affected land use in Figure 9-4 [of the Yuba city General Plan].*

*9.1-I-4: Protect especially sensitive uses, including schools, hospitals, and senior care facilities, from excessive noise, by enforcing “normally acceptable” noise level standards for these uses.*

*9.1-I-6: Require new noise sources to use best available control technology (BACT) to minimize noise from all sources.*

*9.1-I-7: Minimize vehicular and stationary noise sources and noise emanating from temporary activities, such as construction.*

Figure 9-4 from the Yuba city General Plan identifies noise and land use compatibility standards for various land uses. For the closest NSLU to the project site, low density single-family residential land uses are considered “normally acceptable” in exterior noise environments of 60 dBA CNBEL or less and school land uses are considered “normally acceptable” in exterior noise environments of 70 dBA CNEL or less (City 2013).

#### Yuba Municipal Code

The following sections of the City municipal code would be applicable to the project:

#### *Chapter 17. – Noise Regulations*

##### *Section 4-17.02. – Prohibited Generally*

*It shall be unlawful for any person to willfully or knowingly make, continue or cause to be made or continued any loud and raucous noise.*

*The term "loud and raucous noise" specifically includes, but is not limited to, the kinds of noise generated by the activities enumerated in Section 4-17.10. The term "loud and raucous noise" specifically excludes the kinds of noise generated by the activities described in Section 4-17.20.*

##### *Section 4-17-10. – Enumeration*

- (e) The loud and raucous operation or use of any of the following before 6:00 a.m. or after 9:00 p.m. daily except Sunday and State or Federal holidays when the prohibited time shall be before 8:00 a.m. and after 9:00 p.m.:*
- (1) A hammer or any other device or implement used to produce or strike an object.*
  - (2) An impact wrench or other tool or equipment powered by compressed air.*
  - (3) A hand powered saw.*
  - (4) Any tool or piece of equipment powered by an internal combustion engine such as, but not limited to, chain saw, backpack blower and lawn mower. Except as included in paragraph (6) below, motor vehicles powered by an internal combustion engine and subject to the California Vehicle Code are excluded from this prohibition.*
  - (5) Any electrically powered (whether by alternating current electricity or by direct current electricity) tool or piece of equipment used for cutting, drilling or shaping wood, plastic, metal or other materials or objects such as, but not limited to, a saw, drill, lathe or router.*
  - (6) Any of the following: Heavy equipment (such as, but not limited to, bulldozer, road grader, back hoe), ground drilling and boring equipment (such as, but not limited to, derrick or dredge), crane and boom equipment, portable power generator or pump, pavement equipment (such as, but not limited to, pneumatic hammer, pavement breaker, tamper, compacting equipment), pile driving equipment, vibrating roller, sand blaster, gunite machine, trencher, concrete truck and hot kettle pump.*

(7) Any construction, demolition, excavation, erection, alteration or repair activity.

*Section 4-17-12. – Exemptions*

(d) Activities on or in publicly owned property and facilities, or by public employees while in the authorized discharge of their responsibilities, are exempt provided that such activities have been authorized by the owner of such property or facilities or its agent or by the employing authority.

**Impact Analysis**

- 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?

**Less than significant impact.**

Construction Noise

The City ordinance Section 4-17-10 prohibits construction activities and the use of noise generating construction equipment before 6:00 a.m. or after 9:00 p.m. daily except Sunday and State or Federal holidays when the prohibited time shall be before 8:00 a.m. and after 9:00 p.m. The project would not include nighttime construction; however, daytime project construction could disturb students in classrooms at the Twin Rivers Charter School. Per City General Plan policy 9.1-I-3, noise would potentially significant if it would exceed the normally acceptable limit (70 CNEL for schools) by four dBA or more, or 74 dBA.

Project construction noise was calculated using the U.S. Department of Transportation (USDOT) Roadway Construction Noise Model ([RCNM]; USDOT 2008), which utilizes estimates of sound levels from standard construction equipment. Because most construction equipment tends to move around on the site and is often used intermittently, construction noise is estimated assuming the two loudest pieces of equipment anticipated for a given activity would be operating concurrently in close proximity to each other. Using the assumptions described in Section 9.III, *Air Quality*, the loudest combined use of construction equipment would occur during fine grading when a dozer and a front-end loader could be used concurrently for an hour at an average distance of 160 feet to the closest classroom building at the Twin Rivers Charter School. Calculating noise level using the RCNM, the combined noise of a dozed and a front-end load at a distance of 160 feet would be 69.3 dBA  $L_{EQ}$ . This level would not exceed the City General Plan limit of 74 dBA for schools. Therefore, project construction noise would be less than significant. The RCNM output report is included as Appendix F to this IS/MND.

Operational Noise

Potential sources of project operational noise would be occasional maintenance activities and a new 250 hp electric pump. Project operational activities would be similar to maintenance activities already occurring on the project site and would not result in a substantial increase in ambient noise levels in the project vicinity. The new electric pump would be installed above ground near the proposed ASR well, underneath a well shade structure.

The specific model of electric pump to be installed had not been determined at the time of this analysis. Potential noise from the electric pump was calculated using data and methodology from *Noise Control*

*for Buildings Manufacturing Plants, Equipment and Products*. For an electric pump with a 250 hp three-phase motor running at 1600 to 1800 revolutions per minute, the overall sound level would be 95.2 dBA measured three feet from the pump (Keith, Reginald and Taylor, Ashton. 1981, p. 7-10). Near the ground, sound is attenuated by approximately 3 dBA for each doubling of distance between the source and the receiver. At the closest outdoor activity area for students at the Twin Rivers Charter School, approximately 192 feet from the proposed ASR well location (see Figure 4, Impact Footprint Map), the overall noise level from the pump would be approximately 59 dBA. At the closest classroom building at the Twin Rivers Charter School, approximately 257 feet from the proposed ASR well location (see Figure 4, Impact Footprint Map), the overall noise level from the pump would be approximately 57 dBA. These noise levels would be well below the City's normally acceptable noise level for schools of 70 CNEL. Therefore, project operational noise impacts would be less than significant. A printout of the pump noise calculation sheet is included as Appendix F to this IS/MND.

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

**Less than significant impact.** The City has not established limits for acceptable groundborne vibration levels. Therefore, based on the Caltrans *Transportation and Construction Vibration Guidance Manual*, excessive groundborne vibration would occur vibration exceeds the "distinctly perceptible" vibration annoyance potential criteria for disruption of classrooms or residences of 0.035 inch per second PPV for steady-state sources or exceeds the damage potential criteria of 0.4 inch per second PPV for residential buildings in good repair with gypsum board walls (Caltrans 2020).

As described above, the closest existing vibration sensitive land uses to the project site are single-family residential homes, adjacent to the project site to the west of the proposed project site; the Twin Rivers Charter School, with outdoor recreation areas adjacent to the northwest corner of the project site and school building located approximately 140 feet to the north; and the Albert Powell High School, located adjacent to the west side of the project site. However, construction would not occur over the entire project site. These more intense activities which could include vibration generating heavy construction equipment would occur in the area identified as "Impact Footprint" in Figure 4 and would be located approximately 140 feet from the Twin Rivers Charter School classroom buildings to the north, approximately 200 feet from the Albert Powell High School classroom buildings to the west, and approximately 185 feet from the closest residential properties to the west.

The source of highest potential vibration levels during project construction would be a vibratory roller (primarily used to achieve soil compaction), which could be used within approximately 140 feet from the Twin Rivers Charter School classroom buildings to the north. A large vibratory roller creates approximately 0.21 in/sec PPV at a distance of 25 feet (Caltrans 2020). At 140 feet, a vibratory roller would create a PPV of 0.032 in/sec.<sup>2</sup> This would not exceed the Caltrans "distinctly perceptible" vibration annoyance potential criteria for disruption of classrooms of 0.035 inch per second PPV for steady-state sources or exceed the damage potential criteria of 0.4 inch per second PPV for buildings in good repair with gypsum board walls. Once operational, the project would not be a source of ground-borne vibrations. Therefore, the project would not result in the generation of excessive ground-borne vibration or ground-borne noise levels, and the impact would be less than significant.

---

<sup>2</sup> Equipment PPV = Reference PPV \* (25/D)<sup>n</sup> (inches per second), where Reference PPV is PPV at 25 feet, D is distance from equipment to the receiver in feet, and n = 1.1, Formula from Caltrans 2020.

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

**Less than significant impact.** The closest airport or private airstrip to the project site is the Sutter County Airport, approximately 2.4 miles to the southwest. The Yuba County Airport is located approximately 4.6 miles southeast of the project site, and Beals Air Force Base is located approximately 9.6 miles east of the project site. Per the airport noise contour map provided by the Sacramento Area Council of Governments (SACOG), the project site is not within and of the airport noise contours (SACOG 2023). Therefore, although the project site is subject to normal overflight by aircraft in the region, people working in the project area would not be exposed to excessive noise levels due to aircraft or airport operations, and the impact would be less than significant.



## XIV. POPULATION AND HOUSING

	Potentially significant impact	Less than significant impact with mitigation	Less than significant impact	No impact
Would the project:				
a) Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

### Environmental Setting

According to the U.S. Census Bureau, the estimated population of Yuba City is 69,014 as of July 2022 (U.S. Census Bureau 2022). The project site is surrounded by Live Oak Boulevard and agricultural fields to the east; Northgate Drive, commercial uses, and single-family residential homes to the south; Albert Powell High School, Northridge Park, and single-family residential homes to the west; and Twin Rivers Charter School to the north. The project site is located at a City-owned WTP.

### Impact Analysis

- 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)?

**No impact.** The proposed project would include construction and operation of a new ASR well and its associated infrastructure at an existing City-owned WTP. The proposed ASR well would allow for underground storage of excess treated surface water and for the recharge of the groundwater aquifer during low demand winter months. The water stored in the ASR well could be recovered as needed to meet short-term demands and supplement existing water supplies. No housing or habitable structures would be built, and the proposed project would not directly or indirectly induce population growth. No impact would occur.

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

**No impact.** As mentioned in question a), the proposed project would construct a new ASR well within an existing City-owned WTP. The proposed project would not result in the displacement of people or existing housing. Therefore, no impact would occur.

## XV. PUBLIC SERVICES

	Potentially significant impact	Less than significant impact with mitigation	Less than significant impact	No impact
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:				
a) Fire protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Police protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Schools?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Parks?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Other public facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

### Environmental Setting

#### Fire Protection

The Yuba City Fire Department (YCFD) provides fire protection and suppression and life safety services for the City. The YCFD responds to structural and wildland fires, emergency medical service, and hazardous/toxic material spills. The YCFD's five stations are located throughout its jurisdictional area: four in Yuba City proper and one in the unincorporated community of Tierra Buena (City 2004). The nearest fire station to the project site is Yuba City Fire Station #2, located approximately 0.6 mile southwest of the project site.

#### Police Protection

The Yuba City Police Department offers a service ratio of 1.06 officers per 1,000 residents (City 2004). The nearest police station to the project site is the Yuba City Police Department, located approximately 1.6 miles southwest of the project site.

#### Schools

The schools closest to the project site are Twin Rivers Charter School, located approximately 120 feet to the north, and Albert Powell High School, located approximately 350 feet to the southwest.

#### Parks

The City includes various parks including community parks, neighborhood parks, and passive parks (City 2023). The closest park to the project site is Northridge Park, located approximately 370 feet west of the site.

## Other Public Facilities

The project site is located at an existing City-owned WTP.

### Impact Analysis

#### a) Fire protection?

**Less than significant impact.** The City currently receives services from YCFD. The nearest fire station to the project site is Yuba City Fire Station #2, located approximately 0.6 mile southwest of the project site. As the proposed project would be located at an existing City-owned WTP, it is not anticipated that construction of the proposed ASR well and its associated infrastructure would result in additional demand for fire protection services. The potential for a minor increase in demand for fire services may occur during construction of the proposed ASR well and its associated infrastructure; however, these minor public service demands would not overburden the fire services within the City. Therefore, the impact would be less than significant.

#### b) Police protection?

**Less than significant impact.** Police services within the project area would continue to be provided by Yuba City Police Department. The nearest police station to the project site is located approximately 1.6 miles southwest of the project site. As the proposed project would be located at an existing City-owned WTP, it is not anticipated that construction of the new ASR well and its associated infrastructure would result in additional demand for police protection services. As part of the project, two security cameras would be mounted onto the well shade structure to monitor for suspicious activity. One camera would be pointed towards the ASR equipment and the other would be pointed towards the northeastern access gate. The outdoor piping, valves, instrumentation, and interface screen would be locked and/or covered to protect them from vandalism and sun exposure.

The potential for a minor increase in demand for police services may occur during construction of the proposed ASR well and its associated infrastructure; however, these minor public service demands would not overburden the police services within the City. Therefore, the impact would be less than significant.

#### c) Schools?

**No impact.** As noted in Section 9.XIV, *Population and Housing*, the proposed project would construct a new ASR well and its associated infrastructure at an existing City-owned WTP. The new ASR well would allow for underground storage of excess treated surface water and for the recharge of the groundwater aquifer during low demand winter months. The water stored in the ASR well could be recovered as needed to meet short-term demands and supplement existing water supplies. No housing or habitable structures would be built, and the proposed project would not directly or indirectly induce population growth. No impact on school facilities would occur.

#### d) Parks?

**No impact.** The proposed project would include construction of a new ASR well and its associated infrastructure at an existing City-owned WTP. No housing or habitable structures would be built, and the

proposed project would not directly or indirectly induce population growth. The project would not result in the need for new or expanded park facilities. No impact on park facilities would occur.

e) Other public facilities?

**No impact.** The project site is within an urban area of the City served by adequate police, fire, and emergency services. Construction of the proposed ASR well and its associated infrastructure would not increase the number of residents in the City and would therefore not cause an increase in demand for schools, parks, and other public facilities. Construction and operation of the proposed ASR well and its associated infrastructure would not result in the degradation of existing public facilities. Therefore, no impact would occur.

## XVI. RECREATION

	Potentially significant impact	Less than significant impact with mitigation	Less than significant impact	No impact
Would the project:				
a) Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

### Existing Setting

The City includes various parks including community parks, neighborhood parks, and passive parks (City 2023). The closest park to the project site is Northridge Park, located approximately 370 feet west of the site.

### Impact Analysis

- a) Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?

**No impact.** As noted in Section 9.XIV, *Population and Housing*, the proposed project would include construction of a new ASR well and its associated infrastructure at an existing City-owned WTP. The new ASR well would allow for underground storage of excess treated surface water and for the recharge of the groundwater aquifer during low demand winter months. The water stored in the ASR well could be recovered as needed to meet short-term demands and supplement existing water supplies. No housing or habitable structures would be built, and the proposed project would not directly or indirectly induce population growth. The proposed project would not result in increased use of existing neighborhood and/or regional parks, and no impact would occur.

- b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?

**No impact.** The proposed project would include construction and operation of a new ASR well and its associated infrastructure at an existing City-owned WTP. The project would not include recreational facilities or require the construction or expansion of recreational facilities. No impact would occur.

## XVII. TRANSPORTATION

	Potentially significant impact	Less than significant impact with mitigation	Less than significant impact	No impact
Would the project:				
a) Conflict with a program plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Would the project conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Result in inadequate emergency access?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

### Environmental Setting

#### Roadways

The proposed project would be located at an existing City-owned WTP located at 701 Northgate Drive. The project site would be located north of Northgate Drive and west of Live Oak Boulevard. Northgate Drive is classified as a collector street and Live Oak Boulevard is classified as a major arterial. Collector streets provide a link between neighborhood streets and arterials. Arterials are designed to move large volumes of traffic between freeways/highways and other arterials in Yuba City and to adjacent jurisdictions (City 2004).

#### Public Transit

Yuba-Sutter Transit is the public transit operator for the City, providing many transit options for residents and visitors. Yuba-Sutter Transit currently operates four fixed routes within the City with loops connecting major activity centers, residential neighborhoods, Caltrans Park & Ride facilities, and the City of Marysville. A Dial-A-Ride service is provided for senior citizens, disabled persons, or residents that live beyond one-quarter mile from a fixed-route (City 2004).

#### Bicycle Circulation

Although bicycle and pedestrian facilities are provided in the City, some gaps still exist in the transportation networks for these modes. Some bicycle paths and bicycle lanes exist, but they are not continuous. The Yuba City Bicycle Master Plan was prepared to improve the City's bicycle system (City 2011). Northgate Drive is designated as a Class II bicycle lane, and an existing bicycle parking area is located immediately west of the project site, at Northridge Park (City 2011).

## Impact Analysis

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

**Less than significant impact.** The proposed project would include construction and operation of a new ASR well at an existing City-owned WTP. Construction traffic associated with the proposed project would be short-term and temporary and would not result in long-term traffic impacts. Construction vehicles would be staged on-site in two staging areas. One construction staging area would be located immediately west of the proposed ASR well and the other staging area would be located in the southeastern portion of the City-owned WTP.

The WTP runs 24 hours a day, 365 days a year, and it is not expected that additional staff will be hired as a result of the new ASR well. Operational activities associated with the proposed project would include daily maintenance trips. Per the project engineer, one pickup truck would be used for maintenance resulting in two ADT. As the operation of the project would generate two ADT, there would not be a significant adverse effect to existing roadways in the area.

Additionally, there would be no population growth associated with the project, nor would the implementation of the project result in a substantial increase in staff or drivers utilizing roadways in the area. Therefore, implementation of the project would not conflict with a program plan, ordinance or policy addressing the circulation system and the impact would be less than significant.

- b) Would the project conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)?

**Less than significant impact.** CEQA Guidelines Section 15064.3(b) indicates that land use projects would have a significant impact if the project resulted in VMT exceeding an applicable threshold of significance.

Construction traffic associated with the proposed project would be short-term and temporary and would not result in long-term traffic or VMT impacts. Operational activities associated with the proposed project would include daily maintenance trips. Per the project engineer, one pickup truck would be used for maintenance resulting in two ADT. As the operation of the project would generate two ADT, there would not be a substantial increase in operational VMT.

As the project would not result in significant increase in construction or operational VMT, the project is considered to be consistent with CEQA Guidelines Section 15064.3(b). Therefore, the impact would be less than significant.

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

**No impact.** The proposed project would include construction of a new ASR well and its associated infrastructure at an existing City-owned WTP. The proposed project does not include any roadway changes nor propose any new intersections. Therefore, the project would not increase hazards due to a geometric design feature or incompatible uses and no impact would occur.

d) Result in inadequate emergency access?

**Less than significant impact.** The proposed project includes construction and operation of a new ASR well at the City-owned WTP. The potable water intended for the operational recharge mode would be routed by a 12-inch pipeline to the new ASR well from an existing 12-inch potable water main pipeline underneath Live Oak Boulevard. As construction would be located on a portion of Live Oak Boulevard, a short-term and temporary road closure on Live Oak Boulevard may be required. However, road closure would be short-term and temporary, it would not result in inadequate emergency access.

The new ASR well would be accessed by the northeastern access gate on Live Oak Boulevard. The northeastern access gate would be replaced with an in-kind manual chain-link swing gate and nearby portions of the chain link fence would also be replaced. An all-weather gravel road would be utilized to access the well shade structure from the northeastern access gate. Operational traffic would include daily maintenance visits, which would not be substantial or interfere with emergency access. Therefore, the proposed project would have a less than significant impact on an adopted emergency response plan or emergency evacuation plan.



## XVIII. TRIBAL CULTURAL RESOURCES

	Potentially significant impact	Less than significant impact with mitigation	Less than significant impact	No impact
Would the project:				
a) Cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code Section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:				
i. Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code Section 5020.1(k), or	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
ii. A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resources Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

### Environmental Setting

According to Public Resources Code (PRC) Section 21074, a resource is a tribal cultural resource (TCR) if it is either:

- 1) Sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe that are either of the following:
  - a. Included or determined to be eligible for inclusion in the California Register of Historical Resources; or
  - b. Included in a local register of historical resources as defined in PRC Section 5020.1(k).
- 2) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in PRC Section 5024.1(c). In applying the criteria set forth in PRC Section 5024.1(c), the lead agency shall consider the significance of the resource to a California Native American tribe.
- 3) A cultural landscape that meets the criteria of PRC Section 21074(a) to the extent that the landscape is geographically defined in terms of the size and scope of the landscape.

- 4) A historical resource described in PRC Section 21084.1, a unique archaeological resource as defined in PRC Section 21083.2(g), or a “non-unique archaeological resource” as defined in PRC Section 21083.2(h), if it conforms with the criteria of PRC Section 21074(a).

In accordance with PRC Section 21084.2, lead agencies are required to consider Tribal Cultural Resources (TCRs). TCRs include site features, places, cultural landscapes, sacred places, or objects of cultural value to the tribe. This applies if the TCR is listed on the California Register of Historic Resources (CRHR) or a local register, or if the lead agency, at its discretion, chooses to treat the resources as such.

### **Regulatory Framework**

#### Federal Laws, Regulations, and Policies

No federal laws, regulations, or policies apply to Tribal Cultural Resources.

#### State Laws, Regulations, and Policies

##### Assembly Bill 52

AB 52, which was approved in September 2014 and effective on July 1, 2015, requires that CEQA lead agencies consult with a California Native American tribe that is traditionally and culturally affiliated with the geographic area of a proposed project, if so, requested by the tribe. The bill, chaptered in CEQA Section 21084.2, also specifies that a project with an effect that may cause a substantial adverse change in the significance of a TCR is a project that may have a significant effect on the environment.

Defined in Section 21074(a) of the Public Resources Code, TCRs are:

1. Sites, features, places, cultural landscapes, sacred places and objects with cultural value to a California Native American tribe that are either of the following:
  - a. Included or determined to be eligible for inclusion in the California Register of Historical Resources; or
  - b. Included in a local register of historical resources as defined in subdivision (k) of Section 5020.1.
2. A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Section 5024.1. In applying the criteria set forth in subdivision (c) of Section 5024.1 for the purposes of this paragraph, the lead agency shall consider the significance of the resource to a California Native American tribe.

TCRs are further defined under Section 21074 as follows:

- A cultural landscape that meets the criteria of subdivision (a) is a TCR to the extent that the landscape is geographically defined in terms of the size and scope of the landscape; and
- A historical resource described in Section 21084.1, a unique archaeological resource as defined in subdivision (g) of Section 21083.2, or a “nonunique archaeological resource” as defined in

subdivision (h) of Section 21083.2 may also be a TCR if it conforms with the criteria of subdivision (a).

Mitigation measures for TCRs must be developed in consultation with the affected California Native American tribe pursuant to newly chaptered Section 21080.3.2, or according to Section 21084.3. Section 21084.3 identifies mitigation measures that include avoidance and preservation of TCRs and treating TCRs with culturally appropriate dignity, considering the tribal cultural values and meaning of the resource.

### **Assembly Bill (AB) 52 Consultation**

Formal invitations to participate in AB 52 consultation on the proposed project were sent by the City to the following nine tribal contacts on August 19, 2024:

- Glenda Nelson, Chairperson; Estom Yumeka Maidu Tribe of the Enterprise Rancheria
- Saxon Thomas, Tribal Council Member; Nevada City Rancheria Nisenan Tribe
- Richard Johnson, Chairman; Nevada City Rancheria Nisenan Tribe
- Shelly Covert, Tribal Secretary; Nevada City Rancheria Nisenan Tribe
- Tina Goodwin, Chairperson; Pakan'yani Maidu of Strawberry Valley Rancheria
- Gene Whitehouse, Chairperson; United Auburn Indian Community of the Auburn Rancheria
- Cultural Preservation Department; Wilton Rancheria
- Dahlton Brown, Executive Director of Administration; Wilton Rancheria
- Herbert Griffin, Executive Director of Cultural Preservation; Wilton Rancheria

On October 11, 2024, the City received a “return to sender” letter that was addressed to Tina Goodwin, Chairperson, of the Pakan'yani Maidu of Strawberry Valley Rancheria. The City then emailed the formal invitation to Chairperson Goodwin on October 18, 2024. As of the date of this IS/MND, no responses have been received.

### **Impact Analysis**

- a) Cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code Section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:
- i. Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code Section 5020.1(k)?

**OR**

- ii. A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resources Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe?

**Less than significant impact with mitigation.** As noted above, the City is required to conduct government-to-government consultation with tribal governments that have asked for formal

consultation under CEQA (formerly known as AB 52). Formal invitations to participate in AB 52 consultation for the proposed project were sent by the City to nine tribal representatives on August 19, 2024. Each Tribe was provided with a brief description of the project and its location, the contact information for the City's authorized representative, and a notification that the Tribe has 30 days to request consultation.

As of the date of this IS/MND, the City has not received input or a request for consultation by the Tribes. However, as with any ground disturbing activity, inadvertent discovery of cultural resources, including TCRs, is possible. If TCRs are encountered, the project activity could result in a significant impact to those resources. Mitigation Measures CUL-1 and CUL-2, Inadvertent Discovery of Cultural Resources and Inadvertent Discovery of Human Remains (both detailed in Section 9.V, *Cultural Resources*), would be implemented to reduce impacts from inadvertent discovery of TCRs. Therefore, with implementation of Mitigation Measure CUL-1 and CUL-2, the impact would be less than significant for questions a)i. and a)ii.

**XIX. UTILITIES AND SERVICE SYSTEMS**

	Potentially significant impact	Less than significant impact with mitigation	Less than significant impact	No impact
Would the project:				
a) Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

**Environmental Setting****Water**

The City has a current water demand of 29,600 AFY and estimates that an additional 2,000 to 3,000 AFY would be required to meet future demands. The City receives surface water from the Feather River through multiple water rights contracts; however, the City has been unable to use all of the allocated water which may result in future surface water allocation reductions and puts the City at risk of not meeting future demands. To fully make use of the City's water rights and establish a resilient long-term water supply, the City is pursuing the construction of a new ASR well. Construction of the proposed ASR well would allow for underground storage of excess treated surface water and for the recharge of the groundwater aquifer during low demand winter months. The water stored in the ASR well could be recovered as needed to meet short-term demands and supplement existing water supplies.

**Wastewater**

Sanitary sewer service in the City is provided by the City Utilities Department. The 1997 Yuba City Wastewater System Master Plan (WWSMP) describes the City's existing sewage collection system and addresses sewage collection system capacity and operational needs (City 2004).

The City's current wastewater treatment plant (WWTP) underwent expansion in 2003 to treat an average of 10.5 mgd. The City's current average daily flow is approximately 6.5 mgd. The WWTP a Class IV Wastewater Treatment Facility with a pure oxygen activated sludge process designed to handle high and variable biochemical oxygen demand (BOD) loads from local food processing facilities, commercial facilities and residential areas.

#### Electric Power, Natural Gas, and Telecommunications

PG&E is the primary energy utility purveyor within the City. An existing PG&E 12-kV utility pole is located on the project site.

#### Solid Waste

Franchised solid waste collection and disposal for Yuba City is provided by Recology Yuba-Sutter. Recology offers residential, commercial, industrial, electronic, and hazardous waste collection, processing, recycling, and disposal, as well as construction and demolition waste processing, diversion, and transfer to a disposal facility. The City's municipal solid waste is delivered to the Ostrom Road Landfill in Wheatland, ten miles to the southeast of Yuba County. The Ostrom Road Landfill has an expected life span to the year 2066 (CalRecycle 2024).

### Impact Analysis

- 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?

**Less than significant impact with mitigation.** The proposed project would include construction and operation of an ASR well and associated infrastructure at an existing City-owned WTP site. The proposed ASR well would be covered by a 1,440-sf well shade structure. Flush water from the new ASR well would be directed to the center existing WTP filter backwash pond. The recovered raw water from the new ASR well would connect into the existing Well No. 1 discharge pipeline that routes to the existing WTP flash mixing tank for treatment through the WTP process. The potable water intended for the operational recharge mode would be routed by a 12-inch pipeline to the new ASR well from an existing 12-inch potable water main pipeline underneath Live Oak Boulevard.

Mechanical piping and electrical components would be located within the well shade structure. Fiber optic routing would be constructed within the same trench as the raw water recovery discharge pipeline. The fiber optic cables would connect to existing handhole in a maintenance building located in the central eastern portion of the WTP. The project would tie into an existing PG&E 12-kV utility pole located north of the well shade structure. Depending on the anticipated electrical loads, a stepdown transformer would be located just east of the well shade structure on a pad or on the existing electrical pole. As outlined in this IS/MND, the potential environmental impacts from implementation of the proposed project would be less than significant with mitigation.

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

**Less than significant impact.** The City has a current water demand of 29,600 AFY and estimates that an additional 2,000 to 3,000 AFY would be required to meet future demands. The City receives surface

water from the Feather River through multiple water rights contracts; however, the City has been unable to use all of the allocated water which may result in future surface water allocation reductions and puts the City at risk of not meeting future demands. To fully make use of the City's water rights and establish a resilient long-term water supply, the City, under the project, is proposing construction of an ASR well which would allow for underground storage of excess treated surface water and for the recharge of the groundwater aquifer during low demand winter months. The project would be required to obtain a Design Occurrence, Water Supply Permit Amendment by the SWRCB DDW.

As noted in Section 9.X, *Hydrology and Water Quality*, the City formed a GSA, which overlies a portion of the Sacramento Valley Basin, Sutter Subbasin. The County received a grant to develop a GSP on behalf of all the GSAs within Sutter Subbasin, including the Yuba City GSA. On October 26, 2023, the DWR approved the GSP for the Sutter Subbasin. Therefore, as the proposed project is within City limits, it would comply with the Sutter Subbasin GSP requirements.

Additionally, the City prepared an Urban Water Management Plan (UWMP) in 2020 to provide valuable water management practices (City 2021). The fundamental management tenet for the City's water service reliability in dry periods is to preserve as much water supply during normal and wet conditions in order to make those water supplies available during dry conditions. Construction of the ASR well would allow for underground storage of excess treated surface water and for the recharge of the groundwater aquifer during low demand winter months. The water stored in the ASR well could be recovered as needed to meet short-term demands and supplement existing water supplies.

Therefore, due to the nature of the project, there would be sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years. The impact would be less than significant.

- c) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?

**Less than significant impact.** As noted above, the City's current WWTP underwent expansion in 2003 to treat an average of 10.5 mgd. The City's current average daily flow is approximately 6.5 mgd. The proposed project would not create wastewater demand on any wastewater treatment provider, nor will it require any new wastewater treatment facilities at the project site. Flush wastewater from the new ASR well would be directed to the center existing WTP filter backwash pond. Therefore, the project would not result in additional demand to a wastewater treatment provider, and the impact would be less than significant.

- d) Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?
- e) Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?

**Less than significant impact.** As noted above, franchised solid waste collection and disposal for Yuba City is provided by Recology Yuba-Sutter. Recology offers residential, commercial, industrial, electronic, and hazardous waste collection, processing, recycling, and disposal, as well as construction and demolition waste processing, diversion, and transfer to a disposal facility. The City's municipal solid

waste is delivered to the Ostrom Road Landfill in Wheatland, ten miles to the southeast of Yuba County. The Ostrom Road Landfill has an expected life span to the year 2066 (CalRecycle 2024).

Per the project engineer, 500 CY of soil would be exported during rough grading of the project site and less than one CY of asphalt would be exported during installation of the 12-inch pipeline underneath Live Oak Boulevard. All minor solid waste generated from the construction of the proposed project would be transferred to the Ostrom Road Landfill. No solid waste would be generated during project operation. Therefore, the proposed project would not generate solid waste in excess demand of State or local standards, negatively impact the provision of solid waste services, or conflict with federal, State, and local management and reduction statutes. The impact would be less than significant for questions d) and e).



**XX. WILDFIRE**

	Potentially significant impact	Less than significant impact with mitigation	Less than significant impact	No impact
If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project:				
a) Substantially impair an adopted emergency response plan or emergency evacuation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

**Environmental Setting**

The project site is located within a City-owned WTP in a relatively flat, urbanized area of Yuba City. According to CALFIRE's Fire Hazard Severity Zone Viewer, the project site is located within an LRA (CALFIRE 2023).

**Impact Analysis**

- a) Substantially impair an adopted emergency response plan or emergency evacuation plan?
- b) Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?
- c) Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?
- d) Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?

**No impact.** The proposed project would be located at an existing WTP in an urbanized area of Yuba City. The project site is located approximately 0.64 mile northeast of Yuba City Fire Station 2. Additionally, the

project site is within an LRA and is not located in or near an SRA or lands classified as VHFHSZ. Therefore, no impact would occur for questions a) through d).

## XXI. MANDATORY FINDINGS OF SIGNIFICANCE

	Potentially significant impact	Less than significant impact with mitigation	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?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are significant when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of past, present and probable future projects)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

### Impact Analysis

- a) Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below 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?

**Less than significant impact with mitigation.** The proposed project has the potential to result in impacts on Swainson's hawk, white-tailed kite, and nesting migratory birds and raptors; however, implementation of Mitigation Measure BIO-1 would reduce these impacts to a less than significant level. No special status plant species would be impacted by project implementation. The proposed project also has the potential to impact unknown cultural and tribal cultural resources that may be encountered during construction. Implementation of Mitigation Measures CUL-1 and CUL-2 would ensure these impacts are reduced to a less than significant level. Therefore, the proposed project would not substantially degrade the environment, decrease the number or habitat of special status plant or animal species, or eliminate major periods of California history. Accordingly, with implementation of the listed mitigation measures, the impacts would be less than significant.

- b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are significant when

viewed in connection with the effects of past projects, the effects of other current projects, and the effects of past, present and probable future projects)?

**Less than significant impact with mitigation.** CEQA Guidelines Section 15064(i) states that a Lead Agency shall consider whether the cumulative impact of a project is significant and whether the effects of the project are cumulatively considerable. The assessment of the significance of the cumulative effects of a project must, therefore, be conducted in connection with the effects of past projects, other current projects, and probable future projects. The proposed project would include construction of a new ASR well at a City-owned WTP. To avoid potential conflicts with other wells drilled at an incline, the proposed ASR well would be constructed approximately 100 ft away from nearby wells. No additional roads would be constructed as a result of the project, nor would any additional public services be required. Construction of the ASR well would allow for underground storage of excess treated surface water and for the recharge of the groundwater aquifer during low demand winter months. The water stored in the ASR well could be recovered as needed to meet short-term demands and supplement existing water supplies. The project would not construct any residences or result in direct or indirect population growth.

Key areas of concern addressed in this IS/MND include biological resources, cultural resources, hydrology and water quality, tribal cultural resources, and utilities and service systems. However, impacts relating to these key areas of concern would be mitigated to a less than significant level. Therefore, implementation of the project would not result in significant cumulative impacts no additional mitigation is required.

- c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?

**Less than significant impact with mitigation.** The proposed project would include the construction of a new ASR well and associated infrastructure at an existing City-owned WTP site. The proposed project in and of itself would not cause substantial adverse effects on human beings, either directly or indirectly. Rather, implementation of the project would correct water supply issues experienced by the City when there is a loss or significant reduction in the City's available surface water supplies.

As discussed in Section 9.III, *Air Quality*, no violations of air quality thresholds would occur and no significant impacts to sensitive receptors related to pollutants would occur. As discussed in Section 9.IX, *Hazards and Hazardous Materials*, there are no concerns from past activities at the project site and no hazardous materials and/or wastes would be generated by the proposed project. As discussed in Section 9.X, *Hydrology and Water Quality*, Mitigation Measure HYD-1 would be implemented to dewater if seepage and/or perched groundwater is encountered in excavations. As discussed in Section 9.XIII, *Noise*, the proposed project would not generate excessive noise that would conflict with local noise ordinances and cause disturbances to local residents. Consequently, the proposed project would not result in any environmental effects that would cause substantial adverse effects on human beings directly or indirectly.

## **10.0 MITIGATION MONITORING AND REPORTING PROGRAM**

A Mitigation Monitoring and Reporting Program (MMRP) has been prepared by the City per Section 15097 of the CEQA Guidelines and is presented in Appendix G.

## **11.0 LIST OF PREPARERS**

### **City of Yuba City**

William Jow, Assistant Engineer

### **Carollo Engineers**

Michael Ducker, Senior Engineer

Micaela Robertson, PE, Engineer

### **HELIX Environmental Planning, Inc.**

Lesley Owing, Project Manager

Julia Pano, Environmental Planner

Anviti Singh, Environmental Planner

Patrick Martin, Senior Biologist

Martin Rolph, Senior Air Quality/Noise Specialist

Ben Seigal, Senior Archaeologist

David Bise, Senior Biologist

John DeMartino, GIS Specialist

## 12.0 REFERENCES

- Blackburn Consulting. 2024. Geotechnical Report – Yuba City Water Treatment Plant ASR Well. Available as Appendix E.
- California Air Pollution Control Officers Association (CAPCOA). 2024. User's Guide for CalEEMod Version 2022.1. Available at: <http://www.caleemod.com/>.
2008. CEQA and Climate Change. Accessed September 18, 2024. Available at: [https://www.counties.org/sites/main/files/file-attachments/capcoa\\_white\\_paper\\_ceqa\\_and\\_climate\\_change\\_final.pdf?1344472764](https://www.counties.org/sites/main/files/file-attachments/capcoa_white_paper_ceqa_and_climate_change_final.pdf?1344472764)
- California Air Resources Board (CARB). 2024a. Maps of State and Federal Area Designations. Accessed September 18, 2024. Available at: <https://ww2.arb.ca.gov/resources/documents/maps-state-and-federal-area-designations>.
- 2024b. Overview: Diesel Exhaust and Health. Accessed September 18, 2024. Available at: <https://ww2.arb.ca.gov/resources/overview-diesel-exhaust-and-health>.
2022. 2022 Scoping Plan for Achieving Carbon Neutrality. Available at: <https://ww2.arb.ca.gov/sites/default/files/2023-04/2022-sp.pdf>.
2005. Air Quality and Land Use Handbook: A Community Health Perspective. Available at: <http://www.aqmd.gov/docs/default-source/ceqa/handbook/california-air-resources-board-air-quality-and-land-use-handbook-a-community-health-perspective.pdf>.
- California Department of Conservation (DOC). 2024a. California Important Farmland Finder. Accessed December 6, 2023 at: <https://maps.conservation.ca.gov/DLRP/CIFF/>
- 2024b. Fault Activity Map of California. Accessed August 20, 2024 at: <https://maps.conservation.ca.gov/cgs/fam/>
- 2024c. Mines Online. Accessed December 6, 2023 at: <https://maps.conservation.ca.gov/mol/index.html>
- 2024d. Mineral Lands Classification. Accessed December 6, 2023 at: <https://maps.conservation.ca.gov/cgs/informationwarehouse/index.html?map=mlc>
- California Department of Forestry and Fire Protection (CALFIRE). 2023. Fire Hazard Severity Zone Viewer. Accessed December 6, 2023 at: <https://egis.fire.ca.gov/FHSZ/>
- California Department of Fish and Wildlife. (CDFW). 2023. *California Natural Diversity Database* (CNDDB); For: *Yuba City, Wheatland, Browns Valley, Gridley, Honcut, Sutter, Loma Rica, Gilsizer Slough, and Olivehurst* USGS 7.5-minute series quadrangles, Sacramento, CA. Accessed December 5, 2023.

California Department of Resources Recycling and Recovery (CalRecycle). 2024. Ostrom Road Landfill. Accessed October 28, 2024 at:

<https://www2.calrecycle.ca.gov/SolidWaste/Site/Summary/4075>.

California Department of Toxic Substance Control (DTSC). Envirostor. Accessed August 20, 2024 at:

<https://www.envirostor.dtsc.ca.gov/public/map/>

California Department of Transportation (Caltrans). 2024. California State Scenic Highway System Map. Accessed December 6, 2023 at:

<https://caltrans.maps.arcgis.com/apps/webappviewer/index.html?id=465dfd3d807c46cc8e8057116f1aaca>

California Native Plant Society (CNPS). 2023. *California Natural Diversity Database* (CNDDDB); For: *Yuba City, Wheatland, Browns Valley, Gridley, Honcut, Sutter, Loma Rica, Gilsizer Slough, and Olivehurst* USGS 7.5-minute series quadrangles, Sacramento, CA. Accessed December 5, 2023.

Carollo Engineers; Pueblo Water Resources, Inc.; and ASR Systems, LLC. 2010. Aquifer Storage Recovery Feasibility Assessment Report prepared for the City of Yuba City, California. Accessed October 28, 2024.

Carollo Engineers (Carollo). 2024. Draft Municipal Well No. 3 Basis of Design Report (BODR).

City of Yuba City (City). 2023. Parks and Facilities. Accessed December 6, 2023 at:

[https://www.yubacity.net/city\\_hall/departments/parks\\_recreation/parks\\_facilities](https://www.yubacity.net/city_hall/departments/parks_recreation/parks_facilities)

2021. City of Yuba City 2020 Urban Water Management Plan (UWMP). Tully and Young Comprehensive Water Planning. Accessed October 24, 2024.

2016. City of Yuba City's Resource Efficiency Plan. Accessed September 18, 2024.

Available at: <https://cdnsm5->

[hosted.civiclive.com/UserFiles/Servers/Server\\_239174/File/Development%20Services/Resource%20Links/Resource%20Efficiency%20Plan\\_Final.pdf](https://cdnsm5-hosted.civiclive.com/UserFiles/Servers/Server_239174/File/Development%20Services/Resource%20Links/Resource%20Efficiency%20Plan_Final.pdf)

2011. Yuba City Bicycle Master Plan. Accessed December 7, 2023 at: [https://cdnsm5-hosted.civiclive.com/UserFiles/Servers/Server\\_239174/File/Public%20Works/Engineering/Technical%20Documents/Bicycle%20Master%20Plan/Bicycle-Transportation-Plan-February-2011.pdf](https://cdnsm5-hosted.civiclive.com/UserFiles/Servers/Server_239174/File/Public%20Works/Engineering/Technical%20Documents/Bicycle%20Master%20Plan/Bicycle-Transportation-Plan-February-2011.pdf)

2004. Yuba City General Plan Update. Accessed December 6, 2023 at:

[https://yubacity.net/departments/development\\_services/general\\_plan.php](https://yubacity.net/departments/development_services/general_plan.php)

Feather River Air Quality Management District (FRAQMD). 2021. FRAQMD Rules and Regulations Statement: New Development. Available at:

<https://www.fraqmd.org/files/816000c20/FRAQMD+Rules+and+Regulations+Statement.pdf>

2010. Indirect Source Review Guidelines. Accessed September 18, 2024. Available at:

<https://www.fraqmd.org/files/8c3d336a1/FINAL+version+ISR+Amendments.pdf>

2005. Implementation of SB 656 Measures to



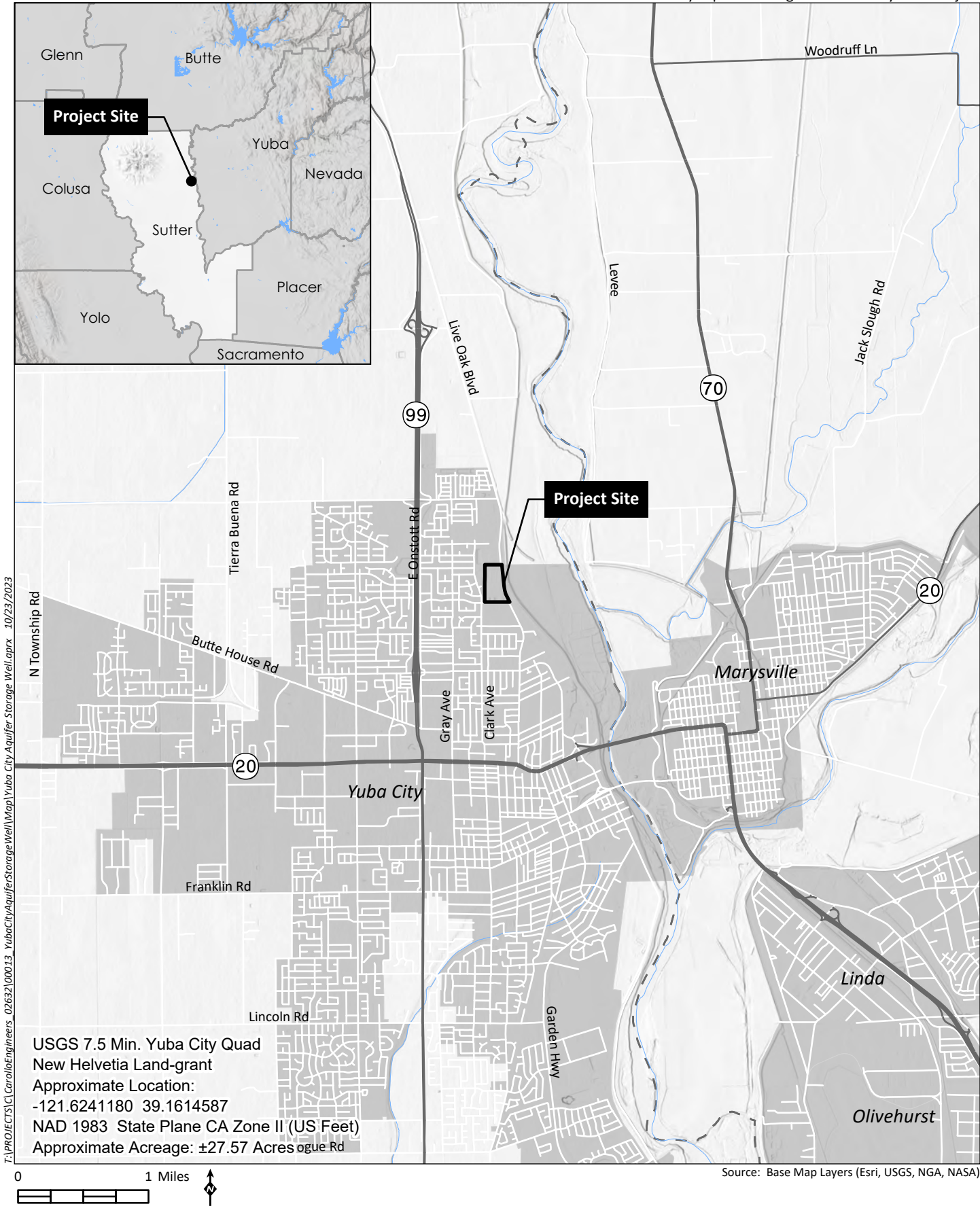
- Reduce Particulate Matter. Accessed September 18, 2024. Available at:  
<https://www.fraqmd.org/files/1e587874a/Staff+Report+SB656.pdf>
- Federal Emergency Management Act (FEMA). 2024. Flood Hazard Layer Viewer. Accessed August 20, 2024 at: <https://hazards-fema.maps.arcgis.com/apps/webappviewer/index.html?id=8b0adb51996444d4879338b5529aa9cd>
- Google Earth. 2023. Historic maps of the Project Site. Accessed December 2023 at:  
<https://earth.google.com>.
- HELIX Environmental Planning, Inc. (HELIX). 2024a. Air Quality Modeling; California Emissions Estimator Model (CalEEMod) Output.
- 2024b. Biological Resources Assessment. Available as Appendix C.
- 2024c. Cultural Resources Assessment. Available as Appendix D.
- 2024d. Noise Modeling Output. Available as Appendix F.
- Intergovernmental Panel on Climate Change (IPCC). 2007. Climate Change 2007: The Physical Science Basis. Summary for Policymakers. Contribution of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change. February. Available at:  
<https://archive.ipcc.ch/report/ar4/wg1/>.
- NETROnline. 2023. Historic Aerial Imagery. Accessed December 2023 at:  
<https://www.historicaerials.com/>.
- Natural Resources Conservations Service (NRCS). 2023. Soil Survey Staff, Natural Resources Conservation Service, United States Department of Agriculture. Web Soil Survey. Available at:  
<http://websoilsurvey.sc.egov.usda.gov/>. Accessed November 14, 2023.
- Office of Environmental Health Hazard Assessment (OEHHA). 2015. Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments. Available at:  
<https://oehha.ca.gov/air/cnr/notice-adoption-air-toxics-hot-spots-program-guidance-manual-preparation-health-risk-0>.
- Sacramento Metropolitan Air Quality Management District (SMAQMD). 2020. Greenhouse Gas Thresholds for Sacramento County. Available at:  
<https://www.airquality.org/LandUseTransportation/Documents/SMAQMDGHGThresholds2020-03-04v2.pdf>.
- Sacramento Valley Air Quality Engineering and Enforcement Professionals (SVAQEPP). 2022. 2021 Northern Sacramento Valley Planning Area Triennial Air Quality Attainment Plan. Accessed September 18, 2024. Available at:  
<https://www.fraqmd.org/files/514a81437/2021+Triennial+AQAP+Final.pdf>
- State Water Resources Control Board (SWRCB). 2024. Geotracker. Accessed August 20, 2024 at:  
<https://geotracker.waterboards.ca.gov/map/>.

2019. State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State [For inclusion in the Water Quality Control Plans for Inland Surface Waters and Enclosed Bays and Estuaries and Ocean Waters of California]. Adopted April 2. Available at: [https://www.waterboards.ca.gov/water\\_issues/programs/cwa401/docs/procedures\\_conformetod.pdf](https://www.waterboards.ca.gov/water_issues/programs/cwa401/docs/procedures_conformetod.pdf).
- Sutter County (County). 2011. Sutter County 2030 General Plan. Accessed December 6, 2023 at: <https://www.suttercounty.org/home/showpublisheddocument/2874/637555888741800000>
- 2010a. Sutter County General Plan Environmental Impact Report. Accessed September 18, 2024. Available at: <https://www.suttercounty.org/government/county-departments/development-services/planning-services/general-plan>
- 2010b. Sutter County Climate Action Plan. Accessed September 18, 2024. Available at: <https://www.suttercounty.org/home/showpublisheddocument/2876/637555889174770000>
2008. Sutter County General Plan Update Technical Background Report. Accessed December 6, 2023 at: <https://www.suttercounty.org/home/showpublisheddocument/3022/637556713076200000>
- U.S. Census Bureau. 2022. Yuba City Population Estimates. Accessed December 6, 2023 at: <https://www.census.gov/quickfacts/fact/table/yubacitycitycalifornia/PST045222>.
- U. S. Environmental Protection Agency (USEPA). Superfund Sites. Accessed August 20, 2024 at: <https://epa.maps.arcgis.com/apps/webappviewer/index.html?id=33cebcdfdd1b4c3a8b51d416956c41f1>.
- U.S. Fish and Wildlife Service (USFWS). 2023. *Information for Planning and Consultation (IPaC)* Yuba City Aquifer Storage and Recover Project. Accessed December 5, 2023.
- Zeiner, D.C., W.F. Laudenslayer, and K.E. Mayer (eds.). 1990. California's wildlife. Volume I – III. California Statewide Wildlife Habitat Relationships System. Sacramento, CA: California Department of Fish and Game.

# Appendix A

---

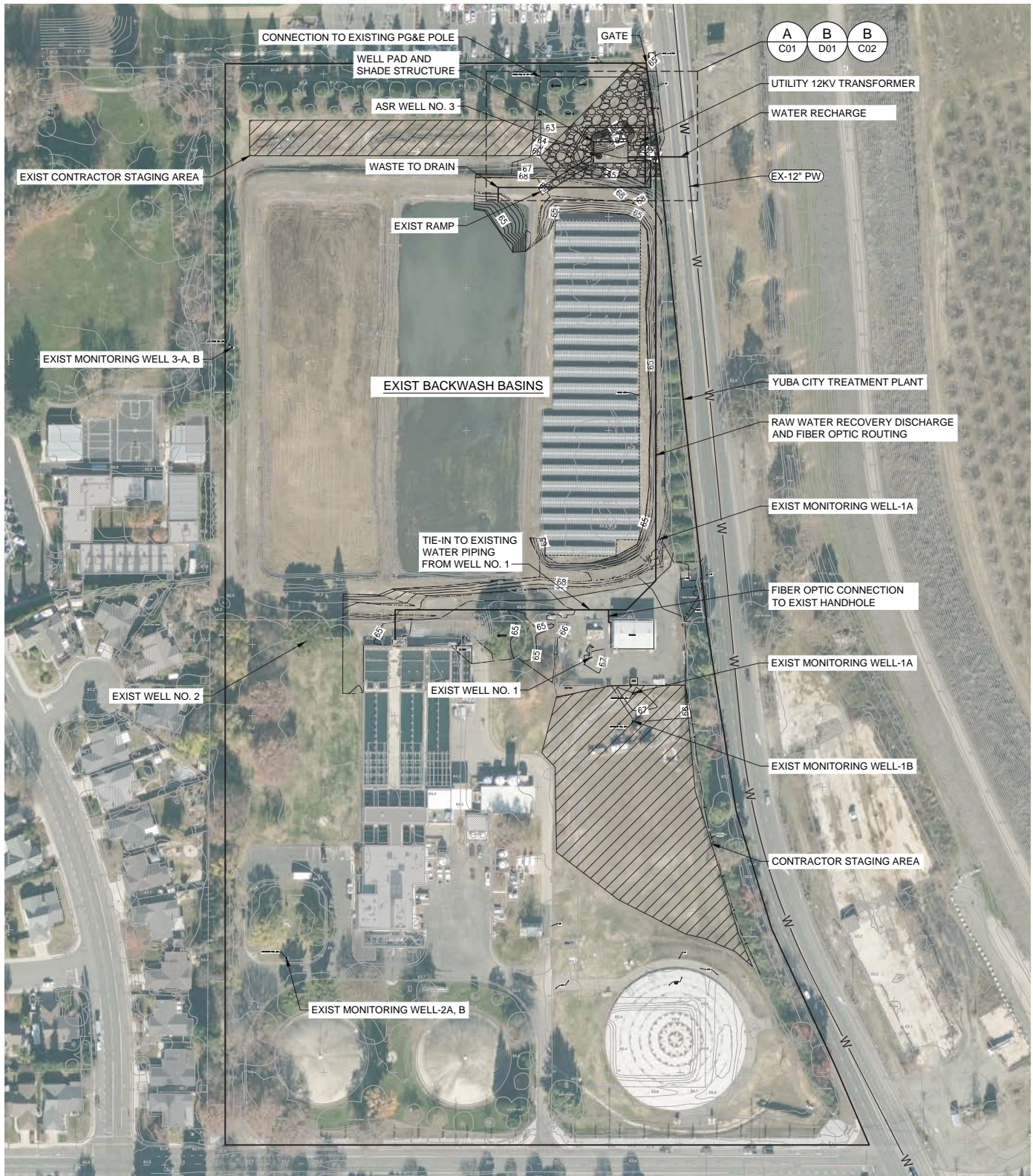
## Figures





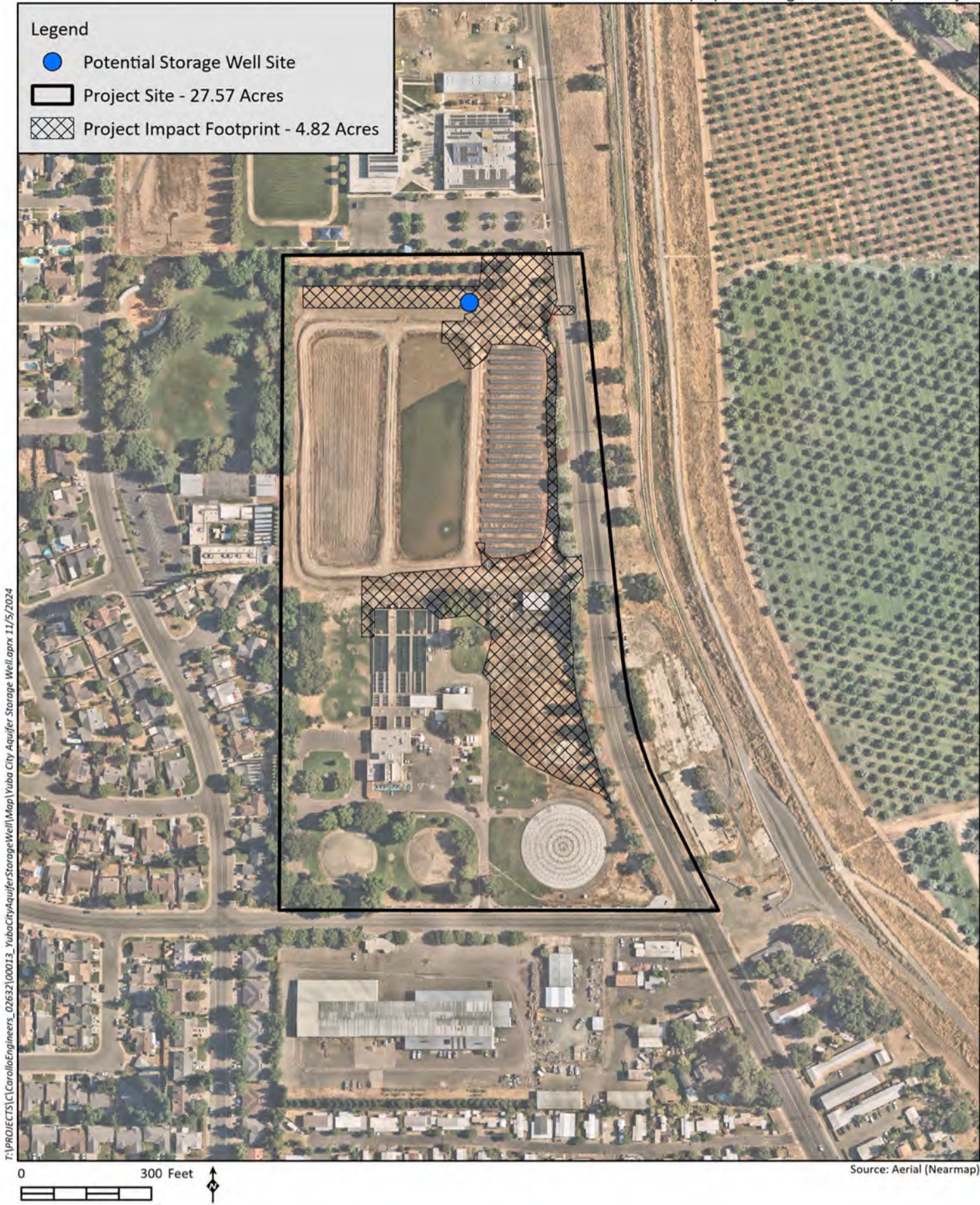






Source: Carollo, 2024





T:\PROJECTS\Carollo\Engineers\_02632\00013\_YubaCityAquiferStorageWell\Map\Yuba City Aquifer Storage Well.aprx 11/5/2024

## Appendix B

---

CalEEMod Output



# Yuba City ASR Well Detailed Report

## Table of Contents

- 1. Basic Project Information
  - 1.1. Basic Project Information
  - 1.2. Land Use Types
  - 1.3. User-Selected Emission Reduction Measures by Emissions Sector
- 2. Emissions Summary
  - 2.1. Construction Emissions Compared Against Thresholds
  - 2.2. Construction Emissions by Year, Unmitigated
  - 2.4. Operations Emissions Compared Against Thresholds
  - 2.5. Operations Emissions by Sector, Unmitigated
- 3. Construction Emissions Details
  - 3.1. Clearing and Grubbing (2025) - Unmitigated
  - 3.3. Mobilization (2025) - Unmitigated
  - 3.5. Rough Grading (2025) - Unmitigated
  - 3.7. Fine Grading (2026) - Unmitigated
  - 3.9. Footings and Pad (2025) - Unmitigated

3.11. Footings and Pad (2026) - Unmitigated

3.13. Aboveground (2026) - Unmitigated

3.15. Aboveground (2027) - Unmitigated

3.17. Well Drilling (2025) - Unmitigated

3.19. Underground Utilities (2025) - Unmitigated

#### 4. Operations Emissions Details

4.1. Mobile Emissions by Land Use

4.1.1. Unmitigated

4.2. Energy

4.2.1. Electricity Emissions By Land Use - Unmitigated

4.2.3. Natural Gas Emissions By Land Use - Unmitigated

4.3. Area Emissions by Source

4.3.1. Unmitigated

4.4. Water Emissions by Land Use

4.4.1. Unmitigated

4.5. Waste Emissions by Land Use

4.5.1. Unmitigated

4.6. Refrigerant Emissions by Land Use

4.6.1. Unmitigated

4.7. Offroad Emissions By Equipment Type

4.7.1. Unmitigated

4.8. Stationary Emissions By Equipment Type

4.8.1. Unmitigated

4.9. User Defined Emissions By Equipment Type

4.9.1. Unmitigated

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

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

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

5. Activity Data

5.1. Construction Schedule

5.2. Off-Road Equipment

5.2.1. Unmitigated

5.3. Construction Vehicles

5.3.1. Unmitigated

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

5.5. Architectural Coatings

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

5.6.2. Construction Earthmoving Control Strategies

5.7. Construction Paving

5.8. Construction Electricity Consumption and Emissions Factors

5.9. Operational Mobile Sources

5.9.1. Unmitigated

5.10. Operational Area Sources

5.10.1. Hearths

5.10.1.1. Unmitigated

5.10.2. Architectural Coatings

5.10.3. Landscape Equipment

5.11. Operational Energy Consumption

5.11.1. Unmitigated

5.12. Operational Water and Wastewater Consumption

5.12.1. Unmitigated

### 5.13. Operational Waste Generation

#### 5.13.1. Unmitigated

### 5.14. Operational Refrigeration and Air Conditioning Equipment

#### 5.14.1. Unmitigated

### 5.15. Operational Off-Road Equipment

#### 5.15.1. Unmitigated

### 5.16. Stationary Sources

#### 5.16.1. Emergency Generators and Fire Pumps

#### 5.16.2. Process Boilers

### 5.17. User Defined

### 5.18. Vegetation

#### 5.18.1. Land Use Change

##### 5.18.1.1. Unmitigated

#### 5.18.1. Biomass Cover Type

##### 5.18.1.1. Unmitigated

#### 5.18.2. Sequestration

##### 5.18.2.1. Unmitigated

## 6. Climate Risk Detailed Report

6.1. Climate Risk Summary

6.2. Initial Climate Risk Scores

6.3. Adjusted Climate Risk Scores

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

7.2. Healthy Places Index Scores

7.3. Overall Health & Equity Scores

7.4. Health & Equity Measures

7.5. Evaluation Scorecard

7.6. Health & Equity Custom Measures

8. User Changes to Default Data

# 1. Basic Project Information

## 1.1. Basic Project Information

Data Field	Value
Project Name	Yuba City ASR Well
Construction Start Date	1/1/2025
Operational Year	2028
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	3.40
Precipitation (days)	39.6
Location	39.16325203325633, -121.62391142298188
County	Sutter
City	Yuba City
Air District	Feather River AQMD
Air Basin	Sacramento Valley
TAZ	305
EDFZ	4
Electric Utility	Pacific Gas & Electric Company
Gas Utility	Pacific Gas & Electric
App Version	2022.1.1.28

## 1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description
Other Non-Asphalt Surfaces	19.7	1000sqft	0.45	0.00	0.00	—	—	—

Other Asphalt Surfaces	1.60	1000sqft	0.04	0.00	0.00	—	—	—
------------------------	------	----------	------	------	------	---	---	---

### 1.3. User-Selected Emission Reduction Measures by Emissions Sector

No measures selected

## 2. Emissions Summary

### 2.1. Construction Emissions Compared Against Thresholds

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

Un/Mit.	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Unmit.	1.50	12.7	12.9	0.02	0.53	2.74	3.27	0.49	1.36	1.85	2,845
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Unmit.	1.61	13.5	16.3	0.03	0.56	2.81	3.37	0.52	1.37	1.89	3,296
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.34	2.65	3.88	0.01	0.10	0.25	0.35	0.09	0.10	0.20	839
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.06	0.48	0.71	< 0.005	0.02	0.05	0.06	0.02	0.02	0.04	139

### 2.2. Construction Emissions by Year, Unmitigated

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

Year	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
2025	1.50	12.7	12.9	0.02	0.53	2.74	3.27	0.49	1.36	1.85	2,845



2026	0.67	4.59	7.77	0.02	0.18	0.13	0.31	0.17	0.03	0.20	1,792
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
2025	0.69	4.98	7.61	0.02	0.21	0.13	0.34	0.19	0.03	0.22	1,782
2026	1.61	13.5	16.3	0.03	0.56	2.81	3.37	0.52	1.37	1.89	3,296
2027	0.24	1.95	2.93	< 0.005	0.06	0.13	0.19	0.06	0.03	0.09	602
Average Daily	—	—	—	—	—	—	—	—	—	—	—
2025	0.28	2.20	3.04	0.01	0.09	0.19	0.28	0.08	0.09	0.17	651
2026	0.34	2.65	3.88	0.01	0.10	0.25	0.35	0.09	0.10	0.20	839
2027	0.01	0.04	0.06	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	13.0
Annual	—	—	—	—	—	—	—	—	—	—	—
2025	0.05	0.40	0.56	< 0.005	0.02	0.04	0.05	0.01	0.02	0.03	108
2026	0.06	0.48	0.71	< 0.005	0.02	0.05	0.06	0.02	0.02	0.04	139
2027	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	2.16

## 2.4. Operations Emissions Compared Against Thresholds

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

Un/Mit.	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.01	< 0.005	0.04	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	419
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.01	< 0.005	0.03	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	418
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.01	< 0.005	0.03	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	418
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—
Unmit.	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	69.3

## 2.5. Operations Emissions by Sector, Unmitigated

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

Sector	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Mobile	< 0.005	< 0.005	0.04	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	9.22
Area	0.01	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00
Energy	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	410
Water	—	—	—	—	—	—	—	—	—	—	0.00
Waste	—	—	—	—	—	—	—	—	—	—	0.00
Total	0.01	< 0.005	0.04	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	419
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Mobile	< 0.005	< 0.005	0.03	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	8.29
Area	0.01	—	—	—	—	—	—	—	—	—	—
Energy	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	410
Water	—	—	—	—	—	—	—	—	—	—	0.00
Waste	—	—	—	—	—	—	—	—	—	—	0.00
Total	0.01	< 0.005	0.03	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	418
Average Daily	—	—	—	—	—	—	—	—	—	—	—
Mobile	< 0.005	< 0.005	0.03	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	8.49
Area	0.01	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00
Energy	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	410
Water	—	—	—	—	—	—	—	—	—	—	0.00
Waste	—	—	—	—	—	—	—	—	—	—	0.00
Total	0.01	< 0.005	0.03	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	418
Annual	—	—	—	—	—	—	—	—	—	—	—
Mobile	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	1.41

Area	< 0.005	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00
Energy	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	67.8
Water	—	—	—	—	—	—	—	—	—	—	0.00
Waste	—	—	—	—	—	—	—	—	—	—	0.00
Total	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	69.3

### 3. Construction Emissions Details

#### 3.1. Clearing and Grubbing (2025) - Unmitigated

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

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.33	2.47	3.39	0.01	0.09	—	0.09	0.08	—	0.08	960
Dust From Material Movement	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.07	0.09	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	26.3
Dust From Material Movement	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	< 0.005	0.01	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	4.35
Dust From Material Movement	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.55	0.00	0.00	0.08	0.08	0.00	0.02	0.02	87.1
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	2.17
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.36
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

### 3.3. Mobilization (2025) - Unmitigated

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

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.04	0.57	1.09	< 0.005	0.01	—	0.01	0.01	—	0.01	180

Dust From Material Movement	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	0.02	0.03	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	4.92
Dust From Material Movement	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.81
Dust From Material Movement	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.18	0.00	0.00	0.03	0.03	0.00	0.01	0.01	29.0
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.72
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Annual	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.12
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

### 3.5. Rough Grading (2025) - Unmitigated

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

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.43	12.4	11.9	0.02	0.53	—	0.53	0.49	—	0.49	2,484
Dust From Material Movement	—	—	—	—	—	2.56	2.56	—	1.31	1.31	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.08	0.72	0.68	< 0.005	0.03	—	0.03	0.03	—	0.03	143
Dust From Material Movement	—	—	—	—	—	0.15	0.15	—	0.08	0.08	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.13	0.12	< 0.005	0.01	—	0.01	0.01	—	0.01	23.7
Dust From Material Movement	—	—	—	—	—	0.03	0.03	—	0.01	0.01	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.05	0.91	0.00	0.00	0.13	0.13	0.00	0.03	0.03	145
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	0.24	0.05	< 0.005	< 0.005	0.05	0.06	< 0.005	0.02	0.02	215
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.04	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	7.59
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	12.4
Annual	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	1.26
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	2.05

### 3.7. Fine Grading (2026) - Unmitigated

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

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.33	11.3	12.8	0.02	0.49	—	0.49	0.45	—	0.45	2,513
Dust From Material Movement	—	—	—	—	—	2.56	2.56	—	1.31	1.31	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.08	0.68	0.77	< 0.005	0.03	—	0.03	0.03	—	0.03	151
Dust From Material Movement	—	—	—	—	—	0.15	0.15	—	0.08	0.08	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.12	0.14	< 0.005	0.01	—	0.01	0.01	—	0.01	25.1
Dust From Material Movement	—	—	—	—	—	0.03	0.03	—	0.01	0.01	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.05	0.49	0.00	0.00	0.10	0.10	0.00	0.02	0.02	100
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	0.09	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	76.4
Average Daily	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.03	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	6.22
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	4.61
Annual	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	1.03
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.76



### 3.9. Footings and Pad (2025) - Unmitigated

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

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.64	4.79	7.04	0.01	0.20	—	0.20	0.19	—	0.19	1,567
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.10	0.72	1.06	< 0.005	0.03	—	0.03	0.03	—	0.03	236
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.13	0.19	< 0.005	0.01	—	0.01	0.01	—	0.01	39.1
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.05	0.53	0.00	0.00	0.10	0.10	0.00	0.02	0.02	102
Vendor	< 0.005	0.14	0.04	< 0.005	< 0.005	0.03	0.03	< 0.005	0.01	0.01	113
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.08	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	15.9
Vendor	< 0.005	0.02	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	17.0

Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.02	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	2.63
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	2.82
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

### 3.11. Footings and Pad (2026) - Unmitigated

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

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.62	4.43	7.05	0.01	0.18	—	0.18	0.17	—	0.17	1,568
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.62	4.43	7.05	0.01	0.18	—	0.18	0.17	—	0.17	1,568
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.13	0.91	1.45	< 0.005	0.04	—	0.04	0.03	—	0.03	322
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.17	0.26	< 0.005	0.01	—	0.01	0.01	—	0.01	53.3
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—

Worker	0.05	0.03	0.67	0.00	0.00	0.10	0.10	0.00	0.02	0.02	114
Vendor	< 0.005	0.13	0.04	< 0.005	< 0.005	0.03	0.03	< 0.005	0.01	0.01	111
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.05	0.49	0.00	0.00	0.10	0.10	0.00	0.02	0.02	100
Vendor	< 0.005	0.14	0.04	< 0.005	< 0.005	0.03	0.03	< 0.005	0.01	0.01	111
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.10	0.00	0.00	0.02	0.02	0.00	< 0.005	< 0.005	21.2
Vendor	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	22.8
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.02	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	3.51
Vendor	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	3.78
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

### 3.13. Aboveground (2026) - Unmitigated

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

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.20	1.82	2.43	< 0.005	0.07	—	0.07	0.06	—	0.06	396
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.20	1.82	2.43	< 0.005	0.07	—	0.07	0.06	—	0.06	396

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.10	0.93	1.24	< 0.005	0.03	—	0.03	0.03	—	0.03	201
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.17	0.23	< 0.005	0.01	—	0.01	0.01	—	0.01	33.3
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.03	0.67	0.00	0.00	0.10	0.10	0.00	0.02	0.02	114
Vendor	< 0.005	0.13	0.04	< 0.005	< 0.005	0.03	0.03	< 0.005	0.01	0.01	111
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.05	0.49	0.00	0.00	0.10	0.10	0.00	0.02	0.02	100
Vendor	< 0.005	0.14	0.04	< 0.005	< 0.005	0.03	0.03	< 0.005	0.01	0.01	111
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.26	0.00	0.00	0.05	0.05	0.00	0.01	0.01	52.5
Vendor	< 0.005	0.07	0.02	< 0.005	< 0.005	0.01	0.02	< 0.005	< 0.005	< 0.005	56.5
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.05	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	8.70
Vendor	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	9.36
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

## 3.15. Aboveground (2027) - Unmitigated

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

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.20	1.78	2.43	< 0.005	0.06	—	0.06	0.06	—	0.06	396
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	0.04	0.05	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	8.51
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	0.01	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	1.41
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.45	0.00	0.00	0.10	0.10	0.00	0.02	0.02	98.2
Vendor	< 0.005	0.13	0.04	< 0.005	< 0.005	0.03	0.03	< 0.005	0.01	0.01	108
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	2.18
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	2.34

Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.36
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.39
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

### 3.17. Well Drilling (2025) - Unmitigated

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

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.31	3.17	4.81	0.01	0.11	—	0.11	0.10	—	0.10	779
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.04	0.37	0.57	< 0.005	0.01	—	0.01	0.01	—	0.01	91.8
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.07	0.10	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	15.2
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.04	0.40	0.00	0.00	0.08	0.08	0.00	0.02	0.02	76.8

Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.05	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	9.32
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	1.54
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

### 3.19. Underground Utilities (2025) - Unmitigated

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

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.53	4.11	6.30	0.01	0.18	—	0.18	0.17	—	0.17	1,233
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.53	4.11	6.30	0.01	0.18	—	0.18	0.17	—	0.17	1,233
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.03	0.25	0.38	< 0.005	0.01	—	0.01	0.01	—	0.01	74.3
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.01	0.05	0.07	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	12.3
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.04	0.73	0.00	0.00	0.10	0.10	0.00	0.02	0.02	116
Vendor	< 0.005	0.07	0.02	< 0.005	< 0.005	0.01	0.02	< 0.005	< 0.005	< 0.005	56.6
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.05	0.53	0.00	0.00	0.10	0.10	0.00	0.02	0.02	102
Vendor	< 0.005	0.07	0.02	< 0.005	< 0.005	0.01	0.02	< 0.005	< 0.005	< 0.005	56.5
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.03	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	6.36
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	3.41
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	1.05
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.56
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

## 4. Operations Emissions Details

### 4.1. Mobile Emissions by Land Use

#### 4.1.1. Unmitigated

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



Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Other Non-Asphalt Surfaces	< 0.005	< 0.005	0.04	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	9.22
Other Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	< 0.005	< 0.005	0.04	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	9.22
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Other Non-Asphalt Surfaces	< 0.005	< 0.005	0.03	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	8.29
Other Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	< 0.005	< 0.005	0.03	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	8.29
Annual	—	—	—	—	—	—	—	—	—	—	—
Other Non-Asphalt Surfaces	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	1.41
Other Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	1.41

## 4.2. Energy

### 4.2.1. Electricity Emissions By Land Use - Unmitigated

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

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—

Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	410
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	410
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	410
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	410
Annual	—	—	—	—	—	—	—	—	—	—	—
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	67.8
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	67.8

#### 4.2.3. Natural Gas Emissions By Land Use - Unmitigated

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

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Other Non-Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00
Other Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00
Total	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Other Non-Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00
Other Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00
Total	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—
Other Non-Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00
Other Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00
Total	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00

## 4.3. Area Emissions by Source

### 4.3.1. Unmitigated

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

Source	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	< 0.005	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	< 0.005	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00
Total	0.01	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—

Consumer Products	< 0.005	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	< 0.005	—	—	—	—	—	—	—	—	—	—
Total	0.01	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	< 0.005	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	< 0.005	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00
Total	< 0.005	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00

## 4.4. Water Emissions by Land Use

### 4.4.1. Unmitigated

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

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	0.00
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	0.00

Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	0.00
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	0.00

## 4.5. Waste Emissions by Land Use

### 4.5.1. Unmitigated

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

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	0.00
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	0.00
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—

Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	0.00
Other Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	0.00

## 4.6. Refrigerant Emissions by Land Use

### 4.6.1. Unmitigated

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

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—

## 4.7. Offroad Emissions By Equipment Type

### 4.7.1. Unmitigated

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

Equipment Type	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—

## 4.8. Stationary Emissions By Equipment Type

### 4.8.1. Unmitigated

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

Equipment Type	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—

## 4.9. User Defined Emissions By Equipment Type

### 4.9.1. Unmitigated

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

Equipment Type	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—

#### 4.10. Soil Carbon Accumulation By Vegetation Type

##### 4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

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

Vegetation	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—

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

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

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—



Total	—	—	—	—	—	—	—	—	—	—	—
-------	---	---	---	---	---	---	---	---	---	---	---

#### 4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

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

Species	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—

Subtotal	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—

## 5. Activity Data

### 5.1. Construction Schedule

Phase Name	Phase Type	Start Date	End Date	Days Per Week	Work Days per Phase	Phase Description
Clearing and Grubbing	Site Preparation	8/4/2025	8/15/2025	5.00	10.0	—
Mobilization	Site Preparation	7/20/2025	8/3/2025	5.00	10.0	—
Rough Grading	Grading	8/16/2025	9/15/2025	5.00	21.0	—
Fine Grading	Grading	10/1/2026	10/31/2026	5.00	22.0	—
Footings and Pad	Building Construction	10/16/2025	4/15/2026	5.00	130	—
Aboveground	Building Construction	4/16/2026	1/11/2027	5.00	193	—
Well Drilling	Trenching	1/1/2025	3/2/2025	5.00	43.0	—
Underground Utilities	Trenching	9/16/2025	10/15/2025	5.00	22.0	—

### 5.2. Off-Road Equipment

#### 5.2.1. Unmitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Clearing and Grubbing	Tractors/Loaders/Back hoes	Diesel	Average	1.00	8.00	84.0	0.37
Clearing and Grubbing	Off-Highway Trucks	Diesel	Average	2.00	2.00	376	0.38
Mobilization	Rough Terrain Forklifts	Diesel	Average	1.00	4.00	96.0	0.40
Rough Grading	Rubber Tired Dozers	Diesel	Average	1.00	8.00	367	0.40
Rough Grading	Tractors/Loaders/Back hoes	Diesel	Average	1.00	8.00	84.0	0.37
Rough Grading	Rollers	Diesel	Average	1.00	8.00	36.0	0.38

Rough Grading	Off-Highway Trucks	Diesel	Average	2.00	2.00	376	0.38
Fine Grading	Rubber Tired Dozers	Diesel	Average	1.00	8.00	367	0.40
Fine Grading	Tractors/Loaders/Back hoes	Diesel	Average	1.00	8.00	84.0	0.37
Fine Grading	Rubber Tired Loaders	Diesel	Average	1.00	8.00	150	0.36
Fine Grading	Off-Highway Trucks	Diesel	Average	1.00	2.00	376	0.38
Footings and Pad	Tractors/Loaders/Back hoes	Diesel	Average	1.00	8.00	84.0	0.37
Footings and Pad	Rubber Tired Loaders	Diesel	Average	1.00	8.00	150	0.36
Footings and Pad	Off-Highway Trucks	Diesel	Average	1.00	4.00	376	0.38
Footings and Pad	Generator Sets	Diesel	Average	1.00	8.00	14.0	0.74
Aboveground	Tractors/Loaders/Back hoes	Diesel	Average	1.00	8.00	84.0	0.37
Aboveground	Generator Sets	Diesel	Average	1.00	8.00	14.0	0.74
Well Drilling	Bore/Drill Rigs	Diesel	Average	1.00	8.00	83.0	0.50
Well Drilling	Tractors/Loaders/Back hoes	Diesel	Average	1.00	8.00	84.0	0.37
Well Drilling	Generator Sets	Diesel	Average	1.00	8.00	14.0	0.74
Underground Utilities	Tractors/Loaders/Back hoes	Diesel	Average	1.00	8.00	84.0	0.37
Underground Utilities	Generator Sets	Diesel	Average	1.00	8.00	14.0	0.74
Underground Utilities	Rubber Tired Loaders	Diesel	Average	1.00	8.00	150	0.36
Underground Utilities	Off-Highway Trucks	Diesel	Average	1.00	2.00	376	0.38

## 5.3. Construction Vehicles

### 5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Clearing and Grubbing	—	—	—	—
Clearing and Grubbing	Worker	7.50	14.3	LDA,LDT1,LDT2

Clearing and Grubbing	Vendor	—	8.80	HHDT,MHDT
Clearing and Grubbing	Hauling	0.00	20.0	HHDT
Clearing and Grubbing	Onsite truck	—	—	HHDT
Rough Grading	—	—	—	—
Rough Grading	Worker	12.5	14.3	LDA,LDT1,LDT2
Rough Grading	Vendor	—	8.80	HHDT,MHDT
Rough Grading	Hauling	3.00	20.0	HHDT
Rough Grading	Onsite truck	—	—	HHDT
Footings and Pad	—	—	—	—
Footings and Pad	Worker	10.0	14.3	LDA,LDT1,LDT2
Footings and Pad	Vendor	4.00	8.80	HHDT,MHDT
Footings and Pad	Hauling	0.00	20.0	HHDT
Footings and Pad	Onsite truck	—	—	HHDT
Mobilization	—	—	—	—
Mobilization	Worker	2.50	14.3	LDA,LDT1,LDT2
Mobilization	Vendor	—	8.80	HHDT,MHDT
Mobilization	Hauling	0.00	20.0	HHDT
Mobilization	Onsite truck	—	—	HHDT
Well Drilling	—	—	—	—
Well Drilling	Worker	7.50	14.3	LDA,LDT1,LDT2
Well Drilling	Vendor	—	8.80	HHDT,MHDT
Well Drilling	Hauling	0.00	20.0	HHDT
Well Drilling	Onsite truck	—	—	HHDT
Fine Grading	—	—	—	—
Fine Grading	Worker	10.0	14.3	LDA,LDT1,LDT2
Fine Grading	Vendor	—	8.80	HHDT,MHDT
Fine Grading	Hauling	1.09	20.0	HHDT
Fine Grading	Onsite truck	—	—	HHDT

Aboveground	—	—	—	—
Aboveground	Worker	10.0	14.3	LDA,LDT1,LDT2
Aboveground	Vendor	4.00	8.80	HHDT,MHDT
Aboveground	Hauling	0.00	20.0	HHDT
Aboveground	Onsite truck	—	—	HHDT
Underground Utilities	—	—	—	—
Underground Utilities	Worker	10.0	14.3	LDA,LDT1,LDT2
Underground Utilities	Vendor	2.00	8.80	HHDT,MHDT
Underground Utilities	Hauling	0.00	20.0	HHDT
Underground Utilities	Onsite truck	—	—	HHDT

## 5.4. Vehicles

### 5.4.1. Construction Vehicle Control Strategies

Non-applicable. No control strategies activated by user.

## 5.5. Architectural Coatings

Phase Name	Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
------------	------------------------------------------	------------------------------------------	----------------------------------------------	----------------------------------------------	-----------------------------

## 5.6. Dust Mitigation

### 5.6.1. Construction Earthmoving Activities

Phase Name	Material Imported (cy)	Material Exported (cy)	Acres Graded (acres)	Material Demolished (sq. ft.)	Acres Paved (acres)
Clearing and Grubbing	—	—	0.00	0.00	—
Mobilization	—	—	0.00	0.00	—
Rough Grading	—	500	10.5	0.00	—
Fine Grading	—	—	11.0	0.00	—

### 5.6.2. Construction Earthmoving Control Strategies

Control Strategies Applied	Frequency (per day)	PM10 Reduction	PM2.5 Reduction
Water Exposed Area	2	61%	61%

### 5.7. Construction Paving

Land Use	Area Paved (acres)	% Asphalt
Other Non-Asphalt Surfaces	0.45	0%
Other Asphalt Surfaces	0.04	100%

### 5.8. Construction Electricity Consumption and Emissions Factors

#### kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2025	0.00	204	0.03	< 0.005
2026	0.00	204	0.03	< 0.005
2027	0.00	204	0.03	< 0.005

### 5.9. Operational Mobile Sources

#### 5.9.1. Unmitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
Other Non-Asphalt Surfaces	2.00	2.00	2.00	730	11.2	11.2	11.2	4,077
Other Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

### 5.10. Operational Area Sources

## 5.10.1. Hearths

## 5.10.1.1. Unmitigated

## 5.10.2. Architectural Coatings

Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
0	0.00	0.00	0.00	1,280

## 5.10.3. Landscape Equipment

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

## 5.11. Operational Energy Consumption

## 5.11.1. Unmitigated

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

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)
Other Non-Asphalt Surfaces	726,110	204	0.0330	0.0040	0.00
Other Asphalt Surfaces	0.00	204	0.0330	0.0040	0.00

## 5.12. Operational Water and Wastewater Consumption

## 5.12.1. Unmitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
Other Non-Asphalt Surfaces	0.00	0.00
Other Asphalt Surfaces	0.00	0.00

### 5.13. Operational Waste Generation

#### 5.13.1. Unmitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
Other Non-Asphalt Surfaces	0.00	—
Other Asphalt Surfaces	0.00	—

### 5.14. Operational Refrigeration and Air Conditioning Equipment

#### 5.14.1. Unmitigated

Land Use Type	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced
---------------	----------------	-------------	-----	---------------	----------------------	-------------------	----------------

### 5.15. Operational Off-Road Equipment

#### 5.15.1. Unmitigated

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

### 5.16. Stationary Sources

#### 5.16.1. Emergency Generators and Fire Pumps

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

#### 5.16.2. Process Boilers

Equipment Type	Fuel Type	Number	Boiler Rating (MMBtu/hr)	Daily Heat Input (MMBtu/day)	Annual Heat Input (MMBtu/yr)
----------------	-----------	--------	--------------------------	------------------------------	------------------------------

### 5.17. User Defined

Equipment Type	Fuel Type
----------------	-----------



## 5.18. Vegetation

### 5.18.1. Land Use Change

#### 5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres
--------------------------	----------------------	---------------	-------------

### 5.18.1. Biomass Cover Type

#### 5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres
--------------------	---------------	-------------

### 5.18.2. Sequestration

#### 5.18.2.1. Unmitigated

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

## 6. Climate Risk Detailed Report

### 6.1. Climate Risk Summary

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

Climate Hazard	Result for Project Location	Unit
Temperature and Extreme Heat	28.2	annual days of extreme heat
Extreme Precipitation	4.35	annual days with precipitation above 20 mm
Sea Level Rise	—	meters of inundation depth
Wildfire	8.14	annual hectares burned

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

Extreme Precipitation data are for the grid cell in which your project are located. The threshold of 20 mm is equivalent to about  $\frac{3}{4}$  an inch of rain, which would be light to moderate rainfall if received over a full day or heavy rain if received over a period of 2 to 4 hours. Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

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

Wildfire data are for the grid cell in which your project are located. The projections are from UC Davis, as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider historical data of climate, vegetation, population density, and large (> 400 ha) fire history. Users may select from four model simulations to view the range in potential wildfire probabilities for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

## 6.2. Initial Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	5	0	0	N/A
Extreme Precipitation	1	0	0	N/A
Sea Level Rise	N/A	N/A	N/A	N/A
Wildfire	1	0	0	N/A
Flooding	0	0	0	N/A
Drought	0	0	0	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	0	0	0	N/A

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

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

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

## 6.3. Adjusted Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	5	1	1	4
Extreme Precipitation	1	1	1	2
Sea Level Rise	N/A	N/A	N/A	N/A

Wildfire	1	1	1	2
Flooding	1	1	1	2
Drought	1	1	1	2
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	1	1	1	2

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

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

The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores include implementation of climate risk reduction measures.

## 6.4. Climate Risk Reduction Measures

# 7. Health and Equity Details

## 7.1. CalEnviroScreen 4.0 Scores

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

Indicator	Result for Project Census Tract
Exposure Indicators	—
AQ-Ozone	47.4
AQ-PM	44.5
AQ-DPM	81.6
Drinking Water	65.8
Lead Risk Housing	46.7
Pesticides	80.9
Toxic Releases	5.29
Traffic	45.9
Effect Indicators	—
CleanUp Sites	37.6
Groundwater	22.1

Haz Waste Facilities/Generators	52.6
Impaired Water Bodies	66.7
Solid Waste	0.00
Sensitive Population	—
Asthma	56.6
Cardio-vascular	87.5
Low Birth Weights	68.9
Socioeconomic Factor Indicators	—
Education	70.2
Housing	64.0
Linguistic	70.9
Poverty	78.0
Unemployment	53.9

## 7.2. Healthy Places Index Scores

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

Indicator	Result for Project Census Tract
Economic	—
Above Poverty	16.61747722
Employed	32.58052098
Median HI	16.27101245
Education	—
Bachelor's or higher	21.73745669
High school enrollment	100
Preschool enrollment	42.38419094
Transportation	—
Auto Access	22.57153856
Active commuting	67.08584627

Social	—
2-parent households	31.63095085
Voting	54.47196202
Neighborhood	—
Alcohol availability	55.48569229
Park access	53.47106378
Retail density	21.27550366
Supermarket access	17.1435904
Tree canopy	83.31836263
Housing	—
Homeownership	29.74464263
Housing habitability	34.92878224
Low-inc homeowner severe housing cost burden	47.51700244
Low-inc renter severe housing cost burden	62.86410882
Uncrowded housing	29.84729886
Health Outcomes	—
Insured adults	26.49813936
Arthritis	0.0
Asthma ER Admissions	57.1
High Blood Pressure	0.0
Cancer (excluding skin)	0.0
Asthma	0.0
Coronary Heart Disease	0.0
Chronic Obstructive Pulmonary Disease	0.0
Diagnosed Diabetes	0.0
Life Expectancy at Birth	11.0
Cognitively Disabled	62.4
Physically Disabled	21.0

Heart Attack ER Admissions	10.2
Mental Health Not Good	0.0
Chronic Kidney Disease	0.0
Obesity	0.0
Pedestrian Injuries	19.6
Physical Health Not Good	0.0
Stroke	0.0
Health Risk Behaviors	—
Binge Drinking	0.0
Current Smoker	0.0
No Leisure Time for Physical Activity	0.0
Climate Change Exposures	—
Wildfire Risk	0.0
SLR Inundation Area	0.0
Children	6.8
Elderly	36.3
English Speaking	60.4
Foreign-born	42.5
Outdoor Workers	37.5
Climate Change Adaptive Capacity	—
Impervious Surface Cover	48.3
Traffic Density	22.5
Traffic Access	0.0
Other Indices	—
Hardship	69.9
Other Decision Support	—
2016 Voting	43.3

### 7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	77.0
Healthy Places Index Score for Project Location (b)	26.0
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	No
Project Located in a Low-Income Community (Assembly Bill 1550)	Yes
Project Located in a Community Air Protection Program Community (Assembly Bill 617)	No

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

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

### 7.4. Health & Equity Measures

No Health & Equity Measures selected.

### 7.5. Evaluation Scorecard

Health & Equity Evaluation Scorecard not completed.

### 7.6. Health & Equity Custom Measures

No Health & Equity Custom Measures created.

## 8. User Changes to Default Data

Screen	Justification
Construction: Construction Phases	Construction schedule estimated using data from the project engineer.
Construction: Off-Road Equipment	Equipment per project engineer. Off-Highway Truck= dump truck, concrete pump truck, and water truck.
Construction: Trips and VMT	Worker and vendor trips estimated per data from project engineer.
Operations: Vehicle Data	One maintenance trip per day per project engineer.
Operations: Fleet Mix	One pickup truck for maintenance per project engineer.
Operations: Energy Use	Energy usage calculated from data provided by project engineer.

## Appendix C

---

### Biological Resources Assessment



# Yuba City Aquifer Storage and Recovery Well System

## Biological Resources Assessment

November 2024 | 02632.00013.001

*Prepared for:*

**Carollo Engineers**  
2880 Gateway Oaks Drive, Suite 300  
Sacramento, CA 95833

*Prepared by:*

**HELIX Environmental Planning, Inc.**  
1180 Iron Point Road, Suite 130  
Folsom, CA 95630

This page intentionally left blank

# Table of Contents

---

<b><u>Section</u></b>	<b><u>Page</u></b>
EXECUTIVE SUMMARY .....	ES-1
1.0 INTRODUCTION.....	1
1.1 Project Description .....	1
2.0 REGULATORY FRAMEWORK.....	1
2.1 Federal Regulations .....	1
2.1.1 Federal Endangered Species Act.....	1
2.1.2 Migratory Bird Treaty Act .....	2
2.1.3 The Bald and Golden Eagle Protection Act .....	2
2.2 State Jurisdiction.....	2
2.2.1 California Endangered Species Act .....	2
2.2.2 California Department of Fish and Game Codes .....	3
2.2.3 Native Plant Protection Act .....	3
2.3 Jurisdictional Waters.....	3
2.3.1 Federal Jurisdiction .....	3
2.3.2 State Jurisdiction.....	4
2.4 CEQA Significance .....	5
2.4.1 California Native Plant Society.....	6
2.4.2 California Department of Fish and Wildlife Species of Concern .....	7
2.5 Local Policies and Regulations .....	7
2.5.1 City of Yuba City General Plan .....	7
3.0 METHODS.....	8
4.0 RESULTS .....	9
4.1 Site Location and Description .....	9
4.2 Physical Features .....	9
4.2.1 Topography and Drainage .....	9
4.2.2 Soils .....	9
4.3 Biological Communities .....	10
4.3.1 Urban/Developed .....	10
4.4 Special-status Species .....	10
4.4.1 Listed and Special-status Plants.....	11
4.4.2 Listed and Special-status Wildlife .....	11
4.5 Sensitive Habitats .....	13
4.5.1 Aquatic Resources.....	13
4.5.2 Protected Trees.....	13
4.5.3 HCP/NCCP .....	14
4.5.4 Wildlife Migration Corridors .....	14
5.0 IMPACTS AND RECOMMENDED MITIGATION .....	14
5.1 Special-status Wildlife.....	14

## Table of Contents (cont.)

---

5.1.1	Swainson's Hawk, White-tailed Kite and Nesting Migratory Birds and Raptors .	14
5.1.2	Protected Trees.....	15
6.0	REFERENCES.....	16

### LIST OF APPENDICES

A	Figures
B	Database Lists of Regionally Occurring Special-status Species
C	Plant and Wildlife Species Observed in the Study Area
D	Potential for Special-status Species in the Region to Occur in the Study Area
E	Representative Site Photos

## Acronyms and Abbreviations

---

BRA	Biological Resources Assessment
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CNDDDB	California Natural Diversity Database
CNPS	California Native Plant Society
CSA	California Special Animals
CWA	Clean Water Act
DBH	diameter at breast height
FESA	Federal Endangered Species Act
HCP	Habitat Conservation Plan
HELIX	HELIX Environmental Planning, Inc.
IPaC	Information for Planning and Consultation
MBTA	Migratory Bird Treaty Act
MSL	mean sea level
NCCP	Natural Community Conservation Plan
NEPA	National Environmental Policy Act
NPPA	Native Plant Protection Act
NRCS	Natural Resource Conservation Service
RWQCB	Regional Water Quality Control Board
SAA	Streambed Alteration Agreement
SSC	Species of Special Concern
SWRCB	State Water Resources Control Board
USACE	U.S. Army Corps of Engineers
USDA	U.S. Department of Agriculture
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey

This page intentionally left blank

## EXECUTIVE SUMMARY

HELIX Environmental Planning, Inc. (HELIX) conducted a Biological Resources Assessment (BRA) for the 27.57-acre Yuba City Aquifer Storage and Recover Project (Project) on November 27, 2023. The Project is located on the northwest corner of North Gate Drive and Live Oak Boulevard in the City of Yuba City in Sutter County, California (Study Area). The Study Area is situated in the New Helvetia Land grant on the U.S. Geological Survey (USGS) *Yuba City, California* 7.5-minute quadrangle map. The approximate center of the Study Area is latitude 39.1614587° and longitude - 121.6241180°, NAD 83, and is located at an elevation that ranges from approximately 52 feet to 72 feet above mean sea level (MSL).

The purpose of this BRA is to assess the general biological resources in the Study Area, assess the suitability of the Study Area to support special-status species and sensitive vegetation communities or habitats, analyze any potential impacts to biological resources that could occur as a result of the proposed project and provide suggested mitigation measures to avoid and/or reduce any such impacts to less than significant.

The 27.57-acre Study Area is in a mixed residential/commercial area in Yuba City, California and consists entirely of developed land with no natural vegetation communities or aquatic resources. Surrounding land uses include rural, single-family residences, commercial buildings, and agriculture. The Feather River occurs approximately 1/2-mile east of the Project.

Known or potential sensitive biological resources in the Study Area include:

- Potential habitat for the state-listed Swainson's hawk (*Buteo swainsoni*);
- Potential habitat for California Department of Fish and Wildlife (CDFW) fully protected white-tailed kite (*Elanus leucurus*); and
- Trees protected by Yuba City.

This page intentionally left blank



# 1.0 INTRODUCTION

This report summarizes the findings of a Biological Resources Assessment (BRA) completed by HELIX Environmental Planning, Inc. (HELIX) for the ±27.57-acre Yuba City Aquifer Storage and Recover Project (Project), located on North Gate Drive in the City of Yuba City (City), Sutter County, California (Study Area). The Study Area and vicinity are displayed in Figures 1 through 5 in Appendix A. This document characterizes the on-site physical features, plant communities present, and the common plant and wildlife species occurring or potentially occurring in the Study Area. In addition, the suitability of habitats to support special-status species and sensitive habitats are analyzed, as well as any potential impacts on biological resources that could occur as a result of the development of the proposed project. Where applicable, mitigation measures are provided to avoid and/or reduce any such impacts to less than significant.

## 1.1 PROJECT DESCRIPTION

The City of Yuba City owns and operates a Water Treatment Plant (WTP) at 701 Northgate Drive, Yuba City. The City has a current water demand of 29,600 acre-feet per year (AFY) and estimates that an additional 2,000 to 3,000 AFY would be required to meet future demands. The City receives surface water from the Feather River through multiple water rights contracts; however, the City has been unable to use all of the allocated water which may result in future surface water allocation reductions and puts the City at risk of not meeting future demands.

To fully make use of the City's water rights and establish a resilient long-term water supply, the City is pursuing the construction of a new aquifer storage and recovery (ASR) well at the City-owned WTP. Construction of the proposed ASR well would allow for underground storage of excess water during winter months; this water could be recovered to meet short-term demands and supplement existing water supplies. The proposed ASR well would be covered by a 1,440 square foot (sf) well shade structure. Flush water from the new ASR well would be directed to the center existing WTP filter backwash pond. The recovered water from the new ASR well would connect into the existing Well No. 1 discharge pipeline that routes to the existing WTP flash mixing tank for treatment through the WTP process. The raw water recharge would be routed by a 12-inch pipeline to the new ASR well from an existing 12-inch potable water main pipeline underneath Live Oak Boulevard. Mechanical piping and electrical components would be located within the well-shade structure. Fiber optic routing would be constructed within the same trench as the raw water recovery discharge pipeline.

## 2.0 REGULATORY FRAMEWORK

Federal, State, and local environmental laws, regulations, and policies relevant to the California Environmental Quality Act (CEQA) review process are summarized below. Applicable CEQA significance criteria are also addressed in this section.

### 2.1 FEDERAL REGULATIONS

#### 2.1.1 Federal Endangered Species Act

The U.S. Congress passed the Federal Endangered Species Act (FESA) in 1973 to protect species that are endangered or threatened with extinction. FESA is intended to operate in conjunction with the National

Environmental Policy Act (NEPA) to help protect the ecosystems upon which endangered and threatened species depend.

FESA prohibits the “take” of endangered or threatened wildlife species. “Take” is defined to include harassing, harming, pursuing, hunting, shooting, wounding, killing, trapping, capturing, or collecting wildlife species or any attempt to engage in such conduct (FESA Section 3 [(3) (19)]). Harm is further defined to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing behavioral patterns (50 CFR §17.3). Harass is defined as actions that create the likelihood of injury to listed species to such an extent as to significantly disrupt normal behavior patterns (50 CFR §17.3). Actions that result in take can result in civil or criminal penalties.

In the context of the proposed Project, FESA consultation with the U.S. Fish and Wildlife Service (USFWS) and/or the National Marine Fisheries Service (NMFS) would be initiated if development resulted in the potential for take of a threatened or endangered species or if issuance of a Section 404 permit or other federal agency action could result in take of an endangered species or adversely modify critical habitat of such a species.

### **2.1.2 Migratory Bird Treaty Act**

Raptors, migratory birds, and other avian species are protected by State and federal laws. The federal Migratory Bird Treaty Act (MBTA) prohibits the killing, possessing, or trading of migratory birds except in accordance with regulations prescribed by the Secretary of Interior.

### **2.1.3 The Bald and Golden Eagle Protection Act**

The Bald and Golden Eagle Protection Act (Eagle Act) prohibits the taking or possession of and commerce in bald and golden eagles with limited exceptions. Under the Eagle Act, it is a violation to *“take, possess, sell, purchase, barter, offer to sell, transport, export or import, at any time or in any manner, any bald eagle commonly known as the American eagle, or golden eagle, alive or dead, or any part, nest, or egg, thereof.”* Take is defined to include pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, destroy, molest, and disturb. Disturb is further defined in 50 CFR Part 22.3 as *“to agitate or bother a bald or golden eagle to a degree that causes, or is likely to cause, based on the best scientific information available (1) injury to an eagle, (2) a decrease in its productivity, by substantially interfering with normal breeding, feeding, or sheltering behavior, or (3) nest abandonment, by substantially interfering with normal breeding, feeding, or sheltering behavior.”*

## **2.2 STATE JURISDICTION**

### **2.2.1 California Endangered Species Act**

The State of California enacted the California Endangered Species Act (CESA) in 1984. CESA is similar to FESA but pertains to State-listed endangered and threatened species. CESA requires state agencies to consult with the CDFW when preparing CEQA documents. The purpose is to ensure that State lead agency actions do not jeopardize the continued existence of a listed species or result in the destruction, or adverse modification of habitat essential to the continued existence of those species, if there are reasonable and prudent alternatives available (Fish and Game Code §2080). CESA directs agencies to consult with CDFW on projects or actions that could affect listed species. It also directs CDFW to determine whether jeopardy would occur and allows CDFW to identify “reasonable and prudent

alternatives” to the project consistent with conserving the species. CESA allows CDFW to authorize exceptions to the State’s prohibition against take of a listed species if the “take” of a listed species is incidental to carrying out an otherwise lawful project that has been approved under CEQA (Fish & Game Code §2081).

## 2.2.2 California Department of Fish and Game Codes

A number of species have been designated as “Fully Protected” species under Sections 5515, 5050, 3511, and 4700 of the Fish and Game Code (FGC) but are not listed as endangered (Section 2062) or threatened (Section 2067) species under CESA. Except for take related to scientific research, all take of fully protected species is prohibited. The California Fish and Game Code defines take as “*hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill.*” Additionally, Sections 3503, 3503.5, and 3513 of the California Fish and Game Code prohibit the killing of birds or the destruction of bird nests.

## 2.2.3 Native Plant Protection Act

The Native Plant Protection Act (NPPA), enacted in 1977, allows the Fish and Game Commission to designate plants as rare or endangered. The NPPA prohibits take of endangered or rare native plants, with some exceptions for agricultural and nursery operations and emergencies. Vegetation removal from canals, roads, and other sites, changes in land use, and certain other situations require proper advance notification to CDFW.

## 2.3 JURISDICTIONAL WATERS

### 2.3.1 Federal Jurisdiction

On May 25, 2023, the United States Supreme Court issued a decision in the case of *Sackett v. Environmental Protection Agency* (Supreme Court of the United States, 2023) which will ultimately influence how federal waters are defined. The May 25, 2023, Supreme Court decision in *Sackett v. Environmental Protection Agency* determined that “the Clean Water Act (CWA) extends to only those ‘wetlands with a continuous surface connection to bodies that are “waters of the United States” in their own right,’ so that they are ‘indistinguishable’ from those waters.” The U.S. Environmental Protection Agency (USEPA) and the U.S. Army Corps of Engineers (USACE) after review issued a final rule to replace the 2023 rule that amends the “Revised Definition of “Waters of the U.S.” to conform key aspects of the regulatory text to - the U.S. Supreme Court's May 25, 2023 decision in the case of *Sackett v. Environmental Protection Agency*.

Unless considered an exempt activity under Section 404(f) of the Federal CWA, any person, firm, or agency planning to alter or work in “waters of the U.S.,” including the discharge of dredged or fill material, must first obtain authorization from the USACE under Section 404 of the CWA (33 USC 1344). Permits, licenses, variances, or similar authorization may also be required by other federal, state, and local statutes. Section 10 of the Rivers and Harbors Act prohibits the obstruction or alteration of navigable waters of the U.S. without a permit from USACE (33 USC 403). Activities exempted under Section 404(f) are not exempted within navigable waters under Section 10.

The CWA (33 United States Code (USC) 1251-1376) provides guidance for the restoration and maintenance of the chemical, physical, and biological integrity of the nation’s waters.

Section 401 requires that an applicant for a federal license or permit that allows activities resulting in a discharge to waters of the U.S. obtain state certification that the discharge complies with other provisions of CWA. The Regional Water Quality Control Board (RWQCB) administers the certification program in California and may require State Water Quality Certification before other permits are issued.

Section 402 establishes a permitting system for the discharge of any pollutant (except dredged or fill material) into waters of the U.S.

Section 404 establishes a permit program administered by USACE that regulates the discharge of dredged or fill material into waters of the U.S. (including wetlands). Implementing regulations by USACE are found in 33 CFR Parts 320-332. The Section 404 (b)(1) Guidelines were developed by the USEPA in conjunction with USACE (40 CFR Part 230), allowing the discharge of dredged or fill material for non-water dependent uses into special aquatic sites only if there were no practicable alternative that would have less adverse impacts.

### 2.3.2 State Jurisdiction

Any action requiring a CWA Section 404 permit, or a Rivers and Harbors Act Section 10 permit, must also obtain a CWA Section 401 Water Quality Certification. The State of California Water Quality Certification (WQC) Program was formally initiated by the State Water Resources Control Board (SWRCB) in 1990 under the requirements stipulated by Section 401 of the Federal CWA. Although the CWA is a Federal law, Section 401 of the CWA recognizes that states have the primary authority and responsibility for setting water quality standards. In California, under Section 401, the State and Regional Water Boards are the authorities that certify that issuance of a federal license or permit does not violate California's water quality standards (i.e., that they do not violate Porter-Cologne and the Water Code). The WQC Program currently issues the WQC for discharges requiring USACE permits for fill and dredge discharges within Waters of the United States, and now also implements the State's wetland protection and hydromodification regulation program under the Porter Cologne Water Quality Control Act.

On May 28, 2020, the SWRCB implemented the State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State (Procedures) for inclusion in the forthcoming Water Quality Control Plan for Inland Surface Waters and Enclosed Bays and Estuaries and Ocean Waters of California (SWRCB 2019). The Procedures consist of four major elements:

- I. A wetland definition;
- II. A framework for determining if a feature that meets the wetland definition is a water of the state;
- III. Wetland delineation procedures; and
- IV. Procedures for the submittal, review, and approval of applications for Water Quality Certifications and Waste Discharge Requirements for dredge or fill activities.

Under the Procedures and the State Water Code (Water Code §13050(e)), "Waters of the State" are defined as "any surface water or groundwater, including saline waters, within the boundaries of the state." "Waters of the State" includes all "Waters of the U.S."

More specifically, a wetland is defined as: *"An area is wetland if, under normal circumstances, (1) the area has continuous or recurrent saturation of the upper substrate caused by groundwater, or shallow surface water, or both; (2) the duration of such saturation is sufficient to cause anaerobic conditions in*

*the upper substrate; and (3) the area's vegetation is dominated by hydrophytes or the area lacks vegetation."* The wetland definition encompasses the full range of wetland types commonly recognized in California, including some features not protected under federal law, and reflects current scientific understanding of the formation and functioning of wetlands (SWRCB 2019).

Unless excluded by the Procedures, any activity that could result in the discharge of dredged or fill material to Waters of the State, which includes Waters of the U.S. and non-federal Waters of the State, requires filing of an application under the Procedures.

### California Department of Fish and Wildlife

CDFW is a trustee agency that has jurisdiction under Section 1600 et seq. of the California Fish and Game Code. Under Sections 1602 and 1603, a private party must notify CDFW if a proposed project will "substantially divert or obstruct the natural flow or substantially change the bed, channel, or bank of any river, stream, or lake designated by the department, or use any material from the streambeds... except when the department has been notified pursuant to Section 1601." Additionally, CDFW asserts jurisdiction over native riparian habitat adjacent to aquatic features, including native trees over four inches in diameter at breast height (DBH). If an existing fish or wildlife resource may be substantially adversely affected by the activity, CDFW may propose reasonable measures that will allow the protection of those resources. If these measures are agreeable to the parties involved, they may enter into an agreement with CDFW identifying the approved activities and associated mitigation measures. Generally, CDFW recommends applying for a Streambed Alteration Agreement (SAA) for any work done within the lateral limit of water flow or the edge of riparian vegetation, whichever is greater.

## 2.4 CEQA SIGNIFICANCE

Section 15064.7 of the CEQA Guidelines encourages local agencies to develop and publish the thresholds that the agency uses in determining the significance of environmental effects caused by projects under its review. However, agencies may also rely upon the guidance provided by the expanded Initial Study Checklist included in Appendix G of the CEQA Guidelines. Appendix G provides examples of impacts that would normally be considered significant. Based on these examples, impacts on biological resources would normally be considered significant if the project would:

- 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 CDFW or USFWS;
- Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the CDFW or USFWS;
- 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;
- 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;

- Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance; and
- Conflict with the provisions of an adopted Habitat Conservation Plan (HCP), Natural Community Conservation Plan (NCCP), or other approved local, regional, or state habitat conservation plan.

An evaluation of whether or not an impact on biological resources would be substantial must consider both the resource itself and how that resource fits into a regional or local context. Substantial impacts would be those that would diminish or result in the loss of an important biological resource, or those that would obviously conflict with local, State, or federal resource conservation plans, goals, or regulations. Impacts are sometimes locally important but not significant according to CEQA. The reason for this is that although the impacts would result in an adverse alteration of existing conditions, they would not substantially diminish, or result in the permanent loss of, an important resource on a population-wide or region-wide basis.

### 2.4.1 California Native Plant Society

The California Native Plant Society (CNPS) maintains a rank of plant species native to California that have low population numbers, limited distribution, or are otherwise threatened with extinction. This information is published in the *Inventory of Rare and Endangered Vascular Plants of California*. Potential impacts to populations of CNPS-ranked plants receive consideration under CEQA review. The following identifies the definitions of the CNPS Rare Plant Ranking System:

- Rank 1A: Plants presumed Extinct in California and either rare or extinct elsewhere
- Rank 1B: Plants Rare, Threatened, or Endangered in California and elsewhere
- Rank 2A: Plants presumed extirpated in California but common elsewhere
- Rank 2B: Plants Rare, Threatened, or Endangered in California, but more common elsewhere
- Rank 3: Plants about which we need more information – A Review List
- Rank 4: Plants of limited distribution, a watch list.

All plants appearing on CNPS Rank 1 or 2 are considered to meet CEQA Guidelines Section 15380 criteria. The CDFW, in consultation with the CNPS, assigns a California Rare Plant Rank (CRPR) to native species according to rarity; plants with a CRPR of 1A, 1B, 2A, 2B, or 3 are generally considered special-status species under CEQA. Furthermore, the CNPS CRPR includes levels of threat for each species. These threat ranks include the following:

- 0.1 - Seriously threatened in California (over 80% of occurrences threatened/high degree and immediacy of threat);
- 0.2 - Moderately threatened in California (20 to 80% occurrences threatened/moderate degree and immediacy of threat); and
- 0.3 - Not very threatened in California (less than 20% of occurrences threatened/low degree and immediacy of threat or no current threats known).

Threat ranks do not designate a change of environmental protections, so that each species (i.e., CRPR 1B.1, CRPR 1B.2, CRPR 1B.3, etc.), be fully considered during the preparation of environmental documents under CEQA.

## 2.4.2 California Department of Fish and Wildlife Species of Concern

Additional fish, amphibian, reptile, bird, and mammal species may receive consideration by CDFW and lead agencies during the CEQA process, in addition to species that are formally listed under FESA and CESA or listed as fully protected. These species are included on the *Special Animals List*, which is maintained by CDFW. This list tracks species in California whose numbers, reproductive success, or habitat may be in decline. In addition to “Species of Special Concern” (SSC), the *Special Animals List* includes species that are tracked in the California Natural Diversity Database (CNDDDB) but warrant no legal protection. These species are identified as “California Special Animals” (CSA).

## 2.5 LOCAL POLICIES AND REGULATIONS

### 2.5.1 City of Yuba City General Plan

In addition to federal and State regulations described above, the City of Yuba City General Plan (General Plan) includes goals, objectives, and policies regarding biological resources within the City limits (City of Yuba City 2004). Applicable sections of the General Plan are listed below.

Guiding Policies from Section 8.4 G-1 through G-4 of the Yuba City General Plan:

1. Protect special-status species, in accordance with State regulatory requirements;
2. Protect and enhance the natural habitat features of the Feather River and new open space corridors within and around the urban growth area;
3. Preserve and enhance heritage oaks in the Planning Area;
4. Where appropriate, incorporate natural, wildlife habitat features into public landscapes, parks, and other public facilities; and
5. Support the preservation and enhancement of fisheries in the Feather River.

Implementing Policies from Section 8.4 I-1 through I-6 of the Yuba City General Plan:

1. Require protection of sensitive habitat areas and special status species in new development site designs in the following order: 1) avoidance; 2) onsite mitigation, and 3) offsite mitigation. Require assessments of biological resources prior to approval of any development within 300 feet of any creeks, sensitive habitat areas, or areas of potential sensitive status species;
2. Require preservation of oak trees and other native trees that are of a significant size, by requiring site designs to incorporate these trees to the maximum extent feasible;
3. Require, to the extent feasible, use of drought tolerant plants in landscaping for new development, including private and public projects; or
4. Require measures, as part of the Feather River Parkway Plan, to protect and enhance riparian zones, natural areas, and wildlife habitat qualities; and establish and maintain a protection zone along the river where development shall not occur, except as part of the parkway enhancement

(e.g., trails and bikeways). For park improvements, require a buffer zone along the river in which no grading or construction activities will occur, except as needed for shoreline uses such as boat docks;

5. Establish wildlife corridors in conjunction with the implementation of the Feather River Parkway Plan to minimize wildlife-urban conflicts; and
6. Work with California Department of Fish and Game (now Wildlife) and other agencies to enhance and preserve fisheries in the Feather River.

### 3.0 METHODS

Available information pertaining to the natural resources of the region was reviewed prior to conducting the field survey. The following published information was reviewed for this BRA:

- California Department of Fish and Wildlife (CDFW). 2023. *California Natural Diversity Database (CNDDB)*; For: *Yuba City, Wheatland, Browns Valley, Gridley, Honcut, Sutter, Loma Rica, Gilsizer Slough, and Olivehurst* USGS 7.5-minute series quadrangles, Sacramento, CA. Accessed [December 5, 2023];
- California Native Plant Society (CNPS). 2023. *Inventory of Rare and Endangered Plants* (online edition, v8-03 0.45) For: *Yuba City, Wheatland, Browns Valley, Gridley, Honcut, Sutter, Loma Rica, Gilsizer Slough, and Olivehurst* USGS 7.5-minute series quadrangles, Sacramento, CA. Accessed [December 5, 2023];
- U.S. Department of Agriculture (USDA), Natural Resource Conservation Service (NRCS). 2023. *Web Soil Survey*. Available at: <http://websoilsurvey.sc.egov.usda.gov>. Accessed [November 29, 2023];
- U.S. Fish and Wildlife Service (USFWS). 2023. *Information for Planning and Consultation (IPaC)* Yuba City Aquifer Storage and Recover Project. Accessed [December 5, 2023]; and
- U.S. Geological Survey (USGS). 2023 *Yuba City, California*. 7.5-minute series topographic quadrangle. United States Department of Interior.

Before conducting the biological field survey, existing information concerning known habitats and special-status species that may occur in the Study Area was reviewed, including queries of applicable resource agency databases. The results of the database queries are summarized in Appendix B. The biological field survey was conducted on November 27, 2023, by HELIX Senior Scientist Patrick Martin. The weather during the field survey was clear and cool with an average temperature of around 60° F. The Study Area was systematically surveyed on foot to ensure total search coverage, with special attention given to portions of the Study Area with the potential to support special-status species and sensitive habitats. Binoculars were used to further extend site coverage and identify species observed. All plant and animal species observed were recorded (Appendix C), and all biological communities occurring on-site were characterized. All resources of interest were mapped with a Global Positioning System (GPS)-capable tablet equipped with a GPS receiver running ESRI Collector for ArcGIS® with sub-meter accuracy.



Following the field survey, the potential for each species (including special status species) identified in the database queries to occur within the Study Area was determined based on the site survey, soils, elevational and geographic ranges, habitats present within the Study Area, and species-specific information, as shown in Appendix D.

## 4.0 RESULTS

### 4.1 SITE LOCATION AND DESCRIPTION

The 27.57-acre Study Area is located on the northwest corner of North Gate Drive and Live Oak Boulevard in the City of Yuba City, Sutter County, California (Study Area), and is located within the New Helvetia Land grant on the U.S. Geological Survey (USGS) *Yuba City, California* 7.5-minute quadrangle map (Appendix A, Figure 1). The approximate center of the Study Area is latitude 39.1614587° and longitude - 121.6241180°, NAD 83, and is located at an elevation that ranges from approximately 52 feet to 72 feet above MSL as shown in Appendix A, Figure 2.

The Study Area and surrounding area have a history of agricultural production. Based on a review of historic aerial imagery (Google Earth 2023), the Study Area has changed little since 1993. Previously, the Study Area supported agriculture. Most of the land surrounding the Study Area in 1993 was orchard to the west, and south. Agricultural lands to the north and east dominate the landscape with some previous agricultural lands recently converted to residential areas. The Feather River and adjoining riparian habitat is located approximately ½-mile east of the Study Area. An aerial image of the Study Area is included in Appendix A, Figure 3.

### 4.2 PHYSICAL FEATURES

#### 4.2.1 Topography and Drainage

Terrain in the Study Area is comprised of flat land that is completely developed and supports a water treatment facility. Ornamental trees are present throughout the Study Area and along the perimeter. The Study Area supports no natural drainages and all precipitation and other water from the facility are routed into a stormwater drainage facility at the southeast corner of the Study Area. Elevations on the site range from approximately 52 feet to 72 feet above MSL.

The Study Area is in the Honcut Headwaters-Lower Feather River watershed (USGS Hydrologic Unit Code (HUC) 18020159). Drainage of the Study Area is contained to the Study Area and is routed through a stormwater control drainage on the southeast portion of the Study Area. Basins that store water are located within the Study Area, however these basins are contained and are cycled quarterly between wet and dry throughout the year.

#### 4.2.2 Soils

The NRCS has mapped two soil units within the Study Area: Conejo loam, 0 to 1 percent slopes, MLRA 17, and Conejo-Urban land complex, 0 percent slopes, MLRA 17 (Appendix A, Figure 4). The general characteristics and properties associated with these soil types are described below. All soils in the Study Area are derived from alluvium which consists of igneous and metamorphic rock (NRCS 2023).

**Conejo loam, 0 to 1 percent slopes, MLRA 17** is a well-drained soil that consists of loam derived from loamy alluvium which consists of igneous and metamorphic rock. Conejo loam, 0 to 1 percent slopes, MLRA 17 is found on stream terraces and toeslopes. This soil map unit is composed of rich soil that could provide farmland of statewide importance if irrigated. This soil map unit is not considered hydric (NRCS 2023).

**Conejo-Urban land complex, 0 percent slopes, MLRA 17**, is a moderately well-drained soil that consists of loam and other materials derived from igneous and metamorphic rock over dense alluvium derived from igneous and metamorphic rock. Conejo-Urban land complex, 0 percent slopes, MLRA 17 is found on stream terraces and toeslopes. This soil map unit is composed of rich soil that could provide farmland of statewide importance if irrigated. This soil map unit is not considered hydric (NRCS 2023).

## 4.3 BIOLOGICAL COMMUNITIES

One upland community occurs in the Study Area: urban/developed (approximately 27.57 acres). Aquatic resources are not present in the Study Area. This habitat type is discussed below. A comprehensive list of all plant and wildlife species observed within the Study Area is provided in Appendix C. Representative photographs are included in Appendix E.

### 4.3.1 Urban/Developed

Developed areas, which includes the entire Study Area, consists of the water treatment facility, constructed basins, barren areas, buildings, sheds, and associated ornamental vegetation. Vegetation in the Study Area is ornamental and includes a mixture of nonnative species such as black locust (*Robinia pseudoacacia*), oleander (*Nerium oleander*) and glossy privet (*Ligustrum lucidum*). Native vegetation such as valley oak (*Quercus lobata*), toyon (*Heteromeles arbutifolia*), and coast redwood (*Sequoia sempervirens*) are also present. Native vegetation present within the Study Area is native to California, but not necessarily native to the Study Area region. The basins are managed and dried then disked quarterly, but support hydrophytes such as barnyard grass (*Echinochloa crus-galli*), tall flatsedge (*Cyperus eragrostis*). Landscaped vegetation may provide habitat for wildlife such as nesting birds and small mammals. The entire Study Area, 27.57 acres, consists of urban/developed land in the Study Area (Appendix A, Figure 5).

## 4.4 SPECIAL-STATUS SPECIES

Special-status species are plant and wildlife species that have been afforded special recognition and protection by federal, State, or local resource agencies or organizations. These species are generally of relatively limited distribution and may require specialized habitat conditions. Special-status species are defined as meeting one or more of the following criteria:

- Listed or proposed for listing under CESA or FESA;
- Protected under other regulations (e.g., the PCCP, MBTA);
- Included on the CDFW Special Animals List or Watch List;
- Identified as Rare Plant Rank 1 to 3 by CNPS; or

- Receive consideration during an environmental review under CEQA.

Special-status species considered for this analysis are based on queries of the CNDDDB, USFWS, and CNPS ranked species (online versions) for the *Yuba City, CA* USGS quadrangle and eight surrounding quadrangles. Appendix B includes the common name and scientific name for each species, regulatory status (federal, State, local, CNPS), habitat descriptions, and potential for occurrence within the Study Area. The following set of criteria has been used to determine each species' potential for occurrence within the Study Area:

**Will Not Occur:** Species is either sessile (i.e., plants) or so limited to a particular habitat that it cannot disperse on its own and/or habitat suitable for its establishment and survival does not occur on the Study Area;

**Not Expected:** Species move freely and might disperse through or across the Study Area, but suitable habitat for residence or breeding does not occur in the Study Area, potential for an individual of the species to disperse through or forage in the site cannot be excluded with 100 percent certainty;

**Presumed Absent:** Habitat suitable for residence and breeding occurs in the Study Area; however, focused surveys conducted for the current project were negative;

**May Occur:** Species was not observed on the site and breeding habitat is not present, but the species has the potential to utilize the site for dispersal;

**High:** Habitat suitable for residence and breeding occurs in the Study Area and the species has been recorded recently in or near the Study Area, but was not observed during surveys for the current project; and

**Present:** The species was observed during biological surveys for the current project and is assumed to occupy the Study Area or utilize the Study Area during some portion of its life cycle.

Only those species that are known to be present, have a high potential to occur, or may occur are discussed further in the following sections.

#### 4.4.1 Listed and Special-status Plants

According to the database query, 11 listed and/or special-status plant species have the potential to occur in the vicinity of the Study Area (CDFW 2023). Based on field observations, published information, and literature review, special-status plants do not have potential to occur within the Study Area since the Study Area is developed, managed, and landscaped. Many special-status plant species in the vicinity of the Study Area occur in vernal pools or other wetland habitats, clay soils or alkaline microsites, none of which are present in the Study Area.

#### 4.4.2 Listed and Special-status Wildlife

According to the database query, 28 listed and/or special-status wildlife species have the potential to occur in the vicinity of the Study Area (CDFW 2023). Based on field observations, published information, and literature review, two special-status wildlife species have the potential to occur within the Study Area: Swainson's hawk (*Buteo swainsoni*), and white-tailed kite (*Elanus leucurus*). These species are discussed in more detail below.

## Special-status Wildlife that May Occur

### Swainson's Hawk (CESA Threatened)

This species is a long-distance migrant with nesting grounds in western North America, and wintering grounds in Mexico and South America. Swainson's hawks typically arrive in the California Central Valley between March and early April to establish breeding territories. Breeding occurs from late March to August, peaking in late May through July (Zeiner et al. 1990). In the Central Valley, Swainson's hawks generally nest in isolated trees, small groves of trees in agricultural land, or in large woodlands next to open grasslands or agricultural fields. This species typically nests near riparian areas; however, it has been known to nest in urban areas as well. In the Central Valley, the most commonly used nest trees include Fremont cottonwood (*Populus fremontii*), willows (*Salix* sp.), sycamores (*Platanus* sp.), valley oaks (*Quercus lobata*), walnut (*Juglans* sp.), and occasionally gum trees (*Eucalyptus* sp.) (Woodbridge 1998). Nest locations are usually located in close proximity to suitable foraging habitats, which include fallow fields, all types of grasslands, irrigated pastures, alfalfa and other hay crops, and low-growing row crops, especially post-harvest when the height of the vegetation is short making it easier to observe prey (Bechard et al. 2010). Swainson's hawks leave their breeding grounds to return to their wintering grounds in late August or early September (Bloom and Van De Water 1994).

Tall trees in the Study Area could provide suitable nesting habitat for Swainson's hawk. There are several CNDDDB reported occurrences for this species within a 5-mile radius of the Study Area. Nearby CNDDDB reported occurrences document nesting along the Feather River (CDFW 2023). The nearest documented CNDDDB reported occurrence of this species nesting is located approximately one mile northeast of the Study Area, which documents nesting activity in riparian habitat along the Feather River in 2004 (CDFW 2023). Nesting success was not confirmed, but adults were documented at a nest that is described as located on the western side of the Feather River and surrounded on all sides by orchard (CDFW 2023).

The Study Area provides suitable nesting habitat for Swainson's hawk since trees are present in the Study Area and in areas adjacent to the Study Area. Suitable foraging habitat is also present in the Study Area and potential small mammal prey species are abundant. There is potential for direct and indirect effects to Swainson's hawk if this species were to nest within or adjacent to the Study Area.

### White-tailed Kite (CDFW Fully-protected)

White-tailed kite is a year-round resident in California in coastal areas and lowlands in the Central Valley. Population sizes increase during the non-breeding season due to the presence of over-wintering migrants. White-tailed kites prefer open stages of habitats dominated by herbaceous species (Zeiner et al. 1990). White-tailed kites will nest in tall trees adjacent to foraging habitat (Zeiner et al. 1990). White-tailed kites feed mainly on small mammals such as voles (*Microtus* spp.) but will take other small vertebrate and invertebrate prey.

Tall trees in the Study Area could provide suitable nesting habitat for white-tailed kite. Suitable nesting trees are also present on adjacent properties. The lands surrounding the Study Area consist primarily of developed land and agricultural land, which is not ideal foraging habitat for this species. There are no CNDDDB records for this species within a 5-mile radius of the Study Area (CDFW 2023). White-tailed kite could nest in the Study Area during the nesting season. There is potential for direct and indirect effects to white-tailed kite if this species were to nest within or adjacent to the Study Area.

## Nesting Migratory Birds and Raptors

Migratory birds are protected under the MBTA of 1918 (16 U.S.C. 703-711). The MBTA makes it unlawful to take, possess, buy, sell, purchase, or barter any migratory bird listed under 50 CFR 10; this also includes feathers or other parts, nests, eggs, or products, except as allowed by implementing regulations (50 CFR 21). Additionally, Section 3503 of the California Fish and Game Code states that it is unlawful to take, possess, or needlessly destroy the nest or eggs of any bird. Section 3503.5 specifically states that it is unlawful to take, possess, or destroy any raptors (i.e., hawks, owls, eagles, and falcons), including their nests or eggs; and Section 3513 specifically states that it is unlawful to take or possess any migratory nongame bird as designated in the MBTA or any part of such migratory nongame bird except as provided by rules and regulations adopted by the Secretary of the Interior under provisions of the MBTA.

A number of migratory birds and raptors have the potential to nest in or adjacent to the Study Area. Many birds were observed within the Study Area during the field survey and suitable nest locations are present including trees, shrubs, grass, and bare ground. Habitat such as cavities in trees and tree snags may provide habitat for cavity nesting birds. Therefore, nesting birds are expected to occur within the Study Area during the nesting season (generally February 1 to August 31).

## 4.5 SENSITIVE HABITATS

Sensitive habitats include those that are of special concern to resource agencies or those that are protected under CEQA; Section 1600 of the California Fish and Game Code, which includes riparian areas; and/or Sections 401 and 404 of the Clean Water Act, which include wetlands and other waters of the U.S. Sensitive habitats or resource types within the Study Area are discussed below.

### 4.5.1 Aquatic Resources

Regulated aquatic resources do not occur in the Study Area. There are no aquatic resources that would be considered a water of the U.S. or water of the State subject to USACE and RWQCB jurisdiction under Sections 404 and 401 of the CWA. Managed basins that hold water for the WTP occur in the Study Area, however these two basins are constructed in uplands, and are actively managed as part of the WTP facility. The basins are cycled between wet and dry quarterly and do not meet the three parameters as a potential wetland. There are no aquatic resources or riparian habitat that would fall under the jurisdiction of Section 1600 of the California Fish and Game Code. Field work for a formal aquatic resource delineation was conducted in conjunction with this BRA; however, a formal aquatic resources delineation report was not completed nor provided to the USACE or RWQCB for verification.

### 4.5.2 Protected Trees

The City of Yuba City does not have specific mitigation or measures to protect oak trees, however, the General Plan includes Guiding Policy 8.4-G-3 which requires the preservation of oak trees in the planning area and Implementing Policy 8.4-I.2 states that native oaks and other native trees that are of a significant size, to be incorporated into site designs to the maximum extent feasible (City of Yuba City 2004). The Project would not result in any impacts to oak trees or other trees in the Study Area. The Study Area includes native tree plantings along the perimeter of the Study Area with large ornamental nonnative trees in the interior of the Study Area. The Study Area also includes trees native to California, such as coastal redwood trees, which are not native to Yuba City or the surrounding area.

### 4.5.3 HCP/NCCP

The Study Area is not within the boundaries of an HCP or NCCP.

### 4.5.4 Wildlife Migration Corridors

Wildlife corridors link areas of suitable wildlife habitat that are otherwise separated by rugged terrain, changes in vegetation, or human disturbance. This fragmentation of habitat can also occur when a portion of one or more habitats is converted into another habitat; for instance, when woodland or scrub habitat is altered or converted into grasslands after a disturbance such as fire, mudslide, or construction activities. Wildlife corridors mitigate the effects of this fragmentation by: (1) allowing animals to move between remaining habitats thereby permitting depleted populations to be replenished and promoting genetic exchange; (2) providing escape routes from fire, predators, and human disturbances, thus reducing the risk of catastrophic events (such as fire or disease) on population or local species extinction; and, (3) serving as travel routes for individual animals as they move within their home ranges in search of food, water, mates, and other needs.

The Study Area is bordered by major roadways, residential properties, commercial properties, orchards, and undeveloped wildlands along the Feather River. Although wildlife may disperse through the Study Area on a local level, the Study Area is not considered a wildlife migration or movement corridor.

## 5.0 IMPACTS AND RECOMMENDED MITIGATION

### 5.1 SPECIAL-STATUS WILDLIFE

#### 5.1.1 Swainson's Hawk, White-tailed Kite and Nesting Migratory Birds and Raptors

Several special-status species of migratory birds have the potential to forage and nest in the Study Area, including Swainson's hawk, white-tailed kite, killdeer (*Charadrius vociferus*), and house finch (*Haemorrhous mexicanus*). Swainson's hawk has the potential to occur in the Study Area due to the presence of suitable nesting habitat and known occurrences within five miles of the Study Area and suitable foraging habitat within 10 miles of the Study Area. Although no active nests were observed during the field survey, the Study Area and adjacent properties contain suitable habitat to support a variety of nesting birds within trees, shrubs, grass, and on bare ground. Active nests are protected by the California Fish and Game Code Section 3503.5 and the MBTA. Construction activities could result in disturbance of nest sites through temporary increases in ambient noise levels and increased human activity. In addition, vegetation clearing operations, including pruning or the removal of trees and shrubs, could impact nesting birds if these activities occur during the nesting season (February 1 to August 31). To avoid impacts to nesting birds, all ground-disturbing activities should be completed between September 1 and January 31, if feasible.

- If vegetation removal and ground disturbing activities begin during the nesting season (February 1 to August 31), a qualified biologist should conduct a pre-construction survey of the project footprint for active nests. Additionally, the surrounding 500 feet should be surveyed for active raptor nests, and up to a 0.25 mile for Swainson's hawk, where accessible. The pre-construction survey should be conducted within three days before the commencement of ground-disturbing

activities. If the pre-construction survey shows that there is no evidence of active nests, a letter report should be prepared to document the survey, and no additional measures are recommended. If construction does not commence within three days of the pre-construction survey, or halts for more than three days, an additional survey is required before starting work.

- If nests are found and considered to be active, the project biologist should establish buffer zones to prohibit construction activities and minimize nest disturbance until the young have successfully fledged. Buffer width will depend on the species in question, surrounding existing disturbances, and specific site characteristics but may range from 20 feet for some songbirds to 500 feet for most raptors; if an active Swainson's hawk nest is observed, buffers may extend up to 0.25 mile if deemed necessary by the biologist on-site. If active nests are found within any trees slated for removal or active work areas, then an appropriate buffer should be established around the area, and the area should not be disturbed until a biologist determines that the nestlings have successfully fledged.
  - Encroachment into the buffer may occur at the discretion of a qualified biologist. Any encroachment into the buffer should be monitored by a qualified biologist to determine whether nesting birds are being impacted. Should construction activities cause the nesting migratory bird or raptor to exhibit stress behaviors from adjacent construction activities, the exclusionary buffer shall be increased such that activities are far enough from the nest to stop this agitated behavior by the migratory bird or raptor. The exclusionary buffer should remain in place until the chicks have fledged or as otherwise determined by a qualified biologist.
- If construction activities are proposed to begin during the non-breeding season (September 1 through February 14), a survey is not required, and no further studies are necessary. However, a nesting bird survey outside of the nesting season may be warranted to identify potential raptor nests on-site since nests may be more easily observed from relatively long distances, giving the surveyor the opportunity to identify potential nest sites while some deciduous trees are dormant and without leaves.
- A qualified biologist should conduct environmental awareness training for all project-related personnel prior to the initiation of work. The training includes information on avoiding impacts to nesting birds as described above.

### 5.1.2 Protected Trees

The City of Yuba City does not have specific mitigation or measures to protect oak trees; however, the General Plan requires the preservation of oak trees and other native trees that are of a significant size. If trees are determined to be removed, then the Project design shall incorporate large native trees in the Study Area to the maximum extent feasible to comply with Guiding Policy 8.4-G-3 and Implementing Policy 8.4-I.2 of the Yuba City General Plan (City of Yuba City 2004).

## 6.0 REFERENCES

- Bechard, Marc J., C. Stuart Houston, Jose H. Saransola, and A. Sidney England. 2010. Swainson's Hawk (*Buteo swainsoni*). The Birds of North America (P.G. Rodewald, editor). Cornell Lab of Ornithology. Ithaca, New York. Available online at: <https://birdsna.org/Species-Account/bna/species/swahaw/introduction>.
- Bloom, P. and D. Van De Water. 1994. Swainson's Hawk in Life on the Edge: A Guide to California's Endangered Natural Resources: Wildlife. BioSystems Books, Santa Cruz, California.
2023. *California Natural Diversity Database (CNDDB)*; For: *Yuba City, Wheatland, Browns Valley, Gridley, Honcut, Sutter, Loma Rica, Gilsizer Slough, and Olivehurst* USGS 7.5-minute series quadrangles, Sacramento, CA. Accessed December 5, 2023.
- California Native Plant Society (CNPS). 2023. *Inventory of Rare and Endangered Plants* (online edition, v8-03 0.45) For: *Yuba City, Wheatland, Browns Valley, Gridley, Honcut, Sutter, Loma Rica, Gilsizer Slough, and Olivehurst* USGS 7.5-minute series quadrangles, Sacramento, CA. Accessed December 5, 2023.
- City of Yuba City. 2004. General Plan; City of Yuba City, California: Final. General Plan adopted April 8, 2004, by Resolution 04-049.
- Google Earth. 2023. Historic maps of the Study Area. Accessed December 2023 at: <https://earth.google.com>.
- Natural Resource Conservation Service (NRCS). 2023. Soil Survey Staff, Natural Resources Conservation Service, United States Department of Agriculture. Web Soil Survey. Available at: <https://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx>. Accessed November 14, 2023.
- State Water Resources Control Board (SWRCB). 2019. *State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State [For inclusion in the Water Quality Control Plans for Inland Surface Waters and Enclosed Bays and Estuaries and Ocean Waters of California]*. Adopted April 2. Available at: [https://www.waterboards.ca.gov/water\\_issues/programs/cwa401/docs/2021/procedures.pdf](https://www.waterboards.ca.gov/water_issues/programs/cwa401/docs/2021/procedures.pdf).
- U.S. Fish and Wildlife Service (USFWS). 2023. *Information for Planning and Consultation (IPaC)*. Yuba City Aquifer Storage and Recover Project, *California*. Accessed December 5, 2023.
- U.S. Geological Survey (USGS). 2023. *Yuba City, California*. 7.5 -minute series topographic quadrangle. U.S. Department of the Interior.
- Woodbridge, B. 1998. California Partners in Flight Riparian Bird Conservation Plan for the Swainson's Hawk. Point Reyes Bird Observatory Website. 16 pp
- Zeiner, D.C., W.F. Laudenslayer, and K.E. Mayer (eds.). 1990. California's wildlife. Volume I – III. California Statewide Wildlife Habitat Relationships System. Sacramento, CA: California Department of Fish and Game.

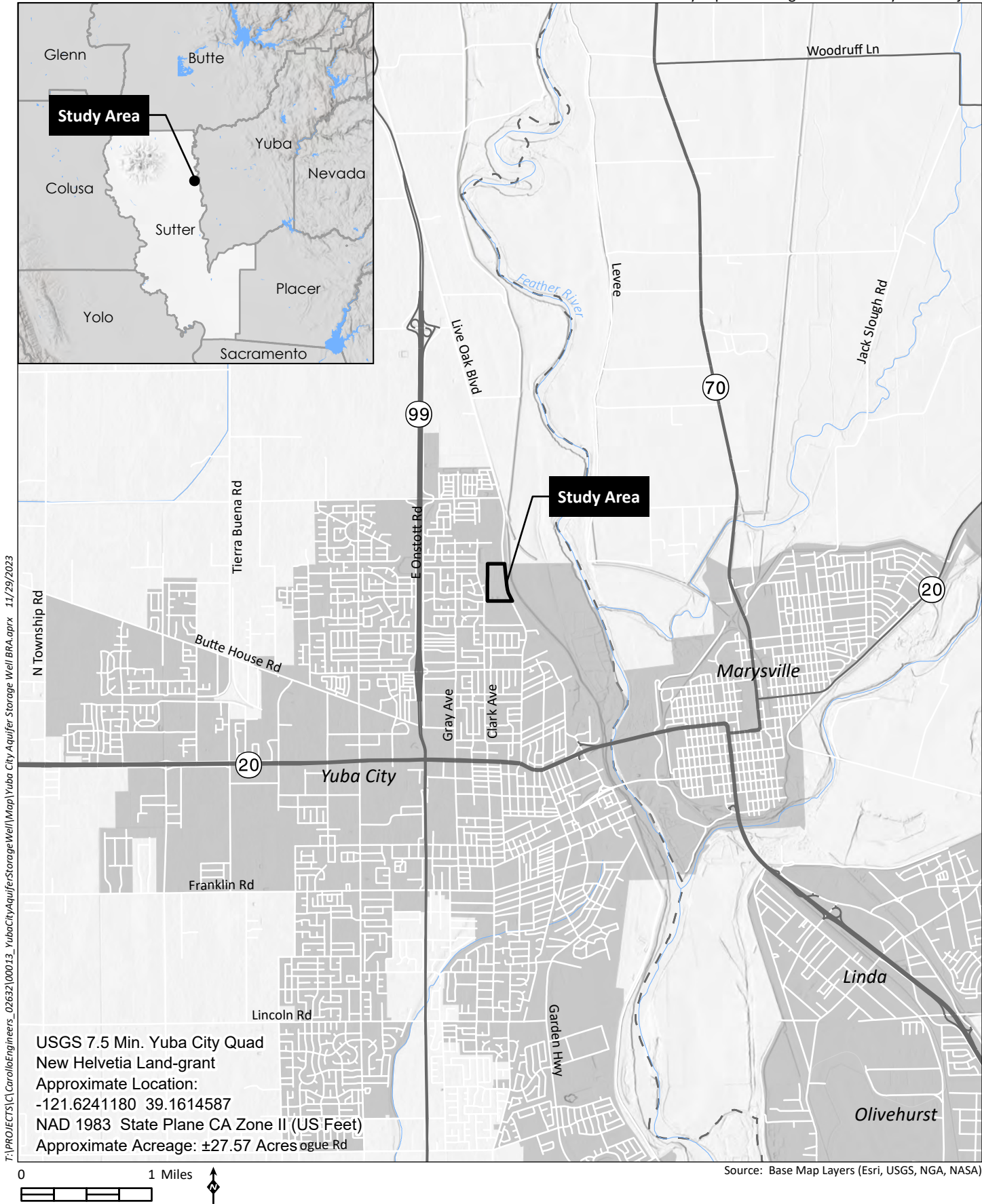


This page intentionally left blank

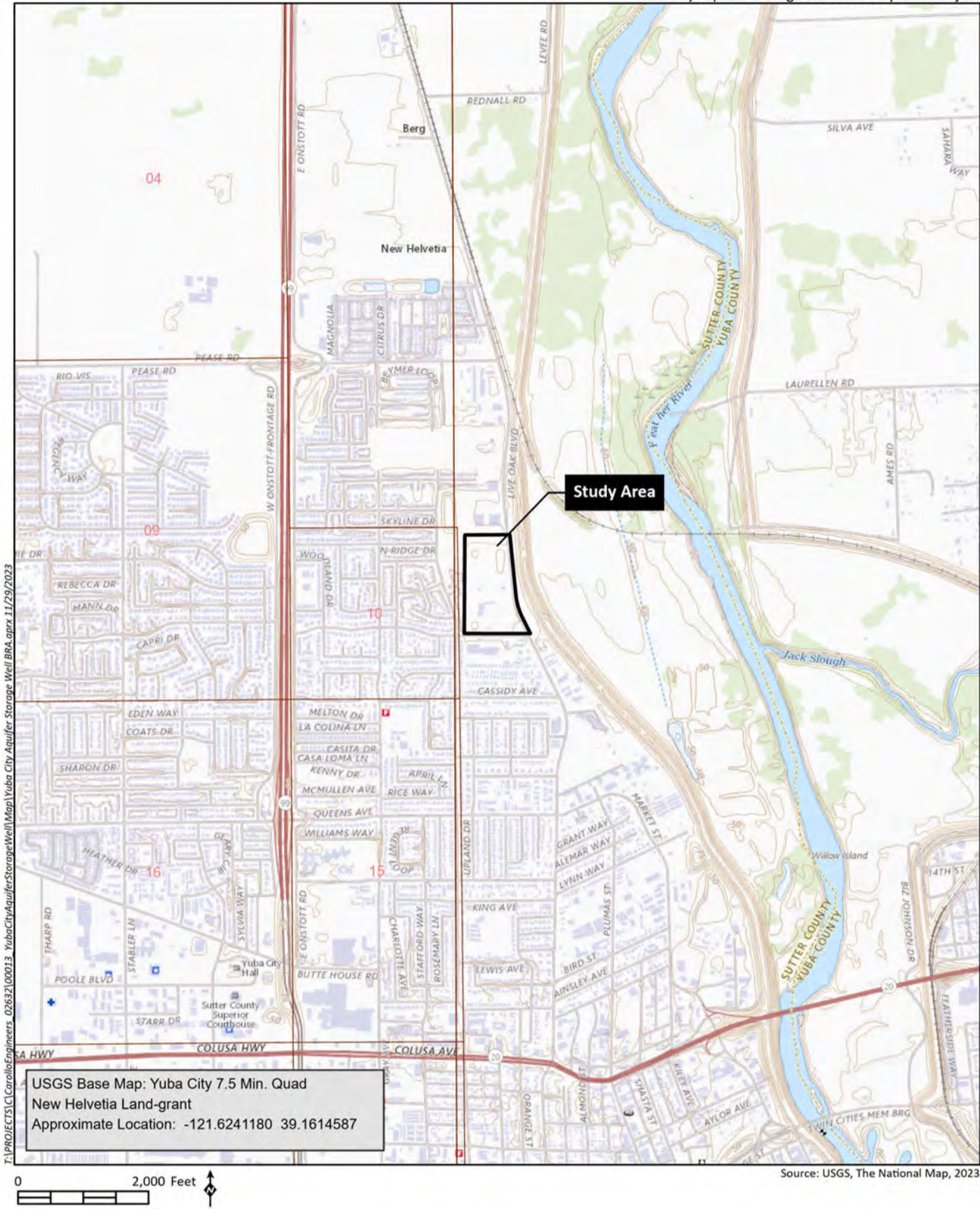
# Appendix A

---

## Figures











T:\PROJECTS\Carollo\YubaCityAquiferStorageWell\Map\Yuba City Aquifer Storage Well BRA.aprx 12/8/2023









## Appendix B

---

### Database Lists of Regionally Occurring Special-status Species





# United States Department of the Interior

## FISH AND WILDLIFE SERVICE

Sacramento Fish And Wildlife Office

Federal Building

2800 Cottage Way, Room W-2605

Sacramento, CA 95825-1846

Phone: (916) 414-6600 Fax: (916) 414-6713



In Reply Refer To:

December 05, 2023

Project Code: 2024-0023270

Project Name: Yuba City Aquifer Storage and Recovery Well Project

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed, and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through IPaC by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)).

(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at: <https://www.fws.gov/sites/default/files/documents/endangered-species-consultation-handbook.pdf>

**Migratory Birds:** In addition to responsibilities to protect threatened and endangered species under the Endangered Species Act (ESA), there are additional responsibilities under the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA) to protect native birds from project-related impacts. Any activity, intentional or unintentional, resulting in take of migratory birds, including eagles, is prohibited unless otherwise permitted by the U.S. Fish and Wildlife Service (50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)). For more information regarding these Acts, see [Migratory Bird Permit | What We Do | U.S. Fish & Wildlife Service \(fws.gov\)](#).

The MBTA has no provision for allowing take of migratory birds that may be unintentionally killed or injured by otherwise lawful activities. It is the responsibility of the project proponent to comply with these Acts by identifying potential impacts to migratory birds and eagles within applicable NEPA documents (when there is a federal nexus) or a Bird/Eagle Conservation Plan (when there is no federal nexus). Proponents should implement conservation measures to avoid or minimize the production of project-related stressors or minimize the exposure of birds and their resources to the project-related stressors. For more information on avian stressors and recommended conservation measures, see <https://www.fws.gov/library/collections/threats-birds>.

In addition to MBTA and BGEPA, Executive Order 13186: *Responsibilities of Federal Agencies to Protect Migratory Birds*, obligates all Federal agencies that engage in or authorize activities that might affect migratory birds, to minimize those effects and encourage conservation measures that will improve bird populations. Executive Order 13186 provides for the protection of both migratory birds and migratory bird habitat. For information regarding the implementation of Executive Order 13186, please visit <https://www.fws.gov/partner/council-conservation-migratory-birds>.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Code in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

---

Attachment(s):

- Official Species List

## OFFICIAL SPECIES LIST

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

**Sacramento Fish And Wildlife Office**

Federal Building  
2800 Cottage Way, Room W-2605  
Sacramento, CA 95825-1846  
(916) 414-6600

---

## PROJECT SUMMARY

Project Code: 2024-0023270  
Project Name: Yuba City Aquifer Storage and Recovery Well Project  
Project Type: Water Supply Facility - Maintenance / Modification  
Project Description: To construct an Aquifer Storage and Recovery system with a new well at the water treat plant.

Project Location:

The approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/@39.16239415,-121.62446066650665,14z>



Counties: Sutter County, California

---

## ENDANGERED SPECIES ACT SPECIES

There is a total of 9 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries<sup>1</sup>, as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

- 
1. [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

## BIRDS

NAME	STATUS
Yellow-billed Cuckoo <i>Coccyzus americanus</i> Population: Western U.S. DPS There is <b>final</b> critical habitat for this species. Your location does not overlap the critical habitat. Species profile: <a href="https://ecos.fws.gov/ecp/species/3911">https://ecos.fws.gov/ecp/species/3911</a>	Threatened

## REPTILES

NAME	STATUS
Giant Garter Snake <i>Thamnophis gigas</i> No critical habitat has been designated for this species. Species profile: <a href="https://ecos.fws.gov/ecp/species/4482">https://ecos.fws.gov/ecp/species/4482</a>	Threatened
Northwestern Pond Turtle <i>Actinemys marmorata</i> No critical habitat has been designated for this species. Species profile: <a href="https://ecos.fws.gov/ecp/species/1111">https://ecos.fws.gov/ecp/species/1111</a>	Proposed Threatened

---

## INSECTS

NAME	STATUS
Monarch Butterfly <i>Danaus plexippus</i> No critical habitat has been designated for this species. Species profile: <a href="https://ecos.fws.gov/ecp/species/9743">https://ecos.fws.gov/ecp/species/9743</a>	Candidate
Valley Elderberry Longhorn Beetle <i>Desmocerus californicus dimorphus</i> There is <b>final</b> critical habitat for this species. Your location does not overlap the critical habitat. Species profile: <a href="https://ecos.fws.gov/ecp/species/7850">https://ecos.fws.gov/ecp/species/7850</a>	Threatened

## CRUSTACEANS

NAME	STATUS
Conservancy Fairy Shrimp <i>Branchinecta conservatio</i> There is <b>final</b> critical habitat for this species. Your location does not overlap the critical habitat. Species profile: <a href="https://ecos.fws.gov/ecp/species/8246">https://ecos.fws.gov/ecp/species/8246</a>	Endangered
Vernal Pool Fairy Shrimp <i>Branchinecta lynchi</i> There is <b>final</b> critical habitat for this species. Your location does not overlap the critical habitat. Species profile: <a href="https://ecos.fws.gov/ecp/species/498">https://ecos.fws.gov/ecp/species/498</a>	Threatened
Vernal Pool Tadpole Shrimp <i>Lepidurus packardii</i> There is <b>final</b> critical habitat for this species. Your location does not overlap the critical habitat. Species profile: <a href="https://ecos.fws.gov/ecp/species/2246">https://ecos.fws.gov/ecp/species/2246</a>	Endangered

## FLOWERING PLANTS

NAME	STATUS
Hartweg's Golden Sunburst <i>Pseudobahia bahiifolia</i> No critical habitat has been designated for this species. Species profile: <a href="https://ecos.fws.gov/ecp/species/1704">https://ecos.fws.gov/ecp/species/1704</a>	Endangered

## CRITICAL HABITATS

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

YOU ARE STILL REQUIRED TO DETERMINE IF YOUR PROJECT(S) MAY HAVE EFFECTS ON ALL ABOVE LISTED SPECIES.

**IPAC USER CONTACT INFORMATION**

Agency: HELIX Environmental Planning, Inc.

Name: Patrick Martin

Address: 1180 Iron Point Road

Address Line 2: Suite 130

City: Folsom

State: CA

Zip: 95630

Email: patrickm@helixepi.com

Phone: 9164351205

---



# Selected Elements by Element Code

## California Department of Fish and Wildlife

### California Natural Diversity Database



**Query Criteria:** Quad<span style='color:Red'> IS </span>(Yuba City (3912125)<span style='color:Red'> OR </span>Browns Valley (3912124)<span style='color:Red'> OR </span>Honcut (3912135)<span style='color:Red'> OR </span>Loma Rica (3912134)<span style='color:Red'> OR </span>Olivehurst (3912115)<span style='color:Red'> OR </span>Wheatland (3912114)<span style='color:Red'> OR </span>Gridley (3912136)<span style='color:Red'> OR </span>Sutter (3912126)<span style='color:Red'> OR </span>Gilsizer Slough (3912116))

Element Code	Species	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
AAABF02020	<i>Spea hammondi</i> western spadefoot	None	None	G2G3	S3S4	SSC
ABNJB05035	<i>Branta hutchinsii leucopareia</i> cackling (=Aleutian Canada) goose	Delisted	None	G5T3	S3	WL
ABNKC06010	<i>Elanus leucurus</i> white-tailed kite	None	None	G5	S3S4	FP
ABNKC10010	<i>Haliaeetus leucocephalus</i> bald eagle	Delisted	Endangered	G5	S3	FP
ABNKC11011	<i>Circus hudsonius</i> northern harrier	None	None	G5	S3	SSC
ABNKC19070	<i>Buteo swainsoni</i> Swainson's hawk	None	Threatened	G5	S4	
ABNME03041	<i>Laterallus jamaicensis coturniculus</i> California black rail	None	Threatened	G3T1	S2	FP
ABNMK01014	<i>Antigone canadensis tabida</i> greater sandhill crane	None	Threatened	G5T5	S2	FP
ABNRB02022	<i>Coccyzus americanus occidentalis</i> western yellow-billed cuckoo	Threatened	Endangered	G5T2T3	S1	
ABNSB10010	<i>Athene cunicularia</i> burrowing owl	None	None	G4	S2	SSC
ABPAU08010	<i>Riparia riparia</i> bank swallow	None	Threatened	G5	S3	
ABPBW01114	<i>Vireo bellii pusillus</i> least Bell's vireo	Endangered	Endangered	G5T2	S3	
ABPBXA3013	<i>Melospiza melodia pop. 1</i> song sparrow ("Modesto" population)	None	None	G5T3?Q	S3?	SSC
ABPBXB0020	<i>Agelaius tricolor</i> tricolored blackbird	None	Threatened	G1G2	S2	SSC
AFCAA01031	<i>Acipenser medirostris pop. 1</i> green sturgeon - southern DPS	Threatened	None	G2T1	S1	
AFCHA0205L	<i>Oncorhynchus tshawytscha pop. 11</i> chinook salmon - Central Valley spring-run ESU	Threatened	Threatened	G5T2Q	S2	
AFCHA0209K	<i>Oncorhynchus mykiss irideus pop. 11</i> steelhead - Central Valley DPS	Threatened	None	G5T2Q	S2	
AMACC02010	<i>Lasionycteris noctivagans</i> silver-haired bat	None	None	G3G4	S3S4	
AMAFJ01010	<i>Erethizon dorsatum</i> North American porcupine	None	None	G5	S3	





## Selected Elements by Element Code

California Department of Fish and Wildlife

California Natural Diversity Database



Element Code	Species	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
ARAAD02030	<i>Emys marmorata</i> western pond turtle	Proposed Threatened	None	G3G4	S3	SSC
ARADB36150	<i>Thamnophis gigas</i> giant gartersnake	Threatened	Threatened	G2	S2	
CTT44110CA	<i>Northern Hardpan Vernal Pool</i> Northern Hardpan Vernal Pool	None	None	G3	S3.1	
CTT52410CA	<i>Coastal and Valley Freshwater Marsh</i> Coastal and Valley Freshwater Marsh	None	None	G3	S2.1	
CTT61410CA	<i>Great Valley Cottonwood Riparian Forest</i> Great Valley Cottonwood Riparian Forest	None	None	G2	S2.1	
CTT61420CA	<i>Great Valley Mixed Riparian Forest</i> Great Valley Mixed Riparian Forest	None	None	G2	S2.2	
CTT61430CA	<i>Great Valley Valley Oak Riparian Forest</i> Great Valley Valley Oak Riparian Forest	None	None	G1	S1.1	
ICBRA03030	<i>Branchinecta lynchi</i> vernal pool fairy shrimp	Threatened	None	G3	S3	
ICBRA06010	<i>Linderiella occidentalis</i> California linderiella	None	None	G2G3	S2S3	
ICBRA10010	<i>Lepidurus packardii</i> vernal pool tadpole shrimp	Endangered	None	G3	S3	
IICOL48011	<i>Desmocerus californicus dimorphus</i> valley elderberry longhorn beetle	Threatened	None	G3T3	S3	
IIHYM24260	<i>Bombus pensylvanicus</i> American bumble bee	None	None	G3G4	S2	
IMBIV19010	<i>Gonidea angulata</i> western ridged mussel	None	None	G3	S2	
PDAST7P010	<i>Pseudobahia bahiifolia</i> Hartweg's golden sunburst	Endangered	Endangered	G1	S1	1B.1
PDCAM060C0	<i>Downingia pusilla</i> dwarf downingia	None	None	GU	S2	2B.2
PDCAM0C010	<i>Legenere limosa</i> legenere	None	None	G2	S2	1B.1
PDCAR0L0V0	<i>Paronychia ahartii</i> Ahart's paronychia	None	None	G3	S3	1B.1
PDFAB0F8R3	<i>Astragalus tener var. ferrisiae</i> Ferris' milk-vetch	None	None	G2T1	S1	1B.1
PDLAM18082	<i>Monardella venosa</i> veiny monardella	None	None	G1	S1	1B.1
PDMAL0H0R3	<i>Hibiscus lasiocarpus var. occidentalis</i> woolly rose-mallow	None	None	G5T3	S3	1B.2
PDPLM0C0E1	<i>Navarretia leucocephala ssp. bakeri</i> Baker's navarretia	None	None	G4T2	S2	1B.1



Selected Elements by Element Code  
California Department of Fish and Wildlife  
California Natural Diversity Database



Element Code	Species	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
PDRAN0B1J0	<i>Delphinium recurvatum</i> recurved larkspur	None	None	G2?	S2?	1B.2
PMALI040Q0	<i>Sagittaria sanfordii</i> Sanford's arrowhead	None	None	G3	S3	1B.2
PMJUN011L1	<i>Juncus leiospermus</i> var. <i>ahartii</i> Ahart's dwarf rush	None	None	G2T1	S1	1B.2






Record Count: 43




## CNPS Rare Plant Inventory

### Search Results

11 matches found. Click on scientific name for details

Search Criteria: CRPR is one of [1A:1B:2A:2B:3] , 9-Quad include [3912124:3912125:3912135:3912134:3912115:3912114:3912136:3912126:3912116]

▲ SCIENTIFIC NAME	COMMON NAME	FAMILY	LIFEFORM	BLOOMING PERIOD	FED LIST	STATE LIST	GLOBAL RANK	STATE RANK	CA RARE PLANT RANK	CA ENDEMIC	DATE ADDED	PHOTO
<u><i>Astragalus tener</i></u> var. <u><i>ferrisiae</i></u>	Ferris' milk-vetch	Fabaceae	annual herb	Apr-May	None	None	G2T1	S1	1B.1	Yes	1994-01-01	No Photo Available
<u><i>Delphinium recurvatum</i></u>	recurved larkspur	Ranunculaceae	perennial herb	Mar-Jun	None	None	G2?	S2?	1B.2	Yes	1988-01-01	No Photo Available
<u><i>Downingia pusilla</i></u>	dwarf downingia	Campanulaceae	annual herb	Mar-May	None	None	GU	S2	2B.2		1980-01-01	 © 2013 Aaron Arthur
<u><i>Hibiscus lasiocarpus</i></u> var. <u><i>occidentalis</i></u>	woolly rose-mallow	Malvaceae	perennial rhizomatous herb (emergent)	Jun-Sep	None	None	G5T3	S3	1B.2	Yes	1974-01-01	 © 2020 Steven Perry
<u><i>Juncus leiospermus</i></u> var. <u><i>ahartii</i></u>	Ahart's dwarf rush	Juncaceae	annual herb	Mar-May	None	None	G2T1	S1	1B.2	Yes	1984-01-01	 © 2004 Carol W. Witham
<u><i>Legenere limosa</i></u>	legenere	Campanulaceae	annual herb	Apr-Jun	None	None	G2	S2	1B.1	Yes	1974-01-01	 ©2000 John Game
<u><i>Monardella venosa</i></u>	veiny monardella	Lamiaceae	annual herb	May-Jul	None	None	G1	S1	1B.1	Yes	1984-01-01	 © 2007 George W. Hartwell

<u><i>Navarretia leucocephala</i> ssp. <i>bakeri</i></u>	Baker's navarretia	Polemoniaceae	annual herb	Apr-Jul	None	None	G4T2	S2	1B.1	Yes	1994-01-01	 © 2018 Barry Rice
<u><i>Paronychia ahartii</i></u>	Ahart's paronychia	Caryophyllaceae	annual herb	Feb-Jun	None	None	G3	S3	1B.1	Yes	1988-01-01	 © 2004 Carol W. Witham
<u><i>Pseudobahia bahiifolia</i></u>	Hartweg's golden sunburst	Asteraceae	annual herb	Mar-Apr	FE	CE	G1	S1	1B.1	Yes	1974-01-01	No Photo Available
<u><i>Sagittaria sanfordii</i></u>	Sanford's arrowhead	Alismataceae	perennial rhizomatous herb (emergent)	May-Oct(Nov)	None	None	G3	S3	1B.2	Yes	1984-01-01	 ©2013 Debra L. Cook

Showing 1 to 11 of 11 entries

#### Suggested Citation:

California Native Plant Society, Rare Plant Program. 2023. Rare Plant Inventory (online edition, v9.5). Website <https://www.rareplants.cnps.org> [accessed 5 December 2023].

## Appendix C

---

### Plant and Wildlife Species Observed in the Study Area

**Table C-1. Plant Species**

Family	Species Name	Common Name	Status <sup>1</sup>
<b>Native</b>			
<b>Native</b>			
Cupressaceae	<i>Sequoia sempervirens</i>	coast redwood	--
Cyperaceae	<i>Cyperus eragrostis</i>	tall flatsedge	--
Euphorbiaceae	<i>Croton setiger</i>	turkey-mullein	--
Fagaceae	<i>Quercus lobata</i>	valley oak	--
Onagraceae	<i>Epilobium brachycarpum</i>	annual fireweed	--
Platanaceae	<i>Platanus racemosa</i>	California sycamore	--
Rhamnaceae	<i>Frangula californica</i>	California coffeeberry	--
Rosaceae	<i>Heteromeles arbutifolia</i>	toyon	--
	<i>Prunus ilicifolia</i>	hollyleaf cherry	--
Vitaceae	<i>Vitis californica</i>	California grape	--
<b>Non-native</b>			
Altingiaceae	<i>Liquidambar styraciflua</i>	sweetgum	--
Anacardiaceae	<i>Schinus terebinthifolia</i>	Brazilian pepper	--
Apiaceae	<i>Torilis arvensis</i>	field hedge parsley	--
Apocynaceae	<i>Nerium oleander</i>	oleander	--
Asteraceae	<i>Cirsium vulgare</i>	bull thistle	--
	<i>Dittrichia graveolens</i>	stinkwort	--
	<i>Lactuca serriola</i>	prickly lettuce	--
	<i>Silybum marianum</i>	milk thistle	--
Brassicaceae	<i>Brassica nigra</i>	black mustard	--
Caprifoliaceae	<i>Lonicera japonica</i>	Japanese honeysuckle	--
Cupressaceae	<i>Cupressus sempervirens</i>	Italian cypress	--
Fabaceae	<i>Medicago polymorpha</i>	bur clover	--
	<i>Robinia pseudoacacia</i>	black locust	--
	<i>Trifolium hirtum</i>	rose clover	--
Geraniaceae	<i>Erodium botrys</i>	big heron bill	--
	<i>Erodium cicutarium</i>	redstem filaree	--
Juglandaceae	<i>Juglans regia</i>	English walnut	--
Magnoliaceae	<i>Magnolia grandiflora</i>	southern magnolia	--
Malvaceae	<i>Malva parviflora</i>	cheeseweed mallow	--
Moraceae	<i>Ficus carica</i>	common fig	--
Oleaceae	<i>Ligustrum lucidum</i>	glossy privet	--
Plantaginaceae	<i>Plantago lanceolata</i>	English plantain	--
Pinaceae	<i>Cedrus deodora</i>	deodar cedar	--
Poaceae	<i>Brachypodium distachyon</i>	purple false brome	--
	<i>Bromus diandrus</i>	common ripgut grass	--
	<i>Bromus hordeaceus</i>	soft brome	--
	<i>Cynodon dactylon</i>	Bermuda grass	--
	<i>Echinochloa crus-galli</i>	barnyard grass	--
	<i>Festuca myuros</i>	rattail sixweeks grass	--

<sup>1</sup> Status of native species is federal listing/state listing/California Rare Plant Rank; Status for non-native species is California Invasive Species Council invasiveness rating.

**Table C-2. Wildlife Species**

Order/Family	Species Name	Common Name	Status <sup>1</sup>
<b>Birds</b>			
Charadriiformes			
Charadriidae	<i>Charadrius vociferus</i>	killdeer	--
Scolopacidae	<i>Tringa melanoleuca</i>	greater yellowlegs	--
Columbiformes			
Colombidae	<i>Columba livia</i>	rock pigeon	--
Falconiformes			
Accipitridae	<i>Buteo jamaicensis</i>	red-tailed hawk	--
Passeriformes			
Corvidae	<i>Aphelocoma californica</i>	California scrub jay	--
	<i>Pica nuttalli</i>	yellow-billed magpie	--
Fringillidae	<i>Haemohous mexicanus</i>	house finch	--
Mimidae	<i>Mimus polyglottos</i>	northern mockingbird	--
Parulidae	<i>Leiothlypis celata</i>	orange-crowned warbler	--
	<i>Setophaga coronata</i>	Audubon's warbler	--
Passerelidae	<i>Pipilo maculatus</i>	spotted towhee	--
	<i>Zonotrichia leucophrys</i>	white-crowned sparrow	--
Regulidae	<i>Corthylio calendula</i>	ruby-crowned kinglet	--
Sturnidae	<i>Sturnis vulgaris</i>	European starling	--
Turdidae	<i>Siala mexicana</i>	western bluebird	--
	<i>Turdus migratorius</i>	American robin	--
Tyrannidae	<i>Sayornis nigricans</i>	black phoebe	--
Pelecaniformes			
Ardeidae	<i>Ardea alba</i>	great egret	--
Piciformes			
Picidae	<i>Colaptes auratus</i>	northern flicker	--
Strigiformes			
Strigidae	<i>Asio flammeus</i>	short-eared owl	SSC

<sup>1</sup> Status for animal species is ESA/CESA listing or other sensitivity.

This page intentionally left blank



## Appendix D

---

Potential for Special-status Species  
in the Region to Occur in the Study  
Area

Scientific Name/ Common Name <sup>1</sup>	Status <sup>2</sup>	Habitat, Ecology and Life History	Potential to Occur <sup>3</sup>
<b>Plants</b>			
<i>Astragalus tener</i> var. <i>ferrisiae</i> Ferris' milk-vetch	--/--/1B.1	An annual herb found in vernal mesic meadows and seeps, and subalkaline flats in valley and foothill grassland, from 2 – 75 meters elevation. Previously thought extinct and rediscovered in 1989; currently known from 13 locations in the Sacramento Valley. Blooms April – May (CNPS 2023).	<b>Will not occur.</b> Suitable habitat for this species is not present in the Study Area. There are no CNDDDB reported occurrences within a 5-mile radius of the Study Area (CDFW 2023).
<i>Delphinium recurvatum</i> recurved larkspur	--/--/1B.2	A perennial herb found in alkaline microsites in chenopod scrub, cismontane woodland, and valley and foothill grassland from 3 – 79 meters elevation. Blooms March – June (CNPS 2023).	<b>Will not occur.</b> Suitable habitat for this species is not present in the Study Area. There are no current CNDDDB reported occurrences within a 5-mile radius of the Study Area (CDFW 2023). A historic record from 1900 near the Study Area is considered to be extirpated (CDFW 2023).
<i>Downingia pusilla</i> dwarf downingia	--/--/2B.2	An annual herb found in vernal pools and mesic microsites in valley and foothill grassland from 1 – 445 meters elevation. Blooms March – May (CNPS 2023).	<b>Will not occur.</b> Suitable habitat for this species is not present in the Study Area. There are no CNDDDB reported occurrences within a 5-mile radius of the Study Area (CDFW 2023).
<i>Hibiscus lasiocarpus</i> var. <i>occidentalis</i> woolly rose-mallow	--/--/1B.2	A perennial rhizomatous emergent herb found in freshwater marshes and swamps from 0 – 120 meters elevation, often in riprap along levees. Blooms June – September (CNPS 2023).	<b>Will not occur.</b> Suitable habitat for this species is not present in the Study Area. There are no CNDDDB reported occurrences within a 5-mile radius of the Study Area (CDFW 2023).
<i>Juncus leiospermus</i> var. <i>ahartii</i> Ahart's dwarf rush	--/--/1B.2	An annual herb found in vernal pools in the eastern Sacramento Valley from 30 – 229 meters elevation. Blooms March – May (CNPS 2023).	<b>Will not occur.</b> Suitable habitat for this species is not present in the Study Area. There are no CNDDDB reported occurrences within a 5-mile radius of the Study Area (CDFW 2023).

Scientific Name/ Common Name <sup>1</sup>	Status <sup>2</sup>	Habitat, Ecology and Life History	Potential to Occur <sup>3</sup>
<i>Legenere limosa</i> legenere	--/--/1B.1	An annual herb found in vernal pools from 1 – 880 meters elevation. Blooms April – June (CNPS 2023).	<b>Will not occur.</b> Suitable habitat for this species is not present in the Study Area. There are no CNDDDB reported occurrences within a 5-mile radius of the Study Area (CDFW 2023).
<i>Monardella venosa</i> veiny monardella	--/--/1B.1	An annual herb found on heavy clay soils in cismontane woodland and valley and foothill grassland from 60 – 410 meters elevation. Previously thought extinct until rediscovered in 1992; currently known from 2 extant locations. Blooms May, July (CNPS 2023).	<b>Will not occur.</b> Suitable habitat for this species is not present in the Study Area. A historic record from 1854 near the Study Area is considered to be extirpated (CDFW 2023).
<i>Navarretia leucocephala ssp. bakeri</i> Baker's navarretia	--/--/1B.1	An annual herb found in mesic meadows and vernal pools in cismontane woodland, lower montane coniferous forest, and valley and foothill grassland from 5 – 1,740 meters elevation. Blooms April – July (CNPS 2023).	<b>Will not occur.</b> Suitable habitat for this species is not present in the Study Area. There are no CNDDDB reported occurrences within a 5-mile radius of the Study Area (CDFW 2023).
<i>Paronychia ahartii</i> Ahart's paronychia	--/--/1B.1	An annual herb found in cismontane woodland, valley and foothill grassland, and vernal pools from 30 – 510 meters elevation. Blooms March – June (CNPS 2023).	<b>Will not occur.</b> Suitable habitat for this species is not present in the Study Area. There are no CNDDDB reported occurrences within a 5-mile radius of the Study Area (CDFW 2023).
<i>Pseudobahia bahiifolia</i> Hartweg's golden sunburst	FE/SE/1B.2	An annual herb in acidic clay soils in cismontane woodlands and valley and foothill grassland from 15 – 150 meters elevation. Blooms March – April (CNPS 2023).	<b>Will not occur.</b> Suitable habitat for this species is not present in the Study Area. A historic record from 1847 near the Study Area is considered to be extirpated (CDFW 2023).
<i>Sagittaria sanfordii</i> Sanford's arrowhead	--/--/1B.2	A perennial rhizomatous herb found in marshes, swamps, and assorted shallow freshwater habitats from 0 – 650 meters elevation. Blooms May – October (November) (CNPS 2023).	<b>Will not occur.</b> Suitable habitat for this species is not present in the Study Area. There are no CNDDDB reported occurrences within a 5-mile radius of the Study Area (CDFW 2023).

Scientific Name/ Common Name <sup>1</sup>	Status <sup>2</sup>	Habitat, Ecology and Life History	Potential to Occur <sup>3</sup>
<b>Animals</b>			
<b>Invertebrates</b>			
<i>Bombus pennsylvanicus</i> American bumble bee	--/--/CSA	Bumble bees are primitively eusocial insects that live in underground nests made up of one queen, female workers, and reproductive members of the nest. New nests are initiated by solitary queens, generally in the early spring, which typically occupy abandoned rodent burrows, under rotten logs or under tall grass (CDFW 2023). This species occurs in farmlands and open fields, such as grasslands (USFWS 2023). A long-tongued bumble bee; select food plants include <i>Vicia</i> spp., <i>Helianthus</i> spp., <i>Solidago</i> spp., <i>Trifolium</i> spp., <i>Hypericum</i> spp., and <i>Cirsium</i> spp. (CDFW 2023; Koch et al. 2012). The flight period for queens in California is from early March to late November, peaking in June. New queens hibernate over the winter and initiate a new colony the following spring (Thorp et al. 1983).	<b>Will not occur.</b> Suitable habitat that could support this species is not present in the Study Area. The Study Area consists of a managed and developed site that is routinely disturbed. There are two historic CNDDDB records that document this species near the Study Area, however there are no details for these sightings in the records.
<i>Branchinecta conservation</i> Conservancy fairy shrimp	FE/--/--	Occupies large clay bottomed vernal pools to vernal lakes with turbid water in grasslands. The historical distribution of this species is unknown and it is currently distributed throughout the Central Valley and southern coastal regions of California (USFWS 2005).	<b>Will not occur.</b> Suitable aquatic habitat that could support this species is not present in the Study Area.
<i>Branchinecta lynchi</i> vernal pool fairy shrimp	FT/--/--	Vernal pools ranging from small, clear, sandstone rock pools to large, turbid, alkaline, grassland valley floor pools. It is most frequently found in pools measuring less than 0.05 acre; although has been collected from vernal pools exceeding 25 acres. The known range within California includes the Central Valley and southern California (USFWS 2005).	<b>Will not occur.</b> Suitable aquatic habitat that could support this species is not present in the Study Area.

Scientific Name/ Common Name <sup>1</sup>	Status <sup>2</sup>	Habitat, Ecology and Life History	Potential to Occur <sup>3</sup>
<i>Danaus plexippus</i> Monarch butterfly	FCE/--/--	The federal listing on December 17, 2020 was for overwintering populations of Monarch butterflies that roost in wind protected tree groves, especially with Eucalyptus sp., and species of pine or cypress with nectar and water sources nearby. Winter roost sites extend along the coast from Mendocino County to Baja California. As caterpillars, monarchs feed exclusively on the leaves of milkweed (Asclepias sp.) (Nial et al. 2019 and USFWS 2020). Monarch butterfly migration routes pass east over the Sierra Nevada in the fall and back to the California coast in the spring (USFWS 2020). The overwintering population is located along the Coast while summer breeding areas occur in interior California and North America with spring breeding areas located further east (USFWS 2020).	<b>Will not occur.</b> Suitable overwintering habitat or larval host plants are not present in the Study Area.
<i>Desmocerus californicus dimorphus</i> valley elderberry longhorn beetle	FT/--/--	Endemic to elderberry shrubs (Sambucus spp.) occurring in riparian habitat in the Sacramento and San Joaquin Valleys, riparian habitats in the Sacramento and San Joaquin Valleys, and less common throughout riparian forests of the Central Valley from Redding to Fresno County (USFWS 2014) typically below 152 m amsl (USFWS 2017a).	<b>Will not occur.</b> Elderberry shrubs that could provide habitat for this species are not present in the Study Area.
<i>Lepidurus packardii</i> vernal pool tadpole shrimp	FE/--/--	Vernal pools from 54 square feet to 89 acres, containing clear- to highly-turbid water. Its known range is within the Central Valley of California and in the San Francisco Bay area (USFWS 2005).	<b>Will not occur.</b> Suitable aquatic habitat that could support this species is not present in the Study Area.

Scientific Name/ Common Name <sup>1</sup>	Status <sup>2</sup>	Habitat, Ecology and Life History	Potential to Occur <sup>3</sup>
<b>Fishes</b>			
<i>Acipenser medirostris</i> pop. 1 green sturgeon – southern DPS	FT/--/--	Spawn in freshwater streams, in fast, deep water, over gravel, cobble, or boulders. Juveniles inhabit estuarine waters for 1-4 years until dispersing into coastal marine waters as adults. Adults return to spawn in fresh water every 6-10 years. Sacramento River watershed, including the Feather River, is the only known historical and present spawning areas for green sturgeon (NMFS 2018).	<b>Will not occur.</b> Suitable aquatic habitat that could support this species is not present in the Study Area.
<i>Oncorhynchus mykiss irideus</i> pop. 11 Central Valley steelhead	FT/--/--	This distinct population segment includes all naturally spawned anadromous steelhead populations below natural and manmade impassable barriers in the Sacramento and San Joaquin Rivers and their tributaries, excluding steelhead from San Francisco and San Pablo Bays and their tributaries, as well as two artificial propagation programs: the Coleman NFH, and Feather River Hatchery steelhead hatchery programs (NMFS 2016). Steelhead spawn in rivers and streams with cool, clear, water and suitable silt free substrate (NMFS 2016).	<b>Will not occur.</b> Suitable aquatic habitat that could support this species is not present in the Study Area.
<i>Oncorhynchus tshawytscha</i> pop. 11 Central Valley spring-run ESU	FT/ST/--	Central Valley spring-run Chinook salmon spawn in rivers and streams with cool, clear, water and suitable cobble and gravel substrate. Historically occurred in all major rivers and tributaries of the Central Valley. Spawning is currently located in tributary streams of the Sacramento River (NMFS 2014). Immigration of adults through the Delta and lower Sacramento River occurs from March through September. Spawning occurs between late-August through October (NMFS 2014).	<b>Will not occur.</b> Suitable aquatic habitat that could support this species is not present in the Study Area.

Scientific Name/ Common Name <sup>1</sup>	Status <sup>2</sup>	Habitat, Ecology and Life History	Potential to Occur <sup>3</sup>
<b>Amphibians</b>			
<i>Spea hammondi</i> western spadefoot	--/--/SSC	Amphibian that breeds in vernal pools and seasonal ponds or slow portions of streams in grasslands and woodlands. Adults spend most of their time in underground burrows in grasslands surrounding breeding pools (Jennings and Hayes 1994). Breeding is typically finished by the end of March. Tadpoles mature through late-spring and disperse as pools dry (Zeiner et al. 1990).	<b>Will not occur.</b> Suitable habitat is not present for this species in the Study Area. Detention basins in the Study Area do not provide habitat for this species since they are managed and cycled quarterly between wet and dry. Additionally, there is not aquatic habitat within the upland dispersal range of this species and the Study Area is set in an urban environment. There are no CNDDDB reported occurrences within a 5-mile radius of the Study Area (CDFW 2023).
<b>Reptiles</b>			
<i>Actinemys (=Emys) marmorata</i> northwestern pond turtle	FPT/--/SSC	Turtle that inhabits slow-moving water with dense submerged vegetation, abundant basking sites, gently sloping banks, and dry clay or silt soils in nearby uplands. Turtles will lay eggs up to 0.25-mile from water, but typically go no more than 600 feet (Jennings and Hayes 1994). This species is known to regularly overwinter on land (Ultsch 2006), which it likely does to avoid increased flows during the winter (Thomson et al. 2016). This species will use a variety of habitats to overwinter, but typically uses areas above the ordinary high water mark where it burrows into loose soil and/or under leaf litter (Thomson et al. 2016). Other none riverine habitats that experience little water level fluctuation, this species may overwinter under water (Thomson et al. 2016).	<b>Will not occur.</b> Suitable habitat is not present for this species in the Study Area. Detention basins in the Study Area do not provide habitat for this species since they are managed and cycled quarterly between wet and dry. Additionally, there is not aquatic habitat within the upland dispersal range of this species and the Study Area is set in an urban environment. There are no CNDDDB reported occurrences within a 5-mile radius of the Study Area (CDFW 2023).

Scientific Name/ Common Name <sup>1</sup>	Status <sup>2</sup>	Habitat, Ecology and Life History	Potential to Occur <sup>3</sup>
<i>Thamnophis gigas</i> giant garter snake	FT/ST/--	Endemic to the San Joaquin and Sacramento Valley floors. Inhabits agricultural wetlands and other waterways such as irrigation and drainage canals, sloughs, ponds, small lakes, low gradient streams, and adjacent uplands. Requires adequate water during its active season (early spring through mid-fall) to provide food and cover, emergent, herbaceous wetland vegetation for foraging and cover, grassy banks and openings in waterside vegetation for basking, and higher elevation uplands for cover and refuge from flood waters during its dormant season (winter). Inhabits small mammal burrows and other soil crevices with sunny exposure along south and west facing slopes, above prevailing flood elevations when dormant. Primarily found in marshes and sloughs as well as slow-moving creeks but absent from large rivers (USFWS 2017b).	<b>Will not occur.</b> Suitable habitat is not present for this species in the Study Area. Detention basins in the Study Area do not provide habitat for this species since they are managed and cycled quarterly between wet and dry. Additionally, there is not aquatic habitat within the upland dispersal range of this species and the Study Area is set in an urban environment.
<b>Birds</b>			
<i>Agelaius tricolor</i> tricolored blackbird	--/ST/SSC	Common locally throughout central California. Nests and seeks cover in emergent wetland vegetation and thorny vegetation such as Himalayan blackberry ( <i>Rubus armeniacus</i> ) as well as cattails and tules. Nesting area must be large enough to support a minimum colony of 50 pairs as they are a highly colonial species. Forages on ground in croplands, grassy fields, flooded land, and edges of ponds for insects (Shuford and Gardali 2008).	<b>Will not occur.</b> Suitable habitat is not present for this species in the Study Area. Detention basins in the Study Area do not provide habitat for this species since they are managed and cycled quarterly between wet and dry and do not support emergent wetland vegetation. There are no current CNDDDB recorded observations of this species within a 5-mile radius of the Study Area. Nearby records are historic and non-specific to location (CDFW 2023).



Scientific Name/ Common Name <sup>1</sup>	Status <sup>2</sup>	Habitat, Ecology and Life History	Potential to Occur <sup>3</sup>
<i>Antigone canadensis tabida</i> greater sandhill crane	--/ST/FP	Breed and forage in wetlands, grasslands and other open habitats. Typically roost in deeper water to avoid predators (Zeiner et al. 1990). Populations that breed in extreme northern California typically overwinter in the Central Valley (Zeiner et al. 1990).	<b>Will not occur.</b> Suitable habitat is not present for this species in the Study Area. There are no CNDDDB reported occurrences within a 5-mile radius of the Study Area (CDFW 2023).
<i>Asio flammeus</i> short-eared owl	--/--/SSC	Nests on the ground in tall herbaceous vegetation and feeds almost exclusively on voles ( <i>Microtus</i> spp.). Range and abundance are linked closely to cycles in vole populations (Shuford and Gardali 2008). Will also use manmade structures for nesting or refuge, such as culverts.	<b>Not expected.</b> Suitable habitat for this species is not present within the Study Area. However, during the field survey, this species was observed roosting in large trees in the Study Area. However, this species is a ground nesting species and nesting habitat is absent. There are no CNDDDB reported occurrences within a 5-mile radius of the Study Area (CDFW 2023).
<i>Athene cunicularia</i> burrowing owl	--/--/SSC	Forages in grasslands, agricultural fields, and disturbed places where burrowing mammals are abundant with low and sparse vegetation. Nests in burrows, especially those of California ground squirrel ( <i>Otospermophilus beecheyi</i> ) but will use other refuge sites (Shuford and Gardali 2008). In the Central Valley of California, most foraging occurs within a 600-m radius of the nest (Gervais et al. 2003).	<b>Will not occur.</b> Suitable habitat is not present in the Study Area and the Study Area is situated in an urban setting. The Study Area consists of a managed and developed site that is routinely disturbed and maintained with few burrows or structures that would provide suitable refuge habitat for burrowing owls. There are no CNDDDB reported occurrences within a 5-mile radius of the Study Area (CDFW 2023). The nearest reported occurrence of this species is located approximately 11 miles east of the Study Area from 1905 (CDFW 2023).

Scientific Name/ Common Name <sup>1</sup>	Status <sup>2</sup>	Habitat, Ecology and Life History	Potential to Occur <sup>3</sup>
<i>Buteo swainsoni</i> Swainson's hawk	--/ST/--	Forages in grasslands, suitable grain or alfalfa fields, or livestock pastures adjacent to nesting habitat. Nests on large trees in open riparian habitat, scattered trees or small groves of trees in open areas (CDFW 1994).	<b>May occur.</b> Suitable trees for nesting are present in the Study Area, however the surrounding area is urban and does not provide suitable foraging habitat. The Study Area also experiences routine maintenance with frequent human traffic and is unlikely to provide suitable nesting habitat for this species. Nearby CNDDDB reported occurrences document nesting along the Feather River (CDFW 2023).
<i>Branta hutchinsii leucopareia</i> cackling goose	--/--/WL	This species winters on lakes and reservoirs in California. This species forages on natural pasture or cultivated grain fields (CDFW 2023).	<b>Will not occur.</b> Suitable habitat is not present in the Study Area. The Study Area consists of a managed and developed site that is routinely disturbed. There are no CNDDDB reported occurrences within a 5-mile radius of the Study Area (CDFW 2023).
<i>Circus hudsonius</i> northern harrier	--/--/SSC	Inhabits a variety of treeless habitats including freshwater marsh, brackish- and saltwater marsh, wet meadows, lake margins, grasslands, croplands, desert sinks, and sagebrush flats. Builds nests on large mounds of vegetation between March and August. Forages in most open habitats (Shuford and Gardali 2008).	<b>Will not occur.</b> Suitable habitat for this species is not present in the Study Area. The Study Area consists of a managed and developed site that is routinely disturbed. There are no CNDDDB reported occurrences within a 5-mile radius of the Study Area (CDFW 2023).

Scientific Name/ Common Name <sup>1</sup>	Status <sup>2</sup>	Habitat, Ecology and Life History	Potential to Occur <sup>3</sup>
<i>Coccyzus americanus</i> western yellow-billed cuckoo	FT/SE/--/--	Occurs at isolated sites in Sacramento Valley in northern California, and along Kern and Colorado River systems in southern California. Frequents valley foothill and desert riparian habitats. Inhabits open woodlands with clearings, and riparian habitats with dense understory foliage along slow-moving drainages, backwaters, or seeps. Prefers dense willows for roosting but will use adjacent orchard in the Sacramento Valley. Typically requires expansive riparian habitat for nesting (Zeiner et al. 1990).	<b>Will not occur.</b> Suitable habitat for this species is not present in the Study Area. The Study Area consists of a managed and developed site that is routinely disturbed. Nearby CNDDDB records are located along the Feather River east of the Study Area where expansive riparian habitat is present (CDFW 2023).
<i>Elanus leucurus</i> white-tailed kite	--/--/FP	Raptor that inhabits rolling foothills and valley margins with scattered oaks, as well as river bottomlands or marshes next to deciduous woodland. Nests in isolated, dense-topped trees in open areas. Forages in a variety of habitats including grassland, marshes, and agricultural fields (Zeiner et al. 1990).	<b>May occur.</b> Suitable trees for nesting are present in the Study Area, however the surrounding area is urban and does not provide suitable foraging habitat. There are no CNDDDB reported occurrences within a 5-mile radius of the Study Area (CDFW 2023).
<i>Haliaeetus leucocephalus</i> bald eagle	FD/SE/FP	Requires large bodies of water with an abundant fish population. Feeds on fish, carrion, small mammals, and waterfowl. Nests are usually located within a 1-mile radius of water. Nests are most often situated in large trees with a commanding view of the area (Zeiner et al. 1990).	<b>Will not occur.</b> Suitable habitat for this species is not present in the Study Area. The Study Area consists of a managed and developed site that is routinely disturbed. There are no CNDDDB reported occurrences within a 5-mile radius of the Study Area (CDFW 2023).

Scientific Name/ Common Name <sup>1</sup>	Status <sup>2</sup>	Habitat, Ecology and Life History	Potential to Occur <sup>3</sup>
<i>Laterallus jamaicensis coturniculus</i> California black rail	--/ST/FP	Inhabits brackish marsh, primarily in the upper marsh zone dominated by alkali heath ( <i>Frankenia salina</i> ), cattail, and rush ( <i>Juncus</i> spp.); prefers lower salinity environments. In the Sierra Nevada foothills, black rail is a year-round resident along wetland edges where water is 1.2 inches or less (Richmond et al. 2010). Black rail is typically associated with perennial wetlands associated with flowing water such as irrigation canals, perennial streams and springs with dense vegetation in the Sierra Nevada foothills (Richmond et al. 2010). Forages on the ground, under cover of dense vegetation (Richmond et al. 2010).	<b>Will not occur.</b> Suitable habitat for this species is not present in the Study Area. The Study Area consists of a managed and developed site that is routinely disturbed. There are no CNDDDB reported occurrences within a 5-mile radius of the Study Area (CDFW 2023).
<i>Melospiza melodia</i> song sparrow (Modesto Population)	--/--/SSC	Breeds in riparian thickets in shrubs or vines near fresh or saline emergent wetland. Nests are typically situated low to the ground or on the ground under dense riparian vegetation (Zeiner et al. 1990).	<b>Will not occur.</b> Suitable habitat for this species is not present in the Study Area. The Study Area consists of a managed and developed site that is routinely disturbed. A nearby CNDDDB record is associated with riparian habitat along the Feather River with an unknown location from 1915 (CDFW 2023).
<i>Riparia riparia</i> bank swallow	--/ST/--/--	Found primarily in riparian and lowland habitat in California. Nests in colonies along cliffs or steep river banks in holes. In California, a majority of the population is situated along the Sacramento River and the Feather River. Other smaller populations persist near Monterey and north of Shasta counties (Zeiner et al. 1990).	<b>Will not occur.</b> Suitable habitat for this species is not present in the Study Area. The Study Area consists of a managed and developed site that is routinely disturbed. Nearby CNDDDB records are located along the Feather River east of the Study Area where bank habitat associated with the Feather River is present (CDFW 2023).

Scientific Name/ Common Name <sup>1</sup>	Status <sup>2</sup>	Habitat, Ecology and Life History	Potential to Occur <sup>3</sup>
<i>Vireo bellii pusillus</i> least bell's vireo	FE/SE/--	Is an obligate riparian species during the breeding season that prefers early successional habitat (USFWS 1998). Typically found in structurally diverse habitat such as cottonwood-willow forests, oak woodlands, and mule fat scrub (USFWS 1998) that generally contains both canopy and shrub layers and includes some associated upland habitat. This species will winter in arroyos that contain mesquite scrub habitat and are not limited to willow dominated habitats. Previously considered to be limited to southern California, recent account of this species with successful breeding in Salinas Valley and in Yolo county show that this species is expanding back into its former range (NatureServe 2020; CDFW 2020).	<b>Will not occur.</b> Suitable habitat for this species is not present in the Study Area. The Study Area consists of a managed and developed site that is routinely disturbed. A nearby CNDDDB record is associated with riparian habitat along the Feather River with an unknown location from 1878 (CDFW 2023).
<b>Mammals</b>			
<i>Erethizon dorsatum</i> North American porcupine	--/--/CSA	Occurs in forested habitats in the Sierra Nevada, Cascade, and coastal mountains. Will occur in a variety of forested habitats such as riparian woodlands, coniferous forest and mixed woodlands (CDFW 2023).	<b>Will not occur.</b> Suitable habitat for this species is not present in the Study Area. The Study Area consists of a managed and developed site that is routinely disturbed. There are no CNDDDB reported occurrences within a 5-mile radius of the Study Area (CDFW 2023).
<i>Lasionycteris noctivagans</i> silver-haired bat	--/--/CSA	Insectivorous bat that roosts in hollow trees, beneath exfoliation bark, abandoned woodpecker holes, and rarely under rocks. They primarily occur in coastal and montane forests, feeding over streams, ponds and open brushy areas (Zeiner et al. 1990).	<b>Will not occur.</b> Suitable habitat for this species is not present in the Study Area. The Study Area consists of a managed and developed site that is routinely disturbed. There are no CNDDDB reported occurrences within a 5-mile radius of the Study Area (CDFW 2023).

<sup>1</sup> Sensitive species reported in CNDDDB or CNPS on the "Yuba City, Wheatland, Browns Valley, Gridley, Honcut, Sutter, Loma Rica, Gilsizer Slough, and Olivehurst" USGS quads, or in USFWS lists for the Study Area

- <sup>2</sup> Status is as follows: Federal (ESA) listing/State (CESA) listing/other CDFW status or CRPR. F = Federal; S = State of California; E = Endangered; T = Threatened; C = Candidate; FP=Fully Protected; SSC=Species of Special Concern; WL=Watch List; CSA=California Special Animal.
- <sup>3</sup> Status in the Project site is assessed as follows. **Will Not Occur:** Species is either sessile (i.e., plants) or so limited to a particular habitat that it cannot disperse on its own and/or habitat suitable for its establishment and survival does not occur on the project site; **Not Expected:** Species moves freely and might disperse through or across the project site, but suitable habitat for residence or breeding does not occur on the project site, potential for an individual of the species to disperse through or forage in the site cannot be excluded with 100% certainty; **Presumed Absent:** Habitat suitable for residence and breeding occurs on the project site; however, focused surveys conducted for the current project were negative; **May Occur:** Species was not observed on the site and breeding habitat is not present but the species has the potential to utilize the site for dispersal, **High:** Habitat suitable for residence and breeding occurs on the project site and the species has been recorded recently on or near the project site, but was not observed during surveys for the current project; **Present:** The species was observed during biological surveys for the current project and is assumed to occupy the project site or utilize the project site during some portion of its life cycle.

CRPR = California Rare Plant Rank: 1B – rare, threatened, or endangered in California and elsewhere; 2B – rare, threatened, or endangered in California but more common elsewhere. Extension codes: .1 – seriously endangered; .2 – moderately endangered.

## REFERENCES

- California Department of Fish and Wildlife (CDFW). 1994. Staff report regarding mitigation for impacts to Swainson's hawk (*Buteo swainsoni*) in the Central Valley of California. November 1.
2019. Report to the Fish and Game Commission: Evaluation of the Petition from the Xerces Society, Defenders of Wildlife and the Center for Food Safety to List Four Species of Bumble Bees as Endangered Under the California Endangered Species Act. April 2019. Special California Department of Fish and Wildlife, Sacramento, California, USA.
2023. California Natural Diversity Database (CNDDDB); For: *Yuba City, Wheatland, Browns Valley, Gridley, Honcut, Sutter, Loma Rica, Gilsizer Slough, and Olivehurst* USGS 7.5-minute series quadrangles, Sacramento, CA. Accessed December 5, 2023.
- California Native Plant Society (CNPS). 2023. Inventory of Rare and Endangered Plants (online edition, v8-03 0.45) For: *Yuba City, Wheatland, Browns Valley, Gridley, Honcut, Sutter, Loma Rica, Gilsizer Slough, and Olivehurst* USGS 7.5-minute series quadrangles, Sacramento, CA. Accessed December 5, 2023.
- Gervais, J. A., Rosenberg, D. K., and Anthony, R. G. 2003. *Space use and pesticide exposure risk of male Burrowing Owls in an agricultural landscape*. J. Wildl. Mgmt. 67:156–165.
- National Marine Fisheries Service (NMFS). 2014. 2014. Recovery Plan for the Evolutionarily Significant Units of Sacramento River Winter-Run Chinook Salmon and Central Valley Spring-Run Chinook Salmon and the Distinct Population Segment of California Central Valley Steelhead. California Central Valley Area Office.
2016. California Central Valley Steelhead Distinct Population Segment: 5-year Review. California Central Valley Area Office.
- Nial K.R., Drizd, L. and Voorhies K.J. 2019. Butterflies Across the Globe: A Synthesis of the Current Status and Characteristics of Monarch (*Danaus plexippus*) Populations Worldwide. Front. Ecol. Evol. 7:362. doi: 10.3389/fevo.2019.00362
- Richmond, O.W., Chen, S.K., Risk, B.B., Tecklin, J., and S. R. Beissinger. 2010. California Black Rails Depend on Irrigation-fed Wetlands in the Sierra Nevada Foothills. California Agriculture: Volume 2, Number 2.
- Shuford, W.D., and T. Gardali, editors. 2008. California Bird Species of Special Concern: A ranked assessment of species, subspecies, and distinct populations of birds of immediate conservation concern in California. Studies of Western Birds 1. Western Field Ornithologists, Camarillo, California, and California Department of Fish and Game, Sacramento.
- Thomson, R.C., Wright, A.N., and H.B. Shaffer. 2016. California Amphibian and Reptile Species of Special Concern. Oakland, California: University of California Press.
- Thorp, R. W., D. S Horning and L. L. Dunning. 1983. Bumble bees and cuckoo bumble bees of California (Hymenoptera: Apidae). Bulletin of the California Insect Survey 23: viii.

- U.S. Fish and Wildlife Service (USFWS). 2005. Recovery Plan for Vernal Pool Ecosystems of California and Southern Oregon. Region 1, U.S. Fish and Wildlife Service, Portland, OR. December 15.
2014. 50 CFR Part 17 RIN–1018–AV29 Endangered and Threatened Wildlife and Plants; Withdrawal of the Proposed Rule to Remove the Valley Elderberry Longhorn Beetle from the Federal List of Endangered and Threatened Wildlife. Federal Register Vol. 79, No. 180. September 17.
- 2017a. Framework for Assessing Impacts to the Valley Elderberry Longhorn Beetle (*Desmocerus californicus dimorphus*). U.S. Fish and Wildlife Service; Sacramento, California. 28 pp.
- 2017b. Recovery Plan for the Giant Garter Snake (*Thamnophis gigas*). U.S. Fish and Wildlife Service, Pacific Southwest Region, Sacramento, California. vii + 71 pp.
2020. Monarch (*Danaus plexippus*) Species Status Assessment Report. V2.1 96 pp + appendices.
- Zeiner, D.C., W.F. Laudenslayer, Jr., K.E. Mayer, and M. White, eds. 1990. California's Wildlife. Vol. I-III. California Department of Fish and Game, Sacramento, California.



This page intentionally left blank

## Appendix E

---

### Representative Site Photos



Photo 1. Representative view of the proposed well site in the northern portion of the Study Area. Photo date 11/27/2023.



Photo 2. Representative view of a managed basin during its quarterly wet cycle in the central portion of the Study Area. Photo date 11/27/2023.





Photo 3. Representative view of a managed basin during its quarterly dry cycle in the central portion of the Study Area. Photo date 11/27/2023.



Photo 4. Representative view of the proposed well site in the northern portion of the Study Area looking east. Photo date 11/27/2023.

## Appendix D

---

### Cultural Resources Assessment

# Yuba City Aquifer Storage and Recovery Well System

## Cultural Resources Assessment

November 2024 | 02632.00013.001

*Prepared for:*

**Carollo Engineers, Inc.**  
3150 Bristol Street, Suite 500  
Costa Mesa, CA 92626

*Prepared by:*

**HELIX Environmental Planning, Inc.**  
1108 Iron Point Road, Suite 130  
Folsom, CA 95630

This page intentionally left blank

# TABLE OF CONTENTS

---

<b><u>Section</u></b>	<b><u>Page</u></b>
EXECUTIVE SUMMARY .....	ES-1
1.0 INTRODUCTION .....	1
1.1 Project Description .....	1
1.2 Project Site .....	1
1.3 Personnel .....	2
2.0 PROJECT SETTING .....	2
1.4 Natural Setting .....	2
1.5 Cultural Setting .....	3
1.5.1 Precontact .....	3
1.5.2 Ethnography .....	5
1.5.3 History .....	8
2.0 REGULATORY FRAMEWORK .....	9
2.1 California Environmental Quality Act .....	9
2.1.1 California Register of Historical Resources .....	10
2.1 California Health and Safety Code §7050.5 .....	10
2.2 California Public Resources Code §5097.98 .....	11
3.0 BACKGROUND RESEARCH .....	11
3.1 CHRIS Records Search .....	11
3.1.1 Previous Studies .....	11
3.1.2 Previously Recorded Resources .....	14
3.1.3 Historic Map and Aerial Photograph Analysis .....	15
3.2 Native American Heritage Commission Sacred Lands File Search .....	15
4.0 PEDESTRIAN SURVEY .....	16
5.0 SUMMARY AND RECOMMENDATIONS .....	17
5.1 Summary .....	17
5.2 Recommendations .....	17
5.2.1 Accidental Discovery of Cultural Resources .....	17
5.2.2 Accidental Discovery of Human Remains .....	17
6.0 REFERENCES .....	19



## TABLE OF CONTENTS (cont.)

---

### LIST OF APPENDICES

A	Figures
B	Resumes of Cultural Resources Staff
C	Native American Correspondence
D	Representative Survey Photographs

### LIST OF TABLES

<b><u>No.</u></b>	<b><u>Title</u></b>	<b><u>Page</u></b>
1	Previous Studies Conducted within 0.5 Mile of the Project Site .....	12
2	Previously Recorded Cultural Resources within 0.5 Mile of the Project Site .....	14

# EXECUTIVE SUMMARY

This report summarizes the findings of a Cultural Resources Assessment completed by HELIX Environmental Planning, Inc. (HELIX) for the approximately 28-acre Yuba City Aquifer Storage and Recovery Well System Project (project) located in Yuba City, Sutter County, California. The proposed project site is situated within the New Helvetia Land Grant, as depicted on the U.S. Geological Survey (USGS) *Yuba City, California* 7.5-minute quadrangle map. The proposed undertaking would involve the construction of an aquifer storage and recovery (ASR) system with a new injection well and associated infrastructure at an existing water treatment plant (WTP). This new ASR system will capture water when it is abundant, such as during the rainy season or spring snowmelt, and store water in an underground aquifer to allow for the recovery of that water when needed. As part of the initial application review, applicants are required to submit a cultural resource assessment for review by the Lead Agency (the City of Yuba City) to ensure compliance with all federal, state, and local laws and regulations as they relate to cultural resources, including, but not limited to, the California Environmental Quality Act (CEQA).

A records search of the project site and a 0.5-mile radius identified 18 previous cultural resource studies, including four that at least partially overlapped the currently proposed project site. The records search also identified three cultural resources within the search radius, but none within the project site itself. These resources include three historic-era resources, including the Northern California Railway/Southern Pacific Railroad Grade (P-51-000099), the Feather River West Levee (P-51-000150), and a series of Earthen Sewer Ponds (P-51-000240), none of which will be impacted by the proposed project.

A search of the Sacred Lands File (SLF) maintained by the Native American Heritage Commission (NAHC) indicated positive results, and the NAHC recommended that HELIX reach out to nine Native American tribal representatives who may also have knowledge of cultural resources in the project area. HELIX sent letters to all nine tribal representatives who were recommended by the NAHC. HELIX sent letters to these tribal representatives on January 3, 2024, and received an email response on January 23, 2024, from Anna Starkey, the Cultural Regulatory Specialist for the United Auburn Indian Community (UAIC) of the Auburn Rancheria. In the email, Ms. Starkey requested that HELIX identify the lead agency for the project. HELIX responded via email to this message on January 23, 2024, stating that the City of Yuba City is the lead agency for the project.

HELIX archaeologists conducted a pedestrian survey of the entirety of the project site. Ground visibility was moderate (between 60-80%) on the relatively flat project site, which showed signs of previous disturbance associated with the development of water reservoirs, landscaping, and other facility maintenance and upkeep. The survey did not identify any archaeological or built-environment cultural resources within the project site.

Based on the results of this Cultural Resources Assessment, HELIX concludes that the following findings are appropriate for the project:

- **No Significant Impact** to Historical or Unique Archaeological Resources under *CEQA Guidelines* Section 15064.5; and
- **No Significant Impact to Human Remains** resulting from disturbance.

No additional study or documentation for cultural resources are recommended at this time. However, in the unlikely event that archaeological cultural resources, and/or human remains, or funerary objects are discovered during project construction, the provisions provided in Section 5.2 of this report should be implemented to avoid or substantially reduce the severity of impacts to such finds.

# 1.0 INTRODUCTION

The City of Yuba City (City) proposes to construct an Aquifer Storage and Recovery (ASR) system with a new injection well and associated infrastructure at an existing water treatment plant (WTP) within Yuba City, Sutter County, California (Figure 1, *Site and Vicinity Map*; Figure 2, *USGS Topographic Map*, Appendix A).

Based on the nature of the proposed project, it qualifies as a *project* under the California Environmental Quality Act (CEQA). As part of the initial application review, applicants are required to prepare a Cultural Resource Assessment (CRA) to document compliance with all federal, state, and local laws and regulations as they relate to cultural resources.

HELIX Environmental Planning, Inc. (HELIX) prepared this CRA to identify cultural resources that may be subject to impact or disturbance as a result of project implementation.

## 1.1 PROJECT DESCRIPTION

The Yuba City Aquifer Storage and Recovery Well System Project (project), which involves the construction of a new ASR well and associated infrastructure, is expected to be developed at the existing City-owned WTP, which is located on the west side of Live Oak Boulevard, just north of Northgate Drive, within the City. The existing WTP site is located within the New Helvetia Land Grant depicted on the U.S. Geological Survey (USGS) *Yuba City, California* 7.5-minute quadrangle map (see Figure 2).

The City has a current water demand of 29,600 acre feet per year (AFY) and estimates that an additional 2,000 to 3,000 AFY would be required to meet future demands. The City receives surface water from the Feather River through multiple water rights contracts; however, the City has been unable to use all of the allocated water, which may result in future surface water allocation reductions and puts the City at risk of not meeting future demands.

To fully make use of the City's water rights and establish a resilient long-term water supply, the City is pursuing the construction of a new ASR well at the City-owned WTP. Construction of the proposed ASR well would allow for underground storage of excess water during winter months; this water could be recovered to meet short-term demands and supplement existing water supplies. The proposed ASR well would be covered by a 1,440-square-foot well shade structure. Flush water from the new ASR well would be directed to the center existing WTP filter backwash pond. The recovered water from the new ASR well would connect into the existing Well No. 1 discharge pipeline that routes to the existing WTP flash mixing tank for treatment through the WTP process. The raw water recharge would be routed by a 12-inch pipeline to the new ASR well from an existing 12-inch potable water main pipeline underneath Live Oak Boulevard. Mechanical piping and electrical components would be located within the well shade structure. Fiber optic routing would be constructed within the same trench as the raw water recovery discharge pipeline.

## 1.2 PROJECT SITE

The project site for the proposed project is defined as the geographic area where project activities may directly or indirectly cause changes in the character or use of historic properties of prehistoric or historic age, if any such properties exist. The project site for the current undertaking includes the entirety of the

approximately 28 acres of the proposed project site (Figure 3, *Project Site Map*, Appendix A). Because the project is currently in the planning stages, the vertical and subsurface dimensions of the project site are still unknown. The project site is surrounded by a commercial center and neighborhoods to the south, residential neighborhoods to the west, a school to the north, and Live Oak Boulevard and a river levee to the east. The terrain is flat, with the project area itself in use as a WTP.

### 1.3 PERSONNEL

This CRA was conducted by HELIX Senior Archaeologist Benjamin Siegel, M.A., RPA. Mr. Siegel meets the Secretary of the Interior's Professional Qualifications Standards for Archeology (36 Code of Federal Regulations [CFR] Part 61) and is a cultural resources project manager with 14 years of professional experience throughout California and the United States. He has overseen numerous projects for compliance with Section 106 of the National Historic Preservation Act and CEQA. The pedestrian survey for this project was conducted by Staff Archaeologist Jentin Joe, B.A., under the supervision of Mr. Siegel. Mr. Joe is an archaeologist with over five years of archaeological experience throughout the state of California.

Resumes for Mr. Siegel and Mr. Joe are included in Appendix B.

## 2.0 PROJECT SETTING

### 1.4 NATURAL SETTING

The project site is located within the unsectioned lands of the New Helvetia Land Grant as depicted on the USGS *Yuba City, California* 7.5-minute quadrangle map (see Figure 2, Appendix A). Soils mapped within the project site consist of the Conejo series of very deep, well drained soils that formed in alluvium from basic igneous or sedimentary rocks. These soils consist of clay loams (Soil Survey Staff 2024). The project site is in proximity to the Feather River, with the river lying within 925 meters (m) to the east of the current WTP facility. The project site is located at approximately 50 feet above mean sea level.

The native vegetation of the project site and vicinity is classified as riparian forest, a complex that first developed as a result of frequent river overflows which extended well beyond the banks of the Feather River. Dominant riparian forest and understory species include Western sycamores (*platanus racemosa*), and Fremont's cottonwoods (*populus fremontii*), with other trees including box elders (*acer negundo*), white alders (*alnus rhombifolia*), Oregon ashes (*fraxinus latifolia*), Southern California black walnuts (*juglans californica*), blue elderberries (*sambucus cerulea*), and willows (genus *Salix*) also appearing within the environs. Common shrubs and vines in this environment include California button bushes (*cephalanthus occidentalis*), California wild roses (*rosa californica*), California wild grapes (*vitis californica*), and pacific blackberries (*rubus ursinus*). Native vegetation communities of this region supported a variety of wildlife, including those of importance to the Nisenan or Southern Maidu peoples who inhabited the area. Native fauna of the area included elk (*cervus elaphus nannodes*) and deer (of the family *cervidae*), as well as myriad small mammals, reptiles, amphibians, and birds.

## 1.5 CULTURAL SETTING

The following is a brief overview of the prehistory, ethnography, and historic background of the project area intended to provide a historical context for any cultural resources that might be found in the vicinity of the project site. This section is not intended to be a comprehensive review of the current resources available; rather, it serves as a general overview of human occupations and uses of the general project vicinity. Further details can be found in ethnographic studies, mission records, and major published sources, including Bennyhoff (1950 and 1977), Fredrickson (1973), Kroeber (1925), Chartkoff and Chartkoff (1984), and Moratto (1984).

### 1.5.1 Precontact

Early archaeological investigations in central California were conducted at sites located in the Sacramento-San Joaquin Delta region. The first published account documents investigations in the Lodi and Stockton area (Schenck and Dawson 1929). The initial archaeological reports typically contained descriptive narratives, with more systematic approaches sponsored by Sacramento Junior College in the 1930s. At the same time, the University of California at Berkeley excavated several sites in the lower Sacramento Valley and Delta region, which resulted in recognizing archaeological site patterns based on variations of inter-site assemblages. Research during the 1930s identified temporal periods in central California prehistory and provided an initial chronological sequence (Lillard and Purves 1936; Lillard et al. 1939). In 1939, Lillard noted that each cultural period led directly to the next, and that influences spread from the Delta region to other regions in central California (Lillard et al. 1939). In the late 1940s and early 1950s, Beardsley documented similarities in artifacts among sites in the San Francisco Bay region and the Delta and refined his findings into a cultural model that ultimately became known as the Central California Taxonomic System (CCTS). This system proposed a uniform, linear sequence of cultural succession (Beardsley 1948, 1954). The CCTS system was challenged by Gerow, whose work looked at radiocarbon dating to show that Early and Middle Horizon sites were not subsequent developments but, at least partially, contemporaneous (1954, 1974; Gerow and Force 1968).

To address some of the flaws in the CCTS system, Fredrickson (1973) introduced a revision that incorporated a system of spatial and cultural integrative units. Fredrickson separated cultural, temporal, and spatial units from each other and assigned them to six chronological periods: Paleo-Indian (10,000 to 6000 B.C.); Lower, Middle, and Upper Archaic (6000 B.C. to A.D. 500); and Emergent (Upper and Lower, A.D. 500 to 1800). The suggested temporal ranges are similar to earlier horizons, which are broad cultural units that can be arranged in a temporal sequence (Moratto 1984). In addition, Fredrickson defined several patterns—a general way of life shared within a specific geographical region. These patterns include:

- Windmill Pattern or Early Horizon (3000 to 1000 B.C.);
- Berkeley Pattern or Middle Horizon (1000 B.C. to A.D. 500); and
- Augustine Pattern or Late Horizon (A.D. 500 to historic period).

Brief descriptions of these temporal ranges and their unique characteristics follow.

*Windmill Pattern or Early Horizon (3000 to 1000 B.C.)*

Characterized by the Windmill Pattern, the Early Horizon was centered in the Cosumnes district of the Delta and emphasized hunting rather than gathering, as evidenced by the abundance of projectile points in relation to plant processing tools. Additionally, atlatl, dart, and spear technologies typically included stemmed projectile points of slate and chert but minimal obsidian. The large variety of projectile point types and faunal remains suggests the exploitation of numerous types of terrestrial and aquatic species (Bennyhoff 1950; Ragir 1972). Burials occurred in cemeteries and intra-village graves. These burials typically were ventrally extended, although some dorsal extensions are known with a westerly orientation and a high number of grave goods. Trade networks focused on the acquisition of ornamental and ceremonial objects in finished form rather than on raw material. The presence of artifacts made of exotic materials such as quartz, obsidian, and shell indicate an extensive trade network that may represent the arrival of Utian populations into central California. Also, indicative of this period are rectangular *Haliotis* and *Olivella* shell beads, and charmstones that usually were perforated.

*Berkeley Pattern or Middle Horizon (1000 B.C. to A.D. 500)*

The Middle Horizon is characterized by the Berkeley Pattern, which displays considerable changes from the Early Horizon. This period exhibited a strong milling technology represented by minimally shaped cobble mortars and pestles, although metates and manos were still used. Dart and atlatl technologies during this period were characterized by non-stemmed projectile points made primarily of obsidian. Fredrickson (1973) suggests that the Berkeley Pattern marked the eastward expansion of Miwok groups from the San Francisco Bay Area. Compared with the Early Horizon, there is a higher proportion of grinding implements at this time, implying an emphasis on plant resources rather than on hunting. Typical burials occurred within the village with flexed positions, variable cardinal orientation, and some cremations. As noted by Lillard, the practice of spreading ground ochre over the burial was common at this time (Lillard et al. 1939). Grave goods during this period are generally sparse and typically include only utilitarian items and a few ornamental objects. However, objects such as charmstones, quartz crystals, and bone whistles occasionally were present, which suggest the religious or ceremonial significance of the individual (Hughes 1994). During this period, larger populations are suggested by the number and depth of sites compared with the Windmill Pattern. According to Fredrickson (1973), the Berkeley Pattern reflects the gradual expansion or assimilation of different populations rather than sudden population replacement and a gradual shift in economic emphasis.

*Augustine Pattern or Late Horizon (A.D. 500 to Historic Period)*

The Late Horizon is characterized by the Augustine Pattern, which represents a shift in the general subsistence pattern. Changes include the introduction of bow and arrow technology and, most importantly, acorns became the predominant food resource. Trade systems expanded to include raw resources as well as finished products. There are more baked clay artifacts and extensive use of *Haliotis* ornaments of many elaborate shapes and forms. Burial patterns retained the use of flexed burials with variable orientation, but there was a reduction in the use of ochre and widespread evidence of cremation (Moratto 1984). Judging from the number and types of grave goods associated with the two types of burials, cremation seems to have been reserved for individuals of higher status, whereas other individuals were buried in flexed positions. Johnson (1978) suggests that the Augustine Pattern represents the expansion of the Wintuan population from the north, which resulted in combining new traits with those established during the Berkeley Pattern.

Central California research has expanded from an emphasis on defining chronological and cultural units to a more comprehensive look at settlement and subsistence systems. This shift is illustrated by the early use of burials to identify mortuary assemblages and more recent research using osteological data to determine the health of prehistoric populations (Dickel et al. 1984). Although debate continues over a single model or sequence for central California, the general framework consisting of three temporal/cultural units is generally accepted; however, the identification of regional and local variation is a major goal of current archaeological research.

### 1.5.2 Ethnography

The study area for the current project was once occupied by a cultural group known as the Nisenan, or Southern Maidu. The group speaks a language which is understood to be part of the Maiduan family of the Penutian linguistic stock found in broader regions of California (Kroeber 1925, Shipley 1978). Nisenan territory extended from the Western side of the Sierra Nevada mountains to the western bank of the Sacramento River (Littlejohn 1928). Permanent Nisenan villages were often located on rises found along major waterways. The size of these villages ranged widely, with reports of villages spanning from three houses to as many as 50 (Wilson and Towne 1978). Houses in these villages consisted of domed structures, comprised of wooden frames that were covered with either dried earth or tule or grass, and measured between 3 to 4.6 m (9.8 to 15 feet) in diameter. More temporary structures are known to have been used in the summer months and were built of brush in locations where seasonal gathering or hunting took place. Larger villages had partially subterranean dance houses which were covered in dried earth and tule or brush, and usually had a central smoke hole at the top and frequently an east-facing entrance. Granaries were also a common site in Nisenan villages, which were used for storing acorns (Wilson and Towne 1978). Sweathouses were another common site in larger villages and were used for curing ails and purification rituals.

Generally, the Nisenan are understood to have occupied permanent settlements, from which discrete groups would be sent out to harvest seasonally available resources including greens, tubers and roots, nuts, seeds, berries, wild rye, pine nuts, and acorns, and hunted deer, elk, rabbits, squirrels, quail, pigeons, and ducks. Hunting efforts were supported by the use of bows and arrows, traps, snares, nets, and hooks. Acorns were of particular importance, as they stored well during off seasons and could be ground into a mush or gruel that could supplement any fresh foods available regardless of the season. Valley Nisenan groups focused more on the collection of riparian resources, whereas hill Nisenan groups focused a bit more on acorn collection (from blue oak [sp. *Quercus douglasii*] and black oak [sp. *Quercus kelloggii*]) and wild game hunting. Native tobacco (sp. *Nicotiana*) was also harvested by Nisenan groups and used for recreational and ceremonial purposes. Nisenan groups also made use of grasses and rushes to construct baskets and clothing. Fishing was another important aspect of Nisenan subsistence strategies and multiple methods were deployed to capture fish including poisoning, netting, fishing weirs, harpoons, traps, and gorge hooks. Furthermore, Nisenan groups built and deployed tule balsas and log canoes to ply the larger rivers and to assist in fishing efforts. Freshwater clams and mussels were also collected and consumed by Nisenan groups (Wilson and Towne 1978).

In terms of religious practices, within ethnographic-era Nisenan culture, two kinds of shaman existed. Religious shamans were thought to possess the ability to gain control over spirits through mystic practices, experiences, and dreams. Curing shamans served a more corporeal role and aided in the healing of the sick or injured (Wilson and Towne 1978). Cremation was the most common mortuary practice for the Nisenan, and ashes and bones were gathered and buried together. Once an individual



had passed, their property was also burned and their house was either moved or also destroyed (Faye 1923, Kroeber 1925, Wilson and Towne 1978).

Nisenan lifeways were heavily impacted by the gold rush of 1849. Euro-American immigrants flooded into the Feather River area and the surrounding foothills to chase down reports of gold in the region. This influx of miners brought with them diseases to which Native Americans had no immunity. These miners also significantly altered the landscape and disrupted local ecosystem services through their exploits. Perhaps most devastatingly, these miners would at times violently drive Nisenan from their lands in order to commence mining efforts on these sites, and violence and prejudice against Nisenan was all too common in the later nineteenth and early to mid-twentieth centuries. Despite these hardships, Nisenan groups have survived and maintained strong communities which have forged together and formed action-oriented organizations in the latter half of the twentieth century.

A previously filed report with the Northeast Information Center (NEIC; ICF International 2016), included valuable information provided by the United Auburn Indian Community (UAIC) regarding tribal beliefs and tribal customs. This information is reproduced below.

### **Burial Customs and the Mythological and Traditional Context of Rivers within Miwok and Maidu (Nisenan) Culture**

According to UAIC, rivers serve as important boundary areas, purification areas, and procurement areas. Traditionally, rivers or tributaries delineated territory, but they also serve as a boundary with the spiritual, sacred and ceremonial world. Consistent with this symbolic significance, rivers are also used for purification after periods of seclusion, as parts of ceremonies, or in order to purify objects for use in a ceremonial context. Such ceremonies are often tied to resource procurement and annual feasts or dances that mark the beginning of certain hunting or gathering seasons. Rivers also serve a functional role as a source of salmon and other resources, as well as a mode of transportation.

### **Mythological and Traditional Context of the Feather River within Miwok and Maidu (Nisenan) Culture**

The segment of the Feather River near Yuba City and Live Oak has an added layer of significance, because it is the start of a spirit's journey into the afterlife. That journey then continues to the Sutter Buttes. In stories, this segment of the Feather River is often called the western River. In an interview with the linguist J. P. Harrington during the late 1930s Jane Lewis (aka Koto Jane, daughter of Captain John Winn) and Lilly Williams (daughter of Pamela Adams) confirmed both their ancestral villages along the Feather River and that "the dead people called Feather River Wollok", which means "wholly smothered". Stories told by William Joseph and other elders provide additional context for the role of this section of the Feather River. William Joseph (aka Billy Joe) in an early 1930s interview with the linguist Hans Uldall elaborated on the role of this section of the River:

Dead people who had many children would look back and turn into Coyote or Deer, because they loved their children. That was so that they could see the children go about once in awhile.

Ralph Beals, an ethnographer working during the summer of 1929, interviewed Jane Lewis, Jim Dick, Frank Suehead, William Joseph and several other individuals from whom contemporary members of UAIC trace their descent. His account of beliefs about the dead also confirms this association:

...those who had lots of children and were fond of them stayed where they had lived, while the others went away to the west. Another informant said that after four days the dead arose and jumped in the water. Then they went to the west. On the way they had to go through a big river. If they were afraid, they returned to their old home and were turned into coyotes.

This belief about the dead was distinct from the Northeastern Maidu, who believed that the dead traveled to the east. The Beals quote illustrates (1) the importance of the flow of water from tributaries to the Feather River so that the dead can begin their journey and (2) the importance of Wollok as a waystation, where the dead can delay their journey in order to watch over living relatives. This also explains why this section of the River would be called “wholly smothered”, since this is the point where the decision is made whether to remain in this world or proceed to the next.

### **Burial Traditions and the Afterlife**

Burial traditions of the Miwok and Maidu include a burial ceremony, the burial of human remains in a designated burial ground and the maintenance of traditional spiritual landscapes, such as Wollok. Disruptions to any of these can affect the spirit’s journey and call the spirit back, often with negative consequences. The importance of an appropriate burial ceremony is illustrated by this passage about the reaction of a local Nisenan village to the death of a pioneer man, Arthur Thorpe, near Marysville in 1860:

But when their “Arthur Boy” died, they thought it a terrible thing that my mother was preparing to have his body put in the ground. They asked her, “How would the Great Spirit know where to find him?” They were very insistent about wanting to build a funeral pyre, a way they had of burning the body, thus liberating the spirit so that it might go to the Happy Hunting Grounds as they believed. My mother finally had to be very firm with them about the matter. They sorrowed very much and many attended the laying away of their “Arthur Boy” in the old cemetery at the East end of Long Bridge.

William Joseph gives another account about the murder of Nisenan men that illustrates the importance of appropriate burial ceremonies and burial ground:

- The day after that the same white men met three Indians. They killed those three Indians. They cut them to pieces. Then they dried their guts on the chaparral brush. They put their arms and legs and heads up on the brush.
- The next day some Indians going to big time saw those cut-up Indians. They gathered up everything. They burned (it).
- They scraped the ashes into a basket and carried (it) on their backs to their burying ground.
- They buried (it) there.

Both of these examples illustrate the importance of an appropriate burial ceremony and burial location. In the example of the burials along Feather River Levee, it is important that the human remains that are being disturbed from their original burial ground be reburied as close as possible to the original burial ground. As recently as 2012, the UAIC Tribal Historic Preservation Committee worked with the Tribal

Council and General Council to pass a Tribal Resolution in order to institutionalize this practice of reintering disturbed burials in an appropriate burial ground, as close as possible to the original burial ground. While avoidance of the cemetery and burial location is always preferred by UAIC, this resolution provides a method to respectfully reinter disturbed burials when avoidance cannot occur and illustrates the way that traditional practices are still valued and observed within the Tribe today.

### 1.5.3 History

Yuba City shares a history with its twin city, Marysville, which has its origins in the earliest period of American occupation of California. Located at the confluence of the Yuba and Feather Rivers, the two cities were well situated to serve as the starting points for Gold Rush miners heading east to the Motherlode from San Francisco. Many of these hopeful miners found transport aboard steamers which traversed the Feather River from San Francisco up to Yuba City and Marysville. As Marysville was located on the more convenient east side of the Feather River, this city initially grew in population and size faster than Yuba City. The twin cities also served as a hub for immigrants traveling out west, from the east, towards the Heness and Beckworth passes. Using these passes, these travelers would follow the Yuba and Middle Fork of the Feather Rivers to reach either Yuba City or Marysville (Howard 1998:69-70).

After the initial allure of the Gold Rush started to wear off, many would be miners soon pursued other lines of work in the region. Some turned to supplying provisions and equipment to mining operations, while others instead pursued agriculture. Given the region's mild climate and rich native soils, many found it possible to cultivate grains, row crops, orchards, and vineyards. Others took up cattle grazing and sheep herding, and others still would pursue logging, as raw construction materials were in critical need throughout the region.

In Marysville, manufacturing also became a key part of the local economy and, by the end of the nineteenth century, the town boasted a wool mill, foundry, planning mill, fruit cannery, and bag factory (Quidachay and Baxter 2005:3). As of 1894, Marysville had developed into a town worthy of the Yuba County Seat, supported three different banks, and had its own fire department and library. By this time, Marysville also possessed a public water system; coal, gas, and electric lighting; and a trolley (Sherwood 1894:1-17).

Increases in agricultural production and local manufactures encouraged the development of fast and reliable transportation. As a result, during the latter half of the nineteenth century, railways were constructed to augment the riverboat traffic on the Yuba and Feather Rivers. The first rail line into Marysville was completed in 1864 and, by the turn of the nineteenth century, Yuba City and Marysville were covered in railways which extended from San Francisco, Sacramento, and Folsom to the south, on to Oroville, Chico, and Oregon to the north (Robertson 1998:84-85, 100-101). Furthermore, two riverboats are known to have run regular routes from the twin cities to San Francisco in the early twentieth century, and stage routes were still used to connect the cities to surrounding towns and agricultural centers (Sherwood 1894:13-15). At first, the rail segment which crossed the northwest portion of Yuba City and ran parallel to the Feather River was part of the California and Oregon Railroad developed in 1863. This line was sold to the Central Pacific Railway by 1867 and the new owners sought to extend the line to connect Marysville to Portland. In 1884, the Central Pacific reformed under the title of the Southern Pacific Railroad and continued the expansion of the line through 1885. During the early portions of the 1900s, the line took on the name of "The Shasta Route" (Snyder n.d.:4, 8-9). Later, in 1995, the Union Pacific Railroad purchased the Southern Pacific and now operates the line between Marysville and Portland.

The Feather River Levee is a cultural resource that lies outside of the currently proposed project site and will not be impacted by the proposed project; however, its history is relevant to the project site. Feather River Levee District One was formed by local landowners in April of 1868 in response to a breach in an earlier iteration of the levee at Gilsizer Slough. The goal of this district was to construct and maintain a segment of the current levee along the river. The 1868 Green Act fixed the current day boundaries of the district and, in 1871 the district started to rebuild the levee to combat rising riverbed levels brought on by hydraulic mining debris that was accumulating in the river (James et al. 2009, ICF International 2016). In 1905, District One members started to construct an additional five feet to the height of the levee from the Yuba City-Marysville wagon bridge down towards the south to manage the high flow of the river, but a 1907 flood effectively washed away much of the unfinished levee, and saturated Yuba City with water (James et al. 2009, ICF International 2016). Efforts to complete the refurbishment and improvements to the levee were completed in 1909. Unfortunately, a flood later that year reached heights roughly one foot above the newly built levee crown, prompting two breaks in the levee which caused flooding along Garden Highway. Dredge crews then worked on repairing the levee between 1909 and 1910 (James et al. 2009, ICF International 2016).

Later, at the end of the 1930s, the US Army Corps of Engineers (USACE) rebuilt a smaller sand levee spanning from Yuba City and Shanghai Bend. The Levee One District maintained this levee through 1955. In December of that year, however, California experienced particularly heavy rains, prompting a flood in the river and a subsequent rupture in the levee in spots between Shanghai Bend and Yuba City, causing Yuba City to be flooded, resulting in the loss of 37 lives. These severe losses prompted the USACE to rebuild the levee systems in the vicinity of Yuba City. These repairs and subsequent improvements (including significant improvements in 1986 prompted by heavy flooding along the river during that year) have managed to keep Yuba City from flooding from 1955 through the present (Stiles 1957, ICF International 2016).

## 2.0 REGULATORY FRAMEWORK

### 2.1 CALIFORNIA ENVIRONMENTAL QUALITY ACT

Pursuant to CEQA, a historical resource is a resource listed in, or eligible for listing in, the California Register of Historical Resources (CRHR). In addition, resources included in a local register of historic resources, or identified as significant in a local survey conducted in accordance with state guidelines, are also considered historic resources under CEQA, unless a preponderance of the facts demonstrates otherwise. According to CEQA, the fact that a resource is not listed in, or determined eligible for listing in, the CRHR, or is not included in a local register or survey, shall not preclude a Lead Agency, as defined by CEQA, from determining that the resource may be a historic resource as defined in California Public Resources Code (PRC) Section 5024.1.7.

CEQA applies to archaeological resources when (1) the historic or prehistoric archaeological resource satisfies the definition of a historical resource, or (2) the historic or prehistoric archaeological resource satisfies the definition of a “unique archaeological resource.” A unique archaeological resource is an archaeological artifact, object, or site that has a high probability of meeting any of the following criteria (PRC §21083.2[g]):

1. The archaeological resource contains information needed to answer important scientific research questions, and there is a demonstrable public interest in that information.

2. The archaeological resource has a special and particular quality, such as being the oldest of its type or the best available example of its type.
3. The archaeological resource is directly associated with a scientifically-recognized important prehistoric or historic event or person.

### **2.1.1 California Register of Historical Resources**

Created in 1992 and implemented in 1998, the CRHR is “an authoritative guide in California to be used by state and local agencies, private groups, and citizens to identify the state’s historical resources and to indicate what properties are to be protected, to the extent prudent and feasible, from substantial adverse change” (PRC §5024.1[a]). Certain properties, including those listed in or formally determined eligible for listing in the National Register of Historic Places (NRHP) and California Historical Landmarks (CHL), numbered 770 and higher, are automatically included in the CRHR. Other properties recognized under the California Points of Historical Interest program, identified as significant in historic resources surveys, or designated by local landmarks programs may be nominated for inclusion in the CRHR.

A resource, either an individual property or a contributor to a historic district, may be listed in the CRHR if the State Historical Resources Commission determines that it meets one or more of the following criteria, which are modeled on NRHP criteria (PRC §5024.1[c]):

Criterion 1: It is associated with events that have made a significant contribution to the broad patterns of California’s history and cultural heritage.

Criterion 2: It is associated with the lives of persons important in our past.

Criterion 3: It embodies the distinctive characteristics of a type, period, region, or method of construction; represents the work of an important creative individual; or possesses high artistic values.

Criterion 4: It has yielded, or may be likely to yield, information important in history or prehistory.

Resources nominated to the CRHR must retain enough of their historic character or appearance to be recognizable as historic resources and to convey the reasons for their significance. It is possible that a resource whose integrity does not satisfy NRHP criteria may still be eligible for listing in the CRHR. A resource that has lost its historic character or appearance may still have sufficient integrity for the CRHR if, under Criterion 4, it maintains the potential to yield significant scientific or historical information or specific data. Resources that have achieved significance within the past 50 years also may be eligible for inclusion in the CRHR, provided that enough time has lapsed to obtain a scholarly perspective on the events or individuals associated with the resource.

## **2.1 CALIFORNIA HEALTH AND SAFETY CODE §7050.5**

Section 7050.5 of the California Health and Safety Code states that in the event of discovery or recognition of any human remains in any location other than a dedicated cemetery, there shall be no further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent remains until the coroner of the county in which the remains are discovered has determined if the remains are subject to the coroner’s authority. If the human remains are of Native American origin,

the coroner must notify the Native American Heritage Commission (NAHC) within 24 hours of this identification.

## **2.2 CALIFORNIA PUBLIC RESOURCES CODE §5097.98**

Section 5097.98 of the California PRC states that the NAHC, upon notification of the discovery of Native American human remains pursuant to Health and Safety Code Part 7050.5, shall immediately notify those persons (i.e., the Most Likely Descendant or “MLD”) it believes to be descended from the deceased. With permission of the landowner or a designated representative, the MLD may inspect the remains and any associated cultural materials and make recommendations for the treatment or disposition of the remains and associated grave goods. The MLD shall provide recommendations or preferences for treatment of the remains and associated cultural materials within 48 hours of being granted access to the site.

## **3.0 BACKGROUND RESEARCH**

HELIX conducted background research on the project and its vicinity to identify previously documented cultural resources in the area and to assess the sensitivity for such resources in the project vicinity. This background research included a California Historical Resources Information System (CHRIS) records search, a search of the files maintained by the California NAHC, and a review of aerial photographs and historic-era maps. Each source of information and the results obtained by HELIX are described below.

### **3.1 CHRIS RECORDS SEARCH**

On November 7, 2023, a records search addressing the project site and a 0.5-mile radius beyond the project site boundaries was conducted by the NEIC at Chico State Enterprises in Chico, California. The purpose of the record search was to: (1) identify prehistoric and historic resources previously documented in the project site and within 0.5 mile of project site boundaries; (2) determine which portions of the project site may have been previously studied, when those studies took place, and how the studies were conducted; and (3) ascertain the potential for archaeological resources, historical resources, and human remains to be found in the project site. This search also included a review of the appropriate USGS topographic maps on which cultural resources are plotted, archaeological site records, building/structure/object records, and data from previous surveys and research reports. The California Points of Historical Interest, CHL, NRHP, CRHR, and California State Historic Resources Inventory listings were also reviewed to ascertain the presence of designated, evaluated, and/or historic-era resources within the project site.

#### **3.1.1 Previous Studies**

The NEIC records search revealed that 18 cultural studies have been conducted within a 0.5-mile radius of the proposed project site, and that four of those studies at least partially overlapped with the currently proposed project site. All studies previously conducted within a 0.5-mile radius of the project site are briefly described below in Table 1, while the four studies that at least partially overlap with the currently proposed project site are discussed below the table.

**Table 1**  
**PREVIOUS STUDIES CONDUCTED WITHIN 0.5 MILE OF THE PROJECT SITE**

Report (starts with NEIC-)	Year	Author(s)	Title	Includes Project Site?	Affiliation
002969	1976	Storm, Donald J.	Cultural Resources Statement (A Combination of Many Small Projects done within the Yuba City – Marysville Area)	Yes	Storm, Donald J.
003134	1997	Shapiro, William, Keith Syda, and Lisa Shapiro	An Archaeological Assessment for the Sutter Levee District No. 1 Relief Well System in Sutter County, California	Yes	Pacific Legacy, Inc.
007165	2005	Quidachay, Karen and Scott Baxter	Cultural Resources Inventory Report for the Yuba City Water Treatment Plant, 24 to 30 MGD Water Supply Replacement Project, Sutter County, California	Yes	EN2 Resources, Inc.
013886	2016	Kim, Monte and Kathryn Haley	Sutter County Gaps Inventory and Finding of Effect Report – Feather River West Levee Project, Sutter County, California	Yes	ICF International
002666	1998	Deitz, Frank	Cultural Resources Assessment within Levee Districts 1 and 9, Maintenance Area 3, the East Levee of the Sutter Bypass, and the Wadsworth Canal, Sutter County, California (SAC 18)	No	U.S. Army Corps of Engineers
004658	2000	Nelson, Wendy J., Maureen Carpenter, and Kimberley L. Holanda	Cultural Resources Survey for the Level (3) Communications Long Haul Fiber Optics Project: Segment WP04: Sacramento to Redding	No	Far Western Anthropological Research Group
005722	2003	Harrington, Lori	An Archaeological Evaluation of the Willow Glen Care Center II, Sutter County, California	No	Cultural Research Associates
007362	2006	Arrington, Cindy and Bryon Bass	Cultural Resources Final Report of Monitoring and Findings for the Qwest Network Construction Project, State of California	No	SWCA
008954	2007	Grant, Joanne	Cultural Resources Report for Geotechnical Borings along the Feather River, Sutter Bypass, and Wadsworth Canal	No	URS Corporation
009500	2008	Grant, Joanne	Cultural Resources Survey Report for the Urban Levee Project	No	URS Corporation
009954	2008	Berg, John E., Sharon A. Waechter, Kimberly Carpenter, and Cindy Baker	Cultural Resources Inventory for the Pease-Marysville 60kV Transmission Line Project, Sutter and Yuba Counties, California	No	Far Western Anthropological Research Group, Inc. and PAR Environmental

Report (starts with NEIC-)	Year	Author(s)	Title	Includes Project Site?	Affiliation
012255	2013	Thomas, Jennifer and Naomi Scher	Cultural Resources Study of the Line-124A Replacement Project (MP 20.63-26.27), Sutter and Yuba Counties, California	No	Far Western Anthropological Research Group, Inc.
012293	2005	Baxter, R. Scott	National Register Evaluation of S.P.R.R. Grade, Yuba City, CA	No	Past Forward, Inc.
012490	2011	Blind, Heather and Barb Siskin	Cultural Resource Constraints Analysis for the Line 167 and Line 167-1 Gas Line Modernization Project, Butte and Sutter Counties, California	No	Garcia and Associates
014489	2010	Roark, Gabriel	Cultural Resources Inventory of the Yuba City Feather Rier Intake Screen, Yuba City, Sutter County, California – Revised Report	No	ICF International
014518	2017	Westwood, Lisa	Cultural Resources Inventory and Evaluation Report for Emergency Levee Repairs, Feather River Reaches 14-16, SPK-2017-00556, Sutter County, California	No	ECORP Consulting, Inc.

**Report NEIC-002969** – *Cultural Resources Statement (A Combination of Many Small Projects done within the Yuba City – Marysville Area)* was written by Donald J. Storm in 1976. The project prompting the cultural resource study associated with report NEIC-002969 involved the installation of sewer improvements within and underneath existing city streets, with a portion of the area studied encompassing the southern quarter of the currently proposed project site for the WTP project. The cultural investigation associated with report NEIC-002969 included a records search and field survey of the sewer project’s alignment and did not encounter any prehistoric nor historic-era resources within the currently proposed project site for the WTP project.

**Report NEIC-003134** – *An Archaeological Assessment for the Sutter Levee District No. 1 Relief Well System in Sutter County, California* was written by William Shapiro, Keith Syda, and Lisa Shapiro of Pacific Legacy in 1997. Under contract with the USACE Sacramento District, Pacific Legacy staff examined a USACE water catchment basin designated Sac 03. The Sac 03 basin encompasses Reclamation District No. 1500 and the Tisdale Bypass within Sutter County, California. The purpose of the project was to identify and evaluate cultural properties at specific repair locations along the district levees which were recommended for repair prior to the 1998 rainy season. Associated borrow areas and staging areas for the levee repair project were also examined. The area of study for report NEIC-003134 included a corridor lying to the east of the currently proposed project site, just barely grazing the current project site’s eastern boundary line. The cultural investigation associated with report NEIC-003134 included a records search at the NEIC and pedestrian survey of the levee repair project’s site. These efforts did not identify any prehistoric or historic-era resources within the currently proposed WTP project site.

**Report NEIC-007165** – *Cultural Resources Inventory Report for the Yuba City Water Treatment Plant, 24 to 30 MGD Water Supply Replacement Project, Sutter County, California* was written by Karen Quidachay and Scott Baxter of EN2 Resources, Inc. in 2005. This report was intended to support a planned project to



install improvements to the water supply for the WTP, including a fish screen, and detailed the findings of the archaeological assessment of a 13.7-acre rectangular area which spans from just inside the project site of the currently proposed WTP project to the Feather River. The cultural investigation associated with report NEIC-007165 involved a records search at the NEIC and a pedestrian survey of the 13.7-acre area of potential effect (APE). The single resource encountered during the study associated with report NEIC-007165 is resource P-51-000099 (CA-SUT-000099H), the Northern California/Southern Pacific Railroad grade, which lies well to the east of the currently proposed WTP project site and will not be impacted by the currently proposed WTP project.

**Report NEIC-013886 – Sutter County Gaps Inventory and Finding of Effect Report – Feather River West Levee Project, Sutter County, California** was written by Monte Kim and Kathryn Hayley of ICF International in 2016. The area studied within report NEIC-013886 included a corridor lying to the east of the currently proposed project site, just barely grazing the current project site’s eastern boundary line. The cultural resource investigation associated with report NEIC-013886 included a records search at the NEIC, Native American outreach, and a pedestrian survey of the Feather River West Levee Project’s APE. The two resources addressed within report NEIC-013886 were resource 51-000099 (CA-SUT-000099H), the Northern California/Southern Pacific Railroad grade, and resource 51-000150 (CA-SUT-000150H), the Feather River West Levee, both of which lie well to the east of the currently proposed WTP project site and will not be impacted by the currently proposed WTP project.

### 3.1.2 Previously Recorded Resources

The NEIC records search revealed that three cultural resources have been previously recorded within a 0.5-mile radius of the currently proposed project, none of which have been reported by the NEIC as lying within the project site. The resources within the project vicinity consist of three historic era resources, including the Northern California Railway/Southern Pacific Railroad Grade which has been converted to a Road and Irrigation System (51-000099), the Feather River West Levee (51-000150), and a series of Earthen Sewer Ponds (51-000240). These resources are described briefly below in Table 2.

**Table 2**  
**PREVIOUSLY RECORDED CULTURAL RESOURCES WITHIN 0.5 MILE OF THE PROJECT SITE**

Primary (P-)	Trinomial	Year of Most Recent Examination	Recorder	Description	Within Project Site?
51-000099	CA-SUT-000099H	2013	Haley, Kathryn and Monte Kim	Historic Era – Northern California Railway/Southern Pacific Railroad, Railroad Grade Converted to Road and Associated Irrigation System	No
51-000150	CA-SUT-000150H	2018	Westwood, Lisa	Historic Era – Feather River West Levee	No
51-000240	CA-SUT-000240H	2010	Baxter, R. Scott	Historic Era – Earthen Sewer Ponds	No

### 3.1.3 Historic Map and Aerial Photograph Analysis

Historic-era maps examined for this review include a General Land Office records map of Township 15 North, Range 3 East, Mount Diablo Base Line and Meridian (1867); a *Marysville, California*, 1:125,000 scale USGS quadrangle map (1888); and a *Yuba City, California*, 1:31,680 scale USGS quadrangle map (1911). None of these maps revealed any past land uses that would inform this cultural resource assessment; only the Feather River and Southern Pacific Railway are depicted in the project vicinity.

Aerial photographs examined for this review include images dating from 1958, 1973, 1984, 1998, 2005, 2009, 2010, 2012, 2014, 2016, 2018, and 2020. These photographs reveal that the project site was in agricultural use as early as 1958, and likely earlier, as well-established rows of what appear to be planted trees appear in the 1958 photograph. By 1958, Live Oak Boulevard already served as a paved roadway that traversed from north to south just to the east of the currently proposed project site, and areas to the north, west, south, and east of the project site were also in a similar agricultural use. By 1973, the project site had been cleared of trees and two water reservoirs had been constructed in the southern central portion of the currently proposed project site. These two reservoirs and associated ancillary structures would remain on the project site through the present day, though they were eventually joined by an additional reservoir and accompanying ancillary structures to the adjacent east (added by 1998). By 1984, the project site had been landscaped with discrete patches of grass, and paved access roads and asphalt laydown areas were present in the southern portion of the project site. The 1984 photograph also indicates that adjacent areas south of the project site had been developed for light industrial and residential use, while the areas to the west, north, and east of the project site remained in agricultural use. By 1998, the two cylindrical water reservoirs (still present today) that occupy the southern edge of the project site were constructed; the outline of the three retention ponds which now occupy the northern portion of the project site becomes clear; and the area adjacent to the west of the project site was in residential development, while a small park was constructed adjacent to the northwest of the project site. By 2005, the area adjacent to the north of the project site had been cleared. By 2009, an additional cylindrical reservoir had been added to the southeastern portion of the project site. Conditions remained relatively stable in the project vicinity from 2009 through to the present, with the sole exception of the development of the school complex adjacent to the north of the project site in 2016.

## 3.2 NATIVE AMERICAN HERITAGE COMMISSION SACRED LANDS FILE SEARCH

On November 16, 2023, HELIX requested that the NAHC conduct a search of their Sacred Lands File (SLF) for the presence of Native American sacred sites or human remains in the vicinity of the proposed project site. On December 7, 2023, HELIX received a response from the NAHC that indicated the SLF search returned positive results. Consequently, the letter recommended that HELIX reach out to nine Native American tribal representatives who may also have knowledge of cultural resources within the project site. The recommended points of contact with Native American Tribes included:

- Glenda Nelson, Chairperson, Estom Yumeka Maidu Tribe of the Enterprise Rancheria
- Richard Johnson, Chairman, Nevada City Rancheria Nisenan Tribe
- Shelly Covert, Tribal Secretary, Nevada City Rancheria Nisenan Tribe

- Saxon Thomas, Tribal Council Member, Nevada City Rancheria Nisenan Tribe
- Tina Goodwin, Chairperson, Pakan'yani Maidu of Strawberry Valley Rancheria
- Gene Whitehouse, Chairperson, United Auburn Indian Community of the Auburn Rancheria
- Herbert Griffin, Executive Director of Cultural Preservation, Wilton Rancheria
- Dahlton Brown, Executive Director of Administration, Wilton Rancheria
- Cultural Preservation Department, Wilton Rancheria

HELIX sent letters to these tribal representatives on January 3, 2024, and received an email response on January 23, 2024, from Anna Starkey, the Cultural Regulatory Specialist for the UAIC of the Auburn Rancheria. In the email, Ms. Starkey requested that HELIX identify the lead agency for the project. HELIX responded via email to this message on January 23, 2024, stating that the City of Yuba City is the lead agency for the project. A representative copy of HELIX's outreach letters to these points of tribal contact and the email from UAIC can be found in Appendix C of this report.

## 4.0 PEDESTRIAN SURVEY

HELIX archaeologists surveyed the project site on December 12, 2023. The pedestrian survey involved the systematic investigation of the project site's ground surface by walking in parallel, 10-meter-wide transects. During the pedestrian survey, the ground surface was examined for artifacts (e.g., flaked stone tools, tool-making debris, stone milling tools, fire-affected rock, prehistoric ceramics), soil discoloration that might indicate the presence of a prehistoric cultural midden, soil depressions, and features indicative of the former presence of structures or buildings (e.g., standing exterior walls, postholes, foundations, wells) or historic debris (e.g., metal, glass, ceramics). Ground disturbances such as gopher holes, burrows, cut banks, and drainage banks were also visually inspected. Representative survey photographs are found in Appendix D.

During the survey, ground visibility was found to be moderate (between 60 to 80%), and the majority of the area within the project site was found to lie within the fenced boundaries of the Yuba City Water Treatment Plant. The survey area itself was a flat plot of land with signs of prior ground disturbance associated with the construction of water reservoirs, landscaping, and other WTP facility maintenance. Located within the southeast corner of the project site is a water retention pond with a large concrete cylinder extending from the ground (Photograph 1, Appendix D). The cylinder is approximately 10 feet tall and extends out approximately five feet from the sidewall of the pond. Just west of, and almost adjacent to, this retention pond in the southeast corner of the property is a large "Clear Well" (an enclosed tank that comprises the final storage tank in the WTP drinking water treatment system) surrounded by asphalt pavement (Photograph 2, Appendix D). Just north of this feature is an open area characterized by push piles, indicative of recent disturbance of the ground surface in this area. These piles were located near the center of the WTP (Photograph 3, Appendix D). Three large retention ponds are located in the north, northeast, and northwest portions of the WTP. At the time of survey, the easternmost pond was found to be converted for use for several arrays of solar panels, while the westernmost pond was filled with rainwater (Photographs 4 and 5, Appendix D). The central pond, however, was not filled with water at the time of HELIX's survey. An east-west-running tree line is just north of these water retention ponds. The surveyor noted an east/west running tree line which provides

a visual barrier between the WTP and the school located to the adjacent north of the WTP facility. The northeast corner of the WTP site was found to have an access gate that leads out to Live Oak Boulevard.

As the project site for this project also encompasses Live Oak Boulevard, as well as a strip of land along the eastern side of Live Oak Boulevard, these areas were also inspected (Photograph 6, Appendix D).

The HELIX field survey did not identify any archaeological or built environmental cultural resources in the project site.

## 5.0 SUMMARY AND RECOMMENDATIONS

### 5.1 SUMMARY

HELIX conducted this CRA to assist the City in addressing the requirements of CEQA. The CRA included background research, Native American outreach, and a field survey of the currently proposed project site.

Based on the results of this CRA, HELIX concludes that the following findings are appropriate for the project:

- **No Significant Impact** to Historical or Unique Archaeological Resources under *CEQA Guidelines* Section 15064.5; and
- **No Significant Impact to Human Remains** resulting from disturbance.

No additional study or documentation for cultural resources are recommended at this time. However, in the unlikely event that archaeological cultural resources, and/or human remains, or funerary objects are discovered during project construction, the provisions contained in Section 5.2 of this report should be implemented to avoid or substantially reduce the severity of impacts to such finds.

### 5.2 RECOMMENDATIONS

#### 5.2.1 Accidental Discovery of Cultural Resources

In the event that cultural resources are exposed during ground-disturbing activities, construction activities should be halted within 100 feet of the discovery. Cultural resources could consist of but are not limited to stone, bone, wood, or shell artifacts, or features, including hearths, structural remains, or historic dumpsites. If the resources cannot be avoided during the remainder of construction, the retained archaeologist, who meets the Secretary of the Interior's *Professional Qualifications Standards*, should assess the resource and provide appropriate management recommendations. If the discovery proves to be CRHR- or NRHP-eligible, additional documentation and analysis, such as data recovery excavation, may be warranted.

#### 5.2.2 Accidental Discovery of Human Remains

Although considered highly unlikely, there is always the possibility that ground-disturbing activities during construction may uncover previously unknown human remains. In the event of an accidental discovery or recognition of any human remains, PRC Section 5097.98 must be followed. Once project-

related earthmoving begins and if there is a discovery or recognition of human remains, the following steps shall be taken:

1. There shall be no further excavation or disturbance of the specific location or any nearby area reasonably suspected to overlie adjacent human remains until the County Coroner is contacted to determine if the remains are Native American and if an investigation of the cause of death is required. If the coroner determines the remains are Native American, the coroner shall contact the NAHC within 24 hours, and the NAHC shall identify the person or persons it believes to be the “most likely descendant” of the deceased Native American. The most likely descendant may make recommendations to the landowner or the person responsible for the excavation work, for means of treating or disposing of, with appropriate dignity, the human remains, and any associated grave goods as provided in PRC Section 5097.98, or
2. Where the following conditions occur, the landowner or their authorized representative shall rebury the Native American human remains and associated grave goods with appropriate dignity either in accordance with the recommendations of the most likely descendent or on the project site in a location not subject to further subsurface disturbance:
  - The NAHC is unable to identify a most likely descendent or the most likely descendent failed to make a recommendation within 48 hours after being notified by the commission;
  - The descendent identified fails to make a recommendation; or
  - The landowner or his authorized representative rejects the recommendation of the descendent, and the mediation by the NAHC fails to provide measures acceptable to the landowner.

## 6.0 REFERENCES

Beardsley, R.K., 1948. "Cultural Sequences in Central California Archaeology." *American Antiquity* 14:1-28.

1954. Temporal and Areal Relationships in Central California. *University of California Archaeological Survey Reports* 24-25. Berkeley.

Bennyhoff, James, 1950. Californian Fish Spears and Harpoons. *University of California Anthropological Records* 9(4):295-338.

1977. Ethnogeography of the Plains Miwok. *Center for Archaeological Research at Davis Publication* Number 5. University of California, Davis.

Chartkoff J.L. and K.K. Chartkoff, 1984. *The Archaeology of California*. Menlo Park. Stanford University Press.

Dickel, D.N., P. D. Schulz, and H.M. McHenry, 1984. "Central California: Prehistoric Subsistence Changes and Health." In *Paleopathology at the Origins of Agriculture*, edited by Mark Nathan Cohen and George J. Armelagos, pp. 439–462. Academic Press, Inc., Orlando, FL.

Faye, P., 1923. Notes on the Southern Maidu. *University of California Publications in American Archaeology and Ethnology* 20:35-53.

Fredrickson, D.A., 1973. Early Cultures of the North Coast Ranges, California. Unpublished Ph.D. dissertation, Department of Anthropology, University of California, Davis.

Gerow, B.A., 1954. The Problem of Cultural Sequences in Central California Archaeology. Paper presented at the Annual Meeting of the American Association for the Advancement of Sciences.

1974. Comments on Fredrickson's Cultural Diversity. *Journal of California Anthropology* 1(2):239-246.

Gerow, B.A., and R. Force, 1968. *An Analysis of the University Village Complex with a Reappraisal of Central California Archaeology*. Stanford University Press. Stanford, California.

Howard, Thomas Frederick. 1998. *Sierra Crossing, First Roads to California*. University of California press, Berkeley.

Hughes, R.E. (editor), 1994. Toward a New Taxonomic Framework for Central California Archaeology: Essays by James A. Bennyhoff and David A. Fredrickson. Assembled and edited by Richard E. Hughes. Contributions of the University of California No. 52, Archaeological Research Facility, Berkeley, CA.

ICF International, 2016. *Sutter County Gaps Inventor and Finding of Effect Report – Feather River West Levee Project, Sutter County, California*, report on file with the Northeast Information Center.

- James, L. A., M. B. Singer, S. Ghoshal, and M. Megison, 2009. Sedimentation in the Lower Yuba and Feather Rivers.
- Johnson, Patty Jo., 1978. Patwin. In *Handbook of North American Indians*, Vol. 8, California. Ed by R. F. Heizer, pp 350-360. Smithsonian Institution, Washington, D.C.
- Kroeber, Alfred L., 1925. *Handbook of the Indians of California*. Bureau of American Ethnology Bulletin 78. Smithsonian Institution. Washington, D.C. (reprinted by Dover Publications, Inc., New York. 1976).
- Lillard, J.B. and W.K. Purves, 1936. "The Archaeology of the Deer Creek-Cosumnes Area, Sacramento Co., California." Sacramento. Sacramento Junior College, Department of Anthropology Bulletin 1.
- Lillard, J.B., R.F. Heizer, and F. Feneng, 1939. An Introduction to the Archaeology of Central California. Sacramento Junior College, Department of Anthropology, Bulletin 2. Sacramento.
- Littlejohn, H. W., 1928. *Nisenan Geography*. Document 18. On file, University of California Archives, Department of Anthropology, University of California, Berkeley.
- Moratto, M.J., 1984. *California Archaeology*. San Diego. Academic Press.
- Quidachy, Karen, and Scott Baxter, 2005. *Cultural Resources Inventory Report for the Yuba City Water Treatment Plant 24 to 30 MGD Water Supply Replacement Project, Sutter County, California*.
- Ragir, S.R., 1972. The Early Horizon in Central California Prehistory. Contributions of the University of California Archaeological Research Facility 15. Berkeley, CA.
- Robertson, Donald B., 1998. *Encyclopedia of Western Railroad History, Volume IV, (California)*. Caxton Printers, Ltd., Caldwell.
- Schenck, W.E., and E.J. Dawson, 1929. Archaeology of the Northern San Joaquin Valley. *American Archaeology Ethnology* 25.
- Sherwood, T. J. 1894. *Resources of Yuba County*.
- Shipley, W. F., 1978. Native Languages of California. In *California*, edited by Robert F. Heizer, pp. 80-90. *Handbook of North American Indians*, Vol. 8, William C. Sturtevant, general editor, Smithsonian Institution, Washington, D.C.
- Snyder, John W., No date. Historic American Engineering Record, Southern Pacific Railroad Shasta Route. National Park Service, Western Region, Department of the Interior, San Francisco, CA.
- Soil Survey Staff., 2024. Natural Resources Conservation Service, United States Department of Agriculture. Web Soil Survey. Available online at <http://websoilsurvey.nrcs.usda.gov/>. Accessed February 2024.
- Stiles, W. W., 1957. How a Community Met a Disaster: Yuba City Flood, December 1955. *The Annals of the American Academy of Political and Social Science*, 309(1), 160-169.

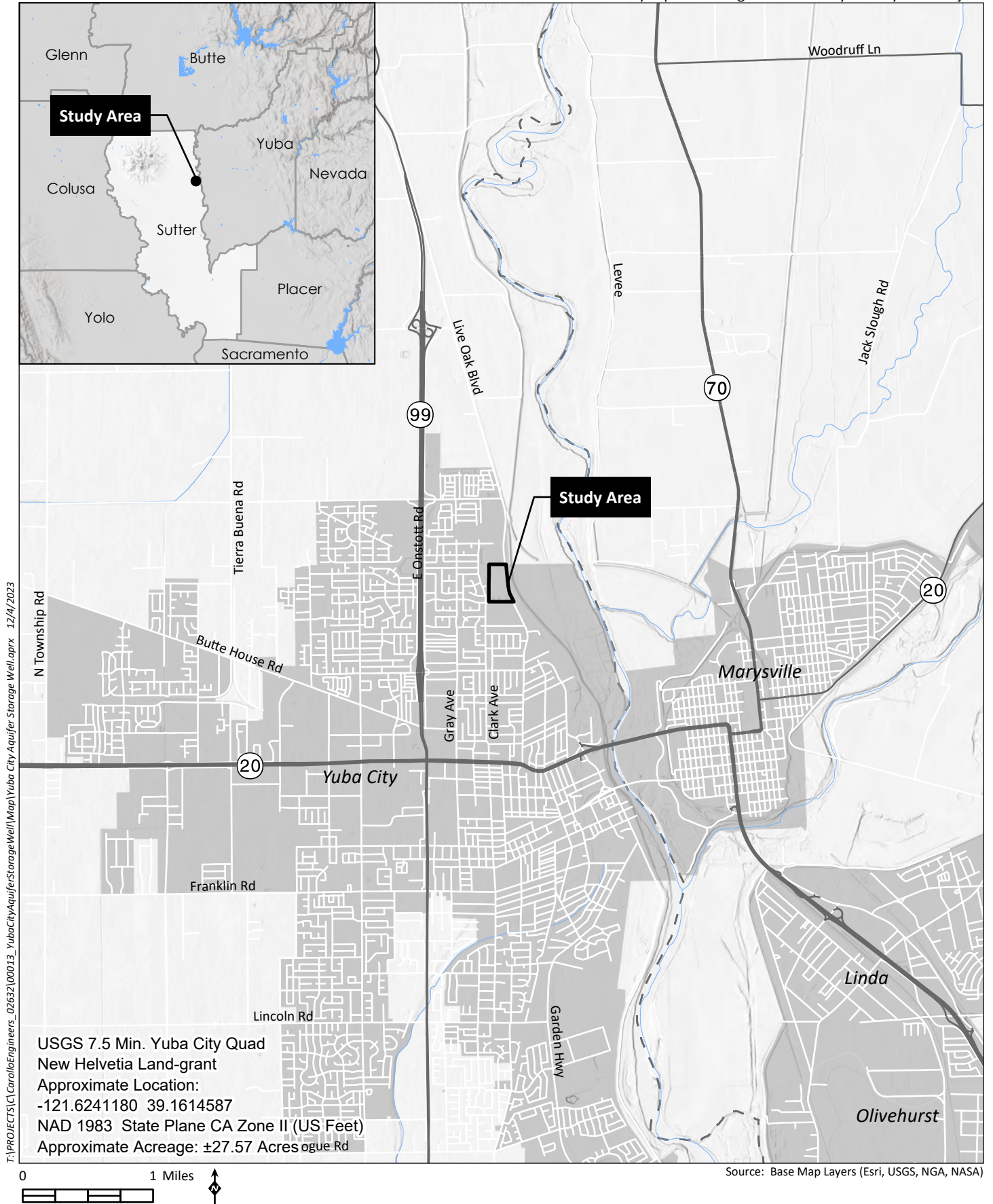
Wilson, N. L., and A. H. Towne, 1978. Nisenan. In *California*, edited by Robert F. Heizer, pp. 387-397. Handbook of North American Indians, Vol. 8, William C. Sturtevant, general editor, Smithsonian Institution, Washington, D.C.



# Appendix A

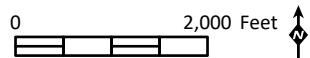
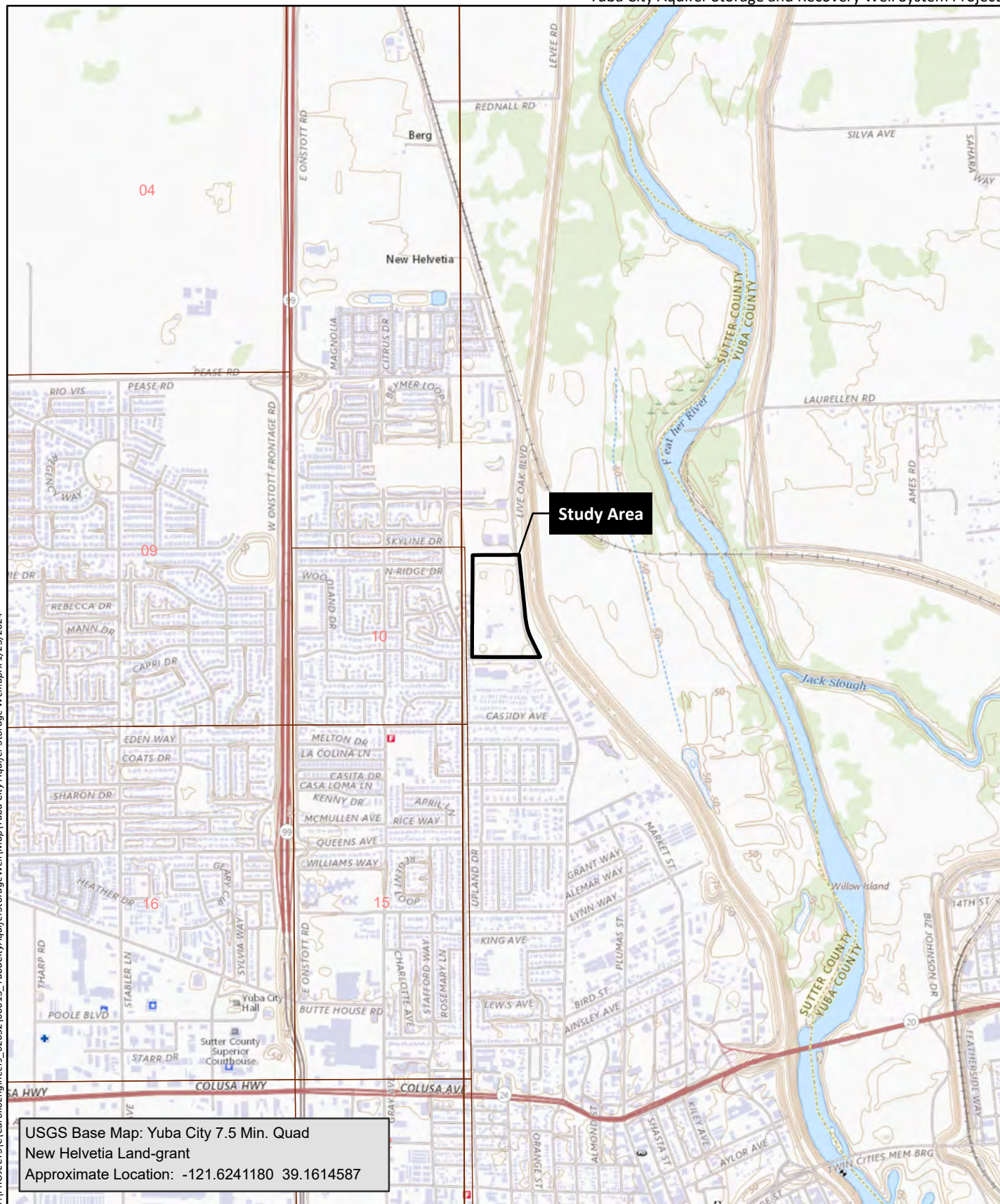
---

## Figures





T:\PROJECTS\c\Carollo\Engineers\_02632\000113\_YubaCityAquiferStorageWell\Map\Yuba City Aquifer Storage Well.aprx 1/23/2024



Source: USGS, The National Map, 2021

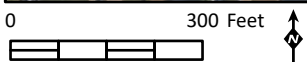


Legend

 Project Site - 27.57 Acres



Source: Aerial (Nearmap)



T:\PROJECTS\Carollo\Yuba City Aquifer Storage Well\Map\Yuba City Aquifer Storage Well.aprx 1/23/2024

## Appendix B

---

### Resumes of Cultural Resources Staff



## Summary of Qualifications



Mr. Siegel is an archaeologist and cultural resource manager with over 14 years of experience directing cultural resource management efforts across the United States and in countries abroad. He has authored or co-authored dozens of cultural resource assessments and reports associated with projects requiring compliance with Section 106 of the NHPA, NEPA, and CEQA. He has applicable experience in directing records searches, field surveys, site evaluations, data recovery efforts, and in the development of resource mitigation plans for large scale cultural resource efforts. Mr. Siegel is also experienced in the application of the CRHR and NRHP evaluation criteria to various cultural resources. He meets the SOI's Professional Qualifications Standards for prehistoric archaeology, historic archaeology, and history and is a member of the Register of Professional Archaeologists. Mr. Siegel is experienced supporting wildfire projects for federally funded projects and has served as a Senior Archaeologist on forest treatment projects within Stanislaus National Forest lands. In this role he has directed archaeological survey, recorded prehistoric and historic period cultural resources, and produced California DPR forms for resources that meet state standards for entry into the archaeological record.

## Selected Project Experience

### **SERAL Fire Management Features (FMFs) Cultural Resources** (2021 - Present).

Senior Archaeologist responsible for leading cultural survey, recording cultural resources, and producing DPR forms and Technical Reports to state and United States Forest Service standards. Work performed for Tuolumne County.

### **Fred Jackson First Mile/Last Mile Connection Environmental Compliance & Monitoring (0662-6R4153) (051121)** (2021 - Present).

Senior Archaeologist responsible for development of a Worker Training Program for project construction crews and contractors who would be involved in excavation and ground disturbance activities. Work performed for Contra Costa County.

**Watt Avenue Apartments** (2021 -Present) Senior Archaeologist responsible for producing Cultural Resource Assessments associated with Section 106 compliance required for the construction of a residential apartment building. Work performed for Guide Engineering.

### **Creekside Ridge Drive Development Cultural Extended Phase I Plan & Letter Reports (052021)** (2021 -Present)

Senior Archaeologist responsible for developing and planning an Extended Phase I archaeological study fit to purpose based on previous cultural resource efforts in the project vicinity and for the proposed development project. Work performed for RSC Engineering, Inc.

## Education

PhD Candidate,  
Anthropology,  
University of  
California, Berkeley,  
2021

Master of Arts,  
Anthropology,  
University of  
California, Berkeley,  
2019

Master of Arts,  
Maritime Studies and  
Nautical Archaeology,  
East Carolina  
University, 2011

Master of Arts,  
American History,  
Emory University,  
2007

Bachelor of Arts,  
History, Cum Laude,  
Emory College of Arts  
and Sciences, 2007

## Registrations/ Certifications

Registered  
Professional  
Archaeologist,  
#989542

U.S. SOI Qualified for  
Historic Archaeology,  
Prehistoric  
Archaeology, and  
History

## Professional Affiliations

Society for Historical  
Archaeology

# Benjamin Siegel, RPA

## Cultural Resources Project Manager

**Whipple Road 7 Eleven and Convenience Store** (2021 - Present). Senior Archaeologist responsible for development of a Worker Training Program for project construction crews and contractors who would be involved in excavation and ground disturbance activities. Work performed for Guggenheim Development Services LLC.

### Previous Project Experience

**Cultural Resource Monitoring at Rock Creek National Park for Sewer Remediation** (2018). Washington DC. Senior Archaeologist and archaeological monitor for sewer remediation project. Produced daily and weekly monitoring reports and assisted with production of final technical report.

**Phase II Archaeological Investigations for LNG Pipeline and Facilities** (2016). Smithfield, NC, and Suffolk, VA. Co-field director for Phase II test unit excavations associated with cultural resources within the area of impact of LNG pipelines and facilities. Co-author of final technical report and NRHP eligibility determinations.

**Phase I Cultural Resource Inventory for Mt. Storm Windfarm Development Project** (2016) Grant County, WV. Co-field director for Phase I cultural resource inventory which included Pedestrian Survey, Shovel Testing Survey, and previous site monitoring/re-recording within a densely forested mountain range. Co-authored final technical reports, project recommendations for clients and NRHP eligibility determinations.

**Phase I Cultural Inventory for LNG Pipeline and Facilities** (2016) Calcasieu Parish, LA. Field Director for Phase I cultural resource investigation, including Pedestrian Survey, Shovel Testing, and previous site monitoring/re-recording within coastal and swamp biomes. Authored final Technical Report and provided site preservation/avoidance recommendations for clients.

**Cultural Heritage Assessment for Commercial Sugar Cane Plantation** (2015) Belmopan, Belize. Field Director for intensive pedestrian survey of plantation grounds. Principal author of technical report, site impact assessments, and preservation/avoidance recommendations for client.

**Baseline Cultural Heritage Assessment for Nicaragua Canal Project** (2014) Rivas Isthmus, Nicaragua. Field Director for 10km wide x 20km long area of impact corridor, involving intensive pedestrian survey and site recordation and mapping. Co-author of technical report, site impact assessments, and site preservation/avoidance recommendations for client.

**Phase I and II Investigations Associated with LNG Facility on Ohio River** (2014) Wood County, WV. Co-Field Director for Phase I shovel testing survey, and Phase II Deep testing, Coring, and Test Unit Excavations on site. Co-Author of Final Technical Reports, Recommendations, and NRHP Eligibility Determinations for cultural resources encountered.

**Phase I and II Archaeological Investigation and NRHP Eligibility Determinations for LNG Facilities** (2013) Ascension Parish, LA. Senior Archaeologist for LNG

# Benjamin Siegel, RPA

## Cultural Resources Project Manager

storage and loading/unloading facilities along the Mississippi River. Oversaw/participated in Phase II excavations and site recordation. Assisted in production of final technical report.

**Phase III Archaeological Investigations and NRHP Eligibility Determination for Solar Farm Development Project** (2012), Frenchtown, NJ. Archaeologist who supported extensive excavations on historic property within the project footprint of a proposed solar farm. Assisted with production of final technical report and NRHP eligibility determination.



### Summary of Qualifications



Mr. Joe has experience with large monitoring, survey, and excavation projects throughout California. He has participated in the full range of projects involving survey, testing, laboratory analysis, and technical report writing. Mr. Joe has completed various types of field surveys, including block, linear, and reconnaissance surveys. Mr. Joe has authored numerous reports and completed documentation for a variety of telecom projects and archaeological site record forms. He has worked as an archaeological monitor for multiple projects, which required keeping daily monitoring logs annotated with project photographs. He has worked closely with Native American monitors and has a good working relationship with construction crews and other project personnel. Mr. Joe is also experienced in Geographic Information Systems (GIS) and has experience with Trimble and Garmin devices.

### Education

Bachelor of Arts,  
Anthropology,  
University of  
California, Davis,  
2018

Associate of Arts,  
Associate of  
Sciences, Associate  
of Anthropology,  
American River  
College, 2016

### Selected Project Experience

**El Dorado County Bike Park** (2019 - Present). Conducted an archaeological survey for a bike path project tasked with characterizing cultural resource impacts by construction and operation of the El Dorado County Bike Park. The project included ground-disturbing activities associated with land modifications to accommodate the installation of bike tracks, tricks and jumps, and associated recreational facilities. The project was conducted for El Dorado County who was also the Lead Agency.

**Scholar Way Adult Living Project** (2020 - Present). Conducted a pedestrian survey to characterize any prehistoric or historic-era archaeological resources located within the project site. The survey consisted of a pedestrian walk-over of the approximately 4.2-acre project site in parallel transects spaced at 10-meter intervals. During the survey, the ground surface was examined for the presence of historic-era artifacts (e.g., metal, glass, ceramics), prehistoric artifacts (e.g., flaked stone tools, tool-making debris), and other features that might represent human activity more than 50 years ago. Two known archaeological sites were observed during the survey, and no new cultural resources were found. Work was done for the City of Folsom, who was also the Lead Agency.

**South Bay Salt Pond Restoration Project, Eden Landing Phase 2** (2020 - Present). Archaeological technician for a survey of the South Bay salt ponds. The project consisted of two parcels totaling over 20 acres within the South Bay. The work was conducted for Ducks Unlimited.

**Tuolumne County Fuel Break Expansion Activities** (2019 - Present). Cultural Resources Project Field Director for a fuel break expansion project in Tuolumne County proposing the development of seven fuel breaks under the Forest and Watershed Health aspect of the Community and Watershed Resilience Program

## Jentin Joe

### Staff Archaeologist

(CWRP). Supervised cultural resource surveys, site record completion, and site visits for the project on lands administered by the Stanislaus National Forest, the Bureau of Land Management (BLM), and private lands. Work performed for the State of California Department of Housing and Community Development with the U.S. Forest Service and BLM as project partners.

**Hidden Valley Lake Dredging Project (2019).** Work included monitoring construction activities in multiple locations, addressing unanticipated discoveries during monitoring, keeping daily logs, and co-authoring the final report. Work was performed for Northwest Biological Consulting.

**Hidden Valley Restaurant Project (2020 - Present).** Archaeological technician for sub-surface testing at the Hidden Valley Lake golf course. The project consisted of trench testing for archaeological resources within an approximately 5-acre project area. The work was conducted for the HOA of Hidden Valley Lake.

**Hwy 89 Almaden -SJWC Willow Glen - 6120001170 (2020 - Present).** Archaeological monitor for a cell tower installation within the city of San Jose. Work was performed as a subcontractor to Bothwell Construction within a less than 5-acre lease area with the City of San Jose as the lead agency.

**RE Slate Solar (2020 - Present).** Conducted subsurface testing at site HELIX-004 for the RE Slate Solar Project (project) in Kings County, California. The Santa Rosa Rancheria Taki Yokut Tribe (Tribe) requested that subsurface presence/absence testing be conducted in the westernmost portion of a ~2,400 project site. HELIX conducted the subsurface testing on July 1, 2020, with negative results.

**UC Davis Archaeological Field School Projects (2017).** Field Technician participating in data collection, recording, survey, and excavation in the Sierra Nevada mountains. Tasks included understanding the chronology of settlement patterns in the region and how various factors such as topography and availability influenced site type and location.

**EAS - 2020 (2020 - Present).** Archaeologist for various telecommunications projects across California that require record searches, map reviews, field surveys, historic building and ground disturbance evaluations, and compliance reports for State Historic Preservation Officer (SHPO) submittal. Work conducted as a consultant for EAS, Inc. with the Federal Communications Commission (FCC) as the lead agency.

**EBI - 2020 (2020 - Present).** Archaeologist for ongoing telecommunications projects throughout northern California. Projects require record searches, map reviews, field surveys, historic building and ground disturbance evaluations, and compliance reports for State Historic Preservation Officer (SHPO) submittal. Work conducted as a consultant for EBI with the Federal Communications Commission (FCC) as the lead agency.

**Extenet - 2020 (2020 - Present).** Archaeologist for telecommunications projects throughout California requiring record searches, map reviews, historic building and ground disturbance evaluations, and compliance reports for State Historic Preservation Officer (SHPO) submittal. Work conducted as a consultant for ExteNet Systems with the Federal Communications Commission (FCC) as the lead agency.

## Appendix C

---

### Native American Correspondence

## Sacred Lands File & Native American Contacts List Request

### Native American Heritage Commission

1550 Harbor Blvd, Suite 100

West Sacramento, CA 95691

916-373-3710

916-373-5471 – Fax

[nahc@nahc.ca.gov](mailto:nahc@nahc.ca.gov)

*Information Below is Required for a Sacred Lands File Search*

**Project:** Yuba City Aquifer Storage/Well Project (02632.00013.001)

**County:** Sutter County

**USGS Quadrangle Name:** Yuba City

**Township/Range/Sections:** New Helvetia Land Grant

**Company/Firm/Agency:** HELIX Environmental Planning, Inc.

**Street Address:** 1180 Iron Point Road, Suite 130

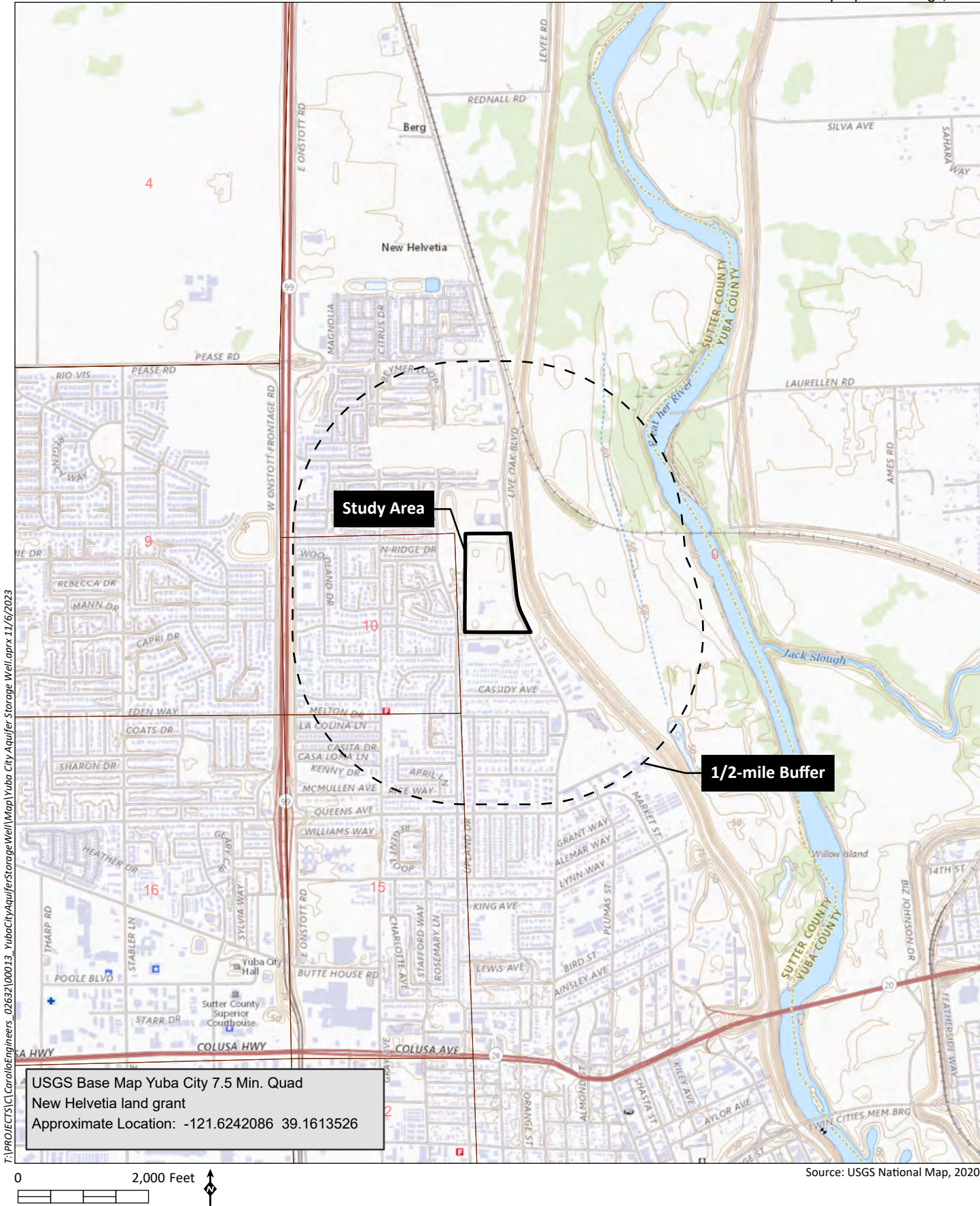
**City:** Folsom    **Zip:** 95630

**Phone:** 916-435-1205

**Email:** bens@helixepi.com

**Project Description:** The City of Yuba City owns and operates a Water Treatment Plant (WTP) that provides potable water services to a population of almost 70,000 and that the WTP obtains its water from the nearby Feather River via a low-lift pump station. The water is pumped through the headworks where a combination of chemical additives and sand and membrane filters treat the water. The City is currently unable to treat and store their full allocation of water during wet years if not used. Therefore, to close the gap between future water supply and demand and maximize their allocation of water during wet years, the City proposed to construct an Aquifer Storage and Recovery (ASR) system with a new injection well and associated infrastructure at the WTP site. The new ASR system will capture water when it is abundant, such as during a rainy season or spring snowmelt, and store water in an underground aquifer to allow for the recovery of that water when needed. The concept of this project is that the City would use currently underutilized treatment capacity at its WTP to treat surface water during low demand winter periods and inject the high quality treated surface water around the ASR well. The City would then pump the treated surface water using the same well during summer months or emergencies and would provide reliable water supplies during periods of drought. The new injection well and associated infrastructure is expected to be developed within the WTP site.





**NATIVE AMERICAN HERITAGE COMMISSION**

December 7, 2023

Ben Siegel  
HELIX Environmental Planning, Inc.

Via Email to: [bens@helixepi.com](mailto:bens@helixepi.com)

CHAIRPERSON  
**Reginald Pagaling**  
Chumash

VICE-CHAIRPERSON  
**Buffy McQuillen**  
Yokayo Pomo, Yuki,  
Nomlaki

SECRETARY  
**Sara Dutschke**  
Miwok

PARLIAMENTARIAN  
**Wayne Nelson**  
Luiseño

COMMISSIONER  
**Isaac Bojorquez**  
Ohlone-Costanoan

COMMISSIONER  
**Stanley Rodriguez**  
Kumeyaay

COMMISSIONER  
**Laurena Bolden**  
Serrano

COMMISSIONER  
**Reid Milanovich**  
Cahuilla

COMMISSIONER  
**Vacant**

EXECUTIVE SECRETARY  
**Raymond C.  
Hitchcock**  
Miwok, Nisenan

**NAHC HEADQUARTERS**  
1550 Harbor Boulevard  
Suite 100  
West Sacramento,  
California 95691  
(916) 373-3710

**Re: Yuba City Aquifer Storage/Well Project, Sutter County**

Dear Mr. Siegel:

A record search of the Native American Heritage Commission (NAHC) Sacred Lands File (SLF) was completed for the information you have submitted for the above referenced project. The results were positive. Please contact the tribes on the attached list for more information. Other sources of cultural resources should also be contacted for information regarding known and recorded sites.

Attached is a list of Native American tribes who may also have knowledge of cultural resources in the project area. This list should provide a starting place in locating areas of potential adverse impact within the proposed project area. I suggest you contact all of those indicated; if they cannot supply information, they might recommend others with specific knowledge. By contacting all those listed, your organization will be better able to respond to claims of failure to consult with the appropriate tribe. If a response has not been received within two weeks of notification, the Commission requests that you follow-up with a telephone call or email to ensure that the project information has been received.

If you receive notification of change of addresses and phone numbers from tribes, please notify me. With your assistance, we can assure that our lists contain current information.

If you have any questions or need additional information, please contact me at my email address: [Pricilla.Torres-Fuentes@nahc.ca.gov](mailto:Pricilla.Torres-Fuentes@nahc.ca.gov).

Sincerely,

*Pricilla Torres-Fuentes*

Pricilla Torres-Fuentes  
Cultural Resources Analyst

Attachment

Tribe Name	Contact Person	Contact Address	Phone #	Email Address	Cultural Affiliation
Estom Yumeka Maidu Tribe of the Enterprise Rancheria	Glenda Nelson, Chairperson	2133 Monte Vista Avenue Oroville, CA, 95966	(530) 532-9214	info@enterpriserancheria.org	Maidu
Nevada City Rancheria Nisenan Tribe	Richard Johnson, Chairman	P.O. Box 2624 Nevada City, CA, 95959	(530) 570-0846	shelly@nevadacityrancheria.org	Nisenan
Nevada City Rancheria Nisenan Tribe	Shelly Covert, Tribal Secretary	P.O. Box 2226 Nevada City, CA, 95959	(530) 570-0846	shelly@nevadacityrancheria.org	Nisenan
Nevada City Rancheria Nisenan Tribe	Saxon Thomas, Tribal Council Member	P.O. Box 2226 Nevada City, CA, 95959	(530) 570-0846	shelly@nevadacityrancheria.org	Nisenan
Pakan'yani Maidu of Strawberry Valley Rancheria	Tina Goodwin, Chairperson	P.O. Box 984 Marysville, CA, 95901	(617) 417-2166	tinagoodwin@washoetanf.org	Maidu Miwok
United Auburn Indian Community of the Auburn Rancheria	Gene Whitehouse, Chairperson	10720 Indian Hill Road Auburn, CA, 95603	(530) 883-2390	bguth@auburnrancheria.com	Maidu Miwok
Wilton Rancheria	Herbert Griffin, Executive Director of Cultural Preservation	9728 Kent Street Elk Grove, CA, 95624	(916) 683-6000	hgriffin@wiltonrancheria-nsn.gov	Miwok
Wilton Rancheria	Dahlton Brown, Executive Director of Administration	9728 Kent Street Elk Grove, CA, 95624	(916) 683-6000	dbrown@wiltonrancheria-nsn.gov	Miwok
Wilton Rancheria	Cultural Preservation Department,	9728 Kent Street Elk Grove, CA, 95624	(916) 683-6000	cpd@wiltonrancheria-nsn.gov	Miwok

HELIX Environmental Planning, Inc.  
1180 Iron Point Road, Suite 130  
Folsom, CA 95630  
916.435.1205 tel  
619.462.0552 fax  
[www.helixepi.com](http://www.helixepi.com)



January 3, 2024

Glenda Nelson, Chairperson  
Estom Yumeka Maidu Tribe of the Enterprise Rancheria  
2133 Monte Vista Avenue  
Oroville, CA, 95966

02632.00013.001

**Subject: Yuba City Aquifer Storage and Recovery Well Project**

Dear Chairperson Nelson,

HELIX Environmental Planning, Inc. (HELIX) is preparing a Cultural Resources Assessment in support of the Yuba City Aquifer Storage and Recovery (ASR) Well Project (Project) located within Yuba City's Water Treatment Plant (WTP) property in Yuba City, Sutter County, California. The City of Yuba City owns and operates a WTP that provides potable water services to a population of almost 70,000, obtaining its water from the nearby Feather River via a low-lift pump station. The City is currently unable to treat and store their full allocation of water during wet years if not used. Therefore, to close the gap between future water supply and demand and maximize their allocation of water during wet years, the City proposes to construct an ASR system with a new injection well and associated infrastructure at the WTP site. The new ASR system will capture water when it is abundant, such as during a rainy season or spring snowmelt, and store water in an underground aquifer to allow for the recovery of that water when needed. The concept of this project is that the City would use the currently underutilized treatment capacity at its WTP to treat surface water during low demand winter periods and inject high-quality treated surface water into the ASR well. The City would then pump the treated surface water using the same well during summer months or emergencies and would provide reliable water supplies during periods of drought. The new injection well and associated infrastructure is expected to be developed within the existing WTP site.

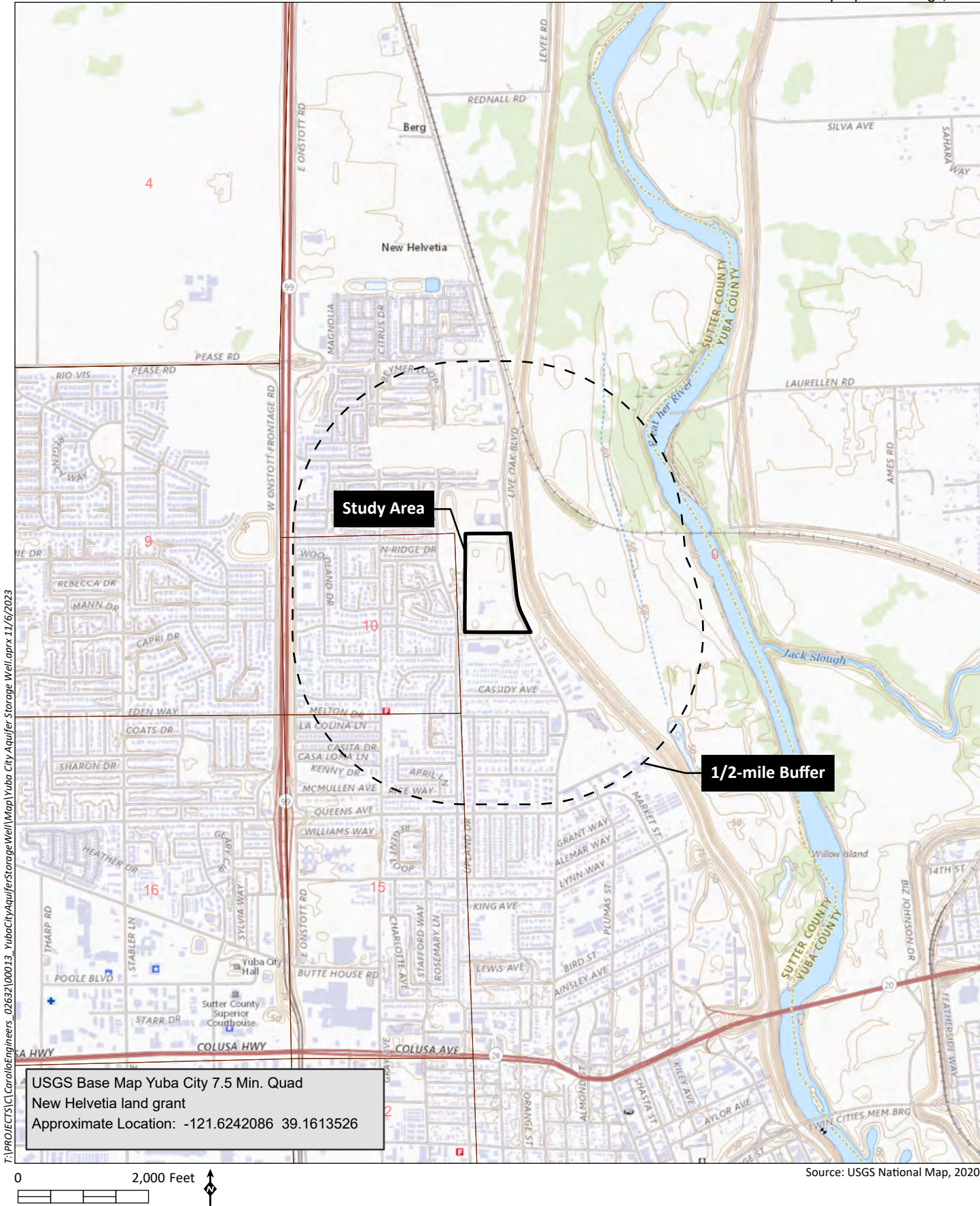
A search of the Native American Heritage Commission's (NAHC) Sacred Lands File returned positive results, and the NAHC suggested we contact you for information regarding Native American resources in or near the Project Area. The Project Area is depicted on the enclosed map. If there are sensitive resources within or near the proposed Project Area that could be impacted by Project implementation, please advise us accordingly. Please note that this request is for informational purposes only. If you have information, questions, or concerns regarding the proposed Project, please feel free to contact me at [bens@helixepi.com](mailto:bens@helixepi.com) or by phone at (404) 312-5883.

Sincerely,

A handwritten signature in black ink that reads "Benjamin D. Siegel".

Benjamin D. Siegel, M.A., M.A., M.A., RPA  
Cultural Resources Project Manager II





HELIX Environmental Planning, Inc.  
1180 Iron Point Road, Suite 130  
Folsom, CA 95630  
916.435.1205 tel  
619.462.0552 fax  
[www.helixepi.com](http://www.helixepi.com)



January 3, 2024

Richard Johnson, Chairman  
Nevada City Rancheria Nisenan Tribe  
P.O. Box 2624  
Nevada City, CA, 95959

02632.00013.001

**Subject: Yuba City Aquifer Storage and Recovery Well Project**

Dear Chairman Johnson,

HELIX Environmental Planning, Inc. (HELIX) is preparing a Cultural Resources Assessment in support of the Yuba City Aquifer Storage and Recovery (ASR) Well Project (Project) located within Yuba City's Water Treatment Plant (WTP) property in Yuba City, Sutter County, California. The City of Yuba City owns and operates a WTP that provides potable water services to a population of almost 70,000, obtaining its water from the nearby Feather River via a low-lift pump station. The City is currently unable to treat and store their full allocation of water during wet years if not used. Therefore, to close the gap between future water supply and demand and maximize their allocation of water during wet years, the City proposes to construct an ASR system with a new injection well and associated infrastructure at the WTP site. The new ASR system will capture water when it is abundant, such as during a rainy season or spring snowmelt, and store water in an underground aquifer to allow for the recovery of that water when needed. The concept of this project is that the City would use the currently underutilized treatment capacity at its WTP to treat surface water during low demand winter periods and inject high-quality treated surface water into the ASR well. The City would then pump the treated surface water using the same well during summer months or emergencies and would provide reliable water supplies during periods of drought. The new injection well and associated infrastructure is expected to be developed within the existing WTP site.

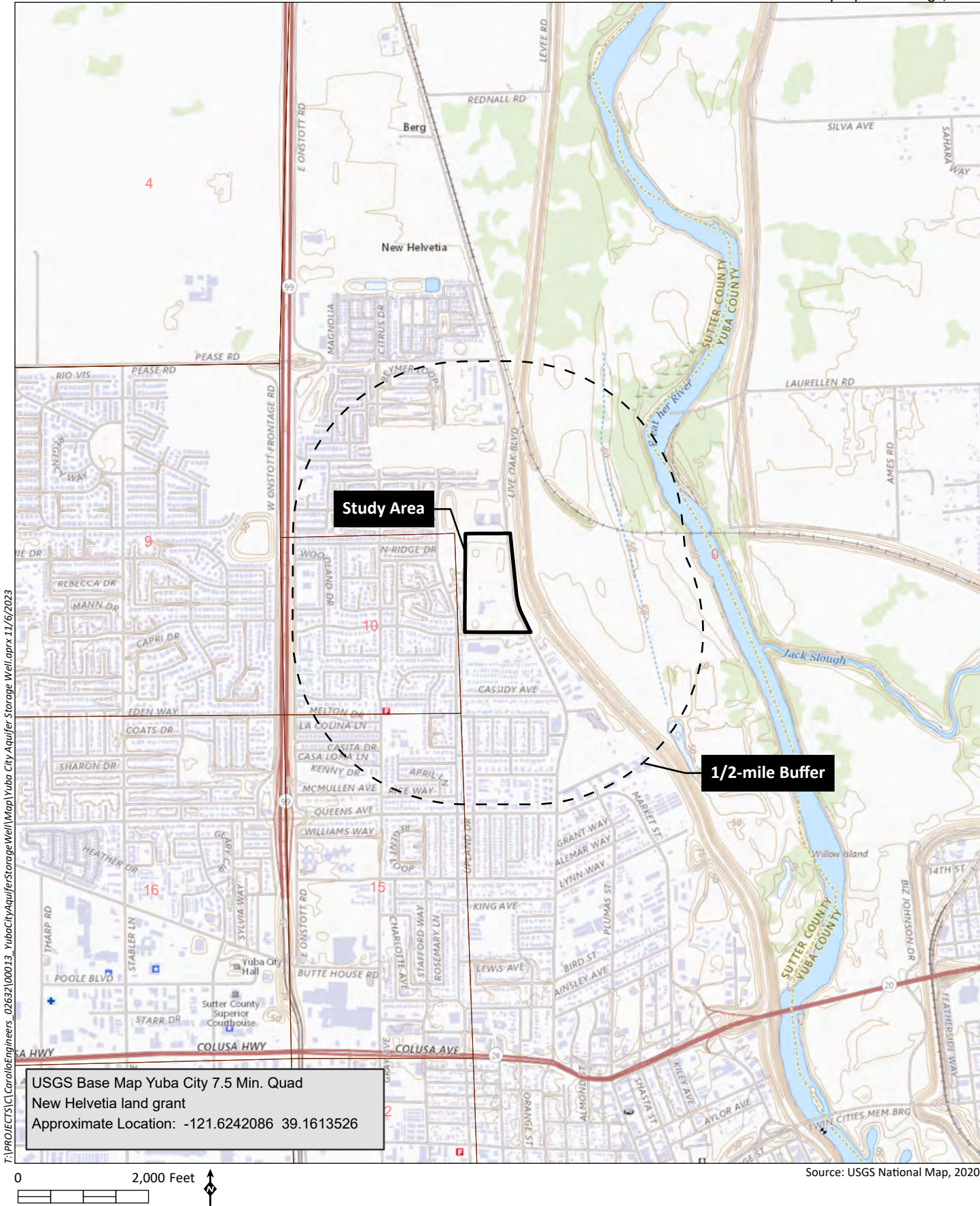
A search of the Native American Heritage Commission's (NAHC) Sacred Lands File returned positive results, and the NAHC suggested we contact you for information regarding Native American resources in or near the Project Area. The Project Area is depicted on the enclosed map. If there are sensitive resources within or near the proposed Project Area that could be impacted by Project implementation, please advise us accordingly. Please note that this request is for informational purposes only. If you have information, questions, or concerns regarding the proposed Project, please feel free to contact me at [bens@helixepi.com](mailto:bens@helixepi.com) or by phone at (404) 312-5883.

Sincerely,

A handwritten signature in black ink that reads "Benjamin D. Siegel".

Benjamin D. Siegel, M.A., M.A., M.A., RPA  
Cultural Resources Project Manager II





HELIX Environmental Planning, Inc.  
1180 Iron Point Road, Suite 130  
Folsom, CA 95630  
916.435.1205 tel  
619.462.0552 fax  
[www.helixepi.com](http://www.helixepi.com)



January 3, 2024

Shelly Covert, Tribal Secretary  
Nevada City Rancheria Nisenan Tribe  
P.O. Box 2226  
Nevada City, CA, 95959

02632.00013.001

**Subject: Yuba City Aquifer Storage and Recovery Well Project**

Dear Tribal Secretary Covert,

HELIX Environmental Planning, Inc. (HELIX) is preparing a Cultural Resources Assessment in support of the Yuba City Aquifer Storage and Recovery (ASR) Well Project (Project) located within Yuba City's Water Treatment Plant (WTP) property in Yuba City, Sutter County, California. The City of Yuba City owns and operates a WTP that provides potable water services to a population of almost 70,000, obtaining its water from the nearby Feather River via a low-lift pump station. The City is currently unable to treat and store their full allocation of water during wet years if not used. Therefore, to close the gap between future water supply and demand and maximize their allocation of water during wet years, the City proposes to construct an ASR system with a new injection well and associated infrastructure at the WTP site. The new ASR system will capture water when it is abundant, such as during a rainy season or spring snowmelt, and store water in an underground aquifer to allow for the recovery of that water when needed. The concept of this project is that the City would use the currently underutilized treatment capacity at its WTP to treat surface water during low demand winter periods and inject high-quality treated surface water into the ASR well. The City would then pump the treated surface water using the same well during summer months or emergencies and would provide reliable water supplies during periods of drought. The new injection well and associated infrastructure is expected to be developed within the existing WTP site.

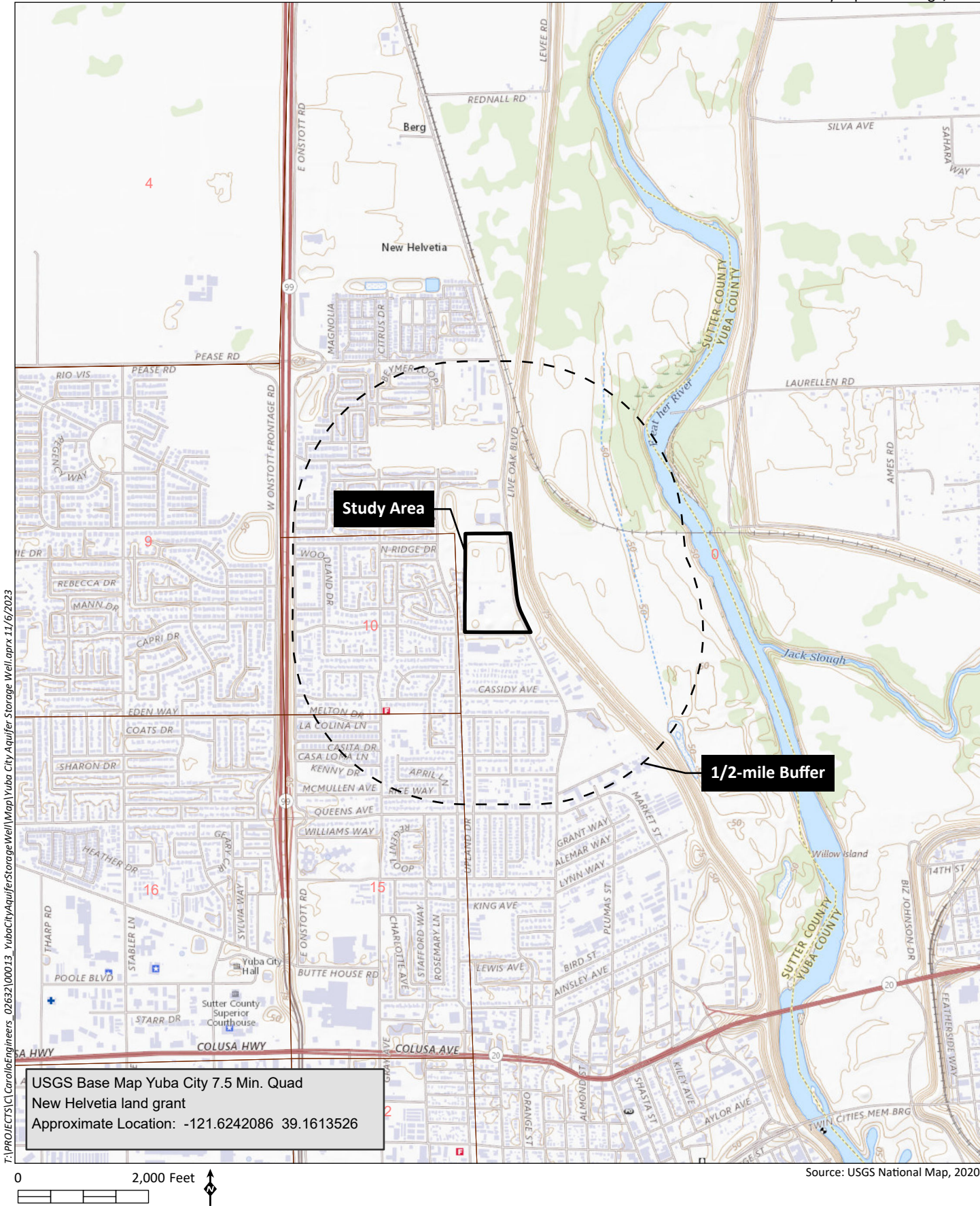
A search of the Native American Heritage Commission's (NAHC) Sacred Lands File returned positive results, and the NAHC suggested we contact you for information regarding Native American resources in or near the Project Area. The Project Area is depicted on the enclosed map. If there are sensitive resources within or near the proposed Project Area that could be impacted by Project implementation, please advise us accordingly. Please note that this request is for informational purposes only. If you have information, questions, or concerns regarding the proposed Project, please feel free to contact me at [bens@helixepi.com](mailto:bens@helixepi.com) or by phone at (404) 312-5883.

Sincerely,

A handwritten signature in black ink that reads "Benjamin D. Siegel".

Benjamin D. Siegel, M.A., M.A., M.A., RPA  
Cultural Resources Project Manager II





HELIX Environmental Planning, Inc.  
1180 Iron Point Road, Suite 130  
Folsom, CA 95630  
916.435.1205 tel  
619.462.0552 fax  
[www.helixepi.com](http://www.helixepi.com)



January 3, 2024

Saxon Thomas, Tribal Council Member  
Nevada City Rancheria Nisenan Tribe  
P.O. Box 2226  
Nevada City, CA, 95959

02632.00013.001

**Subject: Yuba City Aquifer Storage and Recovery Well Project**

Dear Tribal Council Member Thomas,

HELIX Environmental Planning, Inc. (HELIX) is preparing a Cultural Resources Assessment in support of the Yuba City Aquifer Storage and Recovery (ASR) Well Project (Project) located within Yuba City's Water Treatment Plant (WTP) property in Yuba City, Sutter County, California. The City of Yuba City owns and operates a WTP that provides potable water services to a population of almost 70,000, obtaining its water from the nearby Feather River via a low-lift pump station. The City is currently unable to treat and store their full allocation of water during wet years if not used. Therefore, to close the gap between future water supply and demand and maximize their allocation of water during wet years, the City proposes to construct an ASR system with a new injection well and associated infrastructure at the WTP site. The new ASR system will capture water when it is abundant, such as during a rainy season or spring snowmelt, and store water in an underground aquifer to allow for the recovery of that water when needed. The concept of this project is that the City would use the currently underutilized treatment capacity at its WTP to treat surface water during low demand winter periods and inject high-quality treated surface water into the ASR well. The City would then pump the treated surface water using the same well during summer months or emergencies and would provide reliable water supplies during periods of drought. The new injection well and associated infrastructure is expected to be developed within the existing WTP site.

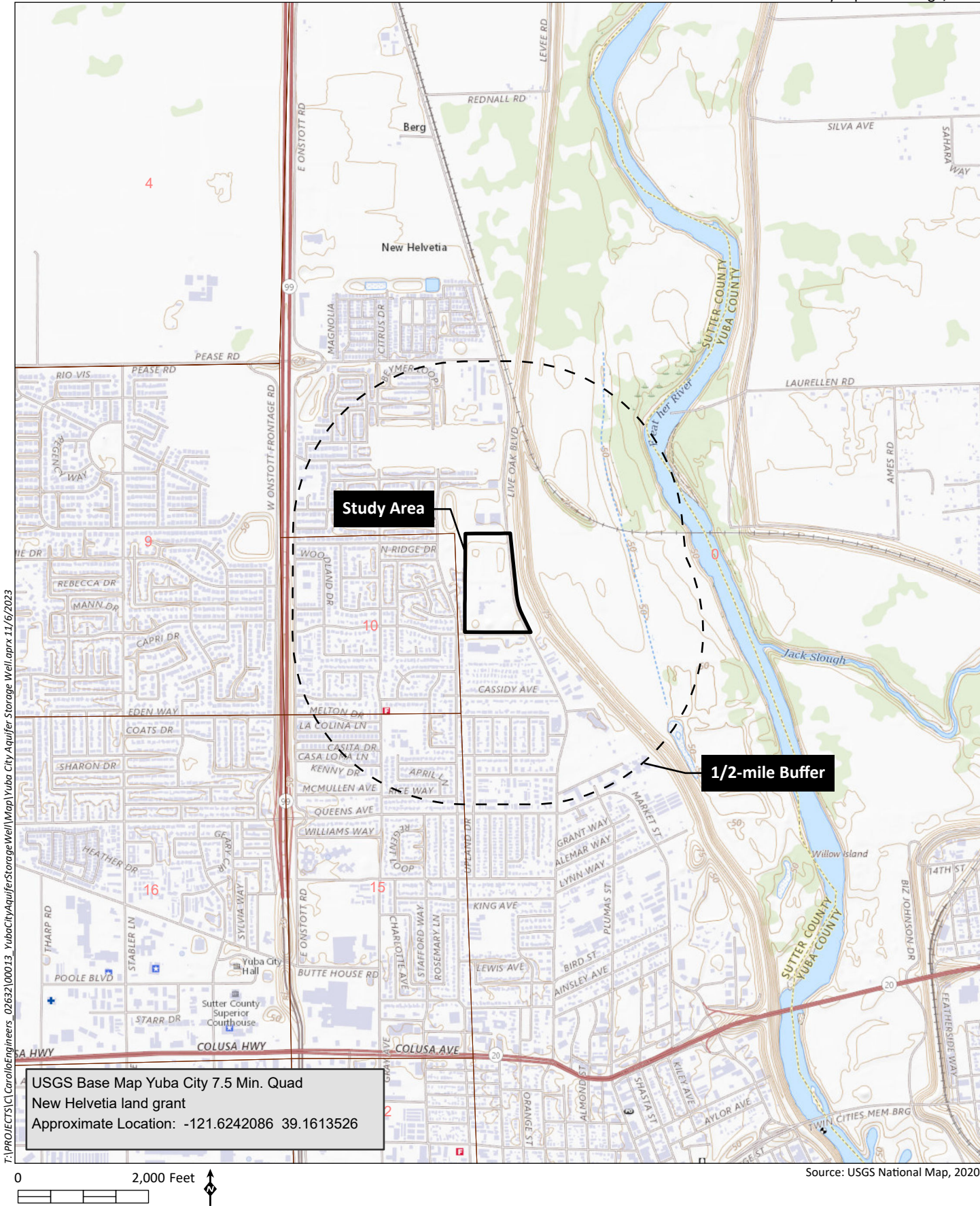
A search of the Native American Heritage Commission's (NAHC) Sacred Lands File returned positive results, and the NAHC suggested we contact you for information regarding Native American resources in or near the Project Area. The Project Area is depicted on the enclosed map. If there are sensitive resources within or near the proposed Project Area that could be impacted by Project implementation, please advise us accordingly. Please note that this request is for informational purposes only. If you have information, questions, or concerns regarding the proposed Project, please feel free to contact me at [bens@helixepi.com](mailto:bens@helixepi.com) or by phone at (404) 312-5883.

Sincerely,

A handwritten signature in black ink that reads "Benjamin D. Siegel".

Benjamin D. Siegel, M.A., M.A., M.A., RPA  
Cultural Resources Project Manager II





HELIX Environmental Planning, Inc.  
1180 Iron Point Road, Suite 130  
Folsom, CA 95630  
916.435.1205 tel  
619.462.0552 fax  
[www.helixepi.com](http://www.helixepi.com)



January 3, 2024

Tina Goodwin, Chairperson  
Pakan'yani Maidu of Strawberry Valley Rancheria  
P.O. Box 984  
Marysville, CA, 95901

02632.00013.001

**Subject: Yuba City Aquifer Storage and Recovery Well Project**

Dear Chairperson Goodwin,

HELIX Environmental Planning, Inc. (HELIX) is preparing a Cultural Resources Assessment in support of the Yuba City Aquifer Storage and Recovery (ASR) Well Project (Project) located within Yuba City's Water Treatment Plant (WTP) property in Yuba City, Sutter County, California. The City of Yuba City owns and operates a WTP that provides potable water services to a population of almost 70,000, obtaining its water from the nearby Feather River via a low-lift pump station. The City is currently unable to treat and store their full allocation of water during wet years if not used. Therefore, to close the gap between future water supply and demand and maximize their allocation of water during wet years, the City proposes to construct an ASR system with a new injection well and associated infrastructure at the WTP site. The new ASR system will capture water when it is abundant, such as during a rainy season or spring snowmelt, and store water in an underground aquifer to allow for the recovery of that water when needed. The concept of this project is that the City would use the currently underutilized treatment capacity at its WTP to treat surface water during low demand winter periods and inject high-quality treated surface water into the ASR well. The City would then pump the treated surface water using the same well during summer months or emergencies and would provide reliable water supplies during periods of drought. The new injection well and associated infrastructure is expected to be developed within the existing WTP site.

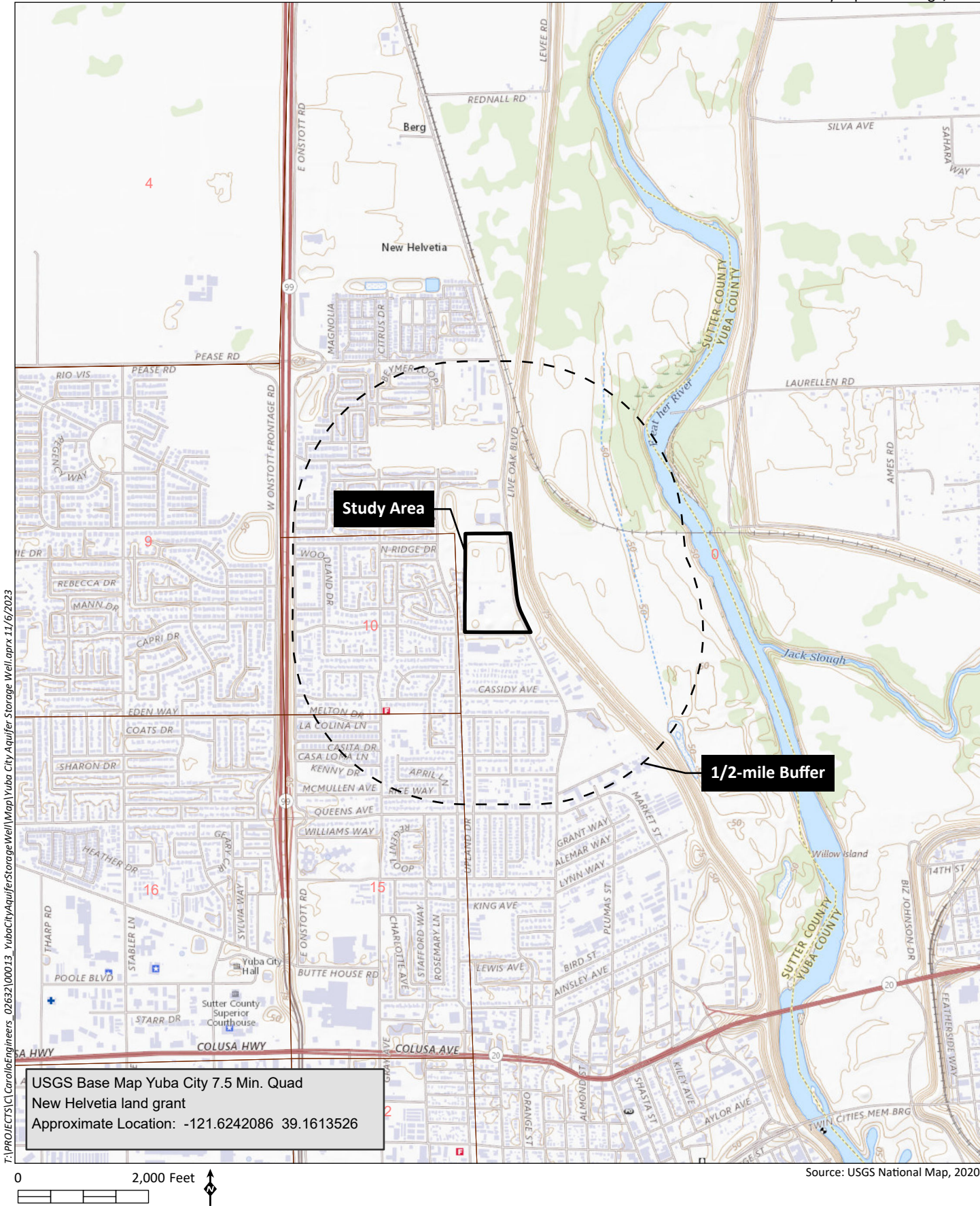
A search of the Native American Heritage Commission's (NAHC) Sacred Lands File returned positive results, and the NAHC suggested we contact you for information regarding Native American resources in or near the Project Area. The Project Area is depicted on the enclosed map. If there are sensitive resources within or near the proposed Project Area that could be impacted by Project implementation, please advise us accordingly. Please note that this request is for informational purposes only. If you have information, questions, or concerns regarding the proposed Project, please feel free to contact me at [bens@helixepi.com](mailto:bens@helixepi.com) or by phone at (404) 312-5883.

Sincerely,

A handwritten signature in black ink that reads "Benjamin D. Siegel".

Benjamin D. Siegel, M.A., M.A., M.A., RPA  
Cultural Resources Project Manager II





HELIX Environmental Planning, Inc.  
1180 Iron Point Road, Suite 130  
Folsom, CA 95630  
916.435.1205 tel  
619.462.0552 fax  
[www.helixepi.com](http://www.helixepi.com)



January 3, 2024

Gene Whitehouse, Chairperson  
United Auburn Indian Community of the Auburn Rancheria  
10720 Indian Hill Road  
Auburn, CA, 95603

02632.00013.001

**Subject: Yuba City Aquifer Storage and Recovery Well Project**

Dear Chairperson Whitehouse,

HELIX Environmental Planning, Inc. (HELIX) is preparing a Cultural Resources Assessment in support of the Yuba City Aquifer Storage and Recovery (ASR) Well Project (Project) located within Yuba City's Water Treatment Plant (WTP) property in Yuba City, Sutter County, California. The City of Yuba City owns and operates a WTP that provides potable water services to a population of almost 70,000, obtaining its water from the nearby Feather River via a low-lift pump station. The City is currently unable to treat and store their full allocation of water during wet years if not used. Therefore, to close the gap between future water supply and demand and maximize their allocation of water during wet years, the City proposes to construct an ASR system with a new injection well and associated infrastructure at the WTP site. The new ASR system will capture water when it is abundant, such as during a rainy season or spring snowmelt, and store water in an underground aquifer to allow for the recovery of that water when needed. The concept of this project is that the City would use the currently underutilized treatment capacity at its WTP to treat surface water during low demand winter periods and inject high-quality treated surface water into the ASR well. The City would then pump the treated surface water using the same well during summer months or emergencies and would provide reliable water supplies during periods of drought. The new injection well and associated infrastructure is expected to be developed within the existing WTP site.

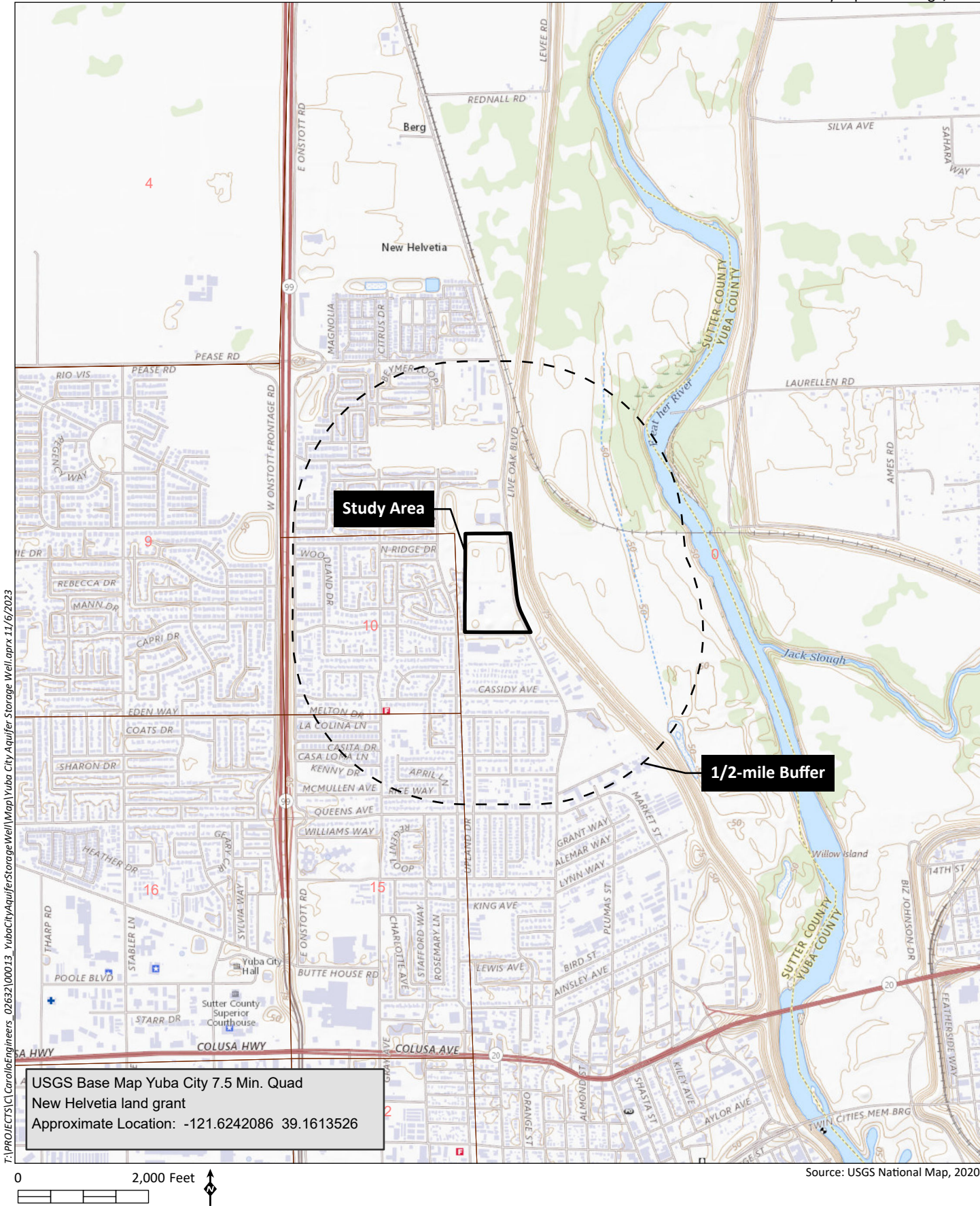
A search of the Native American Heritage Commission's (NAHC) Sacred Lands File returned positive results, and the NAHC suggested we contact you for information regarding Native American resources in or near the Project Area. The Project Area is depicted on the enclosed map. If there are sensitive resources within or near the proposed Project Area that could be impacted by Project implementation, please advise us accordingly. Please note that this request is for informational purposes only. If you have information, questions, or concerns regarding the proposed Project, please feel free to contact me at [bens@helixepi.com](mailto:bens@helixepi.com) or by phone at (404) 312-5883.

Sincerely,

A handwritten signature in black ink that reads "Benjamin D. Siegel".

Benjamin D. Siegel, M.A., M.A., M.A., RPA  
Cultural Resources Project Manager II





HELIX Environmental Planning, Inc.  
1180 Iron Point Road, Suite 130  
Folsom, CA 95630  
916.435.1205 tel  
619.462.0552 fax  
[www.helixepi.com](http://www.helixepi.com)



January 3, 2024

Herbert Griffin, Executive Director of Cultural Preservation  
Wilton Rancheria  
9728 Kent Street  
Elk Grove, CA, 95624

02632.00013.001

**Subject: Yuba City Aquifer Storage and Recovery Well Project**

Dear Director Griffin,

HELIX Environmental Planning, Inc. (HELIX) is preparing a Cultural Resources Assessment in support of the Yuba City Aquifer Storage and Recovery (ASR) Well Project (Project) located within Yuba City's Water Treatment Plant (WTP) property in Yuba City, Sutter County, California. The City of Yuba City owns and operates a WTP that provides potable water services to a population of almost 70,000, obtaining its water from the nearby Feather River via a low-lift pump station. The City is currently unable to treat and store their full allocation of water during wet years if not used. Therefore, to close the gap between future water supply and demand and maximize their allocation of water during wet years, the City proposes to construct an ASR system with a new injection well and associated infrastructure at the WTP site. The new ASR system will capture water when it is abundant, such as during a rainy season or spring snowmelt, and store water in an underground aquifer to allow for the recovery of that water when needed. The concept of this project is that the City would use the currently underutilized treatment capacity at its WTP to treat surface water during low demand winter periods and inject high-quality treated surface water into the ASR well. The City would then pump the treated surface water using the same well during summer months or emergencies and would provide reliable water supplies during periods of drought. The new injection well and associated infrastructure is expected to be developed within the existing WTP site.

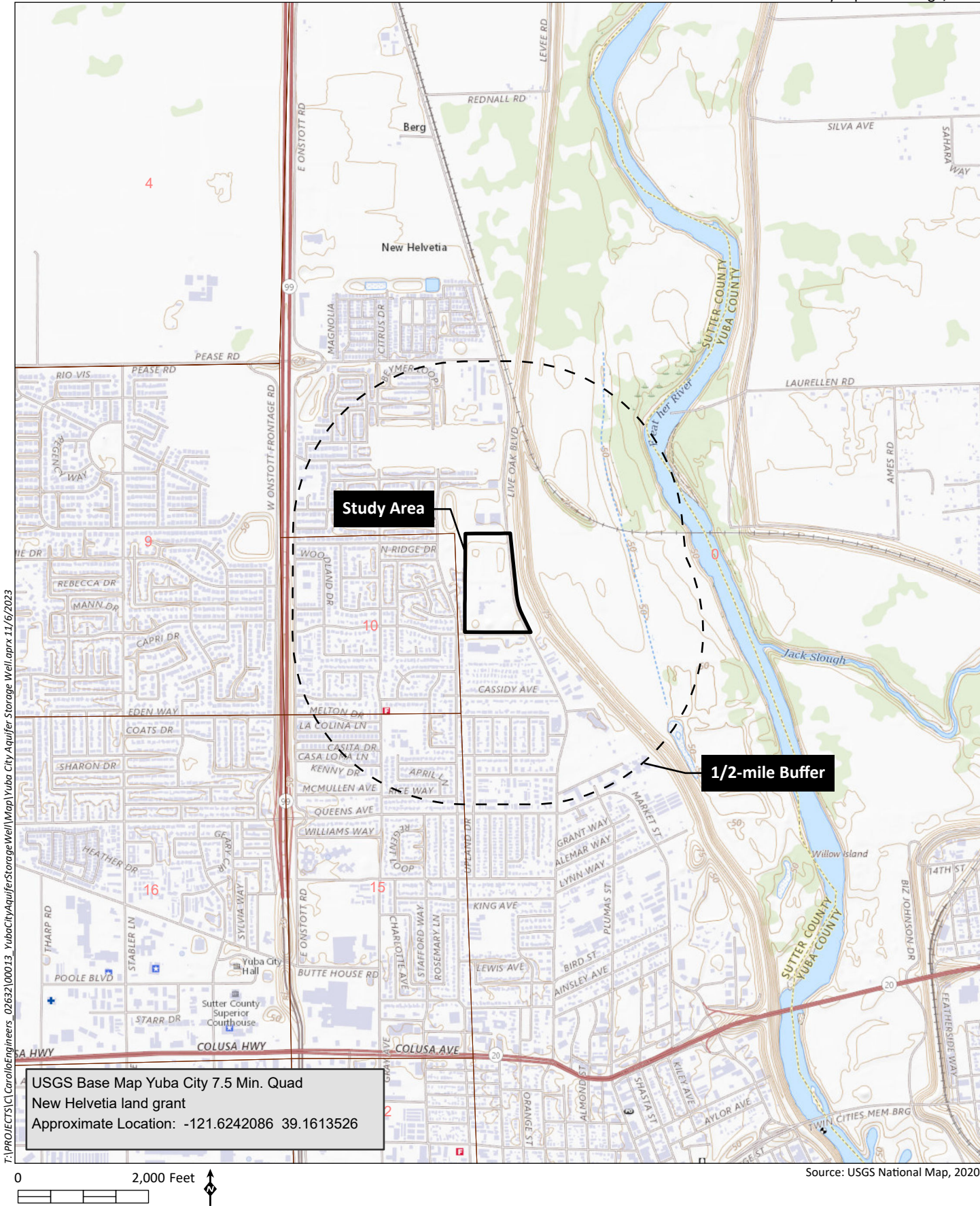
A search of the Native American Heritage Commission's (NAHC) Sacred Lands File returned positive results, and the NAHC suggested we contact you for information regarding Native American resources in or near the Project Area. The Project Area is depicted on the enclosed map. If there are sensitive resources within or near the proposed Project Area that could be impacted by Project implementation, please advise us accordingly. Please note that this request is for informational purposes only. If you have information, questions, or concerns regarding the proposed Project, please feel free to contact me at [bens@helixepi.com](mailto:bens@helixepi.com) or by phone at (404) 312-5883.

Sincerely,

A handwritten signature in black ink that reads "Benjamin D. Siegel".

Benjamin D. Siegel, M.A., M.A., M.A., RPA  
Cultural Resources Project Manager II





HELIX Environmental Planning, Inc.  
1180 Iron Point Road, Suite 130  
Folsom, CA 95630  
916.435.1205 tel  
619.462.0552 fax  
[www.helixepi.com](http://www.helixepi.com)



January 3, 2024

Dahlton Brown, Executive Director of Administration  
Wilton Rancheria  
9728 Kent Street  
Elk Grove, CA, 95624

02632.00013.001

**Subject: Yuba City Aquifer Storage and Recovery Well Project**

Dear Director Brown,

HELIX Environmental Planning, Inc. (HELIX) is preparing a Cultural Resources Assessment in support of the Yuba City Aquifer Storage and Recovery (ASR) Well Project (Project) located within Yuba City's Water Treatment Plant (WTP) property in Yuba City, Sutter County, California. The City of Yuba City owns and operates a WTP that provides potable water services to a population of almost 70,000, obtaining its water from the nearby Feather River via a low-lift pump station. The City is currently unable to treat and store their full allocation of water during wet years if not used. Therefore, to close the gap between future water supply and demand and maximize their allocation of water during wet years, the City proposes to construct an ASR system with a new injection well and associated infrastructure at the WTP site. The new ASR system will capture water when it is abundant, such as during a rainy season or spring snowmelt, and store water in an underground aquifer to allow for the recovery of that water when needed. The concept of this project is that the City would use the currently underutilized treatment capacity at its WTP to treat surface water during low demand winter periods and inject high-quality treated surface water into the ASR well. The City would then pump the treated surface water using the same well during summer months or emergencies and would provide reliable water supplies during periods of drought. The new injection well and associated infrastructure is expected to be developed within the existing WTP site.

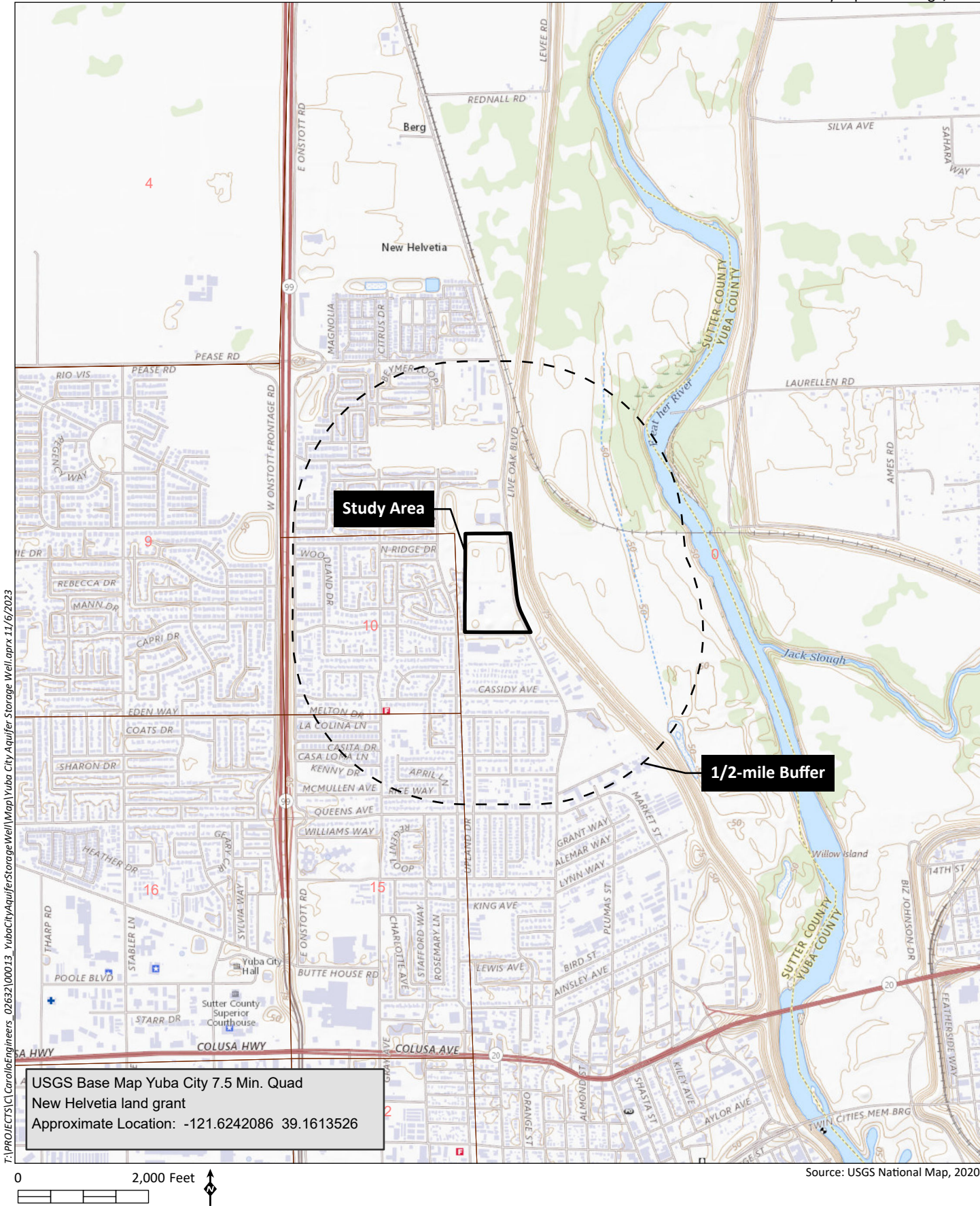
A search of the Native American Heritage Commission's (NAHC) Sacred Lands File returned positive results, and the NAHC suggested we contact you for information regarding Native American resources in or near the Project Area. The Project Area is depicted on the enclosed map. If there are sensitive resources within or near the proposed Project Area that could be impacted by Project implementation, please advise us accordingly. Please note that this request is for informational purposes only. If you have information, questions, or concerns regarding the proposed Project, please feel free to contact me at [bens@helixepi.com](mailto:bens@helixepi.com) or by phone at (404) 312-5883.

Sincerely,

A handwritten signature in black ink that reads "Benjamin D. Siegel".

Benjamin D. Siegel, M.A., M.A., M.A., RPA  
Cultural Resources Project Manager II





HELIX Environmental Planning, Inc.  
1180 Iron Point Road, Suite 130  
Folsom, CA 95630  
916.435.1205 tel  
619.462.0552 fax  
[www.helixepi.com](http://www.helixepi.com)



January 3, 2024

Cultural Preservation Department  
Wilton Rancheria  
9728 Kent Street  
Elk Grove, CA, 95624

02632.00013.001

**Subject: Yuba City Aquifer Storage and Recovery Well Project**

Dear Cultural Preservation Department,

HELIX Environmental Planning, Inc. (HELIX) is preparing a Cultural Resources Assessment in support of the Yuba City Aquifer Storage and Recovery (ASR) Well Project (Project) located within Yuba City's Water Treatment Plant (WTP) property in Yuba City, Sutter County, California. The City of Yuba City owns and operates a WTP that provides potable water services to a population of almost 70,000, obtaining its water from the nearby Feather River via a low-lift pump station. The City is currently unable to treat and store their full allocation of water during wet years if not used. Therefore, to close the gap between future water supply and demand and maximize their allocation of water during wet years, the City proposes to construct an ASR system with a new injection well and associated infrastructure at the WTP site. The new ASR system will capture water when it is abundant, such as during a rainy season or spring snowmelt, and store water in an underground aquifer to allow for the recovery of that water when needed. The concept of this project is that the City would use the currently underutilized treatment capacity at its WTP to treat surface water during low demand winter periods and inject high-quality treated surface water into the ASR well. The City would then pump the treated surface water using the same well during summer months or emergencies and would provide reliable water supplies during periods of drought. The new injection well and associated infrastructure is expected to be developed within the existing WTP site.

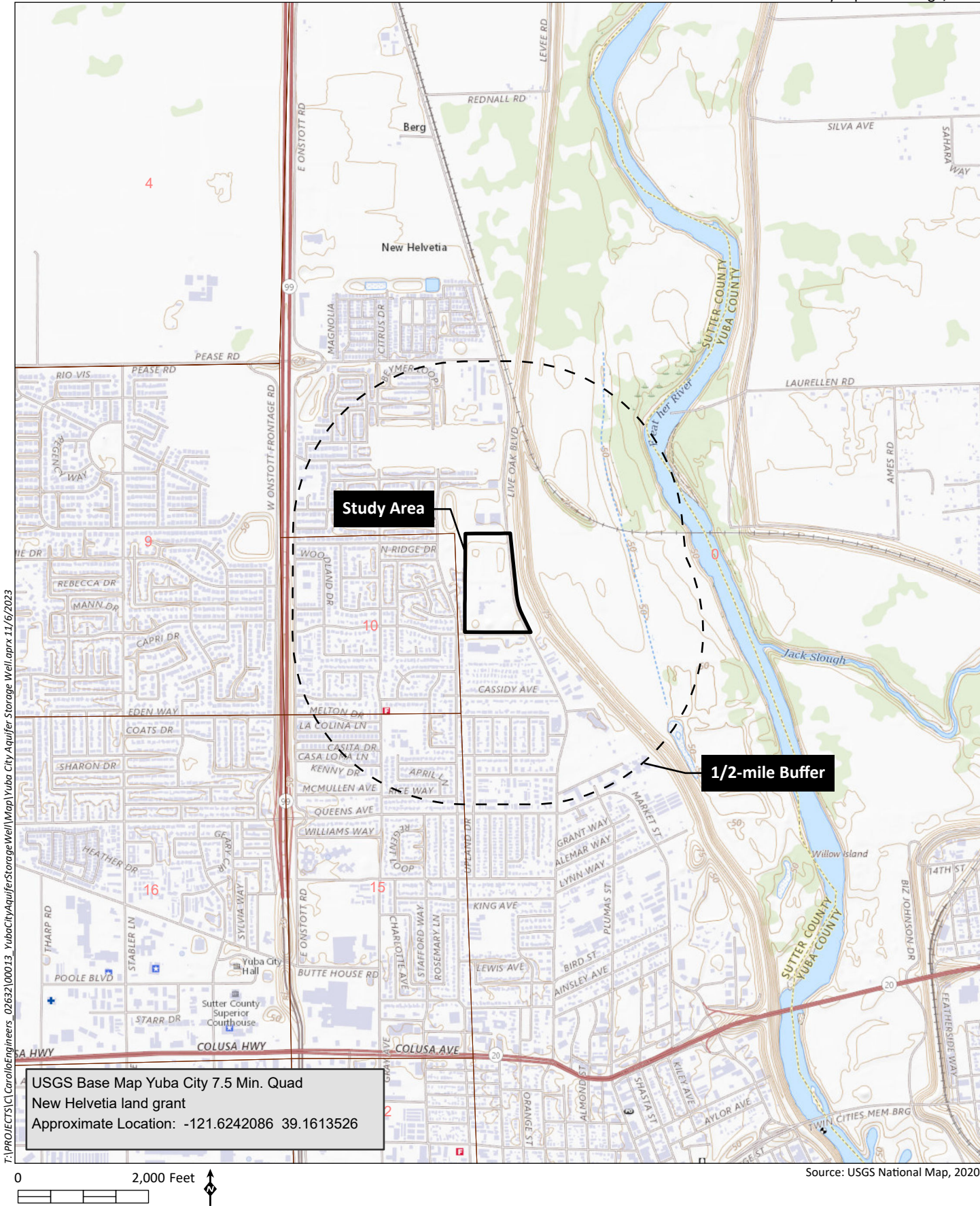
A search of the Native American Heritage Commission's (NAHC) Sacred Lands File returned positive results, and the NAHC suggested we contact you for information regarding Native American resources in or near the Project Area. The Project Area is depicted on the enclosed map. If there are sensitive resources within or near the proposed Project Area that could be impacted by Project implementation, please advise us accordingly. Please note that this request is for informational purposes only. If you have information, questions, or concerns regarding the proposed Project, please feel free to contact me at [bens@helixepi.com](mailto:bens@helixepi.com) or by phone at (404) 312-5883.

Sincerely,

A handwritten signature in black ink that reads "Benjamin D. Siegel".

Benjamin D. Siegel, M.A., M.A., M.A., RPA  
Cultural Resources Project Manager II





## Appendix D

---

### Representative Survey Photographs





Photograph 1 – View of concrete cylinder jutting from sidewall of water retention pond. Photograph taken December 7, 2023, facing north.



Photograph 2 – View of “Clear Well.” Photograph taken December 7, 2023, facing northwest.

I:\solomdc2\vol4\PROJECTS\Yuba City Aquifer Storage Well\Reports\Cultural\Appendices\Appendix D Representative Photographs





Photograph 3 – View of push piles in central portion of WTP site.  
Photograph taken December 7, 2023, facing south.



Photograph 4 – View of solar panels in easternmost retention pond.  
Photograph taken December 7, 2023, facing north.

\\olsomdc2\vol4\PROJECTS\C\CarolloEngineers\_02632\00013\_YubaCityAquiferStorageWell\Reports\Cultural\Appendices\Appendix D Representative Photographs





Photograph 5 – View of westernmost water retention pond. Photograph taken December 7, 2023, facing north.



Photograph 6 – Overview of portions of project site on east side of Live Oak Boulevard. Photograph taken December 7, 2023, facing south.

\\olsomdc2\vol4\PROJECTS\C\CarolloEngineers\_02632\00013\_YubaCityAquiferStorageWell\Reports\Cultural\Appendices\Appendix D Representative Photographs

## Appendix E

---

### Geotechnical Engineering Report

# GEOTECHNICAL REPORT

## Yuba City Water Treatment Plant ASR Well

Yuba City, CA

March 2024

Prepared for:



Carollo Engineers, Inc.

Prepared by:



11521 Blocker Drive, Suite 110  
Auburn, CA 95603  
(530) 887-1494

**Auburn Office:**  
110 Blocker Drive, Suite 110  
Auburn, CA 95603  
(530) 887-1494



West Sacramento (916) 375-8706  
Fresno (559) 438-8411

File No. 4586.X  
March 15, 2024

Justin Peterson, PE  
Carollo Engineers, Inc.  
2880 Gateway Oaks Drive, Suite 300  
Sacramento, CA 95833

**Subject:       GEOTECHNICAL REPORT**  
**Yuba City Water Treatment Plant ASR Well**  
**701 Northgate Boulevard**  
**Yuba City, California**

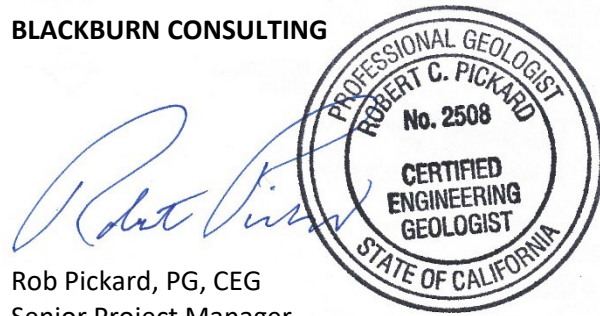
Dear Mr. Peterson,

Blackburn Consulting is pleased to submit this Geotechnical Report for the Yuba City Water Treatment Plant ASR Well Project located at 701 Northgate Drive in Yuba City, California. We prepared this report in accordance with our agreement dated February 2, 2024.

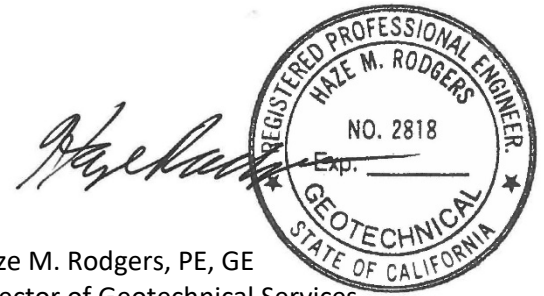
Thank you for selecting Blackburn to be on your design team. Please call if you have questions or require additional information.

Sincerely,

**BLACKBURN CONSULTING**



Rob Pickard, PG, CEG  
Senior Project Manager



Haze M. Rodgers, PE, GE  
Director of Geotechnical Services

Copies: 1 to Addressee (PDF)





# Table of Contents

<b>1</b>	<b>INTRODUCTION .....</b>	<b>1</b>
1.1	Purpose.....	1
1.2	Scope of Services .....	1
1.3	Site Description.....	1
1.4	Project Description .....	2
<b>2</b>	<b>FIELD EXPLORATION AND LABORATORY TESTING .....</b>	<b>2</b>
2.1	Field Exploration.....	2
2.2	Laboratory Testing.....	2
<b>3</b>	<b>GEOLOGIC CONDITIONS .....</b>	<b>3</b>
3.1	Site Geology.....	3
3.2	Site Soil .....	3
3.3	Faulting and Seismicity .....	3
<b>4</b>	<b>SUBSURFACE CONDITIONS.....</b>	<b>3</b>
4.1	Soil Conditions .....	3
4.2	Groundwater .....	4
<b>5</b>	<b>GEOTECHNICAL CONCLUSIONS AND RECOMMENDATIONS .....</b>	<b>4</b>
5.1	2022 California Building Code Seismic Parameters.....	4
5.2	Grading .....	5
5.2.1	Excavatability .....	5
5.2.2	Expansive Soil.....	5
5.2.3	Building Pad and Subgrade Preparation .....	6
5.2.4	Fill and Compaction .....	6
5.2.5	Over-optimum Soil Moisture .....	7
5.3	Utility Trenches.....	7
5.3.1	Temporary Excavations and Trench Stability.....	7
5.3.2	Dewatering.....	7
5.3.3	Backfill and Compaction .....	7
5.4	Foundation Recommendations .....	8
5.4.1	Spread Footings .....	8
5.4.2	Concrete Slabs-On-Grade .....	9
5.5	Soil Corrosivity .....	9
<b>6</b>	<b>RISK MANAGEMENT .....</b>	<b>10</b>
<b>7</b>	<b>LIMITATIONS .....</b>	<b>10</b>

**GEOTECHNICAL REPORT**

**Yuba City Water Treatment Plant ASR Well, Yuba City, CA**

March 15, 2024



## **Contents (cont.)**

### **FIGURES**

Figure 1 - Vicinity Map

Figure 2 – Site Plan

### **APPENDIX A**

Boring Logs

Boring Log Legend

### **APPENDIX B**

Laboratory Test Results

### **APPENDIX C**

*Important Information about This Geotechnical Engineering Report, Geoprofessional Business Association, 2019*

## **1 INTRODUCTION**

### **1.1 Purpose**

Blackburn Consulting (Blackburn) prepared this geotechnical report for design and construction of Aquifer Storage and Recovery (ASR) Well Project at the Yuba City Water Treatment Plant located at 701 Northgate Drive in Yuba City, California. This report describes the surface and subsurface conditions, site geology, and geotechnical design/construction recommendations. Do not use or rely on this report for different locations or improvements without the written consent of Blackburn.

### **1.2 Scope of Services**

To prepare this report, Blackburn:

- Discussed the project with Mr. Justin Peterson of Carollo Engineers, Inc.
- Reviewed Carollo Engineers' Site Layout (emailed by Micaela Robertson on March 13, 2024).
- Reviewed publicly available geological and geotechnical data.
- Observed the site surface conditions.
- Performed a geotechnical subsurface exploration at the site. We drilled one boring within/near the footprint of the proposed ASR well building and drilled three borings along the proposed shallow underground piping alignment.
- Performed laboratory tests on representative soil samples obtained from the borings.
- Performed engineering analysis and calculations to develop our conclusions and recommendations.

### **1.3 Site Description**

The Yuba City Water Treatment Plant (WTP) project site is:

- Located at 701 Northgate Drive in Yuba City, California (approximate latitude 39.16125°N and longitude 121.62403°W). Figure 1 shows the site location.
- Bounded by Live Oak Boulevard to the east, Northgate Drive to the South, and residential housing and schools to the west and north. The Feather River is approximately 0.5 miles east.
- Developed with existing facilities including:
  - Backwash basins
  - Solar panels
  - Treatment facility buildings
  - Clearwell tanks
  - Water extraction and monitoring wells
  - Associated underground piping
  - Other water treatment facilities
- Mostly unpaved in the northern and eastern portions and mostly paved with landscaping in the southwestern portion.

Figure 2 shows the existing site improvements.

## **1.4 Project Description**

Based on our review of Carollos' site layout and discussions with the design team, we understand the Project includes construction of a new ASR well and associated improvements. The new improvements consist of:

- ASR Well.
- Concrete masonry unit (CMU) Well House building.
- Shallow associated underground piping.

We anticipate site grading will be limited to shallow excavation of the pipeline and preparation of the building pad for the new ASR Well House. Figure 2 shows the location of the new well and proposed pipeline alignment.

## **2 FIELD EXPLORATION AND LABORATORY TESTING**

### **2.1 Field Exploration**

Blackburn's engineer, Alex Garcia, observed, logged, and sampled four borings (BC-24-001 through BC-24-004) drilled by Taber Drilling (Taber) on February 12, 2024 to characterize the site subsurface conditions. The borings were drilled to depths of 5 to 21.5 feet below existing ground surface using a track-mounted drill rig equipped with solid-stem auger and hollow-stem auger drilling equipment. Mr. Garcia directed the sampling operations and obtained soil samples using a 3.0-inch O.D. Modified California (MC) sampler (equipped with 2.4-inch diameter liners) and obtained bulk samples from the auger cuttings. Taber drove the samplers using an automatic hammer, weighing 140-pounds, and falling approximately 30-inches per blow. Taber backfilled the deeper boring (BC-24-001) in accordance with Sutter County Environmental Health Department's requirements and transported the samples to our West Sacramento laboratory for testing.

Figure 2 shows the boring locations and the boring logs are in Appendix A.

### **2.2 Laboratory Testing**

We performed the following laboratory tests on representative soil samples from the exploratory borings:

- Moisture/density tests to evaluate soil consistency.
- Plasticity index (PI) to classify the soil, correlate with engineering properties, and evaluate expansion potential.
- Particle size analysis and #200 sieve wash to classify the soil and correlate with engineering properties.
- Triaxial UU (Undrained, Unconsolidated) test to estimate soil strength.
- Corrosivity (sulfates, chlorides, pH, and resistivity) to evaluate soil corrosion characteristics.

The laboratory results are included in Appendix B and the boring logs.

### 3 GEOLOGIC CONDITIONS

#### 3.1 Site Geology

The site is located within the north central portion of the approximately 50-mile-wide and 400-mile-long Great Valley Geomorphic Province. The Great Valley province is a depositional basin, bounded by the Sierra Nevada to the east, the Coast Ranges to the west, and the Klamath Mountains and Cascade Range to the north. The basin is a broad, elongated, northwest trending, structural trough that has been filled with a thick sequence of sediments.

Published geologic mapping from the United States Geological Survey (Helley and Harwood, 1985<sup>1</sup>) shows the site is underlain by the Pleistocene age Upper Member of the Modesto Formation. The Upper Member of the Modesto Formation consists of unconsolidated unweathered gravel, sand, silt, and clay.

#### 3.2 Site Soil

The United States Department of Agriculture's (USDA) Web Soil Survey (<https://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm>) maps the site underlain by Conejo-Urban land complex – classified as lean clay to 80 inches below ground surface.

#### 3.3 Faulting and Seismicity

The Fault Activity Map of California<sup>2</sup> and the Geologic Map of California, Chico Sheet<sup>3</sup> do not identify Historic or Holocene age faults (displacement within the last 11,700 years) within or immediately adjacent to the site.

The site does not lie within or adjacent to an Alquist–Priolo Earthquake Fault Zone (Bryant and Hart, 2007). The potential for surface rupture or creep due to faulting at the site is very low.

### 4 SUBSURFACE CONDITIONS

#### 4.1 Soil Conditions

At the new well location (BC-24-001), we encountered medium stiff lean clay and lean clay with sand to a depth of approximately 10 feet, underlain by medium dense poorly-graded sand and clayey sand to a depth of approximately 21 feet. We encountered very stiff lean clay with sand from 21 feet to the maximum depth explored of 21.5 feet.

In the shallow pipeline borings (BC-24-002 through BC-24-004), we encountered stiff to hard lean clay and lean clay with sand to the maximum depth explored of 5 feet.

More detailed subsurface information is presented on the boring logs presented in Appendix A.

---

<sup>1</sup> Helley, E.J., and Harwood, D.S., 1985, *Geologic Map of the Late Cenozoic Deposits of the Sacramento Valley and Northern Sierran Foothills, California*, United States Department of the Interior, United States Geological Survey, Map MF-1790.

<sup>2</sup> Fault Activity Map of California, Jennings, C.E., and Bryant, W.A., California Geologic Survey Geologic Data Map No. 6, scale 1:750,000, 2010.

<sup>3</sup> Geologic Map of California: Chico Sheet, Saucedo, G.J. and Wagner, D.L., California Geologic Survey, scale 1:250,000, 1992.

## **4.2 Groundwater**

We did not encounter free groundwater to the maximum depth explored of 21.5 feet below ground surface in boring BC-24-001. We reviewed available groundwater monitoring data in two groundwater wells at the site and estimate groundwater elevations<sup>4</sup> ranging from about 30 to 42 feet which corresponds to depths of approximately 18 to 35 feet below the proposed improvements. The depth to groundwater is anticipated to fluctuate seasonally with rainfall and the water level in the nearby Feather River.

## **5 GEOTECHNICAL CONCLUSIONS AND RECOMMENDATIONS**

### **5.1 2022 California Building Code Seismic Parameters**

Blackburn used the SEAOC/OSHPD Seismic Design Maps Tool<sup>5</sup> to determine our recommended 2022 California Building Code (CBC) seismic design parameters and considered:

- ASCE 7-16 Reference Standard
- Risk Category 3
- Site Class D – Stiff Soil
- Latitude: 39.16331 Longitude: -121.62353
- Structure meets one or more of the exceptions identified in ASCE 7-16 Section 11.4.8.

These inputs were selected based on our understanding of the proposed structure and subsurface conditions encountered near the proposed structure. Table 1 presents our recommended 2022 CBC seismic design parameters.

---

<sup>4</sup> Elevations relative to North American Vertical Datum of 1988 (NAVD88)

<sup>5</sup> URL: <https://www.seismicmaps.org/>

## GEOTECHNICAL REPORT

Yuba City Water Treatment Plant ASR Well, Yuba City, CA

March 15, 2024



Table 1: 2022 CBC Seismic Design Parameters Site Class D	
$S_s$ – Acceleration Parameter	0.535 g
$S_1$ – Acceleration Parameter	0.254 g
$F_a$ – Site Coefficient	1.372
$F_v$ – Site Coefficient	2.092*
$S_{MS}$ – Adjusted MCE Spectral Response Acceleration Parameter	0.734 g
$S_{M1}$ – Adjusted MCE Spectral Response Acceleration Parameter	0.797 g <sup>*,**</sup>
$S_{DS}$ – Design Spectral Response Acceleration Parameter	0.489 g
$S_{D1}$ – Design Spectral Response Acceleration Parameter	0.531 g <sup>*,**</sup>
Seismic Design Category	D*
$T_L$ – Long Period Transition Period	12 sec
PGA – Peak Ground Acceleration	0.23 g
$PGA_m$ – Site Modified Peak Ground Acceleration	0.316 g

\* Blackburn calculated values assuming an exception for a ground motion hazard analysis per ASCE 7-16, 11.4.8.

\*\* Recommended  $S_{M1}$  and  $S_{D1}$  values are increased by 50% from mapped values in accordance with ASCE 7-16 Supplement 3 Section 11.4.8 Exception.

Blackburn should be notified if the assumptions listed above are incorrect. If the proposed structure design does not meet the exception noted above, Blackburn should perform a site-specific response analysis for final design.

## 5.2 Grading

Where referenced in this report, use ASTM D1557 test methods to determine relative compaction and optimum moisture. Compacted soil should not be considered suitable (even if it meets relative compaction requirements) if it is unstable and pumps or flexes excessively under construction equipment loads.

### 5.2.1 Excavatability

We expect that the soil underlying the improvement locations will be excavatable with most conventional excavation equipment (such as scrapers, dozers, backhoes, and excavators) to planned excavation depths. The well drilling contractor should be aware of the presence of medium dense sands encountered in Boring B-1 and take precautions to prevent caving/collapse of the sidewalls. Caving/collapse of the sidewall can result in loss of soil, void, and undermining of the ASR building pad.

### 5.2.2 Expansive Soil

Our laboratory testing indicates the soil expansion potential is relatively low at the site.

### 5.2.3 Building Pad and Subgrade Preparation

Prior to site grading, remove vegetation, debris, abandoned utilities, soft or unstable areas, or other deleterious materials.

Strip the site to a depth of approximately 2 inches to remove surface vegetation and associated organics where present. Where only minor vegetation is present, Blackburn may waive the requirement for stripping. Do not use strippings as fill in building, pavement, or other structural areas. Consult the landscape architect to determine if strippings are acceptable for use as fill in landscape areas.

Process and compact the exposed native clay subgrade in at-grade, cut, and fill areas as follows:

1. Scarify the subgrade to a depth of 8 inches.
2. Moisture condition the scarified soil to 2% to 4% above the optimum moisture content. In pavement and building/structural areas, maintain this moisture content until the subgrade is covered with aggregate base or non-expansive fill. Do not allow the native clay subgrade to dry before being covered with these materials.
3. Compact the scarified soil to at least 90% but not more than 95% relative compaction within the building foundation footprint (plus 5 feet beyond edge).

Retain Blackburn to observe the exposed subgrade soils prior to scarification and compaction.

### 5.2.4 Fill and Compaction

The on-site soil may be used for fill provided it is free of debris and visible concentrations of vegetation and has a maximum particle size of 3 inches. Imported fill must meet the following requirements:

- No concentrations of organics, debris, and other deleterious materials.
- Maximum particle size of 1-inch, at least 50 percent passing the No. 4 Sieve, and at least 20 percent passing the No. 200 Sieve.
- Expansion index less than 25, per ASTM D4829.
- Plasticity index of 12 or less, per ASTM D4318.
- Must be approved by Blackburn prior to transport to the site.

Place and compact native soils or import fill as follows:

1. Place fill in loose lifts no thicker than 8 inches prior to compaction.
2. Uniformly moisture condition fill within 2% of the optimum moisture content. Maintain this moisture content until the lift is placed.
3. Compact fill to at least 90% relative compaction within the well building and 5 feet beyond exterior foundation/slab edges, and to at least 95% relative compaction within the upper 8 inches of pavement subgrade.
4. Compact all other imported and non-expansive on-site soil fills to at least 90% relative compaction.



### **5.2.5 Over-optimum Soil Moisture**

Excessively over-optimum (wet) soil conditions can make proper compaction difficult or impossible. Wet soil is commonly encountered during the winter and spring months, or in excavations where groundwater or perched groundwater is encountered.

In general, mitigate wet soil by:

- Disc the soil during prolonged periods of dry weather.
- Overexcavate and replace with drier material.

If wet, unstable soil is encountered, contact Blackburn to observe the conditions and provide more specific mitigation recommendations.

## **5.3 Utility Trenches**

### **5.3.1 Temporary Excavations and Trench Stability**

Trench excavations should remain stable in the upper 4 feet. All excavations must be sloped, shored, and/or shielded in accordance with current Cal/OSHA requirements. The impact of construction traffic vibrations, actual soil conditions exposed in the open excavations, surcharges adjacent to excavations, proximity of excavations to existing structures, and other factors that may promote excavation wall instability must be evaluated at the time of construction and excavation sloping/shoring adjusted accordingly. The contractor is responsible for site safety and final excavation and shoring design and construction based on construction schedule and sequencing and actual environmental and excavation conditions.

### **5.3.2 Dewatering**

We did not encounter groundwater in our borings and do not expect groundwater will be encountered in excavations less than 10 feet deep during drier times of year. Our experience indicates that perched water could be encountered during winter and spring months. Refer to Section 3.2 (Groundwater) for information related to the potential for encountering seepage and groundwater during excavations. We anticipate sump pumps could be used to dewater the excavations if seepage and/or perched groundwater is encountered in excavations. The contractor is responsible for selecting the actual dewatering methods based on the conditions encountered.

### **5.3.3 Backfill and Compaction**

Pipe bedding and initial backfill shall be in accordance with Yuba City Standard Detail TR1 (dated 7/21/2009). On-site native soil can be used as trench backfill outside the pipe bedding limits provided it is free of significant concentrations of organics, debris, and other deleterious materials. Imported trench backfill material must meet the requirements of Section 5.2.4. CLSM may also be used as trench backfill.

Place and compact trench backfill as follows:

1. Place trench backfill in maximum 12-inch-thick loose lifts.
2. Uniformly moisture condition trench backfill to within 2% of optimum.
3. Uniformly compact trench backfill to at least 90% relative compaction.
4. In paved areas trench backfill should conform with Yuba City Standard Details (TR2 or TR3).
5. Compact the upper 8 inches of subgrade to at least 95% relative compaction.
6. Where utility trenches enter beneath the building pad, place a trench plug that consists of controlled density fill or impermeable native clays. The plug should extend 2 feet on either side of the edge of the pad.

Jetting is not acceptable for compaction.

Soil excavated during trenching may have a moisture content well below optimum, especially during summer months or after prolonged periods of dry weather. Allow adequate time for moisture conditioning soils prior to backfilling and compaction. During the winter and spring months or if perched water is encountered, excavated soil may have a moisture content well above optimum. In this case, it will be necessary to dry back the soil prior to use as backfill.

## 5.4 Foundation Recommendations

### 5.4.1 Spread Footings

Design of shallow foundations to support the new CMU well structure using:

- Minimum footing embedment of 24 inches below the lowest adjacent soil grade.
- Strip footings must be a minimum of 12 inches wide.
- Isolated footings must be a minimum of 24 inches wide.
- Size footings not to exceed an allowable bearing capacity of 1,200 psf (dead plus live load).
- The allowable bearing capacity may be increased by one-third for transient loads where used with the alternative basic load combinations in Section 1605.3.2 (2022 *California Building Code*, (CBC)) that include seismic and/or wind loads.
- We estimate total settlement of less than 1-inch considering the allowable bearing capacity above and differential settlement of less than 0.5-inch across the structure and between column loads.
- To resist lateral movement, use an ultimate coefficient of friction of 0.30 at the base of the foundation and an ultimate (factor of safety of 1.0) uniform passive earth pressure of 1,400 psf. Both friction and passive earth pressure can be combined for lateral resistance; when combined, increase the safety factor against sliding from a minimum of 2.0. Ignore the passive resistance of the upper foot of soil.
- Slope the ground surface away from foundations at a minimum of 5 percent for a distance of at least 5 feet.
- Clean footing excavations of debris and loose soil prior to placing concrete.
- Blackburn **must** observe all footing excavations prior to reinforcement placement to verify competent bearing materials are exposed.

## 5.4.2 Concrete Slabs-On-Grade

### 5.4.2.1 Slab Underlayment

Underlay concrete floor slabs with a minimum of 6 inches of aggregate base that compacted to 95% relative compaction. If moisture migration through the slab is a concern replace the 6 inches of aggregate base with a minimum of 6 inches of washed, crushed, and compacted rock to provide uniform support. Crushed rock used beneath floor slabs should be graded so that 100% passes the ¾ inch sieve and less than 5% passes the No. 4 sieve. Compact crushed rock with at least three passes of a vibratory type compactor.

### 5.4.2.2 Modulus of Subgrade Reaction

Calculate the Modulus of Subgrade Reaction for the structure concrete slab per ACI336.2R Equation 3-8. Use a Modulus of Subgrade Reaction,  $k_p$ , of 75 pounds per cubic inch (pci). Design concrete slabs/flooring based on the anticipated loading. Use a minimum concrete slab thickness of 4-inches.

### 5.4.2.3 Design Considerations for Moisture

We did not observe shallow groundwater in the exploratory borings. Irrigation and storm water can accumulate near the ground surface and around the structure. While we do not expect potential water accumulations to be significant beneath the slabs, it could be enough to cause higher than normal moisture vapor to pass through the building floor slabs. Excessive vapor can cause floor covering damage, mold, and increased indoor air humidity which can damage sensitive equipment.

The designer must consider the potential for excessive water vapor, its potential impact on proposed improvements and equipment, and design the building slabs and underlayment accordingly. References providing guidelines for vapor mitigation and slab underlayment include ASTM E 1643, ACI 302.1R-96 and 302.2R-06, PCA, and manufacturer recommendations for the flooring based on its intended use. If floor coverings could be installed in the future, it would be important to design and construct the slabs and underlayment now for the potential impacts of excessive water vapor on floor coverings.

## 5.5 Soil Corrosivity

Table 2 presents the soil corrosivity test results.

Table 2: Soil Corrosion Test Results					
Sample No.	Depth (ft.)	pH	Minimum Resistivity (ohm-cm x 1000)	Sulfate Content (ppm)	Chloride Content (ppm)
BC-24-001, Bulk A	0.0 – 5.0	5.94	1.53	38.2	14.9
BC-24-004, 1C	4.0 – 4.5	6.63	1.55	82.0	12.2

Based on the test results, structural concrete in contact with the ground should meet the concrete and reinforcing steel requirements of American Concrete Institute's *Building Code Requirements for Structural Concrete (ACI-318-14)* for Exposure Class S0 (Sulfates) and Exposure Class C1 (Chlorides).

The corrosion test results indicate that the near surface soil is corrosive to steel and other metals. We are not corrosion consultants, and we did not evaluate the potential corrosion impacts to metallic elements embedded in or in contact with the ground. Retain a corrosion consultant to provide specific corrosion protection recommendations if buried metallic elements are used at the site.

## 6 RISK MANAGEMENT

Our experience and that of our profession clearly indicates that the risks of costly design, construction, and maintenance problems can be significantly lowered by retaining the geotechnical engineer of record to provide additional services during design and construction. For this project, retain Blackburn to:

- Review and provide comments on the civil and structural plans and specifications prior to construction.
- Attend a pre-construction meeting with the owner, general contractor, earthwork contractor, utility contractor, and other parties associated with the management, oversight and process of earthwork prior to site clearing and grubbing to review geotechnical recommendations, testing requirements, and project schedule.
- Observe removal of underground utilities, vegetation (root balls and roots), and other underground features in accordance with the project plans, specifications, and this Geotechnical Report including loose soil generated from the removal.
- Monitor construction to check and document our report assumptions. At a minimum, retain Blackburn to monitor grading, subgrade preparation, backfill placement and compaction, trench backfill, and footing excavations.
- Update this report if design changes occur, 2 years or more lapse between this report and construction, and/or site conditions change.

If we are not retained to perform the above applicable services, we are not responsible for any other party's interpretation of our report, and subsequent addendums, letters, and discussions.

## 7 LIMITATIONS

Blackburn performed services in accordance with generally accepted geotechnical engineering principles and practices currently used in this area. Where referenced, we used ASTM or Caltrans standards as a general (not strict) *guideline* only. We do not warrant our services.

Blackburn based this report on the current site conditions. We assumed the soil and groundwater conditions encountered in our borings are representative of the subsurface conditions across the site. Actual conditions between these locations could be different.

Our scope did not include evaluation of on-site hazardous material, flood potential, or biological pollutants. Please contact Blackburn if you would like an evaluation of one or more of these potentially issues.

## GEOTECHNICAL REPORT

Yuba City Water Treatment Plant ASR Well, Yuba City, CA

March 15, 2024



Appendix A presents our boring logs. The lines designating the interface between material types are approximate and the transition between material types may be abrupt or gradual. Our recommendations are based on the final logs, which represent our interpretation of the field logs, laboratory test results, and general knowledge of the site and geological conditions.

Refer to Appendix C (Important Information about This Geotechnical Engineering Report, Geoprosessional Business Association, 2019) for additional limitations regarding this report.

Modern design and construction is complex, with many regulatory sources/restrictions, involved parties, construction alternatives, etc. It is common to experience changes and delays. The owner should set aside a reasonable contingency fund based on complexities and cost estimates to cover changes and delays.

# **GEOTECHNICAL REPORT**

## **Yuba City Water Treatment Plant ASR Well**

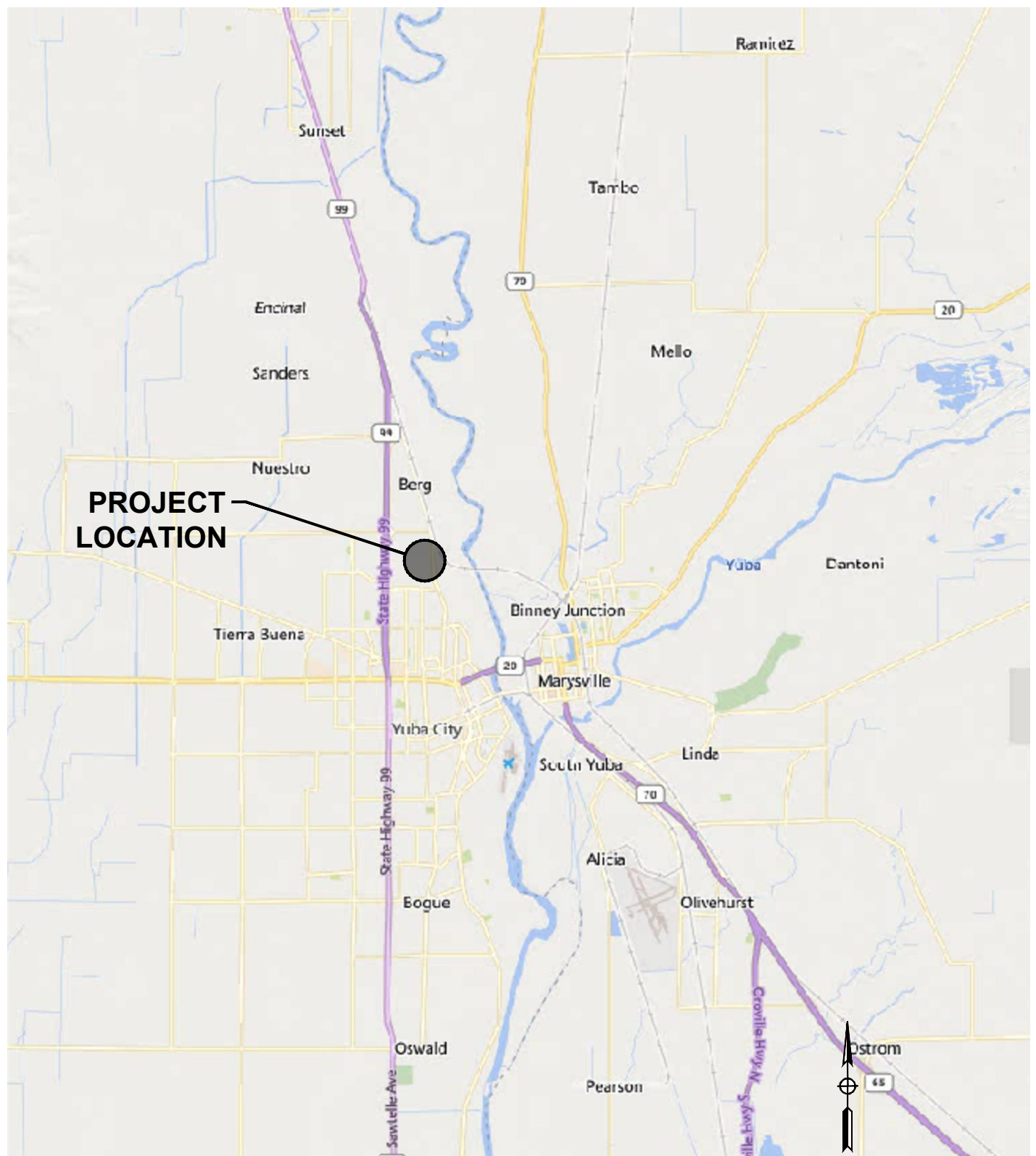
Yuba City, CA

March 2024

### **FIGURES**

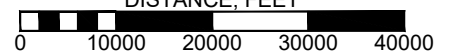
**Figure 1:** Vicinity Map

**Figure 2:** Site Plan



SCALE: 1"= 10,000'

DISTANCE, FEET



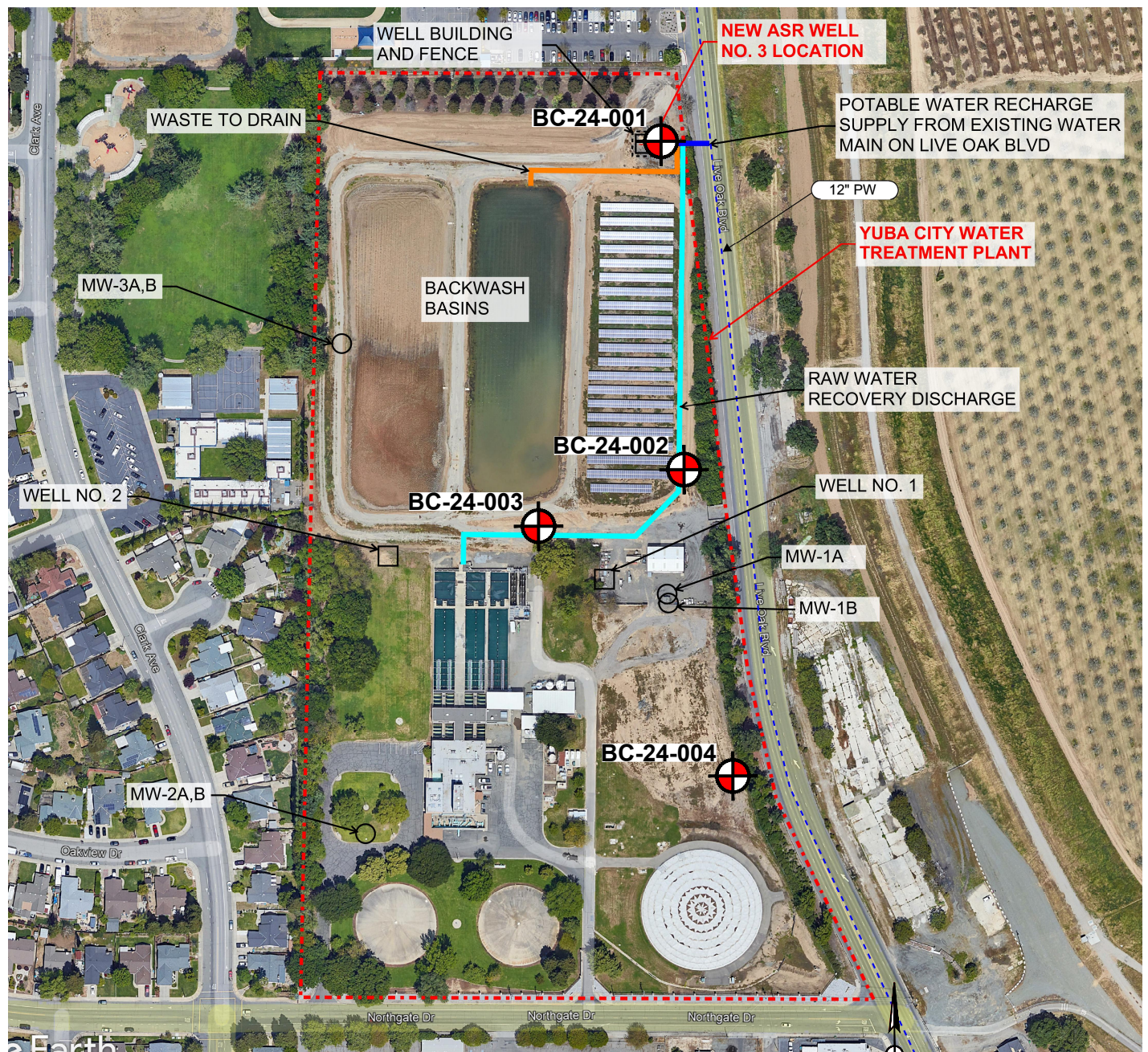
**VICINITY MAP**  
**Yuba City WTP ASR Well Project**  
 701 Northgate Drive  
 Yuba City, California

File No. 4586.x

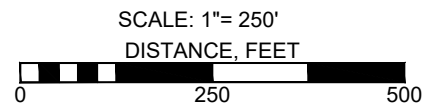
March 2024

Figure 1





**Source:** Site Layout provided by Micaela Robertson,  
Carollo Engineering, emailed March 13, 2024.



## LEGEND

BC-24-001 Approximate Location of  
Blackburn Boring



**SITE PLAN**  
**Yuba City WTP ASR Well Project**  
701 Northgate Drive  
Yuba City, California

File No. 4586.x

March 2024

Figure 2



# **GEOTECHNICAL REPORT**

## **Yuba City Water Treatment Plant ASR Well**

Yuba City, CA

March 2024

### **APPENDIX A**

Boring Logs

Boring Log Legend

LOGGED BY <b>AG</b>	BEGIN DATE <b>2-12-24</b>	COMPLETION DATE <b>2-12-24</b>	LOCATION (Lat/Long or North/East and Datum) <b>39.163287° / -121.623475°</b>	HOLE ID <b>BC-24-001</b>
CONTRACTOR <b>Taber</b>			LOCATION (Offset, Station, Line)	SURFACE ELEVATION
OPERATOR'S NAME <b>David</b>	HELPER'S NAME <b>Mark</b>		EQUIPMENT <b>CME 55 Crawler</b>	TOTAL DEPTH <b>21.5 ft</b>
EXCAVATION METHOD <b>Solid-Stem Auger</b>			DRILLING ROD TYPE AND DIAMETER / BUCKET WIDTH	BOREHOLE DIAMETER <b>4 in</b>
SAMPLER TYPE(S) AND SIZE(S) (ID) <b>CalMod (2.4")</b>			HAMMER TYPE <b>Safety semi-automatic drop (140#/ 30)</b>	HAMMER EFFICIENCY, ERI
BACKFILL AND COMPLETION <b>Backfill neat cement grout</b>			GROUND WATER DURING READINGS <b>Not Encountered</b>	AFTER (DATE) <b>Not Encountered</b>
				CASING TYPE AND DIAMETER(in)

ELEVATION (ft)	DEPTH (ft)	Material Graphics	DESCRIPTION	Sample Location	Sample Number	Blows per 6 in.	Nfield / Push Pressure	N60 (ASTM)	Recovery (%)	Pocket Penetrometer	Laboratory Data								Drilling Method	
											Moisture Content (%)	Dry Density (pcf)	Liquid Limit	Plasticity Index	% <#200	Shear Strength Test	Additional Lab Tests			
	0		Lean CLAY with SAND (CL); medium stiff; dark yellowish brown; little fine SAND; low to medium plasticity																	
	1																			
	2			X	1	6 4 4	8		55	3.5										
	3												34	11	75					
	4																	CR		
	5		Lean CLAY (CL); medium stiff; yellowish brown; moist; few fine SAND; medium plasticity																	
	6			X	2	3 4 3	7		50	3.5			22	101				UU 692 psf		
	7																			
	8																			
	9																			
	10																			
	11		Poorly-graded SAND (SP); medium dense; dark yellowish brown; moist; fine to medium SAND; trace fines	X	3	12 12 13	25		85				6	90			5		PA	
	12																			
	13																			
	14		CLAYEY SAND (SC); medium dense; light gray; dry; fine SAND; little fines; low plasticity																	
	15			X	4	9 9 10	19		70											
	16		Poorly-graded SAND (SP); medium dense; dark brown and gray; moist; fine to medium SAND; trace fines										6	90						
	17																			
	18																			
	19																			
	20																			
	21		Lean CLAY with SAND (CL); very stiff; dark brown and light olive brown; little fine SAND; medium plasticity	X	5	5 13 16	29		85	3.0										
	22		Bottom of exploration at 21.5 ft below ground surface (bgs)																	
	23		Backfill neat cement grout																	
	24		Groundwater Not Encountered Bulk-A 0.0 - 5.0 ft bgs																	
	25																			

BCI LOG FOR SOIL 4586.X BORING LOGS.GPJ 4586\_LIBRARY\_2022.GLB 3/13/24



PROJECT NAME <b>Yuba City WTP ASR Well</b>	FILE NO. <b>4586.x</b>	HOLE ID <b>BC-24-001</b>
COUNTY <b>SUT</b>	ROUTE	POSTMILE
CLIENT <b>Carollo Engineers, Inc</b>		
PREPARED BY <b>AG</b>	CHECKED BY <b>LDM</b>	SHEET <b>1 of 1</b>

LOGGED BY <b>AG</b>	BEGIN DATE <b>2-12-24</b>	COMPLETION DATE <b>2-12-24</b>	LOCATION (Lat/Long or North/East and Datum) <b>39.161825° / -121.623343°</b>	HOLE ID <b>BC-24-002</b>
CONTRACTOR <b>Taber</b>			LOCATION (Offset, Station, Line)	
OPERATOR'S NAME <b>David</b>		HELPER'S NAME <b>Mark</b>	EQUIPMENT <b>CME 55 Crawler</b>	
EXCAVATION METHOD <b>Hollow-Stem Auger</b>			DRILLING ROD TYPE AND DIAMETER / BUCKET WIDTH	
SAMPLER TYPE(S) AND SIZE(S) (ID) <b>CalMod (2.4")</b>			HAMMER TYPE <b>Safety semi-automatic drop (140#/ 30)</b>	
BACKFILL AND COMPLETION <b>Backfill with cuttings</b>			GROUND WATER DURING READINGS <b>Not Encountered</b> AFTER (DATE) <b>Not Encountered</b>	
CASING TYPE AND DIAMETER(in)				








ELEVATION (ft)	DEPTH (ft)	Material Graphics	DESCRIPTION	Sample Location	Sample Number	Blows per 6 in.	Nfield / Push Pressure	N60 (ASTM)	Recovery (%)	Pocket Penetrometer	Laboratory Data								Drilling Method	
											Moisture Content (%)	Dry Density (pcf)	Liquid Limit	Plasticity Index	% <#200	Shear Strength Test	Additional Lab Tests			
	0		Lean CLAY with SAND (CL); stiff to very stiff; dark brown; moist; little fine SAND; low to medium plasticity																	
	1																			
	2																			
	3																			
	4			X	1	3 4 7	11		55	2.5		25	95							
	5		Bottom of exploration at 5.0 ft below ground surface (bgs)																	
	6		Backfill with cuttings																	
	7		Groundwater Not Encountered Bulk-A 0.0 - 5.0 ft bgs																	
	8																			
	9																			
	10																			
	11																			
	12																			
	13																			
	14																			
	15																			
	16																			
	17																			
	18																			
	19																			
	20																			

BCI LOG FOR SOIL 4586.X BORING LOGS.GPJ 4586\_LIBRARY\_2022.GLB 3/13/24



PROJECT NAME <b>Yuba City WTP ASR Well</b>		FILE NO. <b>4586.x</b>	HOLE ID <b>BC-24-002</b>
COUNTY <b>SUT</b>	ROUTE		POSTMILE
CLIENT <b>Carollo Engineers, Inc</b>			
PREPARED BY <b>AG</b>		CHECKED BY <b>LDM</b>	SHEET <b>1 of 1</b>

LOGGED BY <b>AG</b>	BEGIN DATE <b>2-12-24</b>	COMPLETION DATE <b>2-12-24</b>	LOCATION (Lat/Long or North/East and Datum) <b>39.161573° / -121.624175°</b>	HOLE ID <b>BC-24-003</b>
CONTRACTOR <b>Taber</b>			LOCATION (Offset, Station, Line)	SURFACE ELEVATION
OPERATOR'S NAME <b>David</b>	HELPER'S NAME <b>Mark</b>		EQUIPMENT <b>CME 55 Crawler</b>	TOTAL DEPTH <b>5.0 ft</b>
EXCAVATION METHOD <b>Hollow-Stem Auger</b>			DRILLING ROD TYPE AND DIAMETER / BUCKET WIDTH	BOREHOLE DIAMETER <b>6 in</b>
SAMPLER TYPE(S) AND SIZE(S) (ID) <b>CalMod (2.4")</b>			HAMMER TYPE <b>Safety semi-automatic drop (140#/ 30)</b>	HAMMER EFFICIENCY, Eri
BACKFILL AND COMPLETION <b>Backfill with cuttings</b>			GROUND WATER DURING READINGS <b>Not Encountered</b>	AFTER (DATE) <b>Not Encountered</b>
			CASING TYPE AND DIAMETER(in)	

ELEVATION (ft)	DEPTH (ft)	Material Graphics	DESCRIPTION	Sample Location	Sample Number	Blows per 6 in.	Nfield / Push Pressure	N60 (ASTM)	Recovery (%)	Pocket Penetrometer	Laboratory Data								Drilling Method
											Moisture Content (%)	Dry Density (pcf)	Liquid Limit	Plasticity Index	% <#200	Shear Strength Test	Additional Lab Tests		
	0		Approximately 6-inch thick layer of recycled ASPHALT and GRAVEL																
	1		Lean CLAY (CL); very stiff; dark yellowish brown; moist; few fine SAND; trace fine GRAVEL; medium plasticity																
	2																		
	3																		
	4				1	5 7 11	18		70	>4.5									
	5																		
	5		Bottom of exploration at 5.0 ft below ground surface (bgs)																
	6		Backfill with cuttings																
	7		Groundwater Not Encountered Bulk-A 0.0 - 3.0 ft bgs Bulk-B 3.0 - 5.0 ft bgs																
	8																		
	9																		
	10																		
	11																		
	12																		
	13																		
	14																		
	15																		
	16																		
	17																		
	18																		
	19																		
	20																		



PROJECT NAME <b>Yuba City WTP ASR Well</b>		FILE NO. <b>4586.x</b>	HOLE ID <b>BC-24-003</b>
COUNTY <b>SUT</b>	ROUTE		POSTMILE
CLIENT <b>Carollo Engineers, Inc</b>			
PREPARED BY <b>AG</b>		CHECKED BY <b>LDM</b>	SHEET <b>1 of 1</b>

LOGGED BY <b>AG</b>	BEGIN DATE <b>2-12-24</b>	COMPLETION DATE <b>2-12-24</b>	LOCATION (Lat/Long or North/East and Datum) <b>39.160461° / -121.623064°</b>	HOLE ID <b>BC-24-004</b>
CONTRACTOR <b>Taber</b>			LOCATION (Offset, Station, Line)	
OPERATOR'S NAME <b>David</b>		HELPER'S NAME <b>Mark</b>	EQUIPMENT <b>CME 55 Crawler</b>	
EXCAVATION METHOD <b>Hollow-Stem Auger</b>			DRILLING ROD TYPE AND DIAMETER / BUCKET WIDTH	
SAMPLER TYPE(S) AND SIZE(S) (ID) <b>CalMod (2.4")</b>			HAMMER TYPE <b>Safety semi-automatic drop (140#/ 30)</b>	
BACKFILL AND COMPLETION <b>Backfill with cuttings</b>			GROUND WATER DURING READINGS <b>Not Encountered</b> AFTER (DATE) <b>Not Encountered</b>	
CASING TYPE AND DIAMETER(in)				

ELEVATION (ft)	DEPTH (ft)	Material Graphics	DESCRIPTION	Sample Location	Sample Number	Blows per 6 in.	Nfield / Push Pressure	N60 (ASTM)	Recovery (%)	Pocket Penetrometer	Laboratory Data										Drilling Method	
											Moisture Content (%)	Dry Density (pcf)	Liquid Limit	Plasticity Index	% <#200	Shear Strength Test	Additional Lab Tests					
	0		Lean CLAY (CL); very stiff to hard; dark yellowish brown; moist; few fine SAND; trace fine GRAVEL; medium plasticity																			
	1																					
	2																					
	3																					
	4					1	16 18 17	35		35	>4.5		12	111							CR	
	5		Bottom of exploration at 5.0 ft below ground surface (bgs)																			
	6		Backfill with cuttings																			
	7		Groundwater Not Encountered Bulk-A 0.0 - 5.0 ft bgs																			
	8																					
	9																					
	10																					
	11																					
	12																					
	13																					
	14																					
	15																					
	16																					
	17																					
	18																					
	19																					
	20																					



PROJECT NAME <b>Yuba City WTP ASR Well</b>		FILE NO. <b>4586.x</b>	HOLE ID <b>BC-24-004</b>
COUNTY <b>SUT</b>	ROUTE		POSTMILE
CLIENT <b>Carollo Engineers, Inc</b>			
PREPARED BY <b>AG</b>		CHECKED BY <b>LDM</b>	SHEET <b>1 of 1</b>

GROUP SYMBOLS AND NAMES			
Graphic / Symbol	Group Names	Graphic / Symbol	Group Names
	GW Well-graded GRAVEL Well-graded GRAVEL with SAND		CL Lean CLAY Lean CLAY with SAND Lean CLAY with GRAVEL SANDY lean CLAY SANDY lean CLAY with GRAVEL GRAVELLY lean CLAY GRAVELLY lean CLAY with SAND
	GP Poorly graded GRAVEL Poorly graded GRAVEL with SAND		
	GW-GM Well-graded GRAVEL with SILT Well-graded GRAVEL with SILT and SAND		CL-ML SILTY CLAY SILTY CLAY with SAND SILTY CLAY with GRAVEL SANDY SILTY CLAY SANDY SILTY CLAY with GRAVEL GRAVELLY SILTY CLAY GRAVELLY SILTY CLAY with SAND
	GW-GC Well-graded GRAVEL with CLAY (or SILTY CLAY) Well-graded GRAVEL with CLAY and SAND (or SILTY CLAY and SAND)		
	GP-GM Poorly graded GRAVEL with SILT Poorly graded GRAVEL with SILT and SAND		ML SILT SILT with SAND SILT with GRAVEL SANDY SILT SANDY SILT with GRAVEL GRAVELLY SILT GRAVELLY SILT with SAND
	GP-GC Poorly graded GRAVEL with CLAY (or SILTY CLAY) Poorly graded GRAVEL with CLAY and SAND (or SILTY CLAY and SAND)		
	GM SILTY GRAVEL SILTY GRAVEL with SAND		OL ORGANIC lean CLAY ORGANIC lean CLAY with SAND ORGANIC lean CLAY with GRAVEL SANDY ORGANIC lean CLAY SANDY ORGANIC lean CLAY with GRAVEL GRAVELLY ORGANIC lean CLAY GRAVELLY ORGANIC lean CLAY with SAND
	GC CLAYEY GRAVEL CLAYEY GRAVEL with SAND		
	GC-GM SILTY, CLAYEY GRAVEL SILTY, CLAYEY GRAVEL with SAND		OL ORGANIC SILT ORGANIC SILT with SAND ORGANIC SILT with GRAVEL SANDY ORGANIC SILT SANDY ORGANIC SILT with GRAVEL GRAVELLY ORGANIC SILT GRAVELLY ORGANIC SILT with SAND
	SW Well-graded SAND Well-graded SAND with GRAVEL		
	SP Poorly graded SAND Poorly graded SAND with GRAVEL		CH Fat CLAY Fat CLAY with SAND Fat CLAY with GRAVEL SANDY fat CLAY SANDY fat CLAY with GRAVEL GRAVELLY fat CLAY GRAVELLY fat CLAY with SAND
	SW-SM Well-graded SAND with SILT Well-graded SAND with SILT and GRAVEL		
	SW-SC Well-graded SAND with CLAY (or SILTY CLAY) Well-graded SAND with CLAY and GRAVEL (or SILTY CLAY and GRAVEL)		MH Elastic SILT Elastic SILT with SAND Elastic SILT with GRAVEL SANDY elastic SILT SANDY elastic SILT with GRAVEL GRAVELLY elastic SILT GRAVELLY elastic SILT with SAND
	SP-SM Poorly graded SAND with SILT Poorly graded SAND with SILT and GRAVEL		
	SP-SC Poorly graded SAND with CLAY (or SILTY CLAY) Poorly graded SAND with CLAY and GRAVEL (or SILTY CLAY and GRAVEL)		OH ORGANIC fat CLAY ORGANIC fat CLAY with SAND ORGANIC fat CLAY with GRAVEL SANDY ORGANIC fat CLAY SANDY ORGANIC fat CLAY with GRAVEL GRAVELLY ORGANIC fat CLAY with SAND
	SM SILTY SAND SILTY SAND with GRAVEL		
	SC CLAYEY SAND CLAYEY SAND with GRAVEL		OH ORGANIC elastic SILT ORGANIC elastic SILT with SAND ORGANIC elastic SILT with GRAVEL SANDY elastic ELASTIC SILT SANDY ORGANIC elastic SILT with GRAVEL GRAVELLY ORGANIC elastic SILT GRAVELLY ORGANIC elastic SILT with SAND
	SC-SM SILTY, CLAYEY SAND SILTY, CLAYEY SAND with GRAVEL		
	PT PEAT		OL/OH ORGANIC SOIL ORGANIC SOIL with SAND ORGANIC SOIL with GRAVEL SANDY ORGANIC SOIL SANDY ORGANIC SOIL with GRAVEL GRAVELLY ORGANIC SOIL GRAVELLY ORGANIC SOIL with SAND
	COBBLES COBBLES and BOULDERS BOULDERS		

FIELD AND LABORATORY TESTS	
C	Consolidation (ASTM D2435)
CL	Collapse Potential (ASTM D5333)
CP	Compaction Curve (ASTM D696 & 1557, CTM 216)
CR	Corrosion, Sulfates, Chlorides (CTM 643, CTM 417 & CTM 422)
CU	Consolidated Undrained Triaxial (ASTM D4767)
DS	Direct Shear (ASTM D3080)
EI	Expansion Index (ASTM D4829)
M	Moisture Content (ASTM D2216)
OC	Organic Content (ASTM D2974)
P	Permeability (ASTM D5084)
PA	Particle Size Analysis (ASTM D6913 & 7928)
PI	Liquid Limit, Plastic Limit, Plasticity Index (ASTM D4318)
PL	Point Load Index (ASTM D5731)
PP	Pocket Penetrometer
PM	Pressure Meter
R	R-Value (CTM 301)
SA	Seive Analysis (ASTM D6913)
SE	Sand Equivalent (ASTM D6913)
SG	Specific Gravity (AASHTO T100)
SL	Shrinkage Limit (ASTM D4943)
SW	Swell Potential (ASTM D4546)
TV	Pocket Torvane
UC	Unconfined Compression (ASTM D2166) Unconfined Compression - Rock (ASTM D7012)
UU	Unconsolidated Undrained Triaxial (ASTM D2850)
UW	Unit Weight (ASTM D7263)
VS	Vane Shear (AASHTO T223 / ASTM D2573)

SAMPLER GRAPHIC SYMBOLS	
	Standard Penetration Test (SPT)
	California Sampler (2" ID)
	Modified California Sampler (2.4" ID)
	Shelby Tube
	Piston Sampler
	NX Rock Core
	HQ Rock Core
	Bulk Sample
	Other (see remarks)

DRILLING METHOD SYMBOLS			
	Auger Drilling		Rotary Drilling
	Dynamic Cone or Hand Driven		Diamond Core

WATER LEVEL SYMBOLS	
	First Water Level Reading (during drilling)
	Static Water Level Reading (short-term)
	Static Water Level Reading (long-term)

CONSISTENCY OF COHESIVE SOILS				
Descriptor	Unconfined Compressive Strength (tsf)	Pocket Penetrometer (tsf)	Torvane (tsf)	Field Approximation
Very Soft	< 0.25	< 0.25	< 0.12	Thumb will penetrate soil more than 1 in. (25 mm)
Soft	0.25 - 0.50	0.25 - 0.50	0.12 - 0.25	Thumb will penetrate soil about 1 in. (25 mm)
Firm	0.50 - 2.0	0.50 - 2.0	0.25 - 1.0	Thumb will indent soil about 1/4 in. (6 mm)
Hard	2.0 - 4.0	2.0 - 4.0	1.0 - 2.0	Thumb will not indent soil but readily indented with thumbnail
Very Hard	> 4.0	> 4.0	> 2.0	Thumbnail will not indent soil

CEMENTATION	
Descriptor	Criteria
Weak	Crumbles or breaks with handling or little finger pressure.
Moderate	Crumbles or breaks with considerable finger pressure.
Strong	Will not crumble or break with finger pressure.

MOISTURE	
Descriptor	Criteria
Dry	Absence of moisture, dusty, dry to the touch
Moist	Damp but no visible water
Wet	Visible free water, usually soil is below water table

PERCENT OR PROPORTION OF SOILS	
Descriptor	Criteria
Trace	Particles are present but estimated to be less than 5%
Few	5 to 10%
Little	15 to 25%
Some	30 to 45%
Mostly	50 to 100%

SOIL PARTICLE SIZE		
Descriptor		Size
Boulder		> 12 inches
Cobble		3 to 12 inches
Gravel	Coarse	3/4 inch to 3 inches
	Fine	No. 4 Sieve to 3/4 inch
Sand	Coarse	No. 10 Sieve to No. 4 Sieve
	Medium	No. 40 Sieve to No. 10 Sieve
	Fine	No. 200 Sieve to No. 40 Sieve
Silt and Clay		Passing No. 200 Sieve

PLASTICITY OF FINE-GRAINED SOILS	
Descriptor	Criteria
Nonplastic	A 1/8-inch thread cannot be rolled at any water content.
Low	The thread can barely be rolled, and the lump cannot be formed when drier than the plastic limit.
Medium	The thread is easy to roll, and not much time is required to reach the plastic limit; it cannot be rerolled after reaching the plastic limit. The lump crumbles when drier than the plastic limit.
High	It takes considerable time rolling and kneading to reach the plastic limit. The thread can be rerolled several times after reaching the plastic limit. The lump can be formed without crumbling when drier than the plastic limit.

NOTE: This legend sheet provides descriptors and associated criteria for select soil description components only. Refer to ASTM Standard Practice for Description and Identification of Soil (Visual-Manuel Procedures) (ASTM D2488)

# **GEOTECHNICAL REPORT**

## **Yuba City Water Treatment Plant ASR Well**

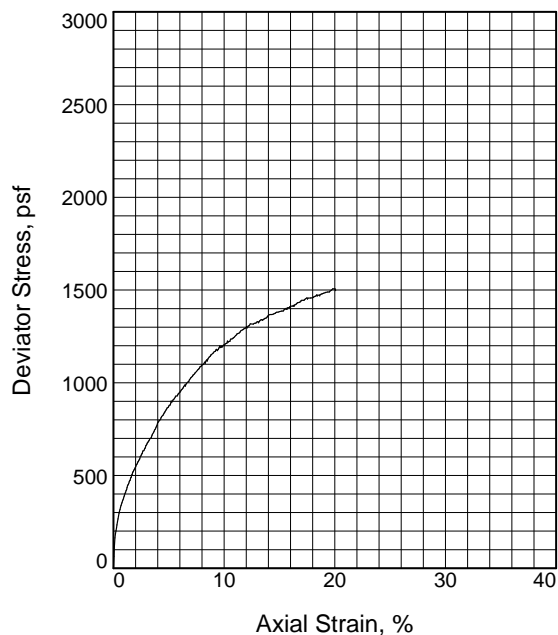
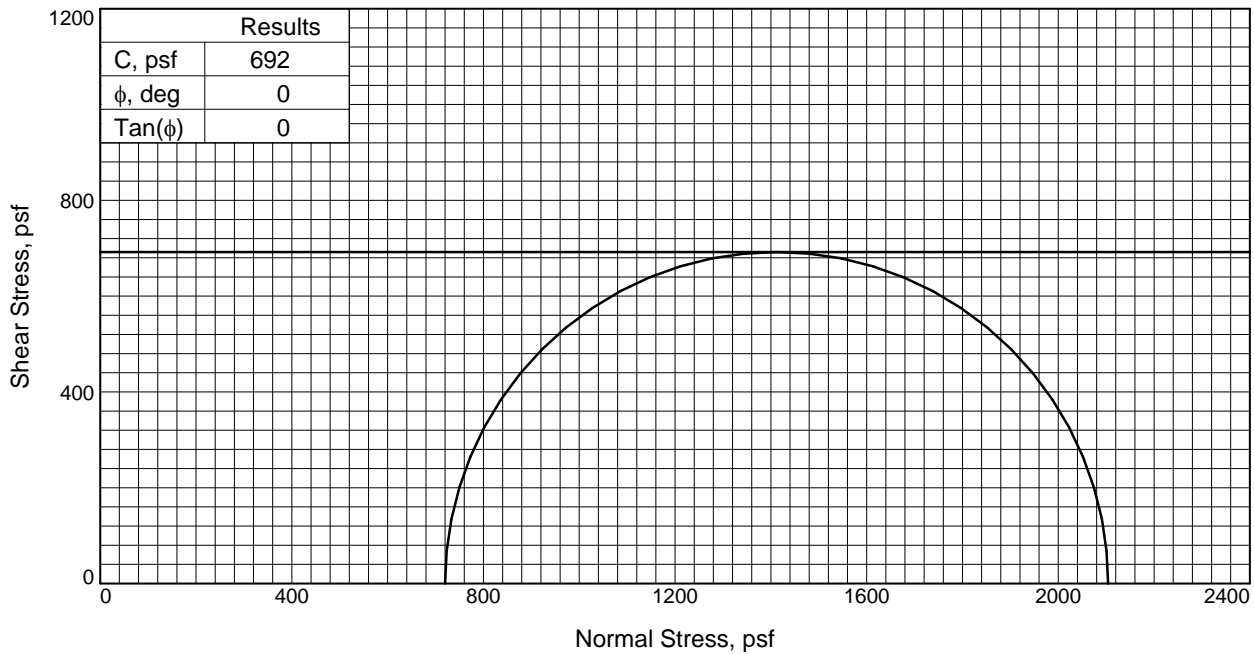
Yuba City, CA

March 2024

### **APPENDIX B**

Laboratory Test Results





Sample No.		1
Initial	Water Content, %	22.2
	Dry Density, pcf	100.8
	Saturation, %	89.2
	Void Ratio	0.6725
	Diameter, in.	2.39
	Height, in.	4.98
At Test	Water Content, %	22.2
	Dry Density, pcf	100.8
	Saturation, %	89.1
	Void Ratio	0.6725
	Diameter, in.	2.39
	Height, in.	4.98
Strain rate, in./min.		0.020
Back Pressure, psf		0
Cell Pressure, psf		720
Fail. Stress, psf		1384
Strain, %		15.0
Ult. Stress, psf		
Strain, %		
$\sigma_1$ Failure, psf		2104
$\sigma_3$ Failure, psf		720

**Type of Test:**

Unconsolidated Undrained

**Sample Type:** CalMod

**Description:** Lean CLAY, yellowish brown

**Assumed Specific Gravity=** 2.7

**Remarks:**

**Client:** Carollo Engineers, Inc.

**Project:** Yuba City WTP Aquifer Storage & Recovery Well Project

**Source of Sample:** BC-24-001

**Depth:** 6-6.5'

**Sample Number:** 2C

**Proj. No.:** 4586.X

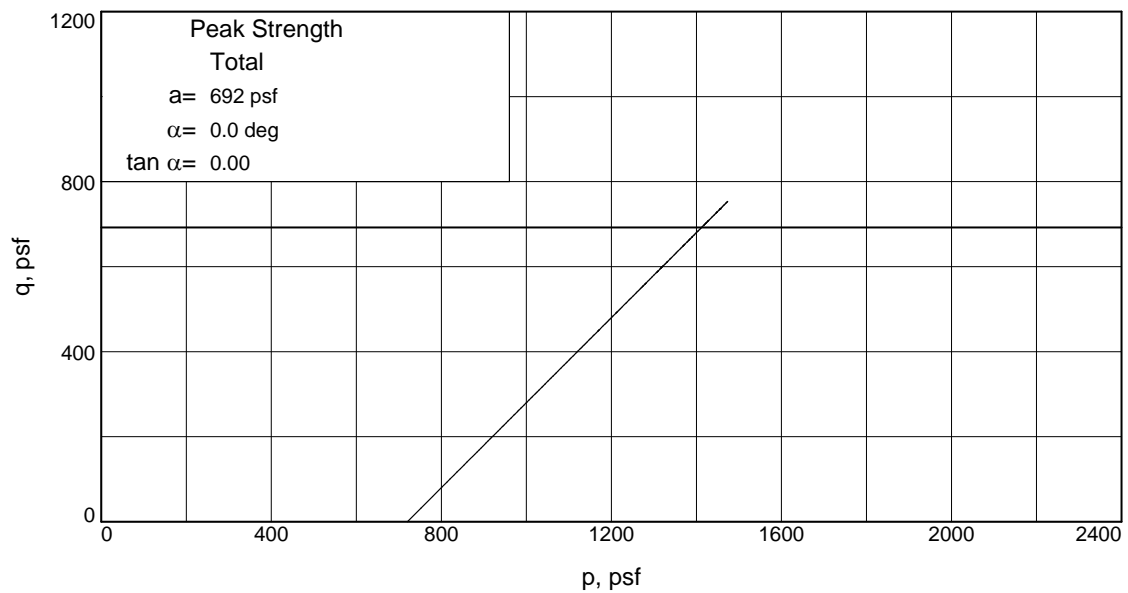
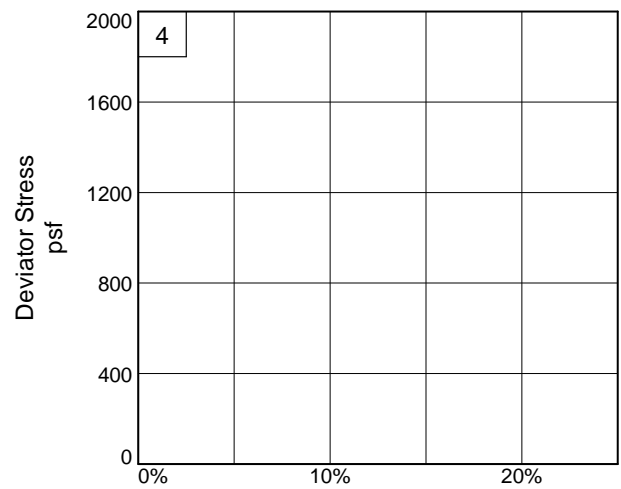
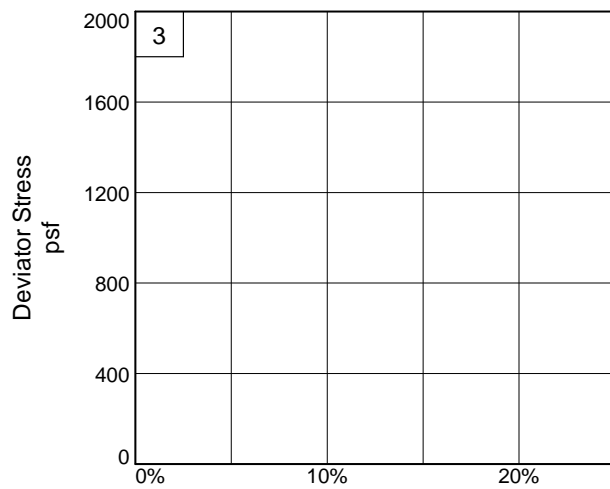
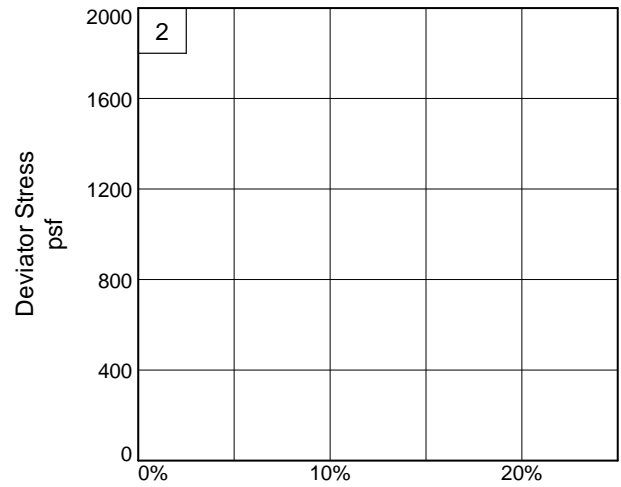
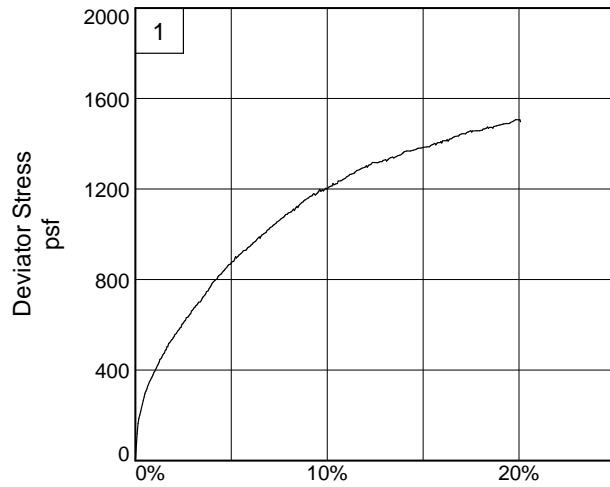
**Date Sampled:**

TRIAxIAL SHEAR TEST REPORT

Blackburn Consulting

W. Sacramento, CA

**Figure** \_\_\_\_\_



**Client:** Carollo Engineers, Inc.

**Project:** Yuba City WTP Aquifer Storage & Recovery Well Project

**Source of Sample:** BC-24-001

**Depth:** 6-6.5'

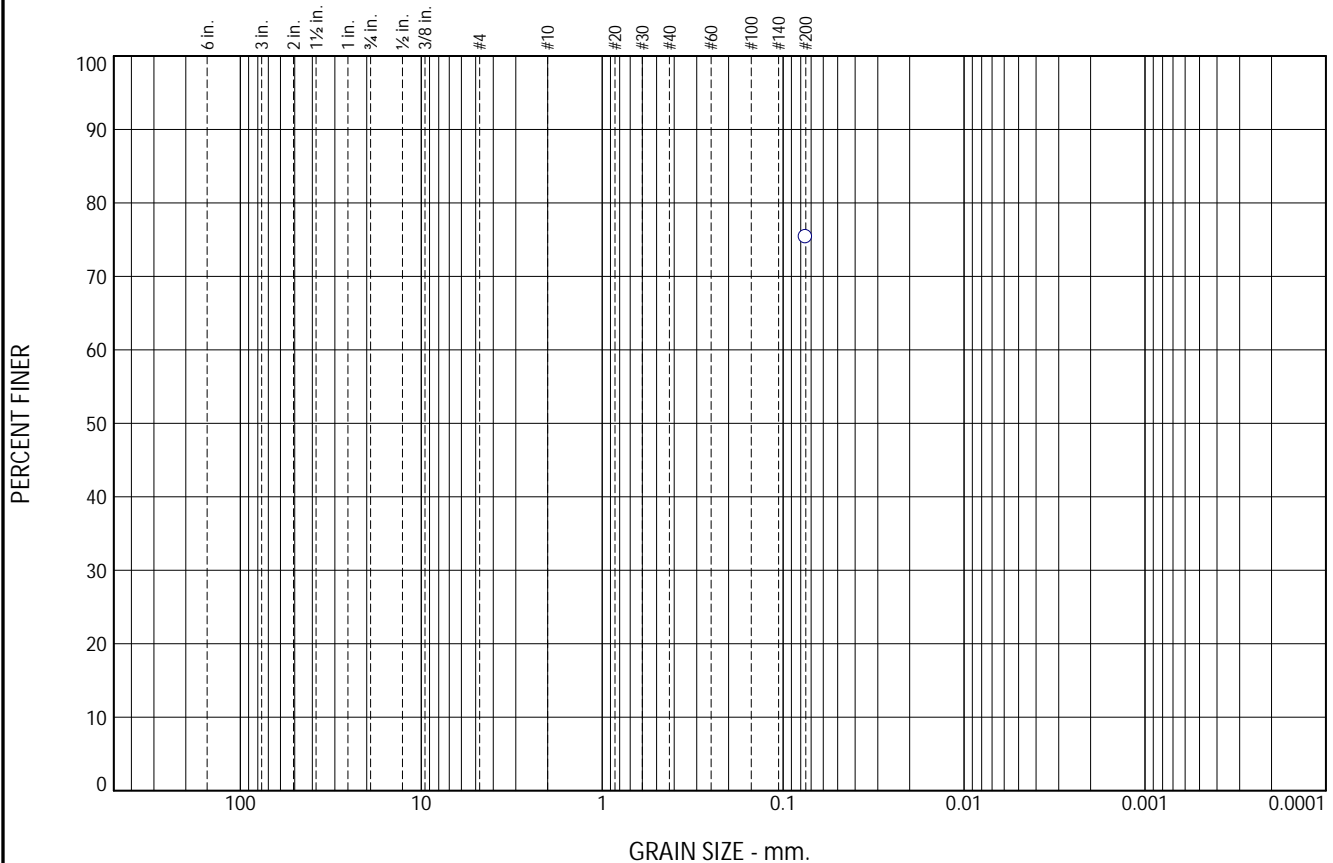
**Sample Number:** 2C

**Project No.:** 4586.X

**Figure** \_\_\_\_\_

**Blackburn Consulting**

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
						75.4	

SIEVE SIZE OR DIAMETER	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#200	75.4		

\* (no specification provided)

Soil Description  
Lean CLAY with SAND, dark yellowish brown

PL= 23      Atterberg Limits      LL= 34      PI= 11

Coefficients

D<sub>90</sub>=      D<sub>85</sub>=      D<sub>60</sub>=  
D<sub>50</sub>=      D<sub>30</sub>=      D<sub>15</sub>=  
D<sub>10</sub>=      C<sub>u</sub>=      C<sub>c</sub>=

USCS= CL      Classification  
AASHTO=

Remarks

Source of Sample: BC-24-001      Depth: 2.5-3'  
Sample Number: 1B

Date:

Blackburn Consulting

W. Sacramento, CA

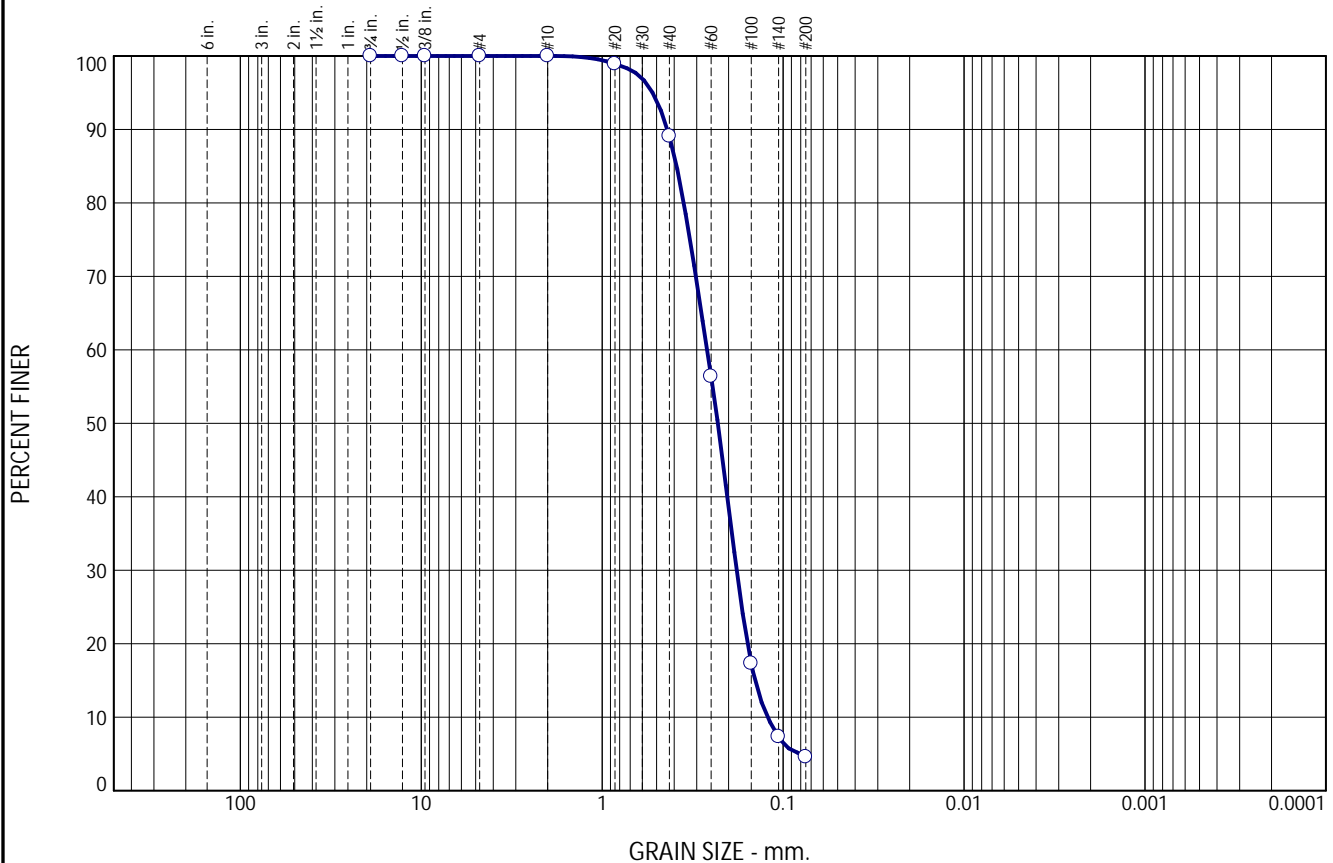
Client: Carollo Engineers, Inc.

Project: Yuba City WTP Aquifer Storage & Recovery Well Project

Project No: 4586.X

Figure

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	10.9	84.5	4.6	

SIEVE SIZE OR DIAMETER	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/4"	100.0		
1/2"	100.0		
3/8"	100.0		
#4	100.0		
#10	100.0		
#20	98.9		
#40	89.1		
#60	56.4		
#100	17.3		
#140	7.3		
#200	4.6		

\* (no specification provided)

<u>Soil Description</u>		
Poorly-graded SAND, dark yellowish brown		
<u>Atterberg Limits</u>		
PL=	LL=	PI=
<u>Coefficients</u>		
D <sub>90</sub> = 0.4361	D <sub>85</sub> = 0.3878	D <sub>60</sub> = 0.2633
D <sub>50</sub> = 0.2295	D <sub>30</sub> = 0.1805	D <sub>15</sub> = 0.1429
D <sub>10</sub> = 0.1218	C <sub>u</sub> = 2.16	C <sub>c</sub> = 1.02
<u>Classification</u>		
USCS= SP	AASHTO=	
<u>Remarks</u>		

Source of Sample: BC-24-001      Depth: 10.5-11'  
Sample Number: 3B

Date:

Blackburn Consulting

W. Sacramento, CA

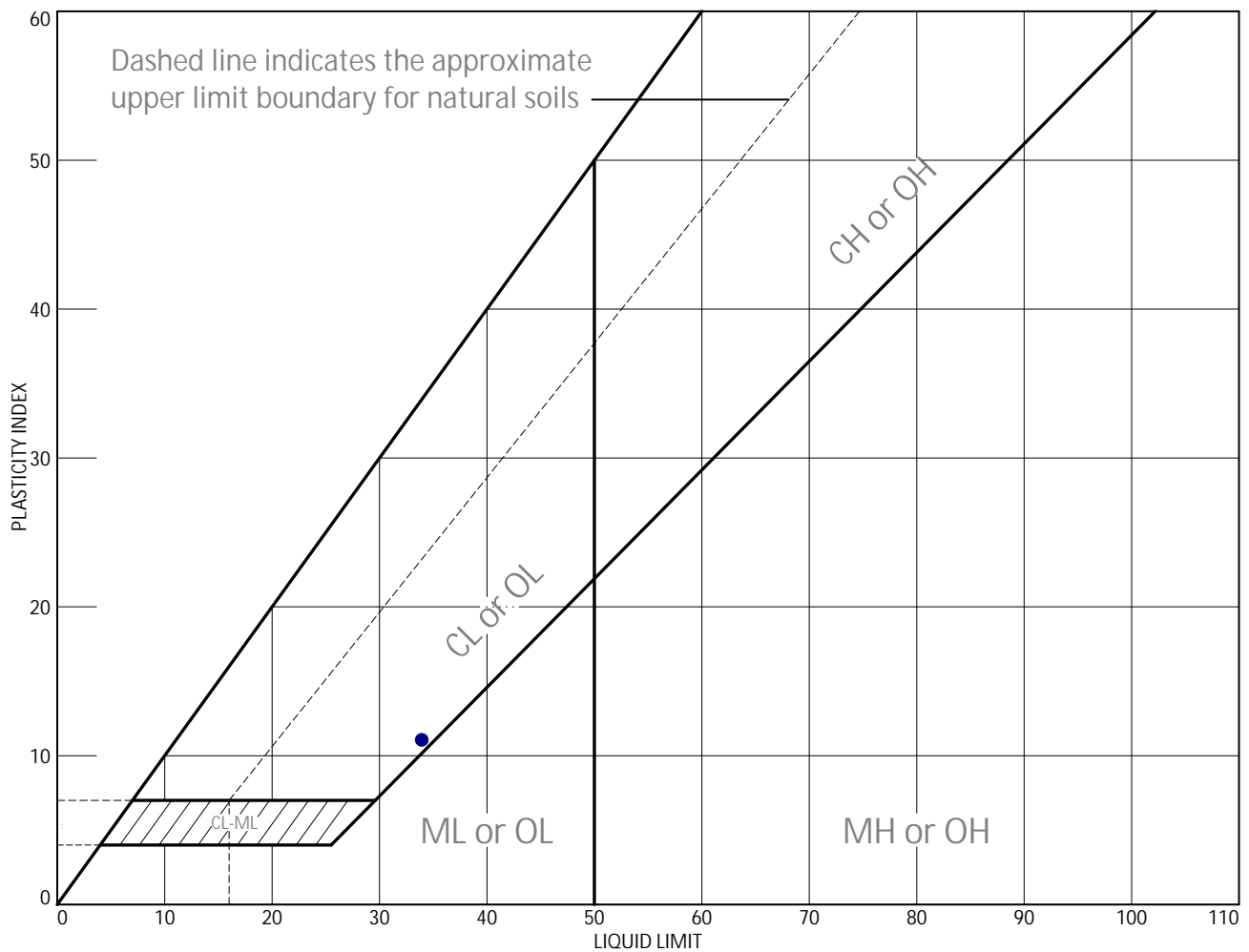
Client: Carollo Engineers, Inc.

Project: Yuba City WTP Aquifer Storage & Recovery Well Project

Project No: 4586.X

Figure

# LIQUID AND PLASTIC LIMITS TEST REPORT



	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●	Lean CLAY with SAND, dark yellowish brown	34	23	11		75.4	CL

Project No. 4586.X Client: Carollo Engineers, Inc.  
 Project: Yuba City WTP Aquifer Storage & Recovery Well Project

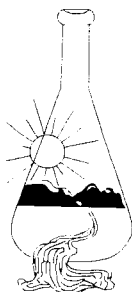
● Source of Sample: BC-24-001 Depth: 2.5-3' Sample Number: 1B

Blackburn Consulting

W. Sacramento, CA

Remarks:

Figure



# Sunland Analytical

11419 Sunrise Gold Circle, #10  
Rancho Cordova, CA 95742  
(916) 852-8557

Date Reported 03/06/2024  
Date Submitted 03/01/2024

To: Rob Pickard  
Blackburn Consulting (W.SAC)  
2491 Boatman Ave  
W. Sacramento, CA 95691

From: Gene Oliphant, Ph.D. \ Randy Horney  
General Manager \ Lab Manager

The reported analysis was requested for the following location:  
Location : 4586.X YUBA WTP Site ID : BC-24-001 BLK A.  
Thank you for your business.

\* For future reference to this analysis please use SUN # 91654-189920.

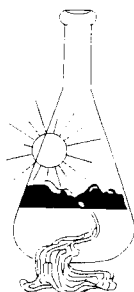
---

## EVALUATION FOR SOIL CORROSION

Soil pH	5.94		
Minimum Resistivity	1.53	ohm-cm (x1000)	
Chloride	14.9 ppm	00.00149	%
Sulfate	38.2 ppm	00.00382	%

## METHODS

pH and Min.Resistivity CA DOT Test #643  
Sulfate CA DOT Test #417, Chloride CA DOT Test #422m



# Sunland Analytical

11419 Sunrise Gold Circle, #10  
Rancho Cordova, CA 95742  
(916) 852-8557

Date Reported 03/06/2024  
Date Submitted 03/01/2024

To: Rob Pickard  
Blackburn Consulting (W.SAC)  
2491 Boatman Ave  
W. Sacramento, CA 95691

From: Gene Oliphant, Ph.D. \ Randy Horney  
General Manager \ Lab Manager *RA*

The reported analysis was requested for the following location:  
Location : 4586.X YUBA WTP Site ID : BC-24-004-1C.  
Thank you for your business.

\* For future reference to this analysis please use SUN # 91654-189921.

-----  
EVALUATION FOR SOIL CORROSION

Soil pH	6.63		
Minimum Resistivity	1.55	ohm-cm (x1000)	
Chloride	12.2 ppm	00.00122	%
Sulfate	82.0 ppm	00.00820	%

## METHODS

pH and Min.Resistivity CA DOT Test #643  
Sulfate CA DOT Test #417, Chloride CA DOT Test #422m

# **GEOTECHNICAL REPORT**

## **Yuba City Water Treatment Plant ASR Well**

Yuba City, CA

March 2024

### **APPENDIX C**

Important Information about This Geotechnical Engineering  
Report, Geoprofessional Business Association, 2019



# Important Information about This Geotechnical-Engineering Report

Subsurface problems are a principal cause of construction delays, cost overruns, claims, and disputes.

While you cannot eliminate all such risks, you can manage them. The following information is provided to help.

**The Geoprofessional Business Association (GBA) has prepared this advisory to help you – assumedly a client representative – interpret and apply this geotechnical-engineering report as effectively as possible. In that way, you can benefit from a lowered exposure to problems associated with subsurface conditions at project sites and development of them that, for decades, have been a principal cause of construction delays, cost overruns, claims, and disputes. If you have questions or want more information about any of the issues discussed herein, contact your GBA-member geotechnical engineer. Active engagement in GBA exposes geotechnical engineers to a wide array of risk-confrontation techniques that can be of genuine benefit for everyone involved with a construction project.**

## Understand the Geotechnical-Engineering Services Provided for this Report

Geotechnical-engineering services typically include the planning, collection, interpretation, and analysis of exploratory data from widely spaced borings and/or test pits. Field data are combined with results from laboratory tests of soil and rock samples obtained from field exploration (if applicable), observations made during site reconnaissance, and historical information to form one or more models of the expected subsurface conditions beneath the site. Local geology and alterations of the site surface and subsurface by previous and proposed construction are also important considerations. Geotechnical engineers apply their engineering training, experience, and judgment to adapt the requirements of the prospective project to the subsurface model(s). Estimates are made of the subsurface conditions that will likely be exposed during construction as well as the expected performance of foundations and other structures being planned and/or affected by construction activities.

The culmination of these geotechnical-engineering services is typically a geotechnical-engineering report providing the data obtained, a discussion of the subsurface model(s), the engineering and geologic engineering assessments and analyses made, and the recommendations developed to satisfy the given requirements of the project. These reports may be titled investigations, explorations, studies, assessments, or evaluations. Regardless of the title used, the geotechnical-engineering report is an engineering interpretation of the subsurface conditions within the context of the project and does not represent a close examination, systematic inquiry, or thorough investigation of all site and subsurface conditions.

## Geotechnical-Engineering Services are Performed for Specific Purposes, Persons, and Projects, and At Specific Times

Geotechnical engineers structure their services to meet the specific needs, goals, and risk management preferences of their clients. A geotechnical-engineering study conducted for a given civil engineer

will not likely meet the needs of a civil-works constructor or even a different civil engineer. Because each geotechnical-engineering study is unique, each geotechnical-engineering report is unique, prepared *solely* for the client.

Likewise, geotechnical-engineering services are performed for a specific project and purpose. For example, it is unlikely that a geotechnical-engineering study for a refrigerated warehouse will be the same as one prepared for a parking garage; and a few borings drilled during a preliminary study to evaluate site feasibility will not be adequate to develop geotechnical design recommendations for the project.

*Do not rely on this report if your geotechnical engineer prepared it:*

- for a different client;
- for a different project or purpose;
- for a different site (that may or may not include all or a portion of the original site); or
- before important events occurred at the site or adjacent to it; e.g., man-made events like construction or environmental remediation, or natural events like floods, droughts, earthquakes, or groundwater fluctuations.

Note, too, the reliability of a geotechnical-engineering report can be affected by the passage of time, because of factors like changed subsurface conditions; new or modified codes, standards, or regulations; or new techniques or tools. *If you are the least bit uncertain about the continued reliability of this report, contact your geotechnical engineer before applying the recommendations in it. A minor amount of additional testing or analysis after the passage of time – if any is required at all – could prevent major problems.*

## Read this Report in Full

Costly problems have occurred because those relying on a geotechnical-engineering report did not read the report in its entirety. Do not rely on an executive summary. Do not read selective elements only. *Read and refer to the report in full.*

## You Need to Inform Your Geotechnical Engineer About Change

Your geotechnical engineer considered unique, project-specific factors when developing the scope of study behind this report and developing the confirmation-dependent recommendations the report conveys. Typical changes that could erode the reliability of this report include those that affect:

- the site's size or shape;
- the elevation, configuration, location, orientation, function or weight of the proposed structure and the desired performance criteria;
- the composition of the design team; or
- project ownership.

As a general rule, *always* inform your geotechnical engineer of project or site changes – even minor ones – and request an assessment of their impact. *The geotechnical engineer who prepared this report cannot accept*

responsibility or liability for problems that arise because the geotechnical engineer was not informed about developments the engineer otherwise would have considered.

### Most of the “Findings” Related in This Report Are Professional Opinions

Before construction begins, geotechnical engineers explore a site’s subsurface using various sampling and testing procedures. *Geotechnical engineers can observe actual subsurface conditions only at those specific locations where sampling and testing is performed.* The data derived from that sampling and testing were reviewed by your geotechnical engineer, who then applied professional judgement to form opinions about subsurface conditions throughout the site. Actual site-wide subsurface conditions may differ – maybe significantly – from those indicated in this report. Confront that risk by retaining your geotechnical engineer to serve on the design team through project completion to obtain informed guidance quickly, whenever needed.

### This Report’s Recommendations Are Confirmation-Dependent

The recommendations included in this report – including any options or alternatives – are confirmation-dependent. In other words, they are not final, because the geotechnical engineer who developed them relied heavily on judgement and opinion to do so. Your geotechnical engineer can finalize the recommendations *only after observing actual subsurface conditions* exposed during construction. If through observation your geotechnical engineer confirms that the conditions assumed to exist actually do exist, the recommendations can be relied upon, assuming no other changes have occurred. *The geotechnical engineer who prepared this report cannot assume responsibility or liability for confirmation-dependent recommendations if you fail to retain that engineer to perform construction observation.*

### This Report Could Be Misinterpreted

Other design professionals’ misinterpretation of geotechnical-engineering reports has resulted in costly problems. Confront that risk by having your geotechnical engineer serve as a continuing member of the design team, to:

- confer with other design-team members;
- help develop specifications;
- review pertinent elements of other design professionals’ plans and specifications; and
- be available whenever geotechnical-engineering guidance is needed.

You should also confront the risk of constructors misinterpreting this report. Do so by retaining your geotechnical engineer to participate in prebid and preconstruction conferences and to perform construction-phase observations.

### Give Constructors a Complete Report and Guidance

Some owners and design professionals mistakenly believe they can shift unanticipated-subsurface-conditions liability to constructors by limiting the information they provide for bid preparation. To help prevent the costly, contentious problems this practice has caused, include the complete geotechnical-engineering report, along with any attachments or appendices, with your contract documents, *but be certain to note*

*conspicuously that you’ve included the material for information purposes only.* To avoid misunderstanding, you may also want to note that “informational purposes” means constructors have no right to rely on the interpretations, opinions, conclusions, or recommendations in the report. Be certain that constructors know they may learn about specific project requirements, including options selected from the report, *only* from the design drawings and specifications. Remind constructors that they may perform their own studies if they want to, and *be sure to allow enough time* to permit them to do so. Only then might you be in a position to give constructors the information available to you, while requiring them to at least share some of the financial responsibilities stemming from unanticipated conditions. Conducting prebid and preconstruction conferences can also be valuable in this respect.

### Read Responsibility Provisions Closely

Some client representatives, design professionals, and constructors do not realize that geotechnical engineering is far less exact than other engineering disciplines. This happens in part because soil and rock on project sites are typically heterogeneous and not manufactured materials with well-defined engineering properties like steel and concrete. That lack of understanding has nurtured unrealistic expectations that have resulted in disappointments, delays, cost overruns, claims, and disputes. To confront that risk, geotechnical engineers commonly include explanatory provisions in their reports. Sometimes labeled “limitations,” many of these provisions indicate where geotechnical engineers’ responsibilities begin and end, to help others recognize their own responsibilities and risks. *Read these provisions closely.* Ask questions. Your geotechnical engineer should respond fully and frankly.

### Geoenvironmental Concerns Are Not Covered

The personnel, equipment, and techniques used to perform an environmental study – e.g., a “phase-one” or “phase-two” environmental site assessment – differ significantly from those used to perform a geotechnical-engineering study. For that reason, a geotechnical-engineering report does not usually provide environmental findings, conclusions, or recommendations; e.g., about the likelihood of encountering underground storage tanks or regulated contaminants. *Unanticipated subsurface environmental problems have led to project failures.* If you have not obtained your own environmental information about the project site, ask your geotechnical consultant for a recommendation on how to find environmental risk-management guidance.

### Obtain Professional Assistance to Deal with Moisture Infiltration and Mold

While your geotechnical engineer may have addressed groundwater, water infiltration, or similar issues in this report, the engineer’s services were not designed, conducted, or intended to prevent migration of moisture – including water vapor – from the soil through building slabs and walls and into the building interior, where it can cause mold growth and material-performance deficiencies. Accordingly, *proper implementation of the geotechnical engineer’s recommendations will not of itself be sufficient to prevent moisture infiltration.* Confront the risk of moisture infiltration by including building-envelope or mold specialists on the design team. *Geotechnical engineers are not building-envelope or mold specialists.*



**GEOPROFESSIONAL  
BUSINESS  
ASSOCIATION**

Telephone: 301/565-2733

e-mail: [info@geoprofessional.org](mailto:info@geoprofessional.org) [www.geoprofessional.org](http://www.geoprofessional.org)

## Appendix F

---

### Noise Modeling Output

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 11/6/2024  
Case Description: Yuba City ASR Well

		---- Receptor #1 ----					
Description	Land Use	Baselines (dBA)					
		Daytime	Evening	Night			
School	Residential	70	70	70			
		Equipment					
Description		Impact	Spec	Actual	Receptor	Estimated	
			Lmax	Lmax	Distance	Shielding	
		Device	Usage(%)	(dBA)	(dBA)	(feet)	(dBA)
Dozer		No	40		81.7	160	0
Front End Loader		No	40		79.1	160	0

		Calculated (dBA)	
Equipment		*Lmax	Leq
Dozer		71.6	67.6
Front End Loader		69	65
	Total	71.6	69.5
*Calculated Lmax is the Loudest value.			

## Electric Pump Noise Calculations

Pump Rating (HP) 250  
Overall SPL at 3 feet (dB) 95.19

Octave Frequency Band (Hz)	31	63	125	250	500	1000	2000	4000	8000
Adjustment from Overall SPL	-13	-12	-11	-9	-9	-6	-9	-13	-19
Pump SPL by Octave Band (dB)	82.19	83.19	84.19	86.19	86.19	89.19	86.19	82.19	76.19

Overall SPL at 192 feet (dB)	59.1
Overall SPL at 257 feet (dB)	56.54

### Notes:

1. Calculations from *Noise Control For Buildings Manufacturing Plants, Equipment and Products*. Section 7-12 (Keith, Reginald and Taylor, Ashton. 1981, p. 7-10).
2. Pump assumed to operate between 1600 and 1800 RPM, most conservative (highest) RPM range noise level in referenced table.
3. Overall SPL at 3 feet =  $88 + 3 * \log(\text{rated HP})$ .
4. SPL near ground level at other distances =  $\text{SPL}_{\text{REF}} - 20 * \log (R / R_{\text{REF}})$ , where R is the distance between the source and the receiver.

## Appendix G

---

### Mitigation Monitoring and Reporting Program

# MITIGATION MONITORING AND REPORTING PROGRAM

## YUBA CITY AQUIFER STORAGE AND RECOVERY WELL SYSTEM PROJECT

**Purpose of Mitigation Monitoring and Reporting Program:** The California Environmental Quality Act (CEQA), Public Resources Code (PRC) Section 21081.6, requires that a Mitigation Monitoring and Reporting Program (MMRP) be established upon completing findings. CEQA stipulates that “the public agency shall adopt a reporting or monitoring program for the changes to the project which it has adopted or made a condition of project approval in order to mitigate or avoid significant effects on the environment. The reporting or monitoring program shall be designed to ensure compliance during project implementation.”

This MMRP has been prepared in compliance with PCR Section 21081.6 to ensure that all required mitigation measures are implemented and completed according to schedule and maintained in a satisfactory manner during the construction and operation of the Yuba City Aquifer Storage and Recovery Well System Project (project), as required. A table (attached) has been prepared to assist the responsible parties in implementing the MMRP. The table identifies individual mitigation measures, monitoring/mitigation timing, the responsible person/agency for implementing the measure, and space to confirm the implementation of the mitigation measures. The numbering of mitigation measures follows the numbering sequence found in the Initial Study/Mitigated Negative Declaration (IS/MND).

The City of Yuba City is the Lead Agency for the project under CEQA and shall administer and implement the MMRP. The City is responsible for reviewing all monitoring reports, enforcement actions, and document disposition. The City shall rely on information provided by the project site observers/monitors (e.g., construction manager, project manager, biologist, archaeologist, etc.) as accurate and up-to-date and shall provide personnel to field check mitigation measure status, as required.

This page intentionally left blank.



**MITIGATION MONITORING AND REPORTING PROGRAM**  
**Yuba City Aquifer Storage and Recovery Well System Project**

Mitigation Measure	Monitoring / Mitigation Timing	Reporting / Responsible Party	Verification of Compliance	
			Initials	Date
BIOLOGICAL RESOURCES				
<p><b>BIO-1: Swainson’s Hawk, White-tailed Kite, and Nesting Migratory Birds and Raptors</b></p> <p>If vegetation removal and ground disturbing activities begin during the nesting season (February 1 to August 31), a qualified biologist shall conduct a pre-construction survey of the project footprint for active nests. Additionally, the surrounding 500 feet shall be surveyed for active raptor nests, and up to a 0.25 mile for Swainson’s hawk, where accessible. The pre-construction survey shall be conducted within three days before the commencement of ground-disturbing activities. If the pre-construction survey shows that there is no evidence of active nests, a letter report shall be prepared to document the survey, and no additional measures are recommended. If construction does not commence within three days of the pre-construction survey, or halts for more than three days, an additional survey shall be required before starting work.</p> <p>If nests are found and considered to be active, the project biologist shall establish buffer zones to prohibit construction activities and minimize nest disturbance until the young have successfully fledged. Buffer width will depend on the species in question, surrounding existing disturbances, and specific site characteristics but may range from 20 feet for some songbirds to 500 feet for most raptors; if an active Swainson’s hawk nest is observed, buffers may extend up to 0.25 mile if deemed necessary by the biologist on-site. If active nests are found within any trees slated for removal or active work areas, then an appropriate buffer shall be established around the area, and the area shall not be disturbed until a biologist determines that the nestlings have successfully fledged.</p> <ul style="list-style-type: none"><li>• Encroachment into the buffer may occur at the discretion of a qualified biologist. Any encroachment into the buffer shall be monitored by a qualified biologist to determine whether nesting birds are being impacted. Shall construction activities cause the nesting migratory bird or raptor to exhibit stress behaviors from adjacent construction activities, the exclusionary buffer shall be increased such that activities are far enough from the nest to stop this agitated behavior by the</li></ul>	No more than three days prior to the initiation of project activities.	Qualified Biologist, City of Yuba City		

Mitigation Measure	Monitoring / Mitigation Timing	Reporting / Responsible Party	Verification of Compliance	
			Initials	Date
<p>migratory bird or raptor. The exclusionary buffer shall remain in place until the chicks have fledged or as otherwise determined by a qualified biologist.</p> <p>If construction activities are proposed to begin during the non-breeding season (September 1 through February 14), a survey is not required, and no further studies are necessary. However, a nesting bird survey outside of the nesting season may be warranted to identify potential raptor nests on-site since nests may be more easily observed from relatively long distances, giving the surveyor the opportunity to identify potential nest sites while some deciduous trees are dormant and without leaves.</p> <p>A qualified biologist shall conduct environmental awareness training for all project-related personnel prior to the initiation of work. The training includes information on avoiding impacts to nesting birds as described above.</p>				
<b>CULTURAL RESOURCES</b>				
<p><b>CUL-1: Accidental Discovery of Cultural Resources.</b></p> <p>In the event that cultural resources are exposed during ground-disturbing activities, construction activities shall be halted within 100 feet of the discovery. Cultural resources could consist of but are not limited to stone, bone, wood, or shell artifacts, or features, including hearths, structural remains, or historic dumpsites. If the resources cannot be avoided during the remainder of construction, the retained archaeologist, who meets the Secretary of the Interior's <i>Professional Qualifications Standards</i>, shall assess the resource and provide appropriate management recommendations. If the discovery proves to be CRHR- or NRHP-eligible, additional documentation and analysis, such as data recovery excavation, may be warranted.</p>	Immediately upon discovery of cultural resources.	Qualified Archaeologist, City of Yuba City		
<p><b>CUL-2: Accidental Discovery of Human Remains.</b></p> <p>Although considered highly unlikely, there is always the possibility that ground-disturbing activities during construction may uncover previously unknown human remains. In the event of an accidental discovery or recognition of any human remains, PRC Section 5097.98 must be followed. Once project-related earthmoving begins and if there is a discovery or recognition of human remains, the following steps shall be taken:</p> <ol style="list-style-type: none"> <li>1. There shall be no further excavation or disturbance of the specific location or any nearby area reasonably suspected to overlie adjacent human remains until the</li> </ol>	Immediately upon discovery of human remains.	Qualified Archaeologist, City of Yuba City		

Mitigation Measure	Monitoring / Mitigation Timing	Reporting / Responsible Party	Verification of Compliance	
			Initials	Date
<p>County Coroner is contacted to determine if the remains are Native American and if an investigation of the cause of death is required. If the coroner determines the remains are Native American, the coroner shall contact the NAHC within 24 hours, and the NAHC shall identify the person or persons it believes to be the “most likely descendant” of the deceased Native American. The most likely descendant may make recommendations to the landowner or the person responsible for the excavation work, for means of treating or disposing of, with appropriate dignity, the human remains, and any associated grave goods as provided in PRC Section 5097.98, or</p> <p>2. Where the following conditions occur, the landowner or their authorized representative shall rebury the Native American human remains and associated grave goods with appropriate dignity either in accordance with the recommendations of the most likely descendent or on the project site in a location not subject to further subsurface disturbance:</p> <ul style="list-style-type: none"> <li>a. The NAHC is unable to identify a most likely descendent or the most likely descendent failed to make a recommendation within 48 hours after being notified by the commission;</li> <li>b. The descendent identified fails to make a recommendation; or</li> <li>c. The landowner or his authorized representative rejects the recommendation of the descendent, and the mediation by the NAHC fails to provide measures acceptable to the landowner.</li> </ul>				
<b>HYDROLOGY AND WATER QUALITY</b>				
<p><b>HYD-1: Dewatering during Excavation Activities</b></p> <p>In the event that seepage and/or perched groundwater is encountered during excavation activities associated with construction of the ASR well, the construction contractor shall use a sump pump or other appropriate dewatering method to dewater the work area. The construction contractor shall direct water encountered during construction to the center existing WTP filter backwash pond to ensure the excess water is managed on-site.</p>	Immediately upon encountering seepage and/or perched groundwater.	Project Contractor		