State Water Resources Control Board Division of Drinking Water

Meadowbrook 1MG Tank and Booster Station Project, Merced, California

Appendices

May 2024

717 Market Street, Suite 400
San Francisco, CA 94103
650-373-1200
www.panoramaenv.com

PANORAMA ENVIRONMENTAL, INC.

APPENDIX A

AIR QUALITY MODELING FILES

Construction and Operational Emissions

CalEEMod Input/Output Files

Cal Am Meadowbrook Tank and Booster Station

CalEEMod Version 2022.1.1.21 Inputs

Source: Applicant Response to Data Request, December 18, 2023

Project Characteristics

Start of Construction: June 2, 2024

End of Construction: January 14, 2025

Operational Year: 2025

Location: Merced County

Air District: San Joaquin Valley Air Pollution Control District

Utility Company: Pacific Gas & Electric (Natural Gas)/Merced Irrigation District (Electricity)

Land Use Setting: Suburban

Land Use

Industrial Site, 0.72 Acres with 5,281 square feet storage tank of 82 feet diameter within 24,650 square foot concrete surface.

Construction Specifics

No buildings will be demolished.

Approximately 2 total haul truck trips for site preparation.

Approximately 500 cubic yards of soil will need to be exported from the project site excavations, requiring approximately 30 to 50 truck trips in total.

Approximately 26 truck trips would be required to import construction materials and engineered fill to the site.

Approximately a combined total of 61 daily worker and vendor trips.

Construction activities will occur between 8am and 5pm Monday through Friday.

Water for dust control prior to grading is estimated to be about 40,000 gallons.

Operational Specifics

One 350 kW (470 hp) diesel generator will operate at the project site. This generator will be used for emergency use only with an allotted maintenance usage of 24 hours per year (or 2 hours per day per month). SJVAPCD defines a standby generator for non-utility power generation as one that does not operate more than 200 hours a year and is only operated in the event of an

emergency power failure or for routine testing and maintenance is considered a standby backup generator for power generation. The applicant would conduct maintenance and/or testing activities. The emergency generator would be USEPA certified Tier 4 Final (factory installed emissions equipment); Generator will comply with local air quality management district emissions requirements and utilize SJVAPCD's current Best Available Control Technology at the time of application.

Operational and maintenance activities to be performed daily by one operator per day. Operator will visit the site to check facilities and chlorine residuals. No solid waste will be generated by the site. The daily operational water use will be a maximum of five gallons per day.

Approximately 500,000 kW of annual operational electrical usage.

On-Road fugitive dust inputs left as default.

Utility Information

Greenhouse Gas intensity factor: 453 lbs of CO_2e per MWh (Merced Irrigation District)

Construction activities are estimated to begin in June of 2024 with completion within 12 months. **Table 1** provides the estimated construction schedule for each phase: site preparation, piping, tank construction, paving, and architectural coating.

Table 1: Estimated Construction Schedule

Description	Start	End	Working Days
Demolition/Site Preparation	6/2/2024	6/7/2024	5
Excavation	8/20/2024	8/26/2024	5
Site Aggregate Base	8/27/2024	9/9/2024	10
Fencing	9/9/2024	9/9/2024	1
Site Piping	9/10/2024	9/23/2024	10
Booster Pump Station Install	9/25/2024	10/8/2024	10
Tank Construction	9/25/2024	11/19/2024	40
Electrical Building/Controls	10/9/2024	10/22/2024	10
Architectural Coating	12/4/2024	1/14/2025	30

SOURCE: CARB CalEEMod Version 2022.1 and Applicant Response to Data Request, December 18, 2023.

The estimated construction equipment associated with the proposed project along with the number of pieces of equipment, daily hours of operation, horsepower (hp), and load factor (i.e., percent of full throttle) are shown in **Table 2**.

Table 2: Estimated Construction Equipment Usage

Phase	Equipment	Amount	Daily Hours	HP	Load Factor
Demolition/Site Preparation	Tractors/Loaders/Backhoes	4	8	84	0.37
Demolition/Site Preparation	Concrete/Industrial Saws	1	8	33	0.73
Demolition/Site Preparation	Excavators	2	8	412	0.38
Excavation	Excavators	1	8	412	0.38
Excavation	Rollers	2	8	36	0.38
Excavation	Tractors/Loaders/Backhoes	1	8	84	0.37
Site Aggregate Base	Cement and Mortar Mixers	1	8	10	0.56
Fencing	Tractors/Loaders/Backhoes	1	8	84	0.37
Site Piping	Rough Terrain Forklifts	1	8	100	0.4
Site Piping	Tractors/Loaders/Backhoes	1	8	84	0.37
Site Piping	Excavators	1	8	412	0.38
Booster Pump Station Install	Cranes	1	8	367	0.29
Electrical Building/Controls	Cranes	1	8	367	0.29
Tank Construction	Cranes	1	8	367	0.29
Tank Construction	Rough Terrain Forklifts	1	8	100	0.4
Tank Construction	Tractors/Loaders/Backhoes	1	8	84	0.37
Tank Construction	Generator Sets	1	8	14	0.74
Tank Construction	Pumps	1	8	84	0.74
Tank Construction	Rollers	2	8	36	0.38
Tank Construction	Air Compressors	1	8	37	0.48
Tank Construction	Aerial Lifts	1	8	82	0.31
Architectural Coating	Rough Terrain Forklifts	2	8	100	0.4
Architectural Coating	Tractors/Loaders/Backhoes	1	8	84	0.37
Architectural Coating	Aerial Lifts	1	8	82	0.31
Architectural Coating	Welders	1	8	46	0.45
Architectural Coating	Air Compressors	1	8	37	0.48

SOURCE: CARB CalEEMod Version 2022.1 and Applicant Response to Data Request, December 18, 2023.

The estimated construction vehicle trips associated with the proposed project are shown in **Table 3**.

Table 3: Estimated Construction Vehicle Usage

Phase	Daily Worker Trips	Daily Vendor Trips	Daily Hauling Trips
Demolition/Site Preparation	5	0	2
Grading/Excavation	5	0	50
Site Aggregate Base	5	0	10
Fencing	5	1	0
Site Piping	5	1	0
Booster Pump Station Install	5	1	1
Electrical Building/Controls	10	1	1
Tank Construction	10	1	1
Tank Painting	5	1	1

SOURCE: CARB CalEEMod Version 2022.1 and Applicant Response to Data Request, December 18, 2023.

Cal Am Meadowbrook Tank and Booster Station - Diesel Generator Custom Report

Table of Contents

1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	Cal Am Meadowbrook Tank and Booster Station - Diesel Generator
Construction Start Date	1/1/2024
Operational Year	2025
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	2.80
Precipitation (days)	23.4
Location	37.32832217781349, -120.52270433864513
County	Merced
City	—
Air District	San Joaquin Valley APCD
Air Basin	San Joaquin Valley
TAZ	2302
EDFZ	14
Electric Utility	Merced Irrigation District
Gas Utility	Pacific Gas & Electric
App Version	2022.1.1.22

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description

General Light Industry	5.28	1000sqft	0.72	5,281	0.00	0.00	—	—
Other Non-Asphalt Surfaces	24.6	1000sqft	0.57	0.00	0.00	0.00	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

Sector	#	Measure Title
Construction	C-5	Use Advanced Engine Tiers

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.	2.24	26.9	21.3	0.15	0.77	5.60	6.22	0.71	1.53	2.13	23,760
Mit.	0.60	23.7	25.1	0.15	0.43	5.60	6.04	0.43	1.53	1.97	23,760
% Reduced	73%	12%	-18%	—	44%	—	3%	39%	—	8%	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Unmit.	2.26	20.0	21.4	0.05	0.77	0.39	1.16	0.71	0.10	0.81	5,160
Mit.	1.36	5.80	25.1	0.05	0.12	0.39	0.51	0.12	0.10	0.22	5,160
% Reduced	40%	71%	-18%	—	84%	—	56%	83%	—	73%	—
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.38	3.15	3.32	0.01	0.12	0.15	0.27	0.11	0.04	0.15	1,179
Mit.	0.15	1.30	4.00	0.01	0.03	0.15	0.18	0.02	0.04	0.07	1,179

% Reduced	60%	59%	-21%	—	78%	—	34%	77%	—	56%	—
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.07	0.57	0.61	< 0.005	0.02	0.03	0.05	0.02	0.01	0.03	195
Mit.	0.03	0.24	0.73	< 0.005	< 0.005	0.03	0.03	< 0.005	0.01	0.01	195
% Reduced	60%	59%	-21%	—	78%	—	34%	77%	—	56%	—
Exceeds (Annual)	—	—	—	—	—	—	—	—	—	—	—
Threshold	10.0	10.0	100	27.0	—	—	15.0	—	—	15.0	—
Unmit.	No	No	No	No	—	—	No	—	—	No	—
Mit.	No	No	No	No	—	—	No	—	—	No	—

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)	—	—	—	—	—	—	—	—	—	—	—
2024	2.24	26.9	21.3	0.15	0.77	5.60	6.22	0.71	1.53	2.13	23,760
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
2024	2.26	20.0	21.4	0.05	0.77	0.39	1.16	0.71	0.10	0.81	5,160
2025	1.15	—	—	—	—	0.12	0.12	—	0.03	0.03	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—
2024	0.38	3.15	3.32	0.01	0.12	0.15	0.27	0.11	0.04	0.15	1,179
2025	0.03	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—
Annual	—	—	—	—	—	—	—	—	—	—	—
2024	0.07	0.57	0.61	< 0.005	0.02	0.03	0.05	0.02	0.01	0.03	195
2025	0.01	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—

2.3. Construction Emissions by Year, Mitigated

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)	—	—	—	—	—	—	—	—	—	—	—
2024	0.60	23.7	25.1	0.15	0.43	5.60	6.04	0.43	1.53	1.97	23,760
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
2024	1.36	5.80	25.1	0.05	0.12	0.39	0.51	0.12	0.10	0.22	5,160
2025	1.33	2.49	11.7	0.02	0.03	0.12	0.15	0.03	0.03	0.06	1,663
Average Daily	—	—	—	—	—	—	—	—	—	—	—
2024	0.15	1.30	4.00	0.01	0.03	0.15	0.18	0.02	0.04	0.07	1,179
2025	0.04	0.07	0.32	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	45.6
Annual	—	—	—	—	—	—	—	—	—	—	—
2024	0.03	0.24	0.73	< 0.005	< 0.005	0.03	0.03	< 0.005	0.01	0.01	195
2025	0.01	0.01	0.06	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	7.54

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.	0.40	0.48	4.30	0.01	0.12	0.02	0.14	0.12	0.01	0.13	1,458
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.36	0.48	4.06	0.01	0.12	0.02	0.14	0.12	0.01	0.13	1,455
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—

Unmit.	0.17	0.04	0.36	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	690
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.03	0.01	0.07	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	114
Exceeds (Annual)	—	—	—	—	—	—	—	—	—	—	—
Threshold	10.0	10.0	100	27.0	—	—	15.0	—	—	15.0	—
Unmit.	No	No	No	No	—	—	No	—	—	No	—

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	0.02	0.02	0.13	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	28.8
Area	0.16	< 0.005	0.23	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.95
Energy	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	624
Water	—	—	—	—	—	—	—	—	—	—	< 0.005
Waste	—	—	—	—	—	—	—	—	—	—	12.3
Stationary	0.21	0.45	3.93	0.01	0.12	0.00	0.12	0.12	0.00	0.12	792
Total	0.40	0.48	4.30	0.01	0.12	0.02	0.14	0.12	0.01	0.13	1,458
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.02	0.02	0.12	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	26.8
Area	0.12	—	—	—	—	—	—	—	—	—	—
Energy	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	624
Water	—	—	—	—	—	—	—	—	—	—	< 0.005
Waste	—	—	—	—	—	—	—	—	—	—	12.3
Stationary	0.21	0.45	3.93	0.01	0.12	0.00	0.12	0.12	0.00	0.12	792

Total	0.36	0.48	4.06	0.01	0.12	0.02	0.14	0.12	0.01	0.13	1,455
Average Daily	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.02	0.02	0.12	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	27.4
Area	0.14	< 0.005	0.11	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.47
Energy	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	624
Water	—	—	—	—	—	—	—	—	—	—	< 0.005
Waste	—	—	—	—	—	—	—	—	—	—	12.3
Stationary	0.01	0.01	0.13	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.00	< 0.005	26.0
Total	0.17	0.04	0.36	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	690
Annual	—	—	—	—	—	—	—	—	—	—	—
Mobile	< 0.005	< 0.005	0.02	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	4.53
Area	0.03	< 0.005	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.08
Energy	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	103
Water	—	—	—	—	—	—	—	—	—	—	< 0.005
Waste	—	—	—	—	—	—	—	—	—	—	2.04
Stationary	< 0.005	< 0.005	0.02	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.00	< 0.005	4.31
Total	0.03	0.01	0.07	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	114

2.6. Operations Emissions by Sector, Mitigated

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	0.02	0.02	0.13	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	28.8
Area	0.16	< 0.005	0.23	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.95
Energy	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	624
Water	—	—	—	—	—	—	—	—	—	—	< 0.005

Waste	—	—	—	—	—	—	—	—	—	—	12.3
Stationary	0.21	0.45	3.93	0.01	0.12	0.00	0.12	0.12	0.00	0.12	792
Total	0.40	0.48	4.30	0.01	0.12	0.02	0.14	0.12	0.01	0.13	1,458
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.02	0.02	0.12	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	26.8
Area	0.12	—	—	—	—	—	—	—	—	—	—
Energy	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	624
Water	—	—	—	—	—	—	—	—	—	—	< 0.005
Waste	—	—	—	—	—	—	—	—	—	—	12.3
Stationary	0.21	0.45	3.93	0.01	0.12	0.00	0.12	0.12	0.00	0.12	792
Total	0.36	0.48	4.06	0.01	0.12	0.02	0.14	0.12	0.01	0.13	1,455
Average Daily	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.02	0.02	0.12	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	27.4
Area	0.14	< 0.005	0.11	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.47
Energy	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	624
Water	—	—	—	—	—	—	—	—	—	—	< 0.005
Waste	—	—	—	—	—	—	—	—	—	—	12.3
Stationary	0.01	0.01	0.13	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.00	< 0.005	26.0
Total	0.17	0.04	0.36	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	690
Annual	—	—	—	—	—	—	—	—	—	—	—
Mobile	< 0.005	< 0.005	0.02	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	4.53
Area	0.03	< 0.005	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.08
Energy	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	103
Water	—	—	—	—	—	—	—	—	—	—	< 0.005
Waste	—	—	—	—	—	—	—	—	—	—	2.04
Stationary	< 0.005	< 0.005	0.02	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.00	< 0.005	4.31
Total	0.03	0.01	0.07	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	114

3. Construction Emissions Details

3.1. Demolition (2024) - 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	1.34	11.0	15.3	0.04	0.42	—	0.42	0.39	—	0.39	4,331
Demolition	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.15	0.21	< 0.005	0.01	—	0.01	0.01	—	0.01	59.3
Demolition	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	0.03	0.04	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	9.82
Demolition	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.02	0.35	0.00	0.00	0.04	0.04	0.00	0.01	0.01	44.3
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Hauling	0.01	0.86	0.10	0.01	0.02	0.22	0.24	0.02	0.06	0.08	867
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	0.56
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	11.9
Annual	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.09
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	1.96

3.2. Demolition (2024) - Mitigated

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	0.42	3.17	24.2	0.04	0.08	—	0.08	0.08	—	0.08	4,331
Demolition	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.04	0.33	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	59.3
Demolition	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Annual	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	0.01	0.06	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	9.82
Demolition	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.02	0.35	0.00	0.00	0.04	0.04	0.00	0.01	0.01	44.3
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	0.86	0.10	0.01	0.02	0.22	0.24	0.02	0.06	0.08	867
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	0.56
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	11.9
Annual	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.09
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	1.96

3.3. Site Aggregate Base (2024) - 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	0.05	0.41	0.32	< 0.005	0.02	—	0.02	0.01	—	0.01	56.5
Dust From Material Movement	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—
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	0.01	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	1.55
Dust From Material Movement	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—
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	< 0.005	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.26
Dust From Material Movement	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—
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	0.03	0.02	0.35	0.00	0.00	0.04	0.04	0.00	0.01	0.01	44.3
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.03	4.31	0.51	0.03	0.08	1.11	1.19	0.08	0.30	0.38	4,336
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	1.11

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	0.12	0.01	< 0.005	< 0.005	0.03	0.03	< 0.005	0.01	0.01	119
Annual	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.18
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	0.02	< 0.005	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	19.6

3.4. Site Aggregate Base (2024) - Mitigated

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	0.05	0.41	0.32	< 0.005	0.02	—	0.02	0.01	—	0.01	56.5
Dust From Material Movement	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—
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	0.01	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	1.55
Dust From Material Movement	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—
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	< 0.005	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.26
Dust From Material Movement	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—
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	0.03	0.02	0.35	0.00	0.00	0.04	0.04	0.00	0.01	0.01	44.3
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.03	4.31	0.51	0.03	0.08	1.11	1.19	0.08	0.30	0.38	4,336
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	1.11
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	0.12	0.01	< 0.005	< 0.005	0.03	0.03	< 0.005	0.01	0.01	119
Annual	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.18
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	0.02	< 0.005	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	19.6

3.5. Fencing (2024) - 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	0.12	1.20	1.92	< 0.005	0.05	—	0.05	0.05	—	0.05	291
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	< 0.005	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.80
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	< 0.005	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.13
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	0.03	0.02	0.35	0.00	0.00	0.04	0.04	0.00	0.01	0.01	44.3
Vendor	< 0.005	0.04	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	27.6
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)	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.11

Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.08
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	0.02
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.01
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.6. Fencing (2024) - Mitigated

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	0.03	0.14	2.03	< 0.005	0.01	—	0.01	0.01	—	0.01	291
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	< 0.005	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.80
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	< 0.005	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.13
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	0.03	0.02	0.35	0.00	0.00	0.04	0.04	0.00	0.01	0.01	44.3
Vendor	< 0.005	0.04	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	27.6
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)	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.11
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.08
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	0.02
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.01
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.7. Site Piping (2024) - 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	0.59	4.66	6.89	0.02	0.21	—	0.21	0.19	—	0.19	2,125
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	0.02	0.13	0.19	< 0.005	0.01	—	0.01	0.01	—	0.01	58.2
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	0.02	0.03	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	9.64
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	0.03	0.02	0.35	0.00	0.00	0.04	0.04	0.00	0.01	0.01	44.3
Vendor	< 0.005	0.04	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	27.6
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)	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	1.11
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.76
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	0.18
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.13
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.8. Site Piping (2024) - Mitigated

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	1.04	11.8	0.02	0.04	—	0.04	0.04	—	0.04	2,125
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	0.03	0.32	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	58.2
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	0.01	0.06	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	9.64
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	0.03	0.02	0.35	0.00	0.00	0.04	0.04	0.00	0.01	0.01	44.3
Vendor	< 0.005	0.04	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	27.6
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)	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	1.11

Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.76
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	0.18
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.13
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.9. Booster Pump Station Install (2024) - 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	0.39	4.00	3.15	0.01	0.16	—	0.16	0.15	—	0.15	994
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	0.39	4.00	3.15	0.01	0.16	—	0.16	0.15	—	0.15	994
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	0.01	0.11	0.09	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	27.2
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	0.02	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	4.51
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Offsite	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.02	0.35	0.00	0.00	0.04	0.04	0.00	0.01	0.01	44.3
Vendor	< 0.005	0.04	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	27.6
Hauling	< 0.005	0.43	0.05	< 0.005	0.01	0.11	0.12	0.01	0.03	0.04	434
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.26	0.00	0.00	0.04	0.04	0.00	0.01	0.01	39.4
Vendor	< 0.005	0.04	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	27.6
Hauling	< 0.005	0.46	0.05	< 0.005	0.01	0.11	0.12	0.01	0.03	0.04	433
Average Daily	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	1.11
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.76
Hauling	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	11.9
Annual	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.18
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.13
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	1.96

3.10. Booster Pump Station Install (2024) - Mitigated

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	0.09	0.49	4.88	0.01	0.02	—	0.02	0.02	—	0.02	994
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	0.09	0.49	4.88	0.01	0.02	—	0.02	0.02	—	0.02	994
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	0.01	0.13	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	27.2
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	4.51
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.02	0.35	0.00	0.00	0.04	0.04	0.00	0.01	0.01	44.3
Vendor	< 0.005	0.04	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	27.6
Hauling	< 0.005	0.43	0.05	< 0.005	0.01	0.11	0.12	0.01	0.03	0.04	434
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.26	0.00	0.00	0.04	0.04	0.00	0.01	0.01	39.4
Vendor	< 0.005	0.04	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	27.6
Hauling	< 0.005	0.46	0.05	< 0.005	0.01	0.11	0.12	0.01	0.03	0.04	433
Average Daily	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	1.11
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.76
Hauling	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	11.9
Annual	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.18

Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.13
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	1.96

3.11. Electrical Building/Controls (2024) - 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	0.39	4.00	3.15	0.01	0.16	—	0.16	0.15	—	0.15	994
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	0.01	0.11	0.09	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	27.2
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	0.02	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	4.51
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.05	0.53	0.00	0.00	0.08	0.08	0.00	0.02	0.02	78.8
Vendor	< 0.005	0.04	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	27.6
Hauling	< 0.005	0.46	0.05	< 0.005	0.01	0.11	0.12	0.01	0.03	0.04	433

Average Daily	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	2.23
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.76
Hauling	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	11.9
Annual	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.37
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.13
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	1.96

3.12. Electrical Building/Controls (2024) - Mitigated

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	0.09	0.49	4.88	0.01	0.02	—	0.02	0.02	—	0.02	994
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	0.01	0.13	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	27.2
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	4.51
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.05	0.53	0.00	0.00	0.08	0.08	0.00	0.02	0.02	78.8
Vendor	< 0.005	0.04	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	27.6
Hauling	< 0.005	0.46	0.05	< 0.005	0.01	0.11	0.12	0.01	0.03	0.04	433
Average Daily	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	2.23
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.76
Hauling	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	11.9
Annual	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.37
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.13
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	1.96

3.13. Tank Construction (2024) - 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	1.75	14.9	17.0	0.03	0.59	—	0.59	0.55	—	0.55	3,089
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	1.75	14.9	17.0	0.03	0.59	—	0.59	0.55	—	0.55	3,089

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	0.19	1.63	1.86	< 0.005	0.07	—	0.07	0.06	—	0.06	338
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	0.03	0.30	0.34	< 0.005	0.01	—	0.01	0.01	—	0.01	56.0
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	0.04	0.69	0.00	0.00	0.08	0.08	0.00	0.02	0.02	88.5
Vendor	< 0.005	0.04	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	27.6
Hauling	< 0.005	0.43	0.05	< 0.005	0.01	0.11	0.12	0.01	0.03	0.04	434
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05	0.05	0.53	0.00	0.00	0.08	0.08	0.00	0.02	0.02	78.8
Vendor	< 0.005	0.04	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	27.6
Hauling	< 0.005	0.46	0.05	< 0.005	0.01	0.11	0.12	0.01	0.03	0.04	433
Average Daily	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.06	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	8.91
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	3.03
Hauling	< 0.005	0.05	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	47.5
Annual	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	1.48
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.50
Hauling	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	7.86

3.14. Tank Construction (2024) - Mitigated

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	0.41	4.20	19.0	0.03	0.09	—	0.09	0.08	—	0.08	3,089
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	0.41	4.20	19.0	0.03	0.09	—	0.09	0.08	—	0.08	3,089
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	0.46	2.08	< 0.005	0.01	—	0.01	0.01	—	0.01	338
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	0.08	0.38	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	56.0
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	0.04	0.69	0.00	0.00	0.08	0.08	0.00	0.02	0.02	88.5
Vendor	< 0.005	0.04	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	27.6
Hauling	< 0.005	0.43	0.05	< 0.005	0.01	0.11	0.12	0.01	0.03	0.04	434
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—

Worker	0.05	0.05	0.53	0.00	0.00	0.08	0.08	0.00	0.02	0.02	78.8
Vendor	< 0.005	0.04	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	27.6
Hauling	< 0.005	0.46	0.05	< 0.005	0.01	0.11	0.12	0.01	0.03	0.04	433
Average Daily	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.06	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	8.91
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	3.03
Hauling	< 0.005	0.05	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	47.5
Annual	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	1.48
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.50
Hauling	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	7.86

3.15. Architectural Coating (2024) - 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	0.82	6.80	10.7	0.02	0.31	—	0.31	0.28	—	0.28	1,663
Architectural Coatings	1.15	—	—	—	—	—	—	—	—	—	—
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	0.59	< 0.005	0.02	—	0.02	0.02	—	0.02	91.1

Architectural Coatings	0.06	—	—	—	—	—	—	—	—	—	—
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	0.11	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	15.1
Architectural Coatings	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	0.03	0.03	0.26	0.00	0.00	0.04	0.04	0.00	0.01	0.01	39.4
Vendor	< 0.005	0.04	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	27.6
Hauling	< 0.005	0.46	0.05	< 0.005	0.01	0.11	0.12	0.01	0.03	0.04	433
Average Daily	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	2.23
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	1.51
Hauling	< 0.005	0.02	< 0.005	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	23.7
Annual	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.37
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.25
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	3.93

3.16. Architectural Coating (2024) - Mitigated

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	0.18	2.49	11.7	0.02	0.03	—	0.03	0.03	—	0.03	1,663
Architectural Coatings	1.15	—	—	—	—	—	—	—	—	—	—
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	0.01	0.14	0.64	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	91.1
Architectural Coatings	0.06	—	—	—	—	—	—	—	—	—	—
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	0.02	0.12	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	15.1
Architectural Coatings	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	0.03	0.03	0.26	0.00	0.00	0.04	0.04	0.00	0.01	0.01	39.4
Vendor	< 0.005	0.04	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	27.6
Hauling	< 0.005	0.46	0.05	< 0.005	0.01	0.11	0.12	0.01	0.03	0.04	433
Average Daily	—	—	—	—	—	—	—	—	—	—	—

Worker	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	2.23
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	1.51
Hauling	< 0.005	0.02	< 0.005	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	23.7
Annual	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.37
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.25
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	3.93

3.17. Architectural Coating (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)	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	1.15	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.03	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—
Annual	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.01	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—
Offsite	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	0.04	0.04	—	0.01	0.01	—
Vendor	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—
Hauling	—	—	—	—	—	0.08	0.08	—	0.02	0.02	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—
Vendor	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—
Hauling	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—
Annual	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—
Vendor	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—
Hauling	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—

3.18. Architectural Coating (2025) - Mitigated

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	0.18	2.49	11.7	0.02	0.03	—	0.03	0.03	—	0.03	1,663
Architectural Coatings	1.15	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—

Average Daily	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	0.07	0.32	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	45.6
Architectural Coatings	0.03	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—
Annual	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	0.01	0.06	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	7.54
Architectural Coatings	0.01	—	—	—	—	—	—	—	—	—	—
Onsite truck	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—
Offsite	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	0.04	0.04	—	0.01	0.01	—
Vendor	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—
Hauling	—	—	—	—	—	0.08	0.08	—	0.02	0.02	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—
Vendor	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—
Hauling	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—
Annual	—	—	—	—	—	—	—	—	—	—	—
Worker	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—
Vendor	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—
Hauling	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—

3.19. Excavation (2024) - 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	0.75	5.32	6.83	0.02	0.22	—	0.22	0.21	—	0.21	2,036
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	27.9
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	4.62
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	0.03	0.02	0.35	0.00	0.00	0.04	0.04	0.00	0.01	0.01	44.3
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.17	21.5	2.57	0.13	0.40	5.56	5.96	0.40	1.52	1.92	21,680
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	0.56

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	0.31	0.04	< 0.005	0.01	0.08	0.08	0.01	0.02	0.03	297
Annual	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.09
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	0.06	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	49.1

3.20. Excavation (2024) - Mitigated

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	0.21	2.19	11.2	0.02	0.04	—	0.04	0.04	—	0.04	2,036
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	0.03	0.15	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	27.9
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	0.03	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	4.62
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	0.03	0.02	0.35	0.00	0.00	0.04	0.04	0.00	0.01	0.01	44.3
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.17	21.5	2.57	0.13	0.40	5.56	5.96	0.40	1.52	1.92	21,680
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	0.56
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	0.31	0.04	< 0.005	0.01	0.08	0.08	0.01	0.02	0.03	297
Annual	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.09
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	0.06	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	49.1

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)	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	0.02	0.02	0.13	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	28.8
Other Non-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	0.02	0.02	0.13	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	28.8

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	0.02	0.02	0.12	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	26.8
Other Non-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	0.02	0.02	0.12	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	26.8
Annual	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	< 0.005	< 0.005	0.02	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	4.53
Other Non-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	0.02	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	4.53

4.1.2. Mitigated

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)	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	0.02	0.02	0.13	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	28.8
Other Non-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	0.02	0.02	0.13	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	28.8
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	0.02	0.02	0.12	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	26.8

Other Non-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	0.02	0.02	0.12	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	26.8
Annual	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	< 0.005	< 0.005	0.02	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	4.53
Other Non-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	0.02	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	4.53

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)	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	624
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	624
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	624
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	0.00

Total	—	—	—	—	—	—	—	—	—	—	624
Annual	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	103
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	103

4.2.2. Electricity Emissions By Land Use - Mitigated

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)	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	624
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	624
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	624
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	624
Annual	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	103

Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	103

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)	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00
Other Non-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)	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00
Other Non-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	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00
Other Non-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

4.2.4. Natural Gas Emissions By Land Use - Mitigated

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)	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00
Other Non-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)	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00
Other Non-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	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	0.00
Other Non-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	0.11	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.01	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.04	< 0.005	0.23	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.95
Total	0.16	< 0.005	0.23	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.95
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	0.11	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.01	—	—	—	—	—	—	—	—	—	—
Total	0.12	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	0.02	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	< 0.005	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	< 0.005	< 0.005	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.08
Total	0.03	< 0.005	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.08

4.3.2. Mitigated

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	0.11	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.01	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.04	< 0.005	0.23	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.95
Total	0.16	< 0.005	0.23	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.95
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	0.11	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.01	—	—	—	—	—	—	—	—	—	—
Total	0.12	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	0.02	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	< 0.005	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	< 0.005	< 0.005	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.08
Total	0.03	< 0.005	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.08

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)	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	< 0.005

Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	< 0.005
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	< 0.005
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	< 0.005
Annual	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	< 0.005
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	< 0.005

4.4.2. Mitigated

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)	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	< 0.005
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	< 0.005

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	< 0.005
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	< 0.005
Annual	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	< 0.005
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	< 0.005

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)	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	12.3
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	12.3
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—

General Light Industry	—	—	—	—	—	—	—	—	—	—	12.3
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	12.3
Annual	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	2.04
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	2.04

4.5.2. Mitigated

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)	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	12.3
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	12.3
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	12.3
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	0.00

Total	—	—	—	—	—	—	—	—	—	—	12.3
Annual	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	2.04
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	2.04

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	—	—	—	—	—	—	—	—	—	—	—

4.6.2. Mitigated

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	—	—	—	—	—	—	—	—	—	—	—

4.7.2. Mitigated

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)	—	—	—	—	—	—	—	—	—	—	—
Emergency Generator	0.21	0.45	3.93	0.01	0.12	0.00	0.12	0.12	0.00	0.12	792
Total	0.21	0.45	3.93	0.01	0.12	0.00	0.12	0.12	0.00	0.12	792
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Emergency Generator	0.21	0.45	3.93	0.01	0.12	0.00	0.12	0.12	0.00	0.12	792
Total	0.21	0.45	3.93	0.01	0.12	0.00	0.12	0.12	0.00	0.12	792
Annual	—	—	—	—	—	—	—	—	—	—	—
Emergency Generator	< 0.005	< 0.005	0.02	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.00	< 0.005	4.31
Total	< 0.005	< 0.005	0.02	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.00	< 0.005	4.31

4.8.2. Mitigated

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)	—	—	—	—	—	—	—	—	—	—	—
Emergency Generator	0.21	0.45	3.93	0.01	0.12	0.00	0.12	0.12	0.00	0.12	792
Total	0.21	0.45	3.93	0.01	0.12	0.00	0.12	0.12	0.00	0.12	792
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Emergency Generator	0.21	0.45	3.93	0.01	0.12	0.00	0.12	0.12	0.00	0.12	792
Total	0.21	0.45	3.93	0.01	0.12	0.00	0.12	0.12	0.00	0.12	792
Annual	—	—	—	—	—	—	—	—	—	—	—
Emergency Generator	< 0.005	< 0.005	0.02	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.00	< 0.005	4.31
Total	< 0.005	< 0.005	0.02	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.00	< 0.005	4.31

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	—	—	—	—	—	—	—	—	—	—	—

4.9.2. Mitigated

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	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—

4.10.4. Soil Carbon Accumulation By Vegetation Type - Mitigated

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	—	—	—	—	—	—	—	—	—	—	—

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

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	—	—	—	—	—	—	—	—	—	—	—

4.10.6. Avoided and Sequestered Emissions by Species - Mitigated

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
Demolition	Demolition	6/2/2024	6/7/2024	5.00	5.00	—
Site Aggregate Base	Grading	8/27/2024	9/9/2024	5.00	10.0	—
Fencing	Grading	9/9/2024	9/9/2024	5.00	1.00	—
Site Piping	Building Construction	9/10/2024	9/23/2024	5.00	10.0	—
Booster Pump Station Install	Building Construction	9/25/2024	10/8/2024	5.00	10.0	—
Electrical Building/Controls	Building Construction	10/9/2024	10/22/2024	5.00	10.0	—
Tank Construction	Building Construction	9/25/2024	11/19/2024	5.00	40.0	—
Architectural Coating	Architectural Coating	12/4/2024	1/14/2025	5.00	30.0	—
Excavation	Trenching	8/20/2024	8/26/2024	5.00	5.00	—

5.2. Off-Road Equipment

5.2.1. Unmitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Demolition	Tractors/Loaders/Backhoes	Diesel	Average	4.00	8.00	84.0	0.37
Demolition	Concrete/Industrial Saws	Diesel	Average	1.00	8.00	33.0	0.73
Demolition	Excavators	Diesel	Average	2.00	8.00	412	0.38
Site Aggregate Base	Cement and Mortar Mixers	Diesel	Average	1.00	8.00	10.0	0.56
Fencing	Tractors/Loaders/Backhoes	Diesel	Average	1.00	8.00	84.0	0.37
Site Piping	Rough Terrain Forklifts	Diesel	Average	1.00	8.00	100	0.40
Site Piping	Tractors/Loaders/Backhoes	Diesel	Average	1.00	8.00	84.0	0.37
Site Piping	Excavators	Diesel	Average	1.00	8.00	412	0.38
Booster Pump Station Install	Cranes	Diesel	Average	1.00	8.00	367	0.29
Electrical Building/Controls	Cranes	Diesel	Average	1.00	8.00	367	0.29
Tank Construction	Cranes	Diesel	Average	1.00	8.00	367	0.29
Tank Construction	Rough Terrain Forklifts	Diesel	Average	1.00	8.00	100	0.40
Tank Construction	Tractors/Loaders/Backhoes	Diesel	Average	1.00	8.00	84.0	0.37
Tank Construction	Generator Sets	Diesel	Average	1.00	8.00	14.0	0.74
Tank Construction	Pumps	Diesel	Average	1.00	8.00	84.0	0.74
Tank Construction	Rollers	Diesel	Average	2.00	8.00	36.0	0.38
Tank Construction	Air Compressors	Diesel	Average	1.00	8.00	37.0	0.48
Tank Construction	Aerial Lifts	Diesel	Average	1.00	8.00	82.0	0.31
Architectural Coating	Rough Terrain Forklifts	Diesel	Average	2.00	8.00	100	0.40
Architectural Coating	Tractors/Loaders/Backhoes	Diesel	Average	1.00	8.00	84.0	0.37
Architectural Coating	Aerial Lifts	Diesel	Average	1.00	8.00	82.0	0.31

Architectural Coating	Welders	Diesel	Average	1.00	8.00	46.0	0.45
Architectural Coating	Air Compressors	Diesel	Average	1.00	8.00	37.0	0.48
Excavation	Excavators	Diesel	Average	1.00	8.00	412	0.38
Excavation	Rollers	Diesel	Average	2.00	8.00	36.0	0.38
Excavation	Tractors/Loaders/Backhoes	Diesel	Average	1.00	8.00	84.0	0.37

5.2.2. Mitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Demolition	Tractors/Loaders/Backhoes	Diesel	Tier 4 Final	4.00	8.00	84.0	0.37
Demolition	Concrete/Industrial Saws	Diesel	Tier 4 Final	1.00	8.00	33.0	0.73
Demolition	Excavators	Diesel	Tier 4 Final	2.00	8.00	412	0.38
Site Aggregate Base	Cement and Mortar Mixers	Diesel	Average	1.00	8.00	10.0	0.56
Fencing	Tractors/Loaders/Backhoes	Diesel	Tier 4 Final	1.00	8.00	84.0	0.37
Site Piping	Rough Terrain Forklifts	Diesel	Tier 4 Final	1.00	8.00	100	0.40
Site Piping	Tractors/Loaders/Backhoes	Diesel	Tier 4 Final	1.00	8.00	84.0	0.37
Site Piping	Excavators	Diesel	Tier 4 Final	1.00	8.00	412	0.38
Booster Pump Station Install	Cranes	Diesel	Tier 4 Final	1.00	8.00	367	0.29
Electrical Building/Controls	Cranes	Diesel	Tier 4 Final	1.00	8.00	367	0.29
Tank Construction	Cranes	Diesel	Tier 4 Final	1.00	8.00	367	0.29
Tank Construction	Rough Terrain Forklifts	Diesel	Tier 4 Final	1.00	8.00	100	0.40
Tank Construction	Tractors/Loaders/Backhoes	Diesel	Tier 4 Final	1.00	8.00	84.0	0.37

Tank Construction	Generator Sets	Diesel	Average	1.00	8.00	14.0	0.74
Tank Construction	Pumps	Diesel	Tier 4 Final	1.00	8.00	84.0	0.74
Tank Construction	Rollers	Diesel	Tier 4 Final	2.00	8.00	36.0	0.38
Tank Construction	Air Compressors	Diesel	Tier 4 Final	1.00	8.00	37.0	0.48
Tank Construction	Aerial Lifts	Diesel	Tier 4 Final	1.00	8.00	82.0	0.31
Architectural Coating	Rough Terrain Forklifts	Diesel	Tier 4 Final	2.00	8.00	100	0.40
Architectural Coating	Tractors/Loaders/Backhoes	Diesel	Tier 4 Final	1.00	8.00	84.0	0.37
Architectural Coating	Aerial Lifts	Diesel	Tier 4 Final	1.00	8.00	82.0	0.31
Architectural Coating	Welders	Diesel	Tier 4 Final	1.00	8.00	46.0	0.45
Architectural Coating	Air Compressors	Diesel	Tier 4 Final	1.00	8.00	37.0	0.48
Excavation	Excavators	Diesel	Tier 4 Final	1.00	8.00	412	0.38
Excavation	Rollers	Diesel	Tier 4 Final	2.00	8.00	36.0	0.38
Excavation	Tractors/Loaders/Backhoes	Diesel	Tier 4 Final	1.00	8.00	84.0	0.37

5.3. Construction Vehicles

5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Demolition	—	—	—	—
Demolition	Worker	5.00	10.9	LDA,LDT1,LDT2
Demolition	Vendor	0.00	8.27	HHDT,MHDT
Demolition	Hauling	2.00	120	HHDT
Demolition	Onsite truck	0.00	—	HHDT
Architectural Coating	—	—	—	—
Architectural Coating	Worker	5.00	10.9	LDA,LDT1,LDT2
Architectural Coating	Vendor	1.00	8.27	HHDT,MHDT

Architectural Coating	Hauling	1.00	120	HHDT
Architectural Coating	Onsite truck	0.00	—	HHDT
Site Aggregate Base	—	—	—	—
Site Aggregate Base	Worker	5.00	10.9	LDA,LDT1,LDT2
Site Aggregate Base	Vendor	0.00	8.27	HHDT,MHDT
Site Aggregate Base	Hauling	10.0	120	HHDT
Site Aggregate Base	Onsite truck	0.00	—	HHDT
Fencing	—	—	—	—
Fencing	Worker	5.00	10.9	LDA,LDT1,LDT2
Fencing	Vendor	1.00	8.27	HHDT,MHDT
Fencing	Hauling	0.00	120	HHDT
Fencing	Onsite truck	0.00	—	HHDT
Site Piping	—	—	—	—
Site Piping	Worker	5.00	10.9	LDA,LDT1,LDT2
Site Piping	Vendor	1.00	8.27	HHDT,MHDT
Site Piping	Hauling	0.00	120	HHDT
Site Piping	Onsite truck	0.00	—	HHDT
Booster Pump Station Install	—	—	—	—
Booster Pump Station Install	Worker	5.00	10.9	LDA,LDT1,LDT2
Booster Pump Station Install	Vendor	1.00	8.27	HHDT,MHDT
Booster Pump Station Install	Hauling	1.00	120	HHDT
Booster Pump Station Install	Onsite truck	0.00	—	HHDT
Electrical Building/Controls	—	—	—	—
Electrical Building/Controls	Worker	10.0	10.9	LDA,LDT1,LDT2
Electrical Building/Controls	Vendor	1.00	8.27	HHDT,MHDT
Electrical Building/Controls	Hauling	1.00	120	HHDT
Electrical Building/Controls	Onsite truck	0.00	—	HHDT

Tank Construction	—	—	—	—
Tank Construction	Worker	10.0	10.9	LDA,LDT1,LDT2
Tank Construction	Vendor	1.00	8.27	HHDT,MHDT
Tank Construction	Hauling	1.00	120	HHDT
Tank Construction	Onsite truck	0.00	—	HHDT
Excavation	—	—	—	—
Excavation	Worker	5.00	10.9	LDA,LDT1,LDT2
Excavation	Vendor	0.00	8.27	HHDT,MHDT
Excavation	Hauling	50.0	120	HHDT
Excavation	Onsite truck	0.00	—	HHDT

5.3.2. Mitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Demolition	—	—	—	—
Demolition	Worker	5.00	10.9	LDA,LDT1,LDT2
Demolition	Vendor	0.00	8.27	HHDT,MHDT
Demolition	Hauling	2.00	120	HHDT
Demolition	Onsite truck	0.00	—	HHDT
Architectural Coating	—	—	—	—
Architectural Coating	Worker	5.00	10.9	LDA,LDT1,LDT2
Architectural Coating	Vendor	1.00	8.27	HHDT,MHDT
Architectural Coating	Hauling	1.00	120	HHDT
Architectural Coating	Onsite truck	0.00	—	HHDT
Site Aggregate Base	—	—	—	—
Site Aggregate Base	Worker	5.00	10.9	LDA,LDT1,LDT2
Site Aggregate Base	Vendor	0.00	8.27	HHDT,MHDT
Site Aggregate Base	Hauling	10.0	120	HHDT

Site Aggregate Base	Onsite truck	0.00	—	HHDT
Fencing	—	—	—	—
Fencing	Worker	5.00	10.9	LDA,LDT1,LDT2
Fencing	Vendor	1.00	8.27	HHDT,MHDT
Fencing	Hauling	0.00	120	HHDT
Fencing	Onsite truck	0.00	—	HHDT
Site Piping	—	—	—	—
Site Piping	Worker	5.00	10.9	LDA,LDT1,LDT2
Site Piping	Vendor	1.00	8.27	HHDT,MHDT
Site Piping	Hauling	0.00	120	HHDT
Site Piping	Onsite truck	0.00	—	HHDT
Booster Pump Station Install	—	—	—	—
Booster Pump Station Install	Worker	5.00	10.9	LDA,LDT1,LDT2
Booster Pump Station Install	Vendor	1.00	8.27	HHDT,MHDT
Booster Pump Station Install	Hauling	1.00	120	HHDT
Booster Pump Station Install	Onsite truck	0.00	—	HHDT
Electrical Building/Controls	—	—	—	—
Electrical Building/Controls	Worker	10.0	10.9	LDA,LDT1,LDT2
Electrical Building/Controls	Vendor	1.00	8.27	HHDT,MHDT
Electrical Building/Controls	Hauling	1.00	120	HHDT
Electrical Building/Controls	Onsite truck	0.00	—	HHDT
Tank Construction	—	—	—	—
Tank Construction	Worker	10.0	10.9	LDA,LDT1,LDT2
Tank Construction	Vendor	1.00	8.27	HHDT,MHDT
Tank Construction	Hauling	1.00	120	HHDT
Tank Construction	Onsite truck	0.00	—	HHDT
Excavation	—	—	—	—

Excavation	Worker	5.00	10.9	LDA,LDT1,LDT2
Excavation	Vendor	0.00	8.27	HHDT,MHDT
Excavation	Hauling	50.0	120	HHDT
Excavation	Onsite truck	0.00	—	HHDT

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

Non-applicable. No control strategies activated by user.

5.5. Architectural Coatings

Phase Name	Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
Architectural Coating	0.00	0.00	9,274	2,641	1,479

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

Phase Name	Material Imported (Cubic Yards)	Material Exported (Cubic Yards)	Acres Graded (acres)	Material Demolished (Ton of Debris)	Acres Paved (acres)
Demolition	0.00	0.00	0.00	0.00	—
Site Aggregate Base	0.00	500	10.0	0.00	—
Fencing	0.00	0.00	1.00	0.00	—

5.6.2. Construction Earthmoving Control Strategies

Non-applicable. No control strategies activated by user.

5.7. Construction Paving

Land Use	Area Paved (acres)	% Asphalt

General Light Industry	0.00	0%
Other Non-Asphalt Surfaces	0.57	0%

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2024	0.00	453	0.03	< 0.005

5.9. Operational Mobile Sources

5.9.1. Unmitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
General Light Industry	5.28	5.28	5.28	1,928	28.4	28.4	28.4	10,372
Other Non-Asphalt Surfaces	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

5.9.2. Mitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
General Light Industry	5.28	5.28	5.28	1,928	28.4	28.4	28.4	10,372
Other Non-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

5.10.1.2. Mitigated

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	7,922	2,641	1,479

5.10.3. Landscape Equipment

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

5.10.4. Landscape Equipment - Mitigated

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

5.11. Operational Energy Consumption

5.11.1. Unmitigated

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

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)
General Light Industry	500,000	453	0.0330	0.0040	0.00
Other Non-Asphalt Surfaces	0.00	453	0.0330	0.0040	0.00

5.11.2. Mitigated

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

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)
General Light Industry	500,000	453	0.0330	0.0040	0.00
Other Non-Asphalt Surfaces	0.00	453	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)
General Light Industry	0.00	1,825
Other Non-Asphalt Surfaces	0.00	0.00

5.12.2. Mitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
General Light Industry	0.00	1,825
Other Non-Asphalt Surfaces	0.00	0.00

5.13. Operational Waste Generation

5.13.1. Unmitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
General Light Industry	6.55	—
Other Non-Asphalt Surfaces	0.00	—

5.13.2. Mitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
General Light Industry	6.55	—
Other Non-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

5.14.2. Mitigated

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

5.15.2. Mitigated

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
Emergency Generator	Diesel	1.00	2.00	24.0	470	0.73

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

5.18.1.2. Mitigated

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

5.18.1.2. Mitigated

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)

5.18.2.2. Mitigated

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	27.1	annual days of extreme heat
Extreme Precipitation	1.75	annual days with precipitation above 20 mm
Sea Level Rise	—	meters of inundation depth
Wildfire	0.00	annual hectares burned

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

6.2. Initial Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score

Temperature and Extreme Heat	3	0	0	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	N/A	N/A	N/A	N/A
Wildfire	N/A	N/A	N/A	N/A
Flooding	0	0	0	N/A
Drought	0	0	0	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	0	0	0	N/A

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

6.3. Adjusted Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	3	1	1	3
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	N/A	N/A	N/A	N/A
Wildfire	N/A	N/A	N/A	N/A
Flooding	1	1	1	2
Drought	1	1	1	2
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	1	1	1	2

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

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	72.5
AQ-PM	88.8
AQ-DPM	84.7
Drinking Water	65.9
Lead Risk Housing	35.8
Pesticides	74.9
Toxic Releases	35.5
Traffic	54.2
Effect Indicators	—
CleanUp Sites	50.3
Groundwater	52.4
Haz Waste Facilities/Generators	44.7
Impaired Water Bodies	33.2
Solid Waste	0.00
Sensitive Population	—
Asthma	89.8
Cardio-vascular	96.9
Low Birth Weights	74.7
Socioeconomic Factor Indicators	—
Education	80.2
Housing	75.3

Linguistic	65.6
Poverty	92.4
Unemployment	97.3

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	8.404978827
Employed	1.73232388
Median HI	5.171307584
Education	—
Bachelor's or higher	23.67509303
High school enrollment	100
Preschool enrollment	51.14846657
Transportation	—
Auto Access	5.710252791
Active commuting	20.86487874
Social	—
2-parent households	1.668163737
Voting	9.059412293
Neighborhood	—
Alcohol availability	76.32490697
Park access	2.194276915
Retail density	21.03169511
Supermarket access	71.76953676
Tree canopy	35.57038368

Housing	—
Homeownership	26.45964327
Housing habitability	51.94405235
Low-inc homeowner severe housing cost burden	88.19453356
Low-inc renter severe housing cost burden	23.58526883
Uncrowded housing	60.05389452
Health Outcomes	—
Insured adults	43.11561658
Arthritis	21.6
Asthma ER Admissions	9.1
High Blood Pressure	11.0
Cancer (excluding skin)	55.0
Asthma	6.7
Coronary Heart Disease	19.3
Chronic Obstructive Pulmonary Disease	7.7
Diagnosed Diabetes	23.2
Life Expectancy at Birth	16.4
Cognitively Disabled	6.4
Physically Disabled	59.0
Heart Attack ER Admissions	3.5
Mental Health Not Good	12.4
Chronic Kidney Disease	14.8
Obesity	10.6
Pedestrian Injuries	19.6
Physical Health Not Good	14.4
Stroke	15.1
Health Risk Behaviors	—

Binge Drinking	75.2
Current Smoker	12.2
No Leisure Time for Physical Activity	16.1
Climate Change Exposures	—
Wildfire Risk	0.0
SLR Inundation Area	0.0
Children	10.0
Elderly	64.0
English Speaking	48.7
Foreign-born	37.9
Outdoor Workers	21.0
Climate Change Adaptive Capacity	—
Impervious Surface Cover	56.3
Traffic Density	57.0
Traffic Access	0.0
Other Indices	—
Hardship	84.0
Other Decision Support	—
2016 Voting	20.2

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	95.0
Healthy Places Index Score for Project Location (b)	2.00
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	Yes
Project Located in a Low-Income Community (Assembly Bill 1550)	Yes
Project Located in a Community Air Protection Program Community (Assembly Bill 617)	No

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

7.4. Health & Equity Measures

No Health & Equity Measures selected.

7.5. Evaluation Scorecard

Health & Equity Evaluation Scorecard not completed.

7.6. Health & Equity Custom Measures

No Health & Equity Custom Measures created.

8. User Changes to Default Data

Screen	Justification
Land Use	Cal Am Meadowbrook Tank and Booster Station RFI 1_12.18.23
Construction: Construction Phases	Cal Am Meadowbrook Tank and Booster Station RFI 1_12.18.23
Construction: Trips and VMT	Cal Am Meadowbrook Tank and Booster Station RFI 1_12.18.23
Construction: Architectural Coatings	Cal Am Meadowbrook Tank and Booster Station RFI 1_12.18.23 (82 feet diameter and 36 feet height)
Operations: Vehicle Data	Cal Am Meadowbrook Tank and Booster Station RFI 1_12.18.23
Operations: Energy Use	Cal Am Meadowbrook Tank and Booster Station RFI 1_12.18.23
Operations: Water and Waste Water	Cal Am Meadowbrook Tank and Booster Station RFI 1_12.18.23
Construction: Off-Road Equipment	Cal Am Meadowbrook Tank and Booster Station RFI 1_12.18.23
Characteristics: Utility Information	Bay Area
Operations: Refrigerants	Cal Am Meadowbrook Tank and Booster Station RFI 1_12.18.23
Operations: Emergency Generators and Fire Pumps	Cal Am Meadowbrook Tank and Booster Station RFI 1_12.18.23
Operations: Generators + Pumps EF	Cal Am Meadowbrook Tank and Booster Station RFI 1_12.18.23
Construction: Dust From Material Movement	Cal Am Meadowbrook Tank and Booster Station RFI 1_12.18.23

Health Impact Prioritization Calculator

- Construction
- Operations

Name

Prioritization Calculator

Applicability	Use to provide a Prioritization score based on the emission potency method. Entries required in yellow areas, output in gray areas.
Author or updater	Mike Ratte — *Last Update* January 11, 2024
Facility:	Cal Am Meadowbrook Tank and Booster Station
ID#:	Construction
Project #:	
Unit and Process#	Cal Am Meadowbrook Tank and Booster Station
Operating Hours hr/yr	2,080

Receptor Proximity and Proximity Factors		Cancer Score	Chronic Score	Acute Score	Max Score
0< R<100	**1.000**	3.12E+00	5.84E-01	0.00E+00	3.12E+00
100≤R<250	**0.250**	7.80E-01	1.46E-01	0.00E+00	7.80E-01
250≤R<500	**0.040**	1.25E-01	2.34E-02	0.00E+00	1.25E-01
500≤R<1000	**0.011**	3.43E-02	6.43E-03	0.00E+00	3.43E-02
1000≤R<1500	**0.003**	9.36E-03	1.75E-03	0.00E+00	9.36E-03
1500≤R<2000	**0.002**	6.24E-03	1.17E-03	0.00E+00	6.24E-03
2000<R	**0.001**	3.12E-03	5.84E-04	0.00E+00	3.12E-03

Receptor proximity is in meters. Priortization scores are calculated by multiplying the total scores summed below by the proximity factors. Record the Max score for your receptor distance. If the substance list for the unit is longer than the number of rows here or if there are multiple processes use additional worksheets and sum the totals of the Max Scores.

Use the substance dropdown list in the CAS# Finder to locate CAS# of substances.

Substance	CAS# Finder
Diesel engine exhaust, particulate matter (Diesel PM)	9901

Cal Am Meadowbrook Tank and Booster Station

Enter the unit's CAS# of the substances emitted and their amounts.

Prioritzation score for each substance generated below. Totals on last row.

Substance	CAS#	MW Correction	Annual Emissions (lbs/yr)	Maximum Hourly (lbs/hr)	Corrected Annual Emissions (lbs/yr)	Corrected Maximum Hourly (lbs/hr)	Average Hourly (lbs/hr)	Cancer	Chronic	Acute
Diesel engine exhaust, particulate matter (Diesel PM)	**9901**	**1.0000**	4.05E+01	7.12E-02	4.05E+01	7.12E-02	1.95E-02	3.12E+00	5.84E-01	0.00E+00
							Totals	**3.12E+00**	**5.84E-01**	**0.00E+00**

Name

Prioritization Calculator

Applicability	Use to provide a Prioritization score based on the emission potency method. Entries required in yellow areas, output in gray areas.
Author or updater	Mike Ratte — *Last Update* January 8, 2024
Facility:	Cal Am Meadowbrook Tank and Booster Station
ID#:	Operations
Project #:	
Unit and Process#	Cal Am Meadowbrook Tank and Booster Station
Operating Hours hr/yr	24

Receptor Proximity and Proximity Factors		Cancer Score	Chronic Score	Acute Score	Max Score
0< R<100	**1.000**	3.35E+00	1.36E-05	0.00E+00	3.35E+00
100≤R<250	**0.250**	8.39E-01	3.41E-06	0.00E+00	8.39E-01
250≤R<500	**0.040**	1.34E-01	5.45E-07	0.00E+00	1.34E-01
500≤R<1000	**0.011**	3.69E-02	1.50E-07	0.00E+00	3.69E-02
1000≤R<1500	**0.003**	1.01E-02	4.09E-08	0.00E+00	1.01E-02
1500≤R<2000	**0.002**	6.71E-03	2.73E-08	0.00E+00	6.71E-03
2000<R	**0.001**	3.35E-03	1.36E-08	0.00E+00	3.35E-03

Receptor proximity is in meters. Priortization scores are calculated by multiplying the total scores summed below by the proximity factors. Record the Max score for your receptor distance. If the substance list for the unit is longer than the number of rows here or if there are multiple processes use additional worksheets and sum the totals of the Max Scores.

Use the substance dropdown list in the CAS# Finder to locate CAS# of substances.

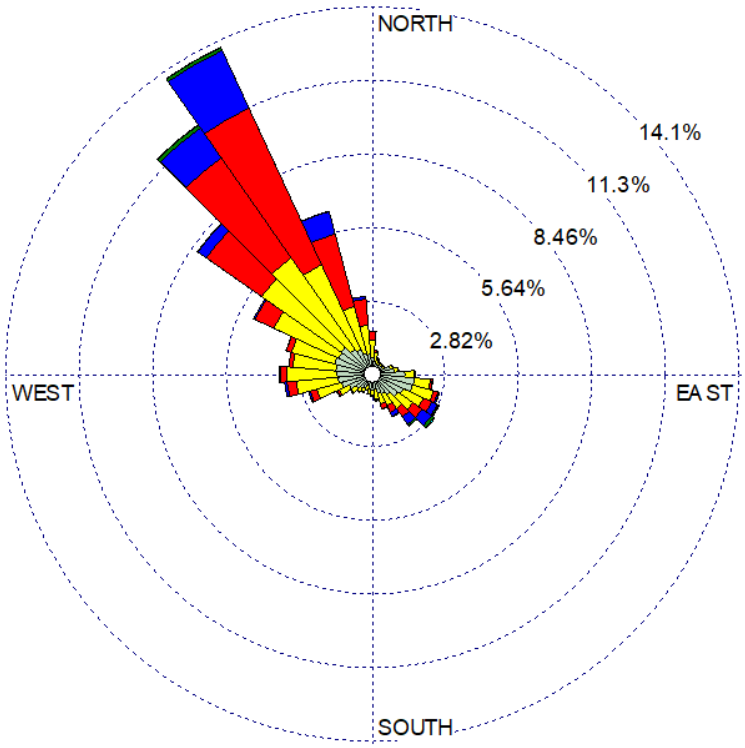
Substance	CAS# Finder
Diesel engine exhaust, particulate matter (Diesel PM)	9901

Cal Am Meadowbrook Tank and Booster Station

Enter the unit's CAS# of the substances emitted and their amounts.

Prioritzation score for each substance generated below. Totals on last row.

Substance	CAS#	MW Correction	Annual Emissions (lbs/yr)	Maximum Hourly (lbs/hr)	Corrected Annual Emissions (lbs/yr)	Corrected Maximum Hourly (lbs/hr)	Average Hourly (lbs/hr)	Cancer	Chronic	Acute
Diesel engine exhaust, particulate matter (Diesel PM)	**9901**	**1.0000**	1.45E+00	5.04E-03	1.45E+00	5.04E-03	1.66E-04	3.35E+00	1.36E-05	0.00E+00
							Totals	**3.35E+00**	**1.36E-05**	**0.00E+00**



WIND SPEED
(m/s)

- >= 11.10
- 8.80 - 11.10
- 5.70 - 8.80
- 3.60 - 5.70
- 2.10 - 3.60
- 0.50 - 2.10

Calms: 1.35%

APPENDIX B

BIOLOGICAL CONSTRAINTS REVIEW

Biological Constraints Review

Project Name: *Meadowbrook 1 MG Tank and Booster Project*	***Date of Preparation:*** January 19, 2024 ***Revised 5/3/24***
Project Location: *Merced County, CA* ***Lat/Long:*** 37.327808°, -120.522207°	***Surf to Snow Environmental Resource Management (S2S) Biologist:*** Dan Pittenger

Project Description:

The Meadowbrook 1 MG Tank and Booster Project would involve the installation of a new 1-million-gallon (MG) water storage tank and a new booster station, located in Merced County, California. The current Cal Am Meadowbrook water system does not meet the current demands of projected peak hour demand or maximum fire flow requirements. Thus, the project is needed to meet Title 22 requirements and Cal Am's planning criteria for effective water storage volume and pumping capacity to sustain peak hour demands and fire flow standards. The proposed project would be constructed on Cal Am's property next to an existing Cal Am well (**Figure 1**).

The project would include installation and operation of the following:

- new water storage tank;
- booster station with shade structure;
- electrical building;
- chlorine building;
- transformer;
- backup generator;
- onsite piping from the new water storage tank to existing water mains; and
- security fencing.

Constraints:

Senior Biologist Dan Pittenger conducted a reconnaissance-level biological resource investigation of the project site and surrounding habitat on January 17, 2024, and completed an analysis of potential project impacts on biological resources. Mr. Pittenger determined the extent of the survey area based on the characteristics of the project site and its surrounding environment, such as the potential presence of sensitive habitats, special-status species, and other ecological features of interest.

Biological Resources

Mr. Pittenger completed a desktop review of biological resources within the project area by conducting searches of the United States Fish and Wildlife Service (USFWS) National Wetlands Inventory (NWI), USFWS Critical Habitat maps, USFWS Information for Planning and Consultation (iPAC), and California Department of Fish and Wildlife's (CDFW) California Natural Diversity Database (CNDDB). A search query using a radius of two miles around the project site created a list of five plant species, 13 wildlife species, and several aquatic features. A list of special-status species and a discussion of potential project impacts is included below. **Figure 2** includes a map showing all CNDDB records within two miles of the project site. **Figure 3** shows habitats identified within the project site.

Plants:

- Colusa grass (*Neostapfia colusana*)

Project Name: *Meadowbrook 1 MG Tank and Booster Project*	***Date of Preparation:*** January 19, 2024 ***Revised 5/3/24***
Project Location: *Merced County, CA* ***Lat/Long:*** 37.327808°, -120.522207°	***Surf to Snow Environmental Resource Management (S2S) Biologist:*** Dan Pittenger

- Watershield (*Brasenia schreberi)*
- Succulent owl's clover (*Castilleja campestris* var. *succulenta)*
- Forked hare-leaf (*Lagophylla dichotoma)*
- Sanford's arrowhead (*Sagittaria sanfordii)*

Wildlife:

- San Joaquin kit fox (*Vulpes macrotis mutica)*
- Western mastiff bat (*Eumops perotis californicus*)
- Northwestern pond turtle (*Actinemys marmorata)*
- Giant garter snake (*Thamnophis gigas*)
- California tiger salamander (*Ambystoma californiense*)
- Monarch butterfly (*Danaus plexippus)*
- Valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*)
- Conservancy fairy shrimp (*Branchinecta conservatio*)
- Vernal pool fairy shrimp (*Branchinecta lynchi)*
- Vernal pool tadpole shrimp (*Lepidurus packardi)*
- Swainson's hawk (*Buteo swainsoni*)
- Tricolored blackbird (*Agelaius tricolor*)
- Burrowing owl (*Athene cunicularia*)

Wetlands and Aquatic Features:
Several NWI aquatic features were identified within the two-mile search query. A formal wetland delineation was not conducted. Work is not expected to occur within aquatic habitats.

Site Visit Conducted:		**Site Photographs:**
☐No ☒Yes	If yes, provide date: January 17, 2024	☐No ☒Yes, attached at end of document

Notes: Constraints analysis is based on a desktop review and the reconnaissance site visit. The site visit also included a survey for potential Swainson's hawk nesting habitat within 0.5 miles of the project site.

Biological Constraints Review

Habitat Types (check all that apply):			
☒Grassland	☐Lacustrine	☐Brackish/Saltmarsh	☐Chaparral
☐Mixed hardwood forest	☐Aquatic	☐Agricultural	☐Landscaped
☐Sierra mixed conifer	☐Riparian	☐Oak woodland	☒Ruderal/Developed
☐Redwood	☐Freshwater wetland	☐Ponderosa pine	☐Other (see notes)

The project site is dominated by herbaceous vegetation that consists of ruderal annual vegetation, non-native weedy species and annual grasses. Plants identified within the project site and adjacent area included compact brome (*Bromus madritensis*), ripgut brome (*Bromus diandrus*), fiddleneck (*Amsinckia* sp.), filaree (*Erodium* sp.), wild oats (*Avena* sp.), sunflower (*Helianthus annuus*), prickly lettuce (*Lactuca serriola*), curly dock (*Rumex crispus*), fitch's tarweed (*Centromadia fitchii*), doveweed (*Croton setiger*), pigweed (*Amaranthus blitoides*), great valley gumweed (*Grindelia camporum*), datura (*Datura wrightii*), tarweed (*Holocarpha virgata*), Spanish clover (*Acmispon americanus*), ragweed (*Ambrosia acanthicarpa*), silver-leaf nightshade (*Solanum elaeagnifolium*), and telegraphweed (*Heterotheca grandiflora*)

Due to the seasonality of the survey, many of these plants were identified forensically from the previous season's growth. Only *Erodium* sp. and many monocots have germinated for the forthcoming growing season.

Potential to Impact Sensitive Resources:	**High**	**Moderate**	**Low**	**None**
Special-status Species[1]				
Plants				
Colusa grass (*Neostapfia colusana*), FE, CRPR 1B.1	☐	☐	☐	☒
Watershield (*Brasenia schreberi*) CRPR 2B.3	☐	☐	☐	☒
Succulent owl's clover (*Castilleja campestris var. succulenta)* FT/SE	☐	☐	☐	☒
Forked hare-leaf (*Lagophylla dichotoma*) CRPR 1B.1	☐	☐	☐	☒
Sanford's arrowhead *(Sagittaria sanfordii*) CRPR 1B.2	☐	☐	☐	☒
Wildlife				
San Joaquin kit fox (*Vulpes macrotis mutica*), ST, FE	☐	☐	☐	☒
Western mastiff bat (*Eumops perotis californicus*), SSC	☐	☐	☐	☒
Northwestern pond turtle (*Actinemys marmorata)*, FPT, SSC	☐	☐	☐	☒

Giant garter snake (*Thamnophis gigas*), FT, SE	☐	☐	☐	☒
California tiger salamander (*Ambystoma californiense)*, FT, ST	☐	☐	☒	☐
Monarch butterfly (*Danaus plexippus*), SSC	☐	☐	☒	☐
Valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*), FT, ST	☐	☐	☐	☒
Vernal pool fairy shrimp (*Branchinecta lynchi),* FT	☐	☐	☒	☐
Conservancy fairy shrimp (*Branchinecta conservatio*), FE	☐	☐	☒	☐
Vernal pool tadpole shrimp (*Lepidurus packardi),* FT	☐	☐	☒	☐
Swainson's hawk (*Buteo swainsoni*), ST	☐	☐	☒	☐
Tricolored blackbird (Agelaius tricolor), ST	☐	☐	☐	☒
Burrowing owl (*Athene cunicularia*), SSC	☐	☐	☒	☐

[1]Special-status is defined as federal or state threatened, endangered, rare, proposed, candidate or fully protected; covered by Eagle Protection Act; or species of concern to land management agency. Abbreviations: Federally Endangered, Threatened, Proposed Endangered, Proposed Threatened, or Candidate (FE, FT, FPE, FPT, FC); State Endangered, Threatened, Candidate for Endangered, or Candidate for Threatened (SE, ST, SCE, SCT); Fully Protected (FP); CDFW Species of Special Concern (SSC); California Rare Plant Rank (CRPR) List 1.X, 2.X or 3.

Special-Status Species with Low Potential to be affected by the Project:

- **California Tiger Salamander**
  No suitable California tiger salamander breeding habitat occurs on the project site. Small mammal burrows occur on the project site, and could provide refugia for amphibians traveling through the area. However, the vegetated swale west of the project site and other aquatic habitats within the project area are not likely to support sufficient inundation to provide suitable breeding habitat for California tiger salamander. No California tiger salamander occurrences have been recorded within five miles of the project site and occurrence on the project site is unlikely. Project activities are not expected to impact this species.

- **Monarch Butterfly**
  Due to the lack of host plants observed on the project site, presence of monarch butterfly on the project site would be restricted to transient individuals. Therefore, project activities are not expected to impact this species or its habitat.

- **Vernal Pool Branchiopods**
  The project site does not contain suitable habitat for vernal pool fairy shrimp, conservancy fairy shrimp, or vernal pool tadpole shrimp. Because the project would not involve construction in any areas containing suitable habitat for vernal pool fairy shrimp, conservancy fairy shrimp, or vernal pool tadpole shrimp, direct impact on these species are not expected. Project activities would avoid the grassy swale and ponded water features in the access road west of the site. Mitigation Measures AMM-01, AMM-02, and

AMM-03 below would prevent direct impacts to potential habitat for vernal pool branchiopods, and Mitigation Measure AMM-08 would prevent indirect erosion and sedimentation impacts to aquatic features during construction of the project.

- **Swainson's hawk**
  No suitable nesting trees for Swainson's hawk occur within the project site or a 0.5 mile buffer Project activities are not likely to impact potential foraging habitat for Swainson's hawk due to the limited ruderal and grassland habitat that the site supports.

- **Burrowing owl**
  No suitable burrowing owl burrows >4" or sign of burrowing owl (e.g. whitewash, pellets, prey remains, feathers) were observed within 500 feet of the project site during the site survey There is a low likelihood of this species occurring on the project site and being impacted by work activity currently. If fossorial mammal use of the project site increases over time and creates burrows suitable for burrowing owl, there is a potential for owls to move into the project area in the future. If owls are occupying small mammal burrows on the project site as a result of newly created burrow habitat, ground disturbing construction activities and vehicle/equipment travel on the project site during project construction could result in destruction of burrows and injury and/or mortality of owls. Human activity and noise could result in indirect impacts to owls occupying burrows near the project site. Implementation of Mitigation Measure AMM-07 (surveys and avoidance of burrowing owls and their burrows) would avoid impacts to any burrowing owls.

Special-Status Species with No Potential to be affected by the Project:

- Work activities are not expected to impact the following special-status species: San Joaquin kit fox, Colusa grass, Western mastiff bat, Northwestern pond turtle, giant garter snake, valley elderberry longhorn beetle, and tricolored blackbird. There are no recorded occurrences of these species within two miles of the project site, and the project site does not contain suitable habitat for these species within or directly adjacent to the proposed work site. Though the work site is located within the historic range of the San Joaquin kit fox, this species has likely disappeared from the majority of habitats in the northern portion of the range, including eastern Merced County (USFWS 2010). The CNDDB contains several occurrences of San Joaquin kit fox in eastern Merced County. However, the closest known species occurrences are located approximately 4.3 miles (occurrence date: 1999) and 11 miles (occurrence date: 2001) from the work site (CDFW 2024). Based on the habitat present on the work site and the lack of suitable kit fox burrows identified during the site survey, as well as the location of the work site within eastern Merced County and the distance from species occurrence records dated more than 20 years ago, San Joaquin kit fox is not expected to occur on the work site. Work activities are not expected to impact any of these species.

Potential to Impact Nesting Avian Species:

	High	Moderate	Low	None
Nesting Birds	☐	☐	☒	☐

☐No ☒Yes	Notes: The project site consists of a ruderal previously disturbed lot that does not support trees or other woody vegetation. However, killdeer (*Charadrius vociferus*) and other ground-nesting birds may utilize the project site for nesting. The orchard to the south and cattails and other emergent wetland vegetation in the canal to the west of the

	project also provide potential nesting habitat. Migratory birds and their nests are protected by the California Fish and Game Code Section 3503 and 3503.5, and the federal Migratory Bird Treaty Act. Construction equipment and vehicle traffic on the project site during the migratory bird nesting season (February 1 – August 31) have the potential to adversely affect nesting birds through injury or mortality. Noise and human activity associated with construction activities have the potential to indirectly affect birds nesting in adjacent habitats by causing nest abandonment and subsequent loss of young. In order to reduce the impact on nesting birds, a number of Mitigation Measures (MMs) should be implemented. MMs should require adequate worker training regarding biological resources and mitigation measures (AMM-01) and avoiding vehicle use outside of the existing access and ROW roads (including for parking) (AMM-02 and AMM-03). Construction activities should be scheduled outside of the nesting bird season if feasible. If construction is during the nesting season is necessary, a pre-construction nesting bird survey should occur, and buffers should be established around active nest sites, if present (AMM-06).

Potential to Impact Wetland and/or Aquatic Resources:

	High	Moderate	Low	None
Aquatic Resources	☐	☐	☒	☐

☒No ☐ Yes	Aquatic resources within the project area were identified in the desktop review using the USFWS National Wetlands Inventory (NWI). No NWI features were documented within the project site. Three features were identified in the general project area: • An unnamed irrigation canal runs north / south 50' west of the project site and can be avoided by construction activity by utilizing the approved access route. No impacts to this feature are expected. This feature was dry at the time of the survey, but it is hydrologically connected to the larger irrigation district system that includes impoundments of Bear Creek, a natural creek flowing 1.75 miles southwest of the project site. • A seasonally flooded ponded feature appears in aerial imagery approximately 600' northwest of the project area. This feature was inaccessible during the site visit, but no impacts this this feature are expected from project related activity. • A wastewater treatment facility with open evaporation ponds is located 0.5 mile south of the project area. No impacts are anticipated to this feature. A grassy vegetated swale was identified immediately west of the project site during the reconnaissance visit. This swale showed evidence of inundation during the previous growing season with desiccated algal mats visible along the bottom of the feature. The swale was dry during the site visit, but prolonged precipitation events could inundate the feature and potentially provide suitable breeding habitat for sensitive species. Project activities would avoid aquatic habitats, however, indirect erosion and sedimentation impacts could occur due to earthmoving and grading activities on the project site. These impacts could reduce water quality and increase turbidity in

	these features. Therefore, Mitigation Measure BIO-8 includes the implementation of stormwater Best Management Practices (BMPs) to minimize indirect erosion and sedimentation impacts during construction of the project.

Critical Habitat:	
☒No ☐ Yes	There is no USFWS-designated Critical Habitat within the project area.

Recommended Avoidance and Minimization Measures (AMMs):

The following measures are recommended in order to avoid and minimize impacts to existing biological resources:

General AMMs:

AMM-01: Worker Training
Prior to the start of work, a qualified biologist will provide a worker environmental awareness training to the construction crew. The biologist will train all project staff regarding habitat sensitivity, identification of special-status species with potential to occur, and minimization and avoidance measures that are being implemented for the project. All contractors must complete the training prior to beginning any project-related work.

AMM-02: Parking
Park vehicles and equipment on pavement, existing roads, or other disturbed or designated areas (barren, gravel, compacted dirt).

AMM-03: Access
Use existing access and ROW roads. Minimize the development of new access and ROW roads, including clearing and blading for temporary vehicle access in areas of natural vegetation.

AMM-04: Equipment Inspection
Minimize potential for wildlife to seek refuge or shelter in pipes, culverts, hollow poles, or similar construction equipment by capping, covering, or elevating said structures when not in use.

AMM-05: Escape Ramps
Fit open trenches or steep-walled holes with escape ramps of plywood boards or sloped earthen ramps at each end if left open overnight. Field crew will search open trenches or steep-walled holes every morning prior to initiating daily activities to ensure wildlife is not trapped.

Biological Resources Protection Measures:

AMM-06: Nesting Birds

If feasible, work should be scheduled outside of the nesting bird season in the fall and winter. If not possible and work is scheduled during nesting bird season (February 1st through August 31st), a pre-construction nesting bird survey will be conducted by a qualified biologist within 10 days of construction commencement. The survey area will cover a radius of 300 feet for raptors and 50 feet for passerines around all work areas, where access is available.

If an active nest is observed within the survey area, a biologist shall determine an appropriate exclusion buffer zone based on the type of species nesting, the distance from the work area, and the level of disturbance/noise levels in that area. The perimeter of the nest setback zone shall be fenced or adequately demarcated with stakes and flagging to ensure construction personnel and activities are restricted from the area. If needed, a qualified biologist will monitor construction activities occurring near the active nest site to ensure no inadvertent adverse impacts affect the nest.

AMM-07: Burrowing Owl

Prior to construction, a qualified biologist shall conduct a focused survey for burrowing owls within 500 feet of the project site where access is available. If occupied burrowing owl burrows are observed, no-disturbance buffers will be established around burrowing owl burrows according to the CDFW guidelines (160 feet during the non-breeding season and 250 feet during the breeding season). The size of the buffer may be adjusted based on site conditions and visibility in coordination with CDFW. If occupied burrowing owl burrows are located within the construction footprint of the project site, CDFW will be consulted to determine if passive relocation of owls may be conducted.

AMM-8: Erosion and Sedimentation Best Management Practices

The project shall incorporate best management practices (BMPs) to control sedimentation and runoff and address water quality on site. Protective measures would include the following:

- BMPs shall be installed between the project site and the vegetated swale to the west to prevent erosion and sedimentation impacts to this feature and the irrigation canal.
- No discharge of pollutants from vehicle and equipment cleaning will enter storm drains or watercourses.
- Vehicle and equipment fueling and maintenance operations must be located away from watercourses, except at established commercial gas stations or established vehicle maintenance facility or staging areas with BMPs or secondary containment installed and maintained.
- Spill containment kits will always be maintained onsite during construction operations. Vehicles operating adjacent to wetlands and waterways must be inspected and maintained daily to prevent leaks.

References

Battistone, C. L., Furnas, B. J., Anderson, R. L., Dinsdale, J. L., Cripe, K. M., Estep, J. A., ... & Torres, S. G. (2019). Population and distribution of Swainson's Hawks (*Buteo swainsoni*) in California's Great Valley: A framework for long-term monitoring. Journal of Raptor Research, 53(3), 253-265.

California Department of Fish & Wildlife (CDFW). 2019. California Regional Conservation Plans. https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=68626&inline [accessed 19 January 2024].

California Department of Fish & Wildlife. 2024. California Natural Diversity Database (CNDDB). https://wildlife.ca.gov/Data/CNDDB [accessed 19 January 2024].

Cockrum, E. L. 1960. Distribution, Habitat and Habits of the Mastiff Bat, *Eumops perotis,* in North America. Journal of the Arizona Academy of Science, 1(3), 79–84.

Collinge, S. K., Holyoak, M., Barr, C. B., & Marty, J. T. 2001. Riparian habitat fragmentation and population persistence of the threatened valley elderberry longhorn beetle in central California. Biological conservation, 100(1), 103-113.

Coulombe, H. N. 1971. Behavior and population ecology of the burrowing owl, *Speotyto cunicularia*, in the Imperial Valley of California. The Condor, 73(2), 162-176.

Cypher, B. L., Phillips, S. E., & Kelly, P. A. 2013. Quantity and distribution of suitable habitat for endangered San Joaquin kit foxes: conservation implications. Canid Biology and Conservation, 16(7), 25-31.

Deiner K., Hull J. M., & May B. 2017. Range-wide phylogeographic structure of the vernal pool fairy shrimp (*Branchinecta lynchi*). PLoS ONE 12(5): e0176266.

Flockhart, D. T., Pichancourt, J. B., Norris, D. R., & Martin, T. G. 2015. Unravelling the annual cycle in a migratory animal: breeding-season habitat loss drives population declines of monarch butterflies. Journal of Animal Ecology, 84(1), 155-165.

Halstead, B. J., Skalos, S. M., Wylie, G. D., & Casazza, M. L. 2015. Terrestrial ecology of semi-aquatic giant gartersnakes (*Thamnophis gigas*). Herpetological Conservation and Biology, 10(2), 633-644.

Loredo, I., Van Vuren, D., & Morrison, M. L. 1996. Habitat use and migration behavior of the California tiger salamander. Journal of Herpetology, 30(2), 282-285.

Nail K. R., Drizd L., & 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.

Rosier, J. R., Ronan, N. A., & Rosenberg, D. K. 2006. Post-breeding dispersal of burrowing owls in an extensive California grassland. The American midland naturalist, 155(1), 162-167.

Solano County Water Agency (SCWA). 2012a. Natural Community and Species Accounts: Colusa Grass. https://www.scwa2.com/documents/hcp/appendix/H-6.Colusa%20Grass.pdf [accessed 25 January 2024].

Solano County Water Agency (SCWA). 2012b. Natural Community and Species Accounts: Vernal Pool Fairy Shrimp. https://www.scwa2.com/documents/hcp/appendix/H-6.Vernal%20Pool%20Fairy%20Shrimp.pdf [accessed 25 January 2024].

Solano County Water Agency (SCWA). 2012c. Natural Community and Species Accounts: Conservancy Fairy Shrimp. https://www.scwa2.com/documents/hcp/appendix/H-

6.Conservancy%20Fairy%20Shrimp.pdf [accessed 25 January 2024].

Solano County Water Agency (SCWA). 2012d. Natural Community and Species Accounts: Vernal Pool Tadpole Shrimp. https://www.scwa2.com/documents/hcp/appendix/H-6.Vernal%20Pool%20Tadpole%20Shrimp.pdf [accessed 25 January 2024].

Stebbins, Robert C., and McGinnis, Samuel M. 2012. Field Guide to Amphibians and Reptiles of California: Revised Edition (California Natural History Guides). University of California Press.

U.S. Fish & Wildlife Service. 2010. San Joaquin Kit Fox (*Vulpes macrotis mutica):* Five Year Review: Summary and Evaluation. Sacramento Fish and Wildlife Office. Signed February 16, 2010.

U.S. Fish & Wildlife Service. 2024a. National Wetlands Inventory. U.S. Fish & Wildlife Service. https://www.fws.gov/program/national-wetlands-inventory [accessed 19 January 2024].

U.S. Fish & Wildlife Service. 2024b. USFWS Threatened & Endangered Species Active Critical Habitat Report. https://ecos.fws.gov/ecp/report/table/critical-habitat.html [accessed 19 January 2024].

U.S. Fish & Wildlife Service. 2024c. IPaC: Information for Planning and Consultation. https://ipac.ecosphere.fws.gov/ [accessed 19 January 2024].

Wilsey, C. B., Michel, N. L., Krieger, K., Taylor, L., Lee, L., Arthur, S., & Clipperton, N. 2019. Defining spring foraging habitat and prioritization of conservation sites for Tricolored Blackbirds in California, USA. The Condor, 121(4), 1-13.

Woodbridge, B. 1998. Swainson's Hawk (*Buteo swainsoni*). In The Riparian Bird Conservation Plan: a strategy for reversing the decline of riparian-associated birds in California. California Partners in Flight.

Zaragoza, G., Rose, J. P., Purcell, K., & Todd, B. D. 2015. Terrestrial habitat use by western pond turtles (*Actinemys marmorata*) in the Sierra foothills. Journal of Herpetology, 49(3), 437-441.

Photo 1: Representative photo of the work site looking north and showing early season ruderal habitat.

Photo 2: Representative photo of the work site looking east and showing early season ruderal habitat.

Photo 3: Representative photo of the work site looking south and showing early season ruderal habitat.

Photo 4: Representative photo of the work site looking west and showing early season ruderal habitat.

Photo 5: Representative photo of a California annual grassland vegetation type swale (foreground) and an unnamed irrigation ditch (background) running along the western edge of the project site looking south.

Photo 6: Representative photo of a California annual grassland vegetation type swale (foreground) and an unnamed irrigation ditch (background) running along the western edge of the project site looking north.

Photo 7: Representative photo of a <3" burrow along the edge of the project area that could provide refugia for amphibians.

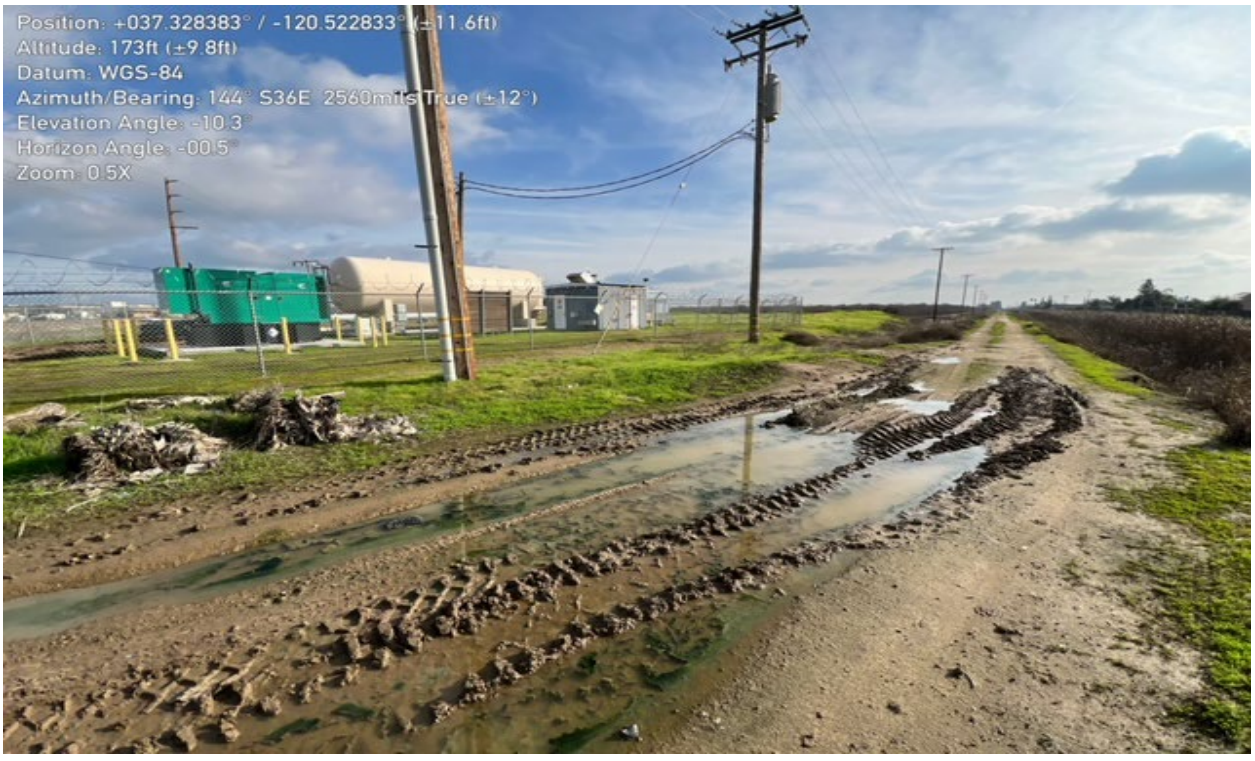


Photo 8: Representative photo of ponded water feature along dirt road outside of project site that could provide suitable habitat for sensitive vernal pool branchiopods.

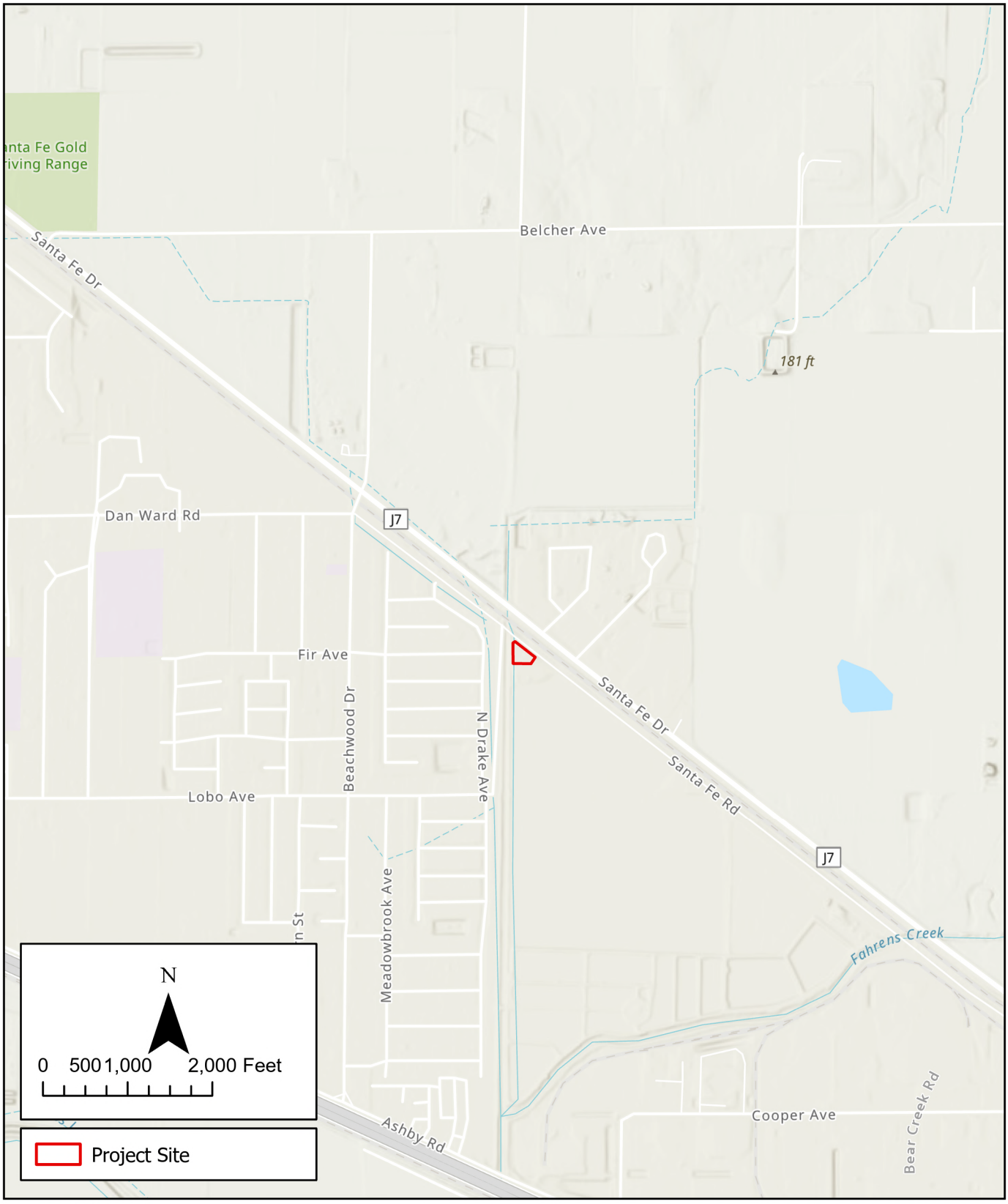


Figure 1 - Project Location

Meadowbrook 1MG Tank and Booster Station Project
Santa Fe Rd, Merced CA

Surf to Snow
Environmental Resource Management
2246 Camino Ramon
San Ramon, CA 94583

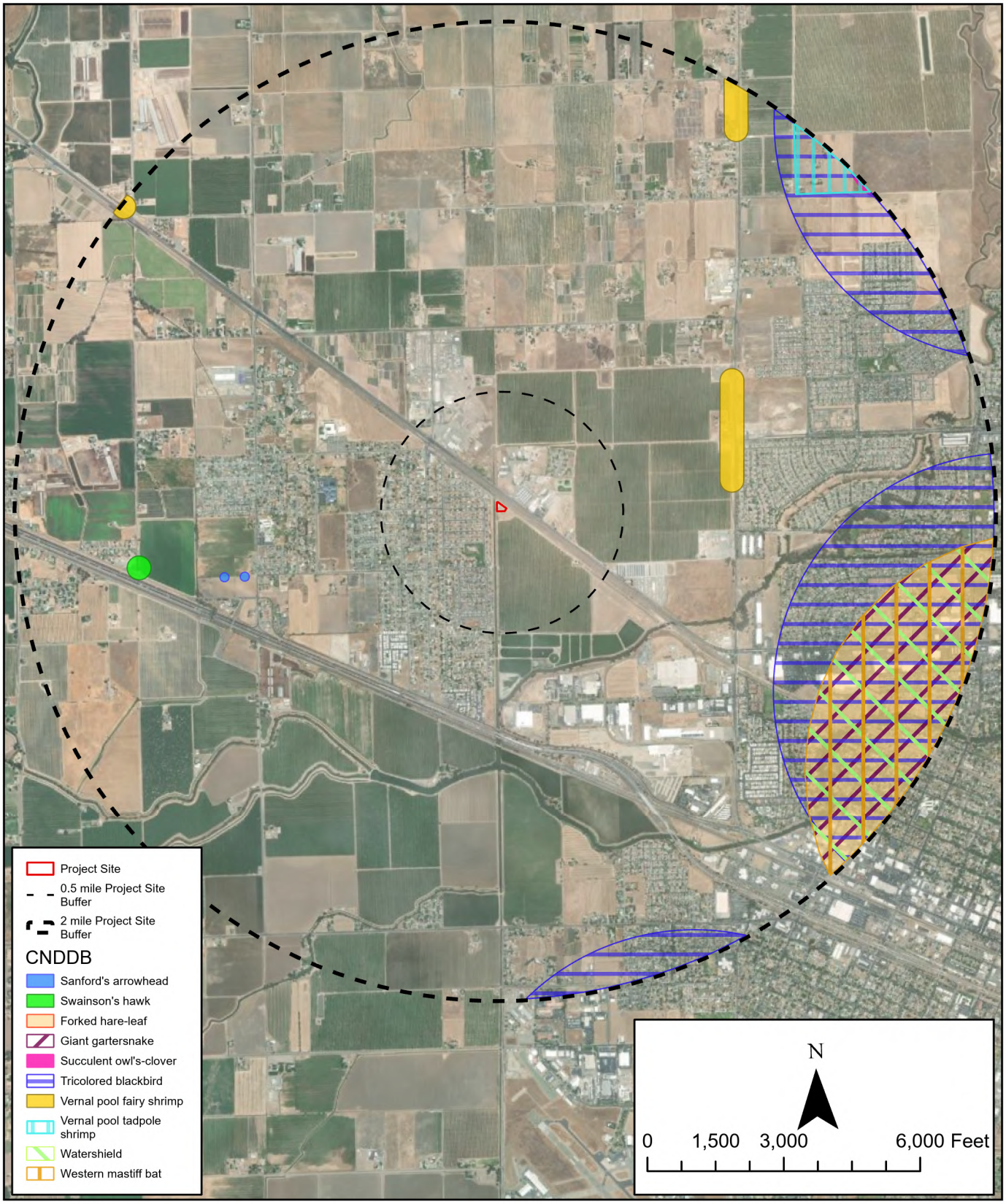


Figure 2 - CNDDB Occurrences

Meadowbrook 1MG Tank and Booster Station Project
Santa Fe Rd, Merced CA

Surf to Snow
Environmental Resource Management
2246 Camino Ramon
San Ramon, CA 94583

Figure 3 - Project Site Habitats

Meadowbrook 1MG Tank and Booster Station Project
Santa Fe Rd, Merced CA

Surf to Snow
Environmental Resource Management
2246 Camino Ramon
San Ramon, CA 94583

APPENDIX C

CULTURAL RESOURCES SURVEY REPORT

Cultural Resources Survey Report

CalAm's Meadowbrook Tank and Booster Station Project

Merced County, California

Prepared For:

Bob Masuoka
S2S Environmental Resource Management
2246 Camino Ramon
San Ramon, CA 94583

Report Date:

February 9, 2024

Revised March 22, 2024

BARGAS
Environmental Consulting

Sacramento Valley • Inland Empire • Greater Los Angeles • San Diego
www.BargasConsulting.com

Project Team

Report Author(s): Ashley Hallock, M.A. and Lily Arias, M.A.

Principal Investigator: Lily Arias, M.A.

Recommended Citation: Hallock, Ashley and Lily Arias. 2024. Cultural Resources Report for CalAm's Meadowbrook Tank and Booster Station Project, Merced County, California. Prepared for S2S Environmental Resource Management, San Ramon, California. February 2024.

Cultural Resources Summary Information

USGS 7.5-Minute Quadrangle(s): Atwater, California
City and County: Unincorporated Merced County

Cultural Resources Identified in Project Area: One (P-24-001909)
Previously Recorded Resources in Project Area: One (P-24-001909)
Newly Recorded Resources in Project Area: None
Resources Previously Determined Eligible for National/State Register: None
Resources Previously Determined Not Eligible for National/State Register: None

MANAGEMENT SUMMARY

Bargas Environmental Consulting, LLC (Bargas) completed a cultural resources investigation at the request of S2S Environmental Resource Management (S2SERM) for California American Water Company's (CalAm) proposed Meadowbrook Tank and Booster Station Project (Project). The purpose of this investigation was to asses if the Project has the potential to impact archaeological, historical, and/or tribal cultural resources within and adjacent to the Project Area. This assessment included a records search and literature review, a Sacred Lands File (SLF) search, and pedestrian survey of the Project Area. This assessment was conducted in compliance with the California Environmental Quality Act (CEQA) and will be used for preparation of an Initial Study (IS).

The Project Area is comprised of Assessor's Parcel Number (APN) 057-200- 087 and encompasses an approximately 0.72-acre area along Santa Fe Road in unincorporated Merced County, California. The Project Area is currently utilized for agricultural purposes. CalAM is proposing to construct a one-million-gallon (MG) water storage tank, booster pump station, equipment building, emergency generator, and associated utility lines, fencing, and security features within APN 057-200-087.

On January 12, 2024, Bargas requested a records search of the Project Area and a 0.5-mile radius from the Central California Information Center (CCIC) at California State University Stanislaus, Turlock, California to identify any previous investigations and previously identified cultural resources within, and in the vicinity of, the Project Area. The CCIC supplied the results of the records search on January 12, 2024, which identified a proposed historic-era irrigation district within the Project Area (P-19-001909). P-19-001909 is a large, 900-square-mile proposed historic district, which includes numerous elements, none of which are in the ProjectProject Area.

A Sacred Lands File (SLF) search request was submitted to the Native American Heritage Commission (NAHC) on January 10, 2024, to identify known sensitive or sacred Native American resources located within or near the Project Area. The NAHC returned negative results on February 5, 2024. The NAHC provided a contact list of Native American Tribes that may have knowledge of additional cultural resources within or near the Project.

A pedestrian survey was conducted on January 18, 2024 by a qualified Bargas archaeologist. The entirety of the Project Area was surveyed. No new or previously recorded cultural resources were identified within the Project Area as a result of the pedestrian survey. An earthen irrigation ditch of unknown age is located directly west but outside of the Project Area. It will not be impacted by the proposed project.

Bargas also conducted a desktop analysis and literature review, which included a review of historic topographic maps, aerial imagery, General Land Office (GLO) survey, patent data, and the Built Environment Resources Directory (BERD) for Merced County. The historic map and database review identified the presence of historic-era irrigation ditches within 0.5 mile of the Project Area; however, none were identified within the Project Area. Although ethnographic research did not indicate the presence of any Precontact/Historic cultural resources within 0.5-mile of the Project Area, the potential for surface and subsurface archaeological resources to be present within the Project Area. Although past agricultural use and dense vegetation may have obscured or destroyed surface manifestations of archaeological resources within the Project Area, intact archaeological materials associated with the past occupation of the area may exist in subsurface sediments below the disturbed plow zone.

California state law (California Health & Safety Code 7050.5 and PRC 5097.98) regulates specific procedures to be followed in the event human remains, modern or archaeological, are discovered in the state of California. These regulations will be followed should inadvertent discovery of human remains be made during Project construction.

Table of Contents

List of Tables

List of Figures

Attachments

1 Introduction

Bargas Environmental Consulting, LLC (Bargas), on behalf of S2S Environmental Resource Management (S2SERM) for the California American Water Company (CalAm), conducted cultural resources investigations for the proposed Meadowbrook Tank and Booster Station Project (Project). The purpose of the assessment is to determine if the Project has the potential to impact archaeological, historical, and/or tribal cultural resources within and adjacent to the Project. The proposed Project encompasses Merced County Assessor's Parcel Number (APN) 057-200-0087 and consists of the construction of a new one-million-gallon (MG) water storage tank and additional improvements for the proposed booster station on an approximately 0.72-acre parcel (APN 057-200-0087). This assessment included a records search and literature review, a Sacred Lands File (SLF) search, and pedestrian survey of the Project Area. This assessment was conducted in compliance with the California Environmental Quality Act (CEQA) and will be used for preparation of an Initial Project (IS).

1.1 Project Location

The Project is located in unincorporated Merced County, California, specifically within Township 7 South, Range 13 East, Section 14 of the United States Geological Survey's (USGS) *Atwater, California* 7.5-minute quadrangle (Figure 1). The Project is along Santa Fe Road, east of Bryant Road and north of Highway 99 (Figure 1).

The Project's Project Area is defined as the entire 0.72-acre parcel, as shown in Figure 2. The Project Area is currently an open agricultural field. Surrounding land uses include agricultural fields to the south, a housing development to the west, a railroad alignment, a commercial and residential development to the north, and a commercial development to the east.

1.2 Project Description

CalAm proposes to construct a one-MG tank, booster pump station, equipment building, emergency generator, and associated utility lines, fencing, and security features within the Project Area.

1.3 Environmental Setting

The Project Area is situated within an agricultural area between the cities of Atwater and Merced within unincorporated Merced County, located within California's Great Central Valley, which is bordered by the Sierra Nevada Mountain range to the east and the Coastal Range to the West. The Project Area is relatively flat with elevations ranging from 164 to 165 feet above mean sea level (AMSL). The closest source of freshwater to the Project Area is Black Rascal Creek, located approximately 0.75 mile southeast of the Project Area. A north-south agricultural ditch forms the western boundary of the Project Area. Vegetation within the Project Area consists of grasses, Musk Stork's-bill, Buck's-horn Plantain, Oregon Gumplant, abundant grasses, invasive weeds, and Yellow Star Thistle. The Project area appears to have been used as an agricultural field in the past; however, it now is utilized as an equipment storage area and pumping facility.

The Project Area is located in Geologic Unit Q (Generalized Rock Types), which are marine and nonmarine continental sedimentary rocks, consisting of older Quaternary alluvium, lake, playa, and terrace unconsolidated and consolidated deposits (California Department of Conservation 2015). Soils within the Project Area include primarily San Joaquin loam, with 0 to 3 percent slopes, which consists of moderately deep to duripan, well- and moderately drained soils formed in alluvium derived from mixed but majority granitic rock sources (UC Davis and

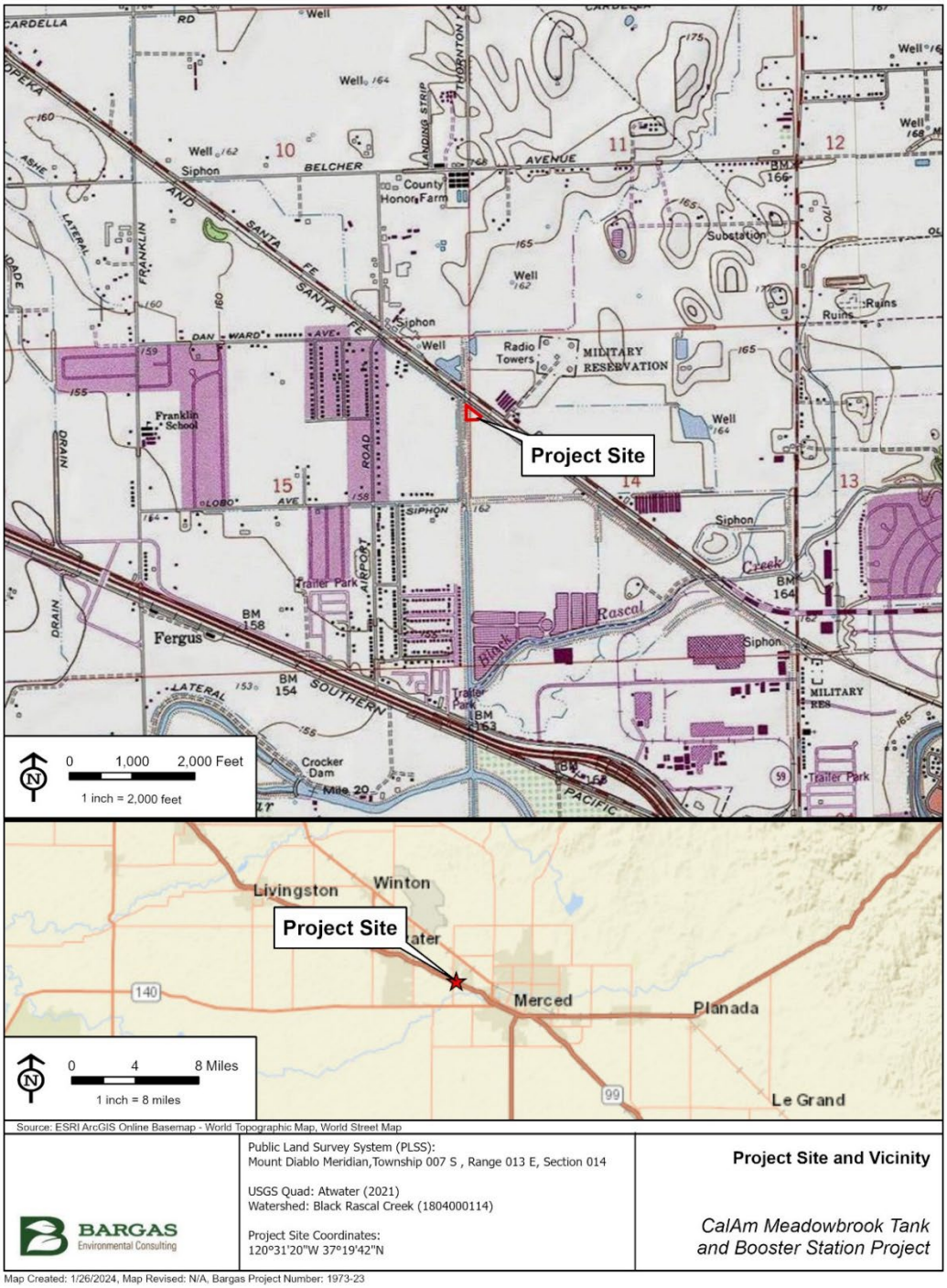


Figure 1. Project Site and Vicinity Map

Figure 2. Project Area Map

NRCS 2024). Other soils within the Project Area, 5% or less, include Snelling, Montpellier, and Alamo series soils. Snelling series consists of very deep, well drained soils which formed in alluvium from granitic rock sources, which are typically associated with terraces. The Montpellier series consists of deep to very deep, and well- or moderately well-drained soils which were formed in old alluvium from granitic rock sources and are typically found on level or hilly dissected terraces. The Alamo soil series consists of moderately deep to hardpan, poorly drained soils that have formed in alluvium from mixed sources, and are typically found associated with basins and drainageways, or on floodplains and fan remnants (UC Davis and NRCS 2024).

2 Regulatory Framework

2.1 State Regulations

2.1.1 California Environmental Quality Act (CEQA)

This report was prepared in compliance with the California Environmental Quality Act (CEQA) and the California Public Resources Code (PRC). According to Section 15064.5 of the CEQA Guidelines, the potential impacts of a proposed project on significant cultural resources must be considered during the planning process. A project that may cause a substantial adverse effect on the significance of a historical resource is a project that may have a significant effect on the environment. If a project would result in significant adverse effects on historical resources, then alternative plans or mitigation measures must be considered; however, only significant historical resources need to be addressed.

Per CEQA, significant resources, defined as "historical resources," are those that are: 1) determined eligible for, or are listed in, the California Register of Historical Resources (CRHR), 2) included in a local register of historical resources, or 3) any buildings, sites, structures, objects, or districts, which may have historical, pre-historical, architectural, archaeological, cultural, or scientific importance and that a lead agency determines to be historically significant. PRC Section 5024.1 requires evaluation of historical resources to determine their eligibility for listing in the CRHR. The purpose of the register is to maintain listings of California's historical resources and to indicate which resources are to be protected from substantial adverse change. The criteria for listing resources in the CRHR were expressly developed to be in accordance with previously established federal criteria for listing in the National Register of Historic Places (NRHP).

The CEQA process for identifying potential impacts to cultural resources includes: (a) the identification of cultural resources (resources greater than 45 years in age) within a proposed project area; (b) an evaluation of whether the identified resources qualify as historical resources; (c) an assessment to determine whether a project may have a significant impact on historical resources, including tribal cultural resources as defined at PRC Section 21074; and finally (d) the development of avoidance/preservation measures or mitigation measures that would preferably avoid impacts or reduce potential impacts to a level that is less than significant.

2.2 Local Regulations

2.2.1 Merced County

The Merced General Plan includes several policies for the protection of archaeological, historic and paleontological resources, and an overarching goal:

- Goal RCR-2: Protect and preserve the cultural, archeological, and historic resources of the County in order to maintain its unique character (Merced County 2012).

The following lists those policies relevant to this report (archaeological and historic resources):

- Policy RCR-2.1 Archeological Site and Artifact Protection: Require development projects that affect archeological sites and artifacts to avoid disturbance or damage to these sites.
- Policy RCR-2.2 Historical Area Preservation: Support the preservation of historical structures and areas, particularly those listed on the National Register of Historic Places and California Registrar of Historic Places.
- Policy RCR-2.3 Architectural Character Preservation: Require that the original architectural character of significant state- and federally listed historic structures be maintained in compliance with preservation standards and regulations.
- Policy RCR-2.4 Park and Open Space Historic Resource Preservation: Require the preservation of historic resources located in parks and publicly owned open space areas.
- Policy RCR-2.5 Human Remains Discovery: Require that, in the event of the discovery of human remains on any project construction site, all work in the vicinity of the find will cease and the County Coroner and Native American Heritage Commission will be notified.
- Policy RCR-2.6 Historic Buildings and Areas: Identify buildings and areas with special and recognized historic, architectural, or aesthetic value to be preserved and rehabilitated during the Community Plan update process. New development should respect architecturally and historically significant buildings and areas and conform to the current Secretary of the Interior's Standards for the Treatment of Historic Properties and Guidelines for Preserving, Rehabilitating, Restoring, and Reconstructing Historic Buildings, and incorporate adaptive reuse practices, where feasible, to preserve the County's historical heritage and rural character.
- Policy RCR-2.8 Historical Preservation Area/Site Designations: Allow sites of historical and archeological significance to be designated as historical preservation areas or sites during the Community Planning process or on individual sites in rural areas.
- Policy RCR-2.9 Historical and Cultural Resources Investigation, Assessment, and Mitigation Guidelines: Establish and adopt mandatory guidelines for use during the environmental review processes for private and public projects to identify and protect historical, cultural, archaeological, and paleontological resources, and unique geological features.
- Policy RCR-2.10 Tribal Consultation: Consult with Native American tribes regarding proposed development projects and land use policy changes consistent with Planning and Zoning Law at Government Code Section 65351, and the OPR Tribal Consultation Guidelines (2005) (Merced County 2012).

3 Cultural Setting

3.1 Prehistoric Overview

It is generally believed that human occupation of California dates to at least 10,000 years before present (BP). Four cultural periods of precontact occupation of California during the Holocene Epoch (10,000 years BP to present) are discussed below: the Early Holocene Period, the Early Horizon Period, the Middle Horizon Period, and the Late Horizon Period (Moratto 1984).

During the Early Holocene Period (10,000 to 8,000 years BP), hunters/gatherers utilized lacustrine and marshland settings for the varied and abundant resources found there, including fish. Milling-related artifacts are lacking during this period, possibly indicating less reliance or processing of vegetal resources. The atlatl and dart are common in sites dating to this period, indicating hunting of large and small game. A few scattered permanent settlements were established near large water sources, but a nomadic lifestyle was more common (Moratto 1984). The presence of isolated finds and a small number of sites within inland mountains and valleys suggests seasonal use of those areas (Erlandson 2012).

Milling-related artifacts first appear in sites dating to the Early Horizon Period (8,000 to 4,000 years BP), indicating a greater reliance on vegetal foods. Hunting and gathering continue during this period, but with increased use of seeds, nuts, and roots. Processing of acorns is prominent during this period. Diagnostic artifacts from this period include core tools, groundstone, cogged stones and discoidals. Beads began to be used with increasing frequency (Moratto 1984).

A greater consumption of shellfish, including mussels and oysters, is reflected in sites dating to the Middle Horizon Period (4,000 to 2,000 years BP). Use of bone artifacts appears to have increased during this period, and baked earth steaming ovens were developed. Mortars, pestles, and side-notched projectile points are common. Occupation of permanent or semi-permanent villages increased in this period, along with use of seasonal sites, particularly within the coastal mountains (Moratto 1984; Glassow et al. 2007).

During the Late Horizon Period (2,000 years BP to the time of European Contact [i.e., AD 1769]), the population of the region increased, as did the number and size of permanent villages (Erlandson 1994; Moratto 1984). Hunting of faunal resources was the primary subsistence strategy, supplemented by plant foods, particularly acorns. Large villages served as trade centers and shell beads were introduced as trade items to exchange for goods. A strong artistic tradition developed using bone, shell, stone, and basketry. Regional subcultures developed during this period, each with their own geographical territory and language or dialect. These groups were often bound by shared cultural traits and maintained a high degree of interaction and trade (Chartkoff and Chartkoff 1988).

3.2 Ethnographic Overview

The predominant Native American group occupying the lower San Joaquin Valley encompassing the Project area at the time of European contact in the late 18th century was the Northern Valley Yokuts. Northern Valley Yokuts territory is understood to extend from the large northward bend of the San Joaquin River to the midway point between the Calaveras and Mokelumne Rivers. Although there has been some debate on where the Northern Valley Yokuts territory ends to the north, as the dividing line between Northern Valley Yokuts and Plains Miwok is disputed, the western boundary is understood to be the Diablo Range and the eastern boundary, the Sierra Nevada foothills (Wallace 1978).

The environment within the lower San Joaquin Valley consisted of riverine corridors, with extensive tule marshes stretching to the west and increasingly arid plains to the east, bordered by low hills. Vegetation and plant life consisted of several ecological niches. Riverine corridors were lined with trees such as cottonwoods, sycamores, and willows. Wetland/marsh areas were abundant with marsh grass and tules. Valley oaks were sporadically located in the plains, depending on water availability. Grasses and herbs were abundant in the plains despite the aridity. These diverse ecological niches provided environments for large terrestrial mammals, such as tule elk and pronghorn antelope, and smaller mammals, such as ground squirrels, birds, and quail and jackrabbits. Riverine resources were also abundant, such as fish, but also shellfish, including mussels, turtles, and waterfowl. The predominant sources of food for the Northern Valley Yokuts were fish, especially salmon, but also white sturgeon, river perch, western suckers, and Sacramento pike, and waterfowl, including geese and ducks. Domesticated dogs were also kept, mostly for consumption but also for companionship. Likewise, young deer were sometimes captured and kept as pets (Wallace 1978).

One the diet staples of the Northern Valley Yokuts was acorns, which were obtained from valley oaks. An individual valley oak could produce a remarkably high yield of acorns, as much as 300 to 500 pounds per year (Wallace 1987). These essential sources of food were often ground down and cooked into a thick soup. Other important plant resources were tule roots, which were ground into meal, and seeds, which could be ground and baked into bread. Interestingly, acorn and fish were a much more significant source of food in comparison to large game, such as tule elk, which were only a small part of the average diet (Wallace 1978).

Settlements were situated along the San Joaquin River and its tributaries, with an estimated density of 10+ persons a square mile (Wallace 1978). By contrast, population was sparse in the plains, with a density of one to two people per square mile. Principal settlements were often situated in an elevated position along the banks of the many rivers or tributaries within the region, such as on the top of low-lying hills, to avoid flooding. Village life was mostly sedentary, apart from seasonal wild plant gathering. Dwellings were small single-family homes, built using tule stalks, and had round or oval hard-packed dirt floors. Two other structures existed in Northern Valley Yokuts villages: the sweathouse and ceremonial assembly chamber. Both structures were larger than the single-family home dwelling typically found in Northern Valley Yokuts villages. Sweathouses and ceremonial chambers may have been earth-covered and could be as large as eighty-four by ninety-three feet, like the communal structure identified in a former village on Los Banos Creek (Wallace 1978).

The Northern Valley Yokuts utilized many natural resources in their daily lives. Tule reeds were woven into baskets and mats. Wood and stone mortars and pestles were utilized to crush acorns, roots, and seeds. Other stone tools of importance included choppers and hammers. Local chert, jasper, and chalcedony and, to a lesser scale, imported obsidian, served as source material for flaked stone tools, projectile points, and scrapers. Mammal bones were crafted into awls. What was not available locally was obtained via trade. Baskets as well as bows and arrows were obtained from the Miwok in exchange for puppies. Trade with the coastal Ohlone consisted of abalone and mussel shells. To facilitate trade and other travel, the Northern Valley Yokuts made rafts using bundles of tules and journeyed on the network of rivers and their associated tributaries or traveled by foot along an extensive system of trails.

The Northern Valley Yokuts were organized in "miniature tribes" (tribelets), each with an average population of three hundred people (Wallace 1978). Aside from the larger multiple dwelling settlements, smaller two to three dwelling settlements also occurred. Each tribelet had a headman who lived in the principal settlement. The only

other official, aside from the headman, was the messenger or herald (Wallace 1978). Not much is known of specific customs or rituals except for the custom of extending hospitality to visitors and guests, including providing food, mats to sit on, and gifts (Wallace 1978). Armed conflict and warfare were known in Northern Valley Yokuts territory. In these instances, conflict was initiated by exchanging insults between both parties, with bows and arrows primarily utilized.

3.3 Historic-Period Overview

In 1806, some of the first Europeans to arrive to the Central Valley were Spanish Colonel Gabriel Moraga and his cavalry. Moraga led several explorations into the area and was responsible for naming many of the landmarks in the valley. In 1809, Colonel Moraga returned in search of possible new mission sites and escaping missionized Native Americans. In 1827, a group of fur trappers led by Jedediah Strong Smith visited the region. Trappers and explorers continued to enter the valley, including the Ewing Young trapping party in 1829, and Joseph Reddeford Walker in 1833, who was the first to see Yosemite Valley. Settlements in the Central Valley began during the time of the Spanish and Mexican rule of California when land grants were easily obtained. In 1834, the Rancho San Luis Gonzaga land grant was the first settlement in the area. In 1844 and 1845, General John C. Fremont explored the valley. In 1848, the Pacheco family purchased the ranch which included the first residential structure in the area, an adobe known as the Centinela Adobe, built in 1810 by pioneering ranchers (Rensch et al. 1933).

During the California Gold Rush of 1849, hundreds of thousands of gold seekers traveled through the area to reach the Sierra Nevada mountains and increased the demand for mining supplies. Long trains of pack mules crossed the Central Valley daily to provide supplies to the mining camps. Thousands of sheep and cattle were herded through the valley to San Francisco stockyards. In the 1850s farmers began planting crops, including wheat and other grains. By 1855, five hundred people lived in the area and Merced County was formed (Greater Merced Chamber of Commerce n.d.). The Butterfield Overland Stage began carrying mail for the U.S. Post Office, between Memphis, Tennessee and San Francisco, California in 1858, entering the valley through Pacheco Pass (Ahnert 2013; California State Parks Department of Parks and Recreation 2024). During the 1860s, millions of acres were developed into horse, sheep, and cattle ranching and diary operations. The community of Merced was formally founded in 1872 by the Central Pacific Railroad and was named for the Nuestra Señora de la Merced which in Spanish means "Our Lady of Mercy." It became the county seat by special election the same year (Greater Merced Chamber of Commerce n.d.). Continuing to grow rapidly, with an economy primarily based on livestock and agriculture, Merced was incorporated as a city in 1889 (City of Merced 2021a).

During World War II, the Merced County fairgrounds became the site of the temporary Merced Assembly Center for Japanese-Americans detained under U.S. Presidential Executive Order 9066. 4,669 Japanese American men, women, and children removed from their west coast homes, most from the Merced area, were confined there from May 6 to September 15, 1942, before being transferred to the more permanent Granada Relocation Center near Amache, Colorado Densho Digital Archive 2024; PBS 2012; World History Commons 2024). From 1941 to 1995, the nearby Castle Air Force Base, northwest of Merced, contributed to the economy of the area. The contemporary city of Merced, now popularly known as the gateway to Yosemite National Park, continues to rely on agribusiness and boasted a population of more than 80,000 as of 2019 (City of Merced 2021b).

3.4 Current Land Use

The Project Area is located within a rural agricultural area but is bordered to the west by an irrigation ditch and housing development, to the north by Santa Fe Road and a railroad alignment, to the west by commercial development interspersed with agricultural areas, and to the south by an agricultural field. The Project Area is composed of the entirety of APN 057-200-087 (Google Earth 2024). The Project Area consists of cleared land currently used for equipment storage, including pumps and related pump structures, but previously an agricultural field (NETROnline 2024).

4 Desktop Analysis

A request for a records search of the Project Area and a 0.5-mile radius was submitted on January 12, 2024, to the Central California Information Center (CCIC) of the California Historical Research Information System (CHRIS) located at the California State University Stanislaus, Turlock, California, to identify known cultural resources and previous investigations. Results were received on January 12, 2024 (Appendix A: Records Search Results – Confidential – Do Not Distribute). In addition, the Built Environment Resources Directory (BERD), historic maps, General Land Office (GLOs) and land patents, as well as aerial photographs were reviewed to determine the extent of past land use within the Project Area.

A request for a search of the SLF was submitted on January 10, 2024, to the Native American Heritage Commission (NAHC) in Sacramento to identify sensitive or sacred Native American resources located within or near the Project. The NAHC maintains confidential records of sites and landscapes with traditional, cultural, or religious value to the Native American community.

4.1 Records Search

The records search identified eight (8) previous investigations that have been conducted within the 0.5-mile records search radius (CCIC File No: 12773I). These studies were conducted between 1980 and 2020 (Table 1).

Of the eight studies, four overlap the Project Area:

ME-0672 is an intensive 509-acre cultural resources survey for the United States Department of the Army, Sacramento District conducted in 1982 that did not identify any resources within the Project Area.

ME-02972 consists of a 310-acre archaeological survey of the proposed Merced Irrigation District along the 115 kv Atwater-Merced transmission line which identified four historic-era built environment resources, none of which are within the Project Area (Napton 1997a).

ME-03092 consists of an addendum to ME-02972, a survey conducted for the Merced Irrigation District along the 115 kv Atwater-Merced transmission line (Napton 1997b).

ME-06858 consists of an archival Project for the Atwater General Plan, which did not include fieldwork (Holman and Hellmann 2008).

No resources were identified within the Project Area as a result of any of the studies described above.

Table 1. Previously Recorded Studies within 0.5-Mile of the Project Area

Report Number (ME-)	Year	Title	Author	Proximity to Project Area
00630	1980	Cultural Resources Survey of Santa Fe Drive Between Buhach Road and Highway 59 in Merced County, California	Napton, L.K. (CSU Stanislaus for Merced County Department of Public Works)	Outside
00672	**1982**	**Merced County Stream Project, California Intensive Cultural Resources Survey (Downstream Channel Improvements)**	**Peak & Associates, Inc. for United States Army Corps of Engineers Sacramento District**	**Overlaps**
02930	1996	Archaeological Inventory Survey, Tracy to Fresno Longhaul Fiberoptics Data Transmission Line, Portions of Fresno, Madera, Merced, Stanislaus, and San Joaquin Counties, California	Jensen, Peter (Jensen & Associates for North State Resources, Inc.)	Outside
02972	**1997**	**Cultural Resources Investigations of the Proposed Merced Irrigation District, Atwater-Merced 115-kV Loop, Merced County, California**	**Napton, L. Kyle (CSU, Stanislaus Institute for Archaeological Research)**	**Overlaps**
03092	**1997**	**Cultural Resources Investigations of the Proposed Merced Irrigation District, Atwater-Merced 115-kV Loop, Merced County, California Addendum I: Cultural Resources Investigations Along Revised Atwater-Merced Route, Color Press Substation Addendum**	**Napton, L. Kyle (CSU, Stanislaus Institute for Archaeological Research)**	**Overlaps**
06858	**2008**	**An Archival Study to Identify Potential Cultural Resources Located in the City of Atwater General Plan and Program EIR Project Area, Merced County, California**	**Holman, Miley and Ray Hellmann (Holman & Associates for Jerry Haag, Environmental Consultant, Berkeley, California)**	**Overlaps**
08148	2015	Cultural Resources Investigations of the Proposed San Joaquin Valley Christian School Project, 55 Acres in Merced County, California	Napton, L.K. (Historical Resources Consultant for Environmental Planning Partners)	Outside
09555	2020	Historic Property Identification Report for the Franklin County Water District Sewer Rehabilitation Project, Merced County, California	Dyste, D. and R. Ottenhoff (Applied Earthworks for QK Inc.)	Outside

* Bolding indicates the study overlaps the Project Area.

The records search results identified two (2) previously recorded resources within 0.5-mile radius of the Project Area, a railroad and a water district (i.e., 50 years old or older) (Table 2). Both have been determined ineligible for the National Register of Historic Places by consensus. Because they are not historically significant on the state or local level, they are also not considered historical resources for the purposes of CEQA.

Table 2. Previously Recorded Resources within 0.5-Mile of the Project Area

Primary/Trinomial Number	Type	Other Name	Recorder and year	Proximity to Project Area	NRHP/CRHR Eligibility
P-24-001881	Historic-era: Railroad	Burlington Northern Santa Fe Railroad/Atchison	2021 (Starke and Lucatorto, Kleinfelder, Inc.);	Outside	Ineligible 6Y (Determined ineligible for NR

Primary/Trinomial Number	Type	Other Name	Recorder and year	Proximity to Project Area	NRHP/CRHR Eligibility
	alignment (ca. 1895 – early 1900s)		2018 (Wisely, Far Western Anthropological Research Group); 2002 (Lortie, Caltrans); 2009 (Smallwood, CRM Tech);		by consensus through Section 106 process – Not evaluated for CR or local listing)
P-24-001909	**Historic-era irrigation district (ca 1920s)**	**Merced Irrigation District**	**2021 (Starke and Lucatorto, Kleinfelder, Inc.); 2010 (Dice, Michael Brandman Associates); 2011 (Loftus); 2006 (Bunse and Melvin, JRP Historical Consulting, LLC);**	**Overlaps**	Ineligible 6Y (Determined ineligible for NR by consensus through Section 106 process

* Bolding indicates the resource overlaps the Project Area.

4.2 Native American Heritage Commission Sacred Lands File Search Results

A SLF search request was submitted to the NAHC on January 10, 2024, to identify known sensitive or sacred Native American resources located within or near the Project Area. The SLF search results were received on February 5, 2024, the results of which were negative. The NAHC provided a contact list of Native American Tribes that may have knowledge of additional cultural resources within or near the Project. The Tribal groups identified by the NAHC include:

- Amah Mutsun Tribal Band
- Dumna Wo-Wah Tribal Government
- Northern Valley Yokut/Ohlone Tribe
- Southern Sierra Miwuk Nation
- Table Mountain Rancheria
- Tule River Indian Tribe
- Wuksachi Indian Tribe/Eshom Valley Band

On February 8, 2024, letters with Project details and maps were sent by email to the seven Tribal groups listed above. Follow-up phone calls were made to the seven tribal groups listed above on March 12, 2024, the following responses were received:

- A representative of the Amah Mutsun Tribal Band, responded via email on February 10, 2024, stating that they had no information regarding the sensitivity of the area but provided information pertaining to his ancestors. A response was sent to the Amah Mutsun Tribal Band via email on the same date thanking them for sharing their knowledge and family's history.
- A representative for the Southern Sierra Miwuk Nation requested a callback on March 13, 2024. A return call was made on March 13, 2024, but they were unavailable. No voicemail was available.
- A representative for the Tule River Indian Tribe responded on March 12, 2024, stating they had no concerns with the project but wishes to be notified if any discoveries are made.

Copies of all correspondence with the NAHC and Tribal groups and representatives are provided in Appendix B.

4.3 Literature and Historic Map Review

4.3.1 BERD Search

A search of the Built Environment Resources Directory (BERD) was conducted on January 30, 2024, to identify built environment resources within 0.5-mile of the Project Area (California State Parks Office of Historic Preservation 2024). The BERD contains information about cultural resources that have been processed through the Office of Historic Preservation. This includes resources reviewed for eligibility to the National Register of Historic Places and the California Historical Landmarks programs through federal and state environmental compliance laws, and resources nominated under federal and state registration programs. The BERD includes the determinations of eligibility for built environment resources that have been evaluated. Both the built environment resources identified within 0.5-mile of the APE are listed as not eligible (California State Parks Office of Historic Preservation 2024).

4.3.2 Historic Map, GLO and Aerial Imagery Review

Review of historic patent records, GLO plats, historic topographic quadrangles, and aerial imagery indicates that past land uses within the vicinity of the Project Area included agriculture, and other rural uses. Historic patent records indicate that Isaac Friedlander was issued a patent on December 10, 1868, for 160 acres of land at Township 7 South, Range 13 East, Section 14 (SE ¼ and SW ¼) (United States [US] Department of the Interior Bureau of Land Management [BLM] 2024). John W. Mitchell was issued a patent on May 15, 1869, for 160 acres of land at Township 7 South, Range 13 East, NE ¼ and NW ¼ of Section 14, covering portions of the Project Area (US Department of the Interior BLM 2024). GLO survey plats for Township 7 South, 13 East, Section 14 indicate GLO surveys occurred within the Project Area in 1855. The 1855 plat indicates minimal development within the Project Area (US Department of the Interior BLM 2024).

Review of historic topographic maps indicates that the Topeka and Santa Fe Railroad Line (now Burlington Northern Railroad) alignment, located approximately 56 feet northeast of the Project Area, and a road alignment located to the immediate west of the Project Area were established as early as 1918. Sparse street alignments and several structures are also depicted on the 1918 Atwater, California 1:62,500 scale USGS topographic map, indicating that the town of Franklin, located west of the Project Area, was established by 1918. Increased development, including additional street alignments and buildings are depicted on the 1948 Atwater, California 1:24,000 scale USGS topographic map. Santa Fe Drive, aligned with the railroad alignment northeast of the Project Area, a canal directly west of the Project Area, a lateral irrigation ditch to the south of the Project Area, and a

military reservation and radio towers northeast of the Project Area, is depicted on the 1960 Atwater, California 1:24,000 scale USGS topographic quadrangle. Increased urban development occurred between 1960 and 1987 (USGS and ESRI 2024).

Historic aerial imagery indicates that agricultural activity, including the proliferation of fields and agricultural land, as well as the construction of the canal situated on the western side of the Project Area, occurred within the Project Area and the surrounding area as early as 1946. Increasing development to the west of the Project Area is observable in aerial imagery from 1958. In 1984, a portion of the Project Area was still being used as an agricultural field, the general vicinity became increasingly developed commercially and residentially, and the military reservation and radio towers to the northeast of the Project Area are visible. By 1998, the Project Area was cleared, is no longer visibly functioning as an agricultural field, and appears to be utilized as a storage yard as evidenced by the presence of pumping structures. An agricultural field was located to the immediate south/southeast of the Project Area. In 2005, most of the housing development west of the Project Area was completed. Aerial imagery from 2009, 2010, 2012, 2016, 2018, and 2020 indicates minimal changes or additional development within the general area. The Project Area continues to be vacant land bordering on an agricultural field. The pumping structures are still visible (NETROnline 2024).

5 Field Survey

5.1 Pedestrian Survey Methods

On January 18, 2024, Bargas archaeologist Katie Sage conducted a pedestrian survey of the Project Area. The survey consisted of 15-meter transects within the Project Area. The survey methods and field practices for the cultural resources survey met the Secretary of the Interior's Standards and Guidelines.

The location of the Project Area was verified with submeter accuracy with Field Maps and GPS. Field conditions and results were photo-documented using the Solocator App in an iPhone device. All photographs and documentation were filed the Bargas database, available through the Sacramento, California office.

5.2 Pedestrian Survey Results

The entirety of the Project Area was surveyed (Figures 3 to 5). Ground surface visibility was generally poor (approximately 10 to 20 percent) and limited by dense vegetation including grasses, Musk Stork's-bill, Buck's-horn Plantain, and Oregon Gumplant. Better ground surface visibility was afforded in those areas disturbed by tire tracks and was 100% within the graded area east of the gated pump. Exposed mineral soils were Munsell 10YR 4/2 and 10YR 4/3, silty clay with small subangular igneous clasts interspersed with imported gravels, arranged for increased vehicular traction. The terrain within the Project Area includes several slopes, including a 10 to 20 degree north facing slope, leading toward Santa Fe Road. An irrigation ditch was observed in proximity to, but outside of, the western boundary of the Project Area, which slopes gently 0 to 10 degrees to the south (Figures 6 to 7).

Figure 3. Survey Coverage Map

Several portions of the Project Area have been previously disturbed by the installation of a gate and pump structures (Figure 8). Evidence of ground surface level disturbances, including tire tracks; fragments of asphalt; staged modern construction equipment; pipes; and standing structures, including a spill kit station and pumps; was present, likely for the installation of utilities (Figure 9). The eastern portion of the Project Area has been subject to heavy grading (Figure 10). Modern refuse was observed adjacent to a gated area, along the western portion of the Project Area, and within the shoulder of Santa Fe Road (Figure 11).

No archaeological or historical resources were observed within the Project Area. An unnamed earthen ditch that appears on the 1918 Atwater topographic quad sheet was observed directly west but outside of the ProjectProject Area. It was not formally recorded because it is not in the Project site and will not be affected by the Project (Figures 6 to 7). Although the Merced Irrigation District, P-24-001909, overlaps the Project Area, no physical elements of the district were observed within the Project Area as a result of pedestrian survey.

Figure 4. Overview of the Project Area, taken from northwest corner. View towards the Southeast.

Figure 5. Overview of the Project Area, taken from the northern boundary/Santa Fe Road. View towards the South.

Figure 6. Unnamed ditch to right of frame. View toward the South.

Figure 7. Unnamed ditch adjacent to the western edge of Project Area. View toward the North.

Figure 8. Standing pump structures within gated pump area (Project Area). View toward the North.

Figure 9. Deep tire tracks/disturbances along southern edge of Project Area. View toward the North.

Figure 10. Graded bare area, east of gated pump area. View toward the Southwest.

Figure 11. Slope toward Santa Fe Road; modern refuse along road shoulder. View toward the Southeast.

6 Summary and Recommendations

The purpose of this cultural resources assessment is to assess the potential for the proposed Project to result in impacts to archaeological, historical, and tribal cultural resources. For this assessment, Bargas requested a formal CHRIS records search of the CCIC at California State University, Stanislaus; requested a SLF search from the NAHC to identify known sensitive or sacred Native American resources located within or near the Project Area, sent outreach letters to tribes on the NAHC contact list for the project, and conducted a desktop review of cultural resources databases, historic maps, records and aerial photographs. A pedestrian survey of the Project Area was also conducted.

The records search identified four previously conducted investigations (ME-0672, ME-02972, ME-03092, ME-06858) that overlap the Project Area. One previously recorded cultural resource, P-24-001909, was identified within the Project Area as a result of the records search. P-24-001909, the Merced Irrigation District (MID), is the 900-square-mile MID service area as recorded on a 1973 map. The NAHC SLF search returned negative results and provided a contact list of Native American Tribes that may have knowledge of additional cultural resources within or near the Project. No archaeological, historical, or tribal cultural resources were identified within the ProjectProject Area as a result of pedestrian survey.

Although no precontact-era cultural resources were identified within the Project Area as a result of the records search, SLF search, and pedestrian survey there remains the potential for surface and subsurface archaeological resources to exist within the Project Area. Although past agricultural use and dense vegetation may have obscured or destroyed surface manifestations of archaeological resources within the Project Area, intact archaeological materials associated with the past occupation of the area may exist in subsurface sediments below the disturbed plow zone.

California state law (California Health & Safety Code 7050.5 and PRC 5097.98) regulates specific procedures to be followed in the event human remains, modern or archaeological, are discovered in the state of California. These regulations will be followed should inadvertent discovery of human remains be made during Project construction.

7 References Cited

Ahnert, Gerald T.

2013 The Construction of the Butterfield Overland Mail Company Line in California. Electronic Document, https://www.parks.ca.gov/pages/22491/files/construction_of_butterfield_overland_mail_company_stage_line_in_california_gerald_ahnert_coyright_2013.pdf. Accessed February 5, 2024.

Bunse, Meta and Steven J. Melvin

2007 Primary Record for P-24-001909. DPR 523A (1/95) series forms. Record on file at Central California Information Center, California State University, Turlock.

California Department of Conservation

2015 California Geological Survey "Geologic Map of California." Electronic document, https://maps.conservation.ca.gov/cgs/gmc/. Accessed January 31, 2024.

California State Parks Department of Parks and Recreation

2024 Stagecoach History: Stage Lines to California. Electronic Document, https://www.parks.ca.gov/?page_id=25066. Accessed February 5, 2024.

California State Parks Office of Historic Preservation

2024 Built Environment Resource Directory (BERD) for Merced County. Electronic Document, https://ohp.parks.ca.gov/?page_id=30338. Accessed January 30, 2024.

Chartkoff, J. L. and K. K. Chartkoff

1988 *The Archaeology of California*. Stanford University Press, Stanford, California.

City of Merced

2021a "History of Merced." https://www.cityofmerced.org/about-merced/history. Accessed 01 November 2021.

2021b About Merced. https://www.cityofmerced.org/about-merced/about-merced. Accessed 01 November 2021.

Densho Digital Archive

2020 Merced (Detention Facility). Electronic Document, https://encyclopedia.densho.org/Merced_(detention_facility)/. Accessed February 5, 2024.

Dice, Michael H.

2010 Primary Record Update for P-24-001909 and P-22-003197. DPR 523 (1/95) series forms. Record on file at Central California Information Center, California State University, Stanislaus.

Erlandson, Jon M.

1994 *Early Hunter-Gatherers of the California Coast*. Plenum Press, New York.

2012 A Land by the Sea: An Ocean View of California Archaeology. In *Contemporary Issues in California Archaeology*. Edited by Terry L. Jones and Jennifer E. Perry, pp. 21–48. Routledge, New York.

Glassow, Michael A., Lynn H. Gamble, Jennifer E. Perry, and Glenn S. Russell
2007 Prehistory of the Northern California Bight and the Adjacent Transverse Ranges. In *California Prehistory: Colonization, Culture, and Complexity.* Edited by Terry L. Jones and Kathryn A. Klar, pp. 191–214. AltaMira Press, Walnut Creek, California.

Google Earth
2024 Aerial Imagery of Merced and Atwater. *Google Earth*. earth.google.com/web/. Accessed January 30, 2024.

Greater Merced Chamber of Commerce
n.d. *HISTORY AND HERITAGE OF MERCED, CALIFORNIA* | Merced, CA https://merced-chamber.com/heritage-of-merced/. Accessed 01 November 2021.

Holman, Miley and Ray Hellmann. 2008. An Archival Study to Identify Potential Cultural Resources in the City of Atwater General Plan and Program EIR Project EIR Project Area, Merced County, California. Prepared for Jerry Haag, Environmental Consultant. Prepared by Holman & Associates. On file at the Central California Information Center (CCIS), Turlock, CA. ME-06858.

Larson, Bryan and Chris Cannon
2000 DPR Series for the Le Grand Canal (P-24-001887) (P-24-001909). Record on file at Central California Information Center (CCIC), California State University, Turlock.

Loftus, Shannon L.
2011 Primary Record Update for P-24-001909. DPR 523A (1/95) series forms. Record on file at Central California Information Center, California State University, Turlock.

Merced County
2012 2030 Merced County General Plan Draft PEIR, "Chapter 9 Historical and Cultural Resources." Electronic document, 9 Cultural MCGPU EIR 2012-11-23F (merced.ca.us). Accessed January 30, 2024.

Moratto, Michael J.
1984 *California Archaeology*. Academic Press, Inc. New York.

Napton, Kyle L.
1997a. Cultural Resources Investigations of the Proposed Merced Irrigation District, Atwater-Merced 115-kV Loop, Merced County, California. Prepared for Russell Associates. Prepared by California State University (CSU) Stanislaus Institute for Archaeological Research. On file at the Central California Information Center (CCIS), Turlock, CA. ME-02972.

1997b. Cultural Resources Investigations of the Proposed Merced Irrigation District, Atwater-Merced 115-kV Loop, Merced County, California, Addendum I: Cultural Resources Investigations Along Revised Atwater-Merced Route, Color Press Substation Addendum. Prepared for Russell Associates. Prepared by California State University (CSU) Stanislaus Institute for Archaeological. On file at the Central California Information Center (CCIS), Turlock, CA. ME-03092.

NETROnline
2024 *Historic Aerials Online* https://www.historicaerials.com/viewer.

PBS
2012 Valley PBS Community Byyou: Merced Assembly Center Memorial. https://www.pbs.org/video/byyou-exploration-merced-assembly-center-memorial/. Accessed February 5, 2024.

Peak & Associates, Inc.
1982 Merced County Stream Project, California Intensive Cultural Resources Survey (Downstream Channel Improvements). Prepared for United State Army Corps of Engineers, Sacramento District. On file at the Central California Information Center (CCIS), Turlock, CA. ME-000672.

Pierce, Wendy, R. Bethard, T. Overly, and N. Stevens
2000 DPR Series for the Le Grand Canal (P-24-000608/CA-MER-000365H8)(P-24-001909). Record on file at Central California Information Center (CCIC), California State University, Turlock.

Rensch, Hero Eugene, Ethel Grace Rensch, Mildred Brooke Hoover
1933 *Historic Spots in California: Valley and Sierra Counties*, 3rd edition. Revised by William N. Abeloe, 1966. Stanford: Stanford University. p. 189.\

Starke, Zack and Nick Lucatorto
2021a Primary Record Update for P-24-001881. DPR 523L (1/95) series forms. Record on file at Central California Information Center, California State University, Stanislaus.
2021b Primary Record Update for P-24-001909. DPR 523L (1/95) series forms. Record on file at Central California Information Center, California State University, Stanislaus.

UC Davis and NRCS
2024 Soil Survey Staff, Soil Resource Laboratory, University of California, Davis and Natural Resources Conservation Service, U.S. Department of Agriculture; SoilWeb app 2.0. https://casoilresource.lawr.ucdavis.edu/gmap/. Accessed July 31, 2024.

United States Department of the Interior Bureau of Land Management (BLM)
2024 General Land Office Records, Merced County, Township 7 South, 13 East, Section 14. Electronic document, https://glorecords.blm.gov/default.aspx. Accessed January 30, 2024.

USGS and ESRI
2024 Historical Topographic Map Explorer. USGS Historical Topographic Map Explorer (arcgis.com). Accessed January 30, 2024.

Wallace, William

1978 Northern Valley Yokuts. In *Handbook of North American Indians, Volume 8, California*. Edited by Robert F. Heizer, pp. 462-470. William C. Sturtevant, General Editor. Smithsonian Institution, Washington D.C.

World History Commons

2008 *"Japanese American Incarceration at Merced Assembly Center, California, Interview,"* https://worldhistorycommons.org/japanese-american-incarceration-merced-assembly-center-california-interview. Accessed February 5, 2024.

Project Personnel

7.1 Field Personnel

M. Katie Sage, Archaeologist
B.A. Anthropology, University of Denver (2022)
Years of Experience: 2

7.2 Report Authors

Ashley Hallock, Report Author
M.A., Anthropology, Washington State University, Pullman (2009)
B.A. Anthropology, Western Washington University, Bellingham (2006)
Years of Experience: 14

Lily Arias, Principal Investigator/QC Review
M.A., Cultural Resources Management, Sonoma State University (2016)
B.A., History, Anthropology minor, University of California, Los Angeles (2009)
Years of Experience: 15

Appendix A

CHRIS CCIC Records Search Results (CONFIDENTIAL – DO NOT DISTRIBUTE)

Appendix B
Native American Heritage Commission 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

Information Below is Required for a Sacred Lands File Search

Project: **CalAm Meadowbrook Tank and Booster Station Project**

County: **Merced**

USGS Quadrangle Name: **Atwater**

Township: **7S** **Range:** **13E** **Section(s):** **14**

Company/Firm/Agency: Bargas Environmental Consulting

Street Address: **3604 Fair Oaks Blvd., #180**

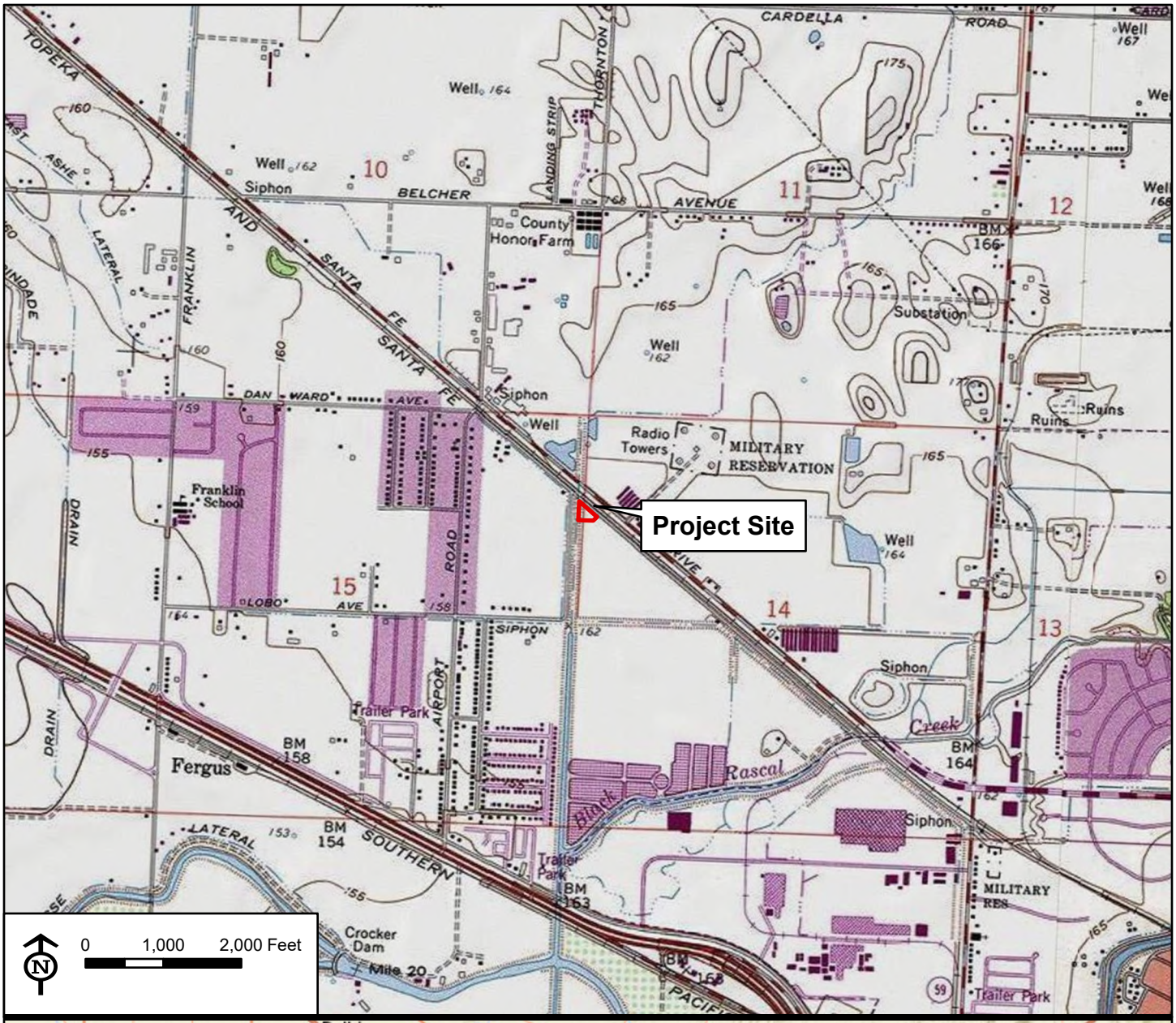
City: **Sacramento** **Zip:** **95864**

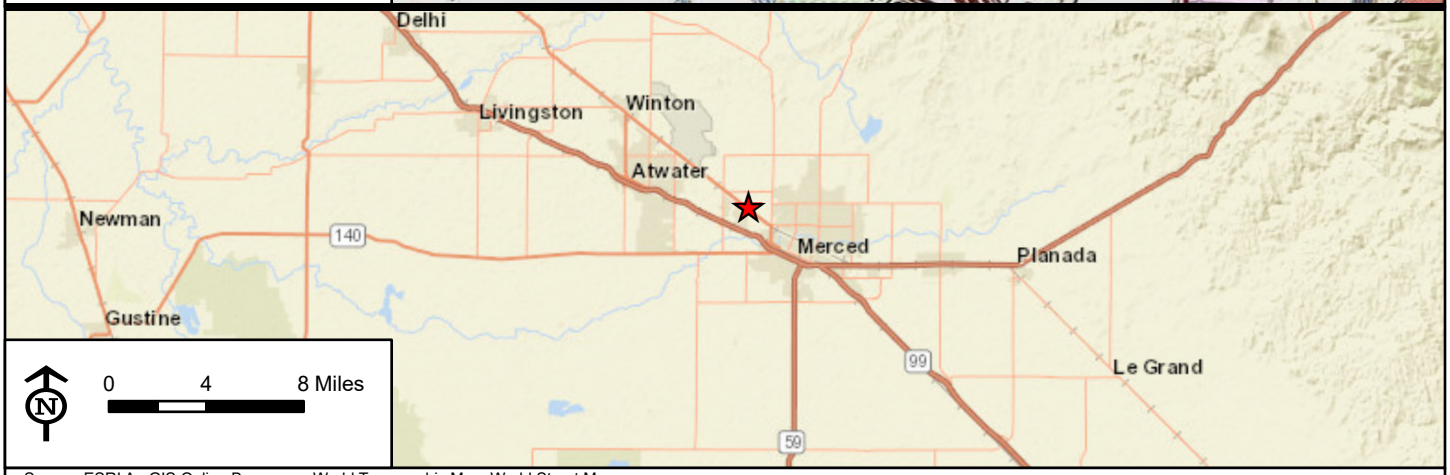
Phone: **(916) 993-9218**

Fax: N/A

Email: **ahallock@bargasconsulting.com**

Project Description: California American Water Company (CalAm) has proposed the construction of the Meadowbrook Tank and Booster Station Project along Santa Fe Road in unincorporated Merced County. The Project will construct a new 1 million gallon water storage tank, booster pump station, equipment building, emergency generator, and associated utility lines, fencing, and security features on an approximately 2-acre parcel (APN 057-200-087).





Source: ESRI ArcGIS Online Basemap - World Topographic Map, World Street Map

Study Area

BARGAS Environmental Consulting

Public Land Survey System (PLSS):
Mount Diablo,Township 7S, Range 13E, Section 14

USGS Quad(s): Atwater (1978)

Project Site Coordinates: 120°31'20"W 37°19'42"N

Sacred Lands File Search

CalAm Meadowbrook Tank and Booster Station Project

Map Created: 1/10/2024, Map Revised: L. Arias, Bargas Project Number: 1973-23

NATIVE AMERICAN HERITAGE COMMISSION

NAHC HEADQUARTERS
1550 Harbor Boulevard
Suite 100
West Sacramento,
California 95691
(916) 373-3710
nahc@nahc.ca.gov
NAHC.ca.gov

February 5, 2024

Ashley Hallock
Bargas Environmental Consulting

***Via Email to*: ahallock@bargasconsulting.com**

Re: CalAm Meadowbrook Tank and Booster Station Project, Merced County

Dear Ms. Hallock:

A record search of the Native American Heritage Commission (NAHC) Sacred Lands File (SLF) was completed for the information you have submitted for the above referenced project. The results were negative. However, the absence of specific site information in the SLF does not indicate the absence of cultural resources in any project area. 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.

Sincerely,

Pricilla Torres-Fuentes

Pricilla Torres-Fuentes
Cultural Resources Analyst

Attachment

Native American Heritage Commission
Native American Contact List
Merced County
2/5/2024

County	Tribe Name	Fed (F) Non-Fed (N)	Contact Person	Contact Address	Phone #	Fax #	Email Address	Cultural Affiliation	Counties	Last Updated
Merced	Amah Mutsun Tribal Band	N	Ed Ketchum, Vice-Chairperson		(530) 578-3864		aerieways@aol.com	Costanoan Northern Valley Yokut	Merced,Monterey,San Benito,Santa Clara,Santa Cruz	7/20/2023
	Amah Mutsun Tribal Band	N	Valentin Lopez, Chairperson	P.O. Box 5272 Galt, CA, 95632	(916) 743-5833		vjltestingcenter@aol.com	Costanoan Northern Valley Yokut	Merced,Monterey,San Benito,Santa Clara,Santa Cruz	7/20/2023
	Dumna Wo-Wah Tribal Government	N	Robert Ledger, Chairperson	2191 West Pico Ave. Fresno, CA, 93705	(559) 540-6346		ledgerrobert@ymail.com	Foothill Yokut Mono	Fresno,Madera,Merced	
	Northern Valley Yokut / Ohlone Tribe	N	Timothy Perez, Tribal Compliance Officer	P.O. Box 717 Linden, CA, 95236	(209) 662-2788		huskanam@gmail.com	Costanoan Northern Valley Yokut	Alameda,Calaveras,Contra Costa,Fresno,Madera,Mariposa,Merced,Sacramento,San Benito,San Joaquin,Santa	11/21/2023
	Southern Sierra Miwuk Nation	N	Jazzmyn Gegere, Director of Cultural Resource Preservation	P.O. Box 186 Mariposa, CA, 95338	(209) 742-3104		preservation@southernsierramiwuknation.org	Miwok Northern Valley Yokut Paiute	Madera,Mariposa,Merced,Stanislaus	2/1/2024
	Southern Sierra Miwuk Nation	N	Sandra Chapman, Chairperson	P.O. Box 186 Mariposa, CA, 95338	(559) 580-7871		sandra47roy@gmail.com	Miwok Northern Valley Yokut Paiute	Madera,Mariposa,Merced,Stanislaus	2/1/2024
	Table Mountain Rancheria	F	Bob Pennell, Cultural Resource Director	P.O. Box 410 Friant, CA, 93626	(559) 325-0351	(559) 325-0394	rpennell@tmr.org	Yokut	Fresno,Madera,Merced	
	Table Mountain Rancheria	F	Michelle Heredia-Cordova, Chairperson	P.O. Box 410 Friant, CA, 93626	(559) 822-2587	(559) 822-2693	mhcordova@tmr.org	Yokut	Fresno,Madera,Merced	12/21/2023
	Tule River Indian Tribe	F	Kerri Vera, Environmental Department	P. O. Box 589 Porterville, CA, 93258	(559) 783-8892	(559) 783-8932	kerri.vera@tulerivertribe-nsn.gov	Yokut	Alameda,Amador,Calaveras,Contra Costa,Fresno,Inyo,Kern,Kings,Madera,Mariposa,Merced,Monterey,Sacramento,San	7/22/2016
	Tule River Indian Tribe	F	Neil Peyron, Chairperson	P.O. Box 589 Porterville, CA, 93258	(559) 781-4271	(559) 781-4610	neil.peyron@tulerivertribe-nsn.gov	Yokut	Alameda,Amador,Calaveras,Contra Costa,Fresno,Inyo,Kern,Kings,Madera,Mariposa,Merced,Monterey,Sacramento,San	
	Tule River Indian Tribe	F	Joey Garfield, Tribal Archaeologist	P. O. Box 589 Porterville, CA, 93258	(559) 783-8892	(559) 783-8932	joey.garfield@tulerivertribe-nsn.gov	Yokut	Alameda,Amador,Calaveras,Contra Costa,Fresno,Inyo,Kern,Kings,Madera,Mariposa,Merced,Monterey,Sacramento,San	7/22/2016
	Wuksachi Indian Tribe/Eshom Valley Band	N	Kenneth Woodrow, Chairperson	1179 Rock Haven Ct. Salinas, CA, 93906	(831) 443-9702		kwood8934@aol.com	Foothill Yokut Mono	Alameda,Calaveras,Contra Costa,Fresno,Inyo,Kings,Madera,Marin,Mariposa,Merced,Mono,Monterey,San Benito,San	6/19/2023

This list is current only as of the date of this document. Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resource Section 5097.98 of the Public Resources Code.

This list is only applicable for contacting local Native Americans with regard to cultural resources assessment for the proposed CalAm Meadowbrook Tank and Booster Station Project, Merced County.

Record: PROJ-2024-000508
Report Type: List of Tribes
Counties: Merced
NAHC Group: All

BARGAS
Environmental Consulting

February 8, 2024

Jazzmyn Gegere
Director of Cultural Resource Preservation
Southern Sierra Miwuk Nation
P.O. Box 186
Mariposa, CA 95338
Email: preservation@southernsierramiwuknation.org

Re: CalAm's Meadowbrook Tank and Booster Station Project, Merced County, California

Dear Jazzmyn Gegere:

Bargas has been retained to conduct a cultural resources assessment for the California American Water Company (CalAm) Meadowbrook Tank and Booster Station Project, which consists of installing pump related equipment and features in an approximately 0.72-acre lot located in unincorporated Merced County.

We are reaching out to as your name and contact information as Director of Cultural Resource Preservation for the Southern Sierra Miwuk Nation was provided to us by the Native American Heritage Commission (NAHC). This letter is for outreach purposes only and does not constitute consultation under Assembly Bill (AB) 52 or Section 106 of the National Historic Preservation Act (NHPA).

Project Location and Setting

The Project is located in unincorporated Merced County, California in a 0.72-acre parcel located along Santa Fe Road, east of Bryant Road and north of Highway 99. The parcel is presently utilized for pumping and equipment storage related to agriculture. The legal location of the Project is Section 14 of Township 7 South, Range 13 East of the Mount Diablo Base Meridian, as shown on the *Atwater, California* United States Geological Survey (U.S.G.S) topographic quadrangles. The surrounding area consists of developed urban residential neighborhoods, commercial areas, and agricultural fields.

Project Description

CalAm proposes to construct a 1 million gallon tank, booster pump station, equipment building, emergency generator, and associated utility lines, fencing, and security features. All work will occur within the 0.72-acre parcel, consisting of Merced County Assessor's Parcel Number (APN) 057-200-087.

The Study Area includes the maximum area needed for the construction of the Project including all areas of ground disturbance, staging, and access, encompassing a 0.72-acre Project footprint. Project vicinity and Study Area maps are attached for reference.

BARGAS
Environmental Consulting

Summary of Cultural Resources Investigations

To identify the Project's potential to affect identified and as-yet unidentified cultural resources within the Study Area a cultural resources investigation was conducted. The investigations included a formal records search of the Study Area and a 0.5-mile radius around the Study Area from the Central California Information Center (CCIC), a Native American Heritage Commission (NAHC) Sacred Lands File (SLF) search, a field survey of the Study Area, and preparation of an archaeological survey report.

CCIC Records Search Results

Results from the CCIC record search identified eight previously completed investigations conducted within the 0.5-mile records search radius. Four of the previously completed studies overlap with the Study Area. Two previously recorded cultural resources were identified within the 0.5-mile radius of the Study Area, one of which, a historic-era built environment resource, overlaps the Study Area. P-24-001909 is the Merced Irrigation District, a proposed historic district consisting of numerous elements, none of which are within the Study Area.

SLF Search Results and NAHC Outreach

A search of the SLF was requested from the NAHC on January 10, 2024. The NAHC responded on February 5, 2024, and reported the search of the SLF was negative.

Pedestrian survey

An intensive pedestrian survey of the entirety of the 0.72-acre Study Area was conducted on January 18, 2024. No new cultural resources were identified within the Study Area as a result of the pedestrian survey.

Please let us know if you have any comments or concerns regarding the proposed bridge maintenance work or if you would like to share any knowledge you may have regarding potential impacts to sensitive cultural resources. Please note, this letter is for outreach purposes only and does not constitute formal consultation under AB52 or Section 1063 of the NHPA. If you have any questions or comments, please contact me at (909) 226-3802 or via email at larias@bargasconsulting.com.

Sincerely,

Lily Arias
Principal Cultural Resources Specialist
Bargas Environmental Consulting

cc. Sandra Chapman, Southern Sierra Miwuk Nation, Chairperson

BARGAS
Environmental Consulting

Attachments:

Project Site and Vicinity Map; Study Area Map

Source: ESRI ArcGIS Online Basemap - World Topographic Map, World Street Map

Public Land Survey System (PLSS):
Mount Diablo Meridian,Township 007 S , Range 013 E, Section 014

USGS Quad: Atwater (2021)
Watershed: Black Rascal Creek (1804000114)

Project Site Coordinates:
120°31'20"W 37°19'42"N

BARGAS Environmental Consulting

Project Site and Vicinity

CalAm Meadowbrook Tank and Booster Station Project

Map Created: 1/26/2024, Map Revised: N/A, Bargas Project Number: 1973-23

Source: Bing Maps Hybrid

N 0 150 300 Feet

Study Area

Study Area

CalAm Meadowbrook Tank and Booster Station Project

BARGAS Environmental Consulting

Map Created: 01/26/2023, Map Revised: N/A Bargas Project Number: 1973-23

BARGAS
Environmental Consulting

February 8, 2024

Robert Ledger
Chairperson
Dumna Wo-Wah Tribal Government
2191 West Pico Ave.
Fresno, CA 93705
Email: ledgerrobert@ymail.com

Re: CalAm's Meadowbrook Tank and Booster Station Project, Merced County, California

Dear Chairperson Ledger:

Bargas has been retained to conduct a cultural resources assessment for the California American Water Company (CalAm) Meadowbrook Tank and Booster Station Project, which consists of installing pump related equipment and features in an approximately 0.72-acre lot located in unincorporated Merced County.

We are reaching out to as your name and contact information as Chairperson for the Dumna Wo-Wah Tribal Government was provided to us by the Native American Heritage Commission (NAHC). This letter is for outreach purposes only and does not constitute consultation under Assembly Bill (AB) 52 or Section 106 of the National Historic Preservation Act (NHPA).

Project Location and Setting

The Project is located in unincorporated Merced County, California in a 0.72-acre parcel located along Santa Fe Road, east of Bryant Road and north of Highway 99. The parcel is presently utilized for pumping and equipment storage related to agriculture. The legal location of the Project is Section 14 of Township 7 South, Range 13 East of the Mount Diablo Base Meridian, as shown on the *Atwater, California* United States Geological Survey (U.S.G.S) topographic quadrangles. The surrounding area consists of developed urban residential neighborhoods, commercial areas, and agricultural fields.

Project Description

CalAm proposes to construct a 1 million gallon tank, booster pump station, equipment building, emergency generator, and associated utility lines, fencing, and security features. All work will occur within the 0.72-acre parcel, consisting of Merced County Assessor's Parcel Number (APN) 057-200-087.

The Study Area includes the maximum area needed for the construction of the Project including all areas of ground disturbance, staging, and access, encompassing a 0.72-acre Project footprint. Project vicinity and Study Area maps are attached for reference.

BARGAS
Environmental Consulting

Summary of Cultural Resources Investigations

To identify the Project's potential to affect identified and as-yet unidentified cultural resources within the Study Area a cultural resources investigation was conducted. The investigations included a formal records search of the Study Area and a 0.5-mile radius around the APE from the Central California Information Center (CCIC), a Native American Heritage Commission (NAHC) Sacred Lands File (SLF) search, a field survey of the Study Area, and preparation of an archaeological survey report.

CCIC Records Search Results

Results from the CCIC record search identified eight previously completed investigations conducted within the 0.5-mile records search radius. Four of the previously completed studies overlap with the Study Area. Two previously recorded cultural resources were identified within the 0.5-mile radius of the Study Area, one of which, a historic-era built environment resource, overlaps the Study Area. P-24-001909 is the Merced Irrigation District, a proposed historic district consisting of numerous elements, none of which are within the Study Area.

SLF Search Results and NAHC Outreach

A search of the SLF was requested from the NAHC on January 10, 2024. The NAHC responded on February 5, 2024, and reported the search of the SLF was negative.

Pedestrian survey

An intensive pedestrian survey of the entirety of the 0.72-acre Study Area was conducted on January 18, 2024. No new cultural resources were identified within the Study Area as a result of the pedestrian survey.

Please let us know if you have any comments or concerns regarding the proposed bridge maintenance work or if you would like to share any knowledge you may have regarding potential impacts to sensitive cultural resources. Please note, this letter is for outreach purposes only and does not constitute formal consultation under AB52 or Section 1063 of the NHPA. If you have any questions or comments, please contact me at (909) 226-3802 or via email at larias@bargasconsulting.com.

Sincerely,

Lily Arias
Principal Cultural Resources Specialist
Bargas Environmental Consulting

Attachments:

Project Site and Vicinity Map; Study Area Map

Source: ESRI ArcGIS Online Basemap - World Topographic Map, World Street Map

Public Land Survey System (PLSS):
Mount Diablo Meridian,Township 007 S , Range 013 E, Section 014

USGS Quad: Atwater (2021)
Watershed: Black Rascal Creek (1804000114)

Project Site Coordinates:
120°31'20"W 37°19'42"N

BARGAS Environmental Consulting

Project Site and Vicinity

CalAm Meadowbrook Tank and Booster Station Project

Map Created: 1/26/2024, Map Revised: N/A, Bargas Project Number: 1973-23

Source: Bing Maps Hybrid

N 0 150 300 Feet

Study Area

Study Area

CalAm Meadowbrook Tank and Booster Station Project

BARGAS Environmental Consulting

Map Created: 01/26/2023, Map Revised: N/A Bargas Project Number: 1973-23

BARGAS
Environmental Consulting

February 8, 2024

Valentin Lopez
Chairperson
Amah Mutsun Tribal Band
P.O. Box 5272
Galt, CA 95632
Email: vjltestingcenter@aol.com

Re: CalAm's Meadowbrook Tank and Booster Station Project, Merced County, California

Dear Chairperson Lopez:

Bargas has been retained to conduct a cultural resources assessment for the California American Water Company (CalAm) Meadowbrook Tank and Booster Station Project, which consists of installing pump related equipment and features in an approximately 0.72-acre lot located in unincorporated Merced County.

We are reaching out to as your name and contact information as Chairperson for the Amah Mutsun Tribal Band was provided to us by the Native American Heritage Commission (NAHC). This letter is for outreach purposes only and does not constitute consultation under Assembly Bill (AB) 52 or Section 106 of the National Historic Preservation Act (NHPA).

Project Location and Setting

The Project is located in unincorporated Merced County, California in a 0.72-acre parcel located along Santa Fe Road, east of Bryant Road and north of Highway 99. The parcel is presently utilized for pumping and equipment storage related to agriculture. The legal location of the Project is Section 14 of Township 7 South, Range 13 East of the Mount Diablo Base Meridian, as shown on the *Atwater, California* United States Geological Survey (U.S.G.S) topographic quadrangles. The surrounding area consists of developed urban residential neighborhoods, commercial areas, and agricultural fields.

Project Description

CalAm proposes to construct a 1 million gallon tank, booster pump station, equipment building, emergency generator, and associated utility lines, fencing, and security features. All work will occur within the 0.72-acre parcel, consisting of Merced County Assessor's Parcel Number (APN) 057-200-087.

The Study Area includes the maximum area needed for the construction of the Project including all areas of ground disturbance, staging, and access, encompassing a 0.72-acre Project footprint. Project vicinity and Study Area maps are attached for reference.

BARGAS
Environmental Consulting

Summary of Cultural Resources Investigations

To identify the Project's potential to affect identified and as-yet unidentified cultural resources within the Study Area a cultural resources investigation was conducted. The investigations included a formal records search of the Study Area and a 0.5-mile radius around the Study Area from the Central California Information Center (CCIC), a Native American Heritage Commission (NAHC) Sacred Lands File (SLF) search, a field survey of the Study Area, and preparation of an archaeological survey report.

CCIC Records Search Results

Results from the CCIC record search identified eight previously completed investigations conducted within the 0.5-mile records search radius. Four of the previously completed studies overlap with the Study Area. Two previously recorded cultural resources were identified within the 0.5-mile radius of the Study Area, one of which, a historic-era built environment resource, overlaps the Study Area. P-24-001909 is the Merced Irrigation District, a proposed historic district consisting of numerous elements, none of which are within the Study Area.

SLF Search Results and NAHC Outreach

A search of the SLF was requested from the NAHC on January 10, 2024. The NAHC responded on February 5, 2024, and reported the search of the SLF was negative.

Pedestrian survey

An intensive pedestrian survey of the entirety of the 0.72-acre Study Area was conducted on January 18, 2024. No new cultural resources were identified within the Study Area as a result of the pedestrian survey.

Please let us know if you have any comments or concerns regarding the proposed bridge maintenance work or if you would like to share any knowledge you may have regarding potential impacts to sensitive cultural resources. Please note, this letter is for outreach purposes only and does not constitute formal consultation under AB52 or Section 1063 of the NHPA. If you have any questions or comments, please contact me at (909) 226-3802 or via email at larias@bargasconsulting.com.

Sincerely,

Lily Arias
Principal Cultural Resources Specialist
Bargas Environmental Consulting

cc. Ed Ketchum, Amah Mutsun Tribal Band, Vice-Chairperson

BARGAS
Environmental Consulting

Attachments:

Project Site and Vicinity Map; Study Area Map

Source: ESRI ArcGIS Online Basemap - World Topographic Map, World Street Map

Public Land Survey System (PLSS):
Mount Diablo Meridian,Township 007 S , Range 013 E, Section 014

USGS Quad: Atwater (2021)
Watershed: Black Rascal Creek (1804000114)

Project Site Coordinates:
120°31'20"W 37°19'42"N

BARGAS Environmental Consulting

Project Site and Vicinity

CalAm Meadowbrook Tank and Booster Station Project

Map Created: 1/26/2024, Map Revised: N/A, Bargas Project Number: 1973-23

Source: Bing Maps Hybrid

N 0 150 300 Feet

Study Area

Study Area

CalAm Meadowbrook Tank and Booster Station Project

BARGAS Environmental Consulting

Map Created: 01/26/2023, Map Revised: N/A Bargas Project Number: 1973-23

BARGAS
Environmental Consulting

February 8, 2024

Bob Pennell
Cultural Resource Director
Table Mountain Rancheria
P.O. Box 410
Friant, CA 93626
Email: rpennell@tmr.org

Re: CalAm's Meadowbrook Tank and Booster Station Project, Merced County, California

Dear Bob Pennell:

Bargas has been retained to conduct a cultural resources assessment for the California American Water Company (CalAm) Meadowbrook Tank and Booster Station Project, which consists of installing pump related equipment and features in an approximately 0.72-acre lot located in unincorporated Merced County.

We are reaching out to as your name and contact information as Cultural Resource Director for the Table Mountain Rancheria was provided to us by the Native American Heritage Commission (NAHC). This letter is for outreach purposes only and does not constitute consultation under Assembly Bill (AB) 52 or Section 106 of the National Historic Preservation Act (NHPA).

Project Location and Setting

The Project is located in unincorporated Merced County, California in a 0.72-acre parcel located along Santa Fe Road, east of Bryant Road and north of Highway 99. The parcel is presently utilized for pumping and equipment storage related to agriculture. The legal location of the Project is Section 14 of Township 7 South, Range 13 East of the Mount Diablo Base Meridian, as shown on the *Atwater, California* United States Geological Survey (U.S.G.S) topographic quadrangles. The surrounding area consists of developed urban residential neighborhoods, commercial areas, and agricultural fields.

Project Description

CalAm proposes to construct a 1 million gallon tank, booster pump station, equipment building, emergency generator, and associated utility lines, fencing, and security features. All work will occur within the 0.72-acre parcel, consisting of Merced County Assessor's Parcel Number (APN) 057-200-087.

The Study Area includes the maximum area needed for the construction of the Project including all areas of ground disturbance, staging, and access, encompassing a 0.72-acre Project footprint. Project vicinity and Study Area maps are attached for reference.

BARGAS
Environmental Consulting

Summary of Cultural Resources Investigations

To identify the Project's potential to affect identified and as-yet unidentified cultural resources within the Study Area a cultural resources investigation was conducted. The investigations included a formal records search of the Study Area and a 0.5-mile radius around the APE from the Central California Information Center (CCIC), a Native American Heritage Commission (NAHC) Sacred Lands File (SLF) search, a field survey of the Study Area, and preparation of an archaeological survey report.

CCIC Records Search Results

Results from the CCIC record search identified eight previously completed investigations conducted within the 0.5-mile records search radius. Four of the previously completed studies overlap with the Study Area. Two previously recorded cultural resources were identified within the 0.5-mile radius of the Study Area, one of which, a historic-era built environment resource, overlaps the Study Area. P-24-001909 is the Merced Irrigation District, a proposed historic district consisting of numerous elements, none of which are within the Study Area.

SLF Search Results and NAHC Outreach

A search of the SLF was requested from the NAHC on January 10, 2024. The NAHC responded on February 5, 2024, and reported the search of the SLF was negative.

Pedestrian survey

An intensive pedestrian survey of the entirety of the 0.72-acre Study Area was conducted on January 18, 2024. No new cultural resources were identified within the Study Area as a result of the pedestrian survey.

Please let us know if you have any comments or concerns regarding the proposed bridge maintenance work or if you would like to share any knowledge you may have regarding potential impacts to sensitive cultural resources. Please note, this letter is for outreach purposes only and does not constitute formal consultation under AB52 or Section 1063 of the NHPA. If you have any questions or comments, please contact me at (909) 226-3802 or via email at larias@bargasconsulting.com.

Sincerely,

Lily Arias
Principal Cultural Resources Specialist
Bargas Environmental Consulting

cc. Michelle Heredia-Cordova, Table Mountain Rancheria, Chairperson

BARGAS
Environmental Consulting

Attachments:

Project Site and Vicinity Map; Study Area Map

Source: ESRI ArcGIS Online Basemap - World Topographic Map, World Street Map

Public Land Survey System (PLSS):
Mount Diablo Meridian,Township 007 S , Range 013 E, Section 014

USGS Quad: Atwater (2021)
Watershed: Black Rascal Creek (1804000114)

Project Site Coordinates:
120°31'20"W 37°19'42"N

BARGAS Environmental Consulting

Project Site and Vicinity

CalAm Meadowbrook Tank and Booster Station Project

Map Created: 1/26/2024, Map Revised: N/A, Bargas Project Number: 1973-23

Source: Bing Maps Hybrid

N 0 150 300 Feet

Study Area

Study Area

CalAm Meadowbrook Tank and Booster Station Project

BARGAS Environmental Consulting

Map Created: 01/26/2023, Map Revised: N/A Bargas Project Number: 1973-23

BARGAS
Environmental Consulting

February 8, 2024

Timothy Perez
Tribal Compliance Officer
Northern Valley Yokut/Ohlone Tribe
P.O. Box 717
Linden, CA 95236
Email: huskanam@gmail.com

Re: CalAm's Meadowbrook Tank and Booster Station Project, Merced County, California

Dear Timothy Perez:

Bargas has been retained to conduct a cultural resources assessment for the California American Water Company (CalAm) Meadowbrook Tank and Booster Station Project, which consists of installing pump related equipment and features in an approximately 0.72-acre lot located in unincorporated Merced County.

We are reaching out to as your name and contact information as Tribal Compliance Officer for the Northern Valley Yokut/Ohlone Tribe was provided to us by the Native American Heritage Commission (NAHC). This letter is for outreach purposes only and does not constitute consultation under Assembly Bill (AB) 52 or Section 106 of the National Historic Preservation Act (NHPA).

Project Location and Setting

The Project is located in unincorporated Merced County, California in a 0.72-acre parcel located along Santa Fe Road, east of Bryant Road and north of Highway 99. The parcel is presently utilized for pumping and equipment storage related to agriculture. The legal location of the Project is Section 14 of Township 7 South, Range 13 East of the Mount Diablo Base Meridian, as shown on the *Atwater, California* United States Geological Survey (U.S.G.S) topographic quadrangles. The surrounding area consists of developed urban residential neighborhoods, commercial areas, and agricultural fields.

Project Description

CalAm proposes to construct a 1 million gallon tank, booster pump station, equipment building, emergency generator, and associated utility lines, fencing, and security features. All work will occur within the 0.72-acre parcel, consisting of Merced County Assessor's Parcel Number (APN) 057-200-087.

The Study Area includes the maximum area needed for the construction of the Project including all areas of ground disturbance, staging, and access, encompassing a 0.72-acre Project footprint. Project vicinity and Study Area maps are attached for reference.

BARGAS
Environmental Consulting

Summary of Cultural Resources Investigations

To identify the Project's potential to affect identified and as-yet unidentified cultural resources within the Study Area a cultural resources investigation was conducted. The investigations included a formal records search of the Study Area and a 0.5-mile radius around the APE from the Central California Information Center (CCIC), a Native American Heritage Commission (NAHC) Sacred Lands File (SLF) search, a field survey of the Study Area, and preparation of an archaeological survey report.

CCIC Records Search Results

Results from the CCIC record search identified eight previously completed investigations conducted within the 0.5-mile records search radius. Four of the previously completed studies overlap with the Study Area. Two previously recorded cultural resources were identified within the 0.5-mile radius of the Study Area, one of which, a historic-era built environment resource, overlaps the Study Area. P-24-001909 is the Merced Irrigation District, a proposed historic district consisting of numerous elements, none of which are within the Study Area.

SLF Search Results and NAHC Outreach

A search of the SLF was requested from the NAHC on January 10, 2024. The NAHC responded on February 5, 2024, and reported the search of the SLF was negative.

Pedestrian survey

An intensive pedestrian survey of the entirety of the 0.72-acre Study Area was conducted on January 18, 2024. No new cultural resources were identified within the Study Area as a result of the pedestrian survey.

Please let us know if you have any comments or concerns regarding the proposed bridge maintenance work or if you would like to share any knowledge you may have regarding potential impacts to sensitive cultural resources. Please note, this letter is for outreach purposes only and does not constitute formal consultation under AB52 or Section 1063 of the NHPA. If you have any questions or comments, please contact me at (909) 226-3802 or via email at larias@bargasconsulting.com.

Sincerely,

Lily Arias
Principal Cultural Resources Specialist
Bargas Environmental Consulting

Attachments:

Project Site and Vicinity Map; Study Area Map

Source: ESRI ArcGIS Online Basemap - World Topographic Map, World Street Map

Public Land Survey System (PLSS):
Mount Diablo Meridian,Township 007 S , Range 013 E, Section 014

USGS Quad: Atwater (2021)
Watershed: Black Rascal Creek (1804000114)

Project Site Coordinates:
120°31'20"W 37°19'42"N

BARGAS Environmental Consulting

Project Site and Vicinity

CalAm Meadowbrook Tank and Booster Station Project

Map Created: 1/26/2024, Map Revised: N/A, Bargas Project Number: 1973-23

Source: Bing Maps Hybrid

N 0 150 300 Feet

Study Area

Study Area

CalAm Meadowbrook Tank and Booster Station Project

BARGAS Environmental Consulting

Map Created: 01/26/2023, Map Revised: N/A Bargas Project Number: 1973-23

BARGAS
Environmental Consulting

February 8, 2024

Kerri Vera
Environmental Department
Tule River Indian Tribe
P.O. Box 589
Porterville, CA 93258
Email: kerri.vera@tulerivertribe-nsn.gov

Re: CalAm's Meadowbrook Tank and Booster Station Project, Merced County, California

Dear Kerri Vera:

Bargas has been retained to conduct a cultural resources assessment for the California American Water Company (CalAm) Meadowbrook Tank and Booster Station Project, which consists of installing pump related equipment and features in an approximately 0.72-acre lot located in unincorporated Merced County.

We are reaching out to as your name and contact information as the Environmental Department for the Tule River Indian Tribe was provided to us by the Native American Heritage Commission (NAHC). This letter is for outreach purposes only and does not constitute consultation under Assembly Bill (AB) 52 or Section 106 of the National Historic Preservation Act (NHPA).

Project Location and Setting

The Project is located in unincorporated Merced County, California in a 0.72-acre parcel located along Santa Fe Road, east of Bryant Road and north of Highway 99. The parcel is presently utilized for pumping and equipment storage related to agriculture. The legal location of the Project is Section 14 of Township 7 South, Range 13 East of the Mount Diablo Base Meridian, as shown on the *Atwater, California* United States Geological Survey (U.S.G.S) topographic quadrangles. The surrounding area consists of developed urban residential neighborhoods, commercial areas, and agricultural fields.

Project Description

CalAm proposes to construct a 1 million gallon tank, booster pump station, equipment building, emergency generator, and associated utility lines, fencing, and security features. All work will occur within the 0.72-acre parcel, consisting of Merced County Assessor's Parcel Number (APN) 057-200-087.

The Study Area includes the maximum area needed for the construction of the Project including all areas of ground disturbance, staging, and access, encompassing a 0.72-acre Project footprint. Project vicinity and Study Area maps are attached for reference.

BARGAS
Environmental Consulting

Summary of Cultural Resources Investigations

To identify the Project's potential to affect identified and as-yet unidentified cultural resources within the Study Area a cultural resources investigation was conducted. The investigations included a formal records search of the Study Area and a 0.5-mile radius around the APE from the Central California Information Center (CCIC), a Native American Heritage Commission (NAHC) Sacred Lands File (SLF) search, a field survey of the Study Area, and preparation of an archaeological survey report.

CCIC Records Search Results

Results from the CCIC record search identified eight previously completed investigations conducted within the 0.5-mile records search radius. Four of the previously completed studies overlap with the Study Area. Two previously recorded cultural resources were identified within the 0.5-mile radius of the Study Area, one of which, a historic-era built environment resource, overlaps the Study Area. P-24-001909 is the Merced Irrigation District, a proposed historic district consisting of numerous elements, none of which are within the Study Area.

SLF Search Results and NAHC Outreach

A search of the SLF was requested from the NAHC on January 10, 2024. The NAHC responded on February 5, 2024, and reported the search of the SLF was negative.

Pedestrian survey

An intensive pedestrian survey of the entirety of the 0.72-acre Study Area was conducted on January 18, 2024. No new cultural resources were identified within the Study Area as a result of the pedestrian survey.

Please let us know if you have any comments or concerns regarding the proposed bridge maintenance work or if you would like to share any knowledge you may have regarding potential impacts to sensitive cultural resources. Please note, this letter is for outreach purposes only and does not constitute formal consultation under AB52 or Section 1063 of the NHPA. If you have any questions or comments, please contact me at (909) 226-3802 or via email at larias@bargasconsulting.com.

Sincerely,

Lily Arias
Principal Cultural Resources Specialist
Bargas Environmental Consulting

cc. Neil Peyron, Tule River Indian Tribe, Chairperson;
Joey Garfield, Tule River Indian Tribe, Tribal Archaeologist

Attachments:

Project Site and Vicinity Map; Study Area Map

Source: ESRI ArcGIS Online Basemap - World Topographic Map, World Street Map

Public Land Survey System (PLSS):
Mount Diablo Meridian,Township 007 S , Range 013 E, Section 014

USGS Quad: Atwater (2021)
Watershed: Black Rascal Creek (1804000114)

Project Site Coordinates:
120°31'20"W 37°19'42"N

BARGAS Environmental Consulting

Project Site and Vicinity

CalAm Meadowbrook Tank and Booster Station Project

Map Created: 1/26/2024, Map Revised: N/A, Bargas Project Number: 1973-23

Source: Bing Maps Hybrid

N 0 150 300 Feet

Study Area

Study Area

CalAm Meadowbrook Tank and Booster Station Project

BARGAS Environmental Consulting

Map Created: 01/26/2023, Map Revised: N/A Bargas Project Number: 1973-23

BARGAS
Environmental Consulting

February 8, 2024

Kenneth Woodrow
Chairperson
Wuksachi Indian Tribe/Eshom Valley Band
1179 Rock Haven Ct.
Salinas, CA 93906
Email: kerri.vera@tulerivertribe-nsn.gov

Re: CalAm's Meadowbrook Tank and Booster Station Project, Merced County, California

Dear Chairperson Woodrow:

Bargas has been retained to conduct a cultural resources assessment for the California American Water Company (CalAm) Meadowbrook Tank and Booster Station Project, which consists of installing pump related equipment and features in an approximately 0.72-acre lot located in unincorporated Merced County.

We are reaching out to as your name and contact information as Chairperson for the Wuksachi Indian Tribe/Eshom Valley Band was provided to us by the Native American Heritage Commission (NAHC). This letter is for outreach purposes only and does not constitute consultation under Assembly Bill (AB) 52 or Section 106 of the National Historic Preservation Act (NHPA).

Project Location and Setting

The Project is located in unincorporated Merced County, California in a 0.72-acre parcel located along Santa Fe Road, east of Bryant Road and north of Highway 99. The parcel is presently utilized for pumping and equipment storage related to agriculture. The legal location of the Project is Section 14 of Township 7 South, Range 13 East of the Mount Diablo Base Meridian, as shown on the *Atwater, California* United States Geological Survey (U.S.G.S) topographic quadrangles. The surrounding area consists of developed urban residential neighborhoods, commercial areas, and agricultural fields.

Project Description

CalAm proposes to construct a 1 million gallon tank, booster pump station, equipment building, emergency generator, and associated utility lines, fencing, and security features. All work will occur within the 0.72-acre parcel, consisting of Merced County Assessor's Parcel Number (APN) 057-200-087.

The Study Area includes the maximum area needed for the construction of the Project including all areas of ground disturbance, staging, and access, encompassing a 0.72-acre Project footprint. Project vicinity and Study Area maps are attached for reference.

BARGAS
Environmental Consulting

Summary of Cultural Resources Investigations

To identify the Project's potential to affect identified and as-yet unidentified cultural resources within the Study Area a cultural resources investigation was conducted. The investigations included a formal records search of the Study Area and a 0.5-mile radius around the APE from the Central California Information Center (CCIC), a Native American Heritage Commission (NAHC) Sacred Lands File (SLF) search, a field survey of the Study Area, and preparation of an archaeological survey report.

CCIC Records Search Results

Results from the CCIC record search identified eight previously completed investigations conducted within the 0.5-mile records search radius. Four of the previously completed studies overlap with the Study Area. Two previously recorded cultural resources were identified within the 0.5-mile radius of the Study Area, one of which, a historic-era built environment resource, overlaps the Study Area. P-24-001909 is the Merced Irrigation District, a proposed historic district consisting of numerous elements, none of which are within the Study Area.

SLF Search Results and NAHC Outreach

A search of the SLF was requested from the NAHC on January 10, 2024. The NAHC responded on February 5, 2024, and reported the search of the SLF was negative.

Pedestrian survey

An intensive pedestrian survey of the entirety of the 0.72-acre Study Area was conducted on January 18, 2024. No new cultural resources were identified within the Study Area as a result of the pedestrian survey.

Please let us know if you have any comments or concerns regarding the proposed bridge maintenance work or if you would like to share any knowledge you may have regarding potential impacts to sensitive cultural resources. Please note, this letter is for outreach purposes only and does not constitute formal consultation under AB52 or Section 1063 of the NHPA. If you have any questions or comments, please contact me at (909) 226-3802 or via email at larias@bargasconsulting.com.

Sincerely,

Lily Arias
Principal Cultural Resources Specialist
Bargas Environmental Consulting

Attachments:

Project Site and Vicinity Map; Study Area Map

Source: ESRI ArcGIS Online Basemap - World Topographic Map, World Street Map

Public Land Survey System (PLSS):
Mount Diablo Meridian,Township 007 S , Range 013 E, Section 014

USGS Quad: Atwater (2021)
Watershed: Black Rascal Creek (1804000114)

Project Site Coordinates:
120°31'20"W 37°19'42"N

BARGAS Environmental Consulting

Project Site and Vicinity

CalAm Meadowbrook Tank and Booster Station Project

Map Created: 1/26/2024, Map Revised: N/A, Bargas Project Number: 1973-23

Source: Bing Maps Hybrid

N 0 150 300 Feet

Study Area

Study Area

CalAm Meadowbrook Tank and Booster Station Project

BARGAS Environmental Consulting

Map Created: 01/26/2023, Map Revised: N/A Bargas Project Number: 1973-23

From: Ashley Hallock
To: "Ed Ketchum"
Cc: vjltestingcenter@aol.com; Lily Arias
Subject: RE: Native American Outreach for the CalAm Meadowbrook Tank Booster Station Project, Merced County
Date: Monday, February 12, 2024 10:36:00 AM

Dear Ed Ketchum,

Thank you very much for being comfortable enough to share your family history with us, and for taking the time to respond. We really appreciate it.

Sincerely,
Ashley Hallock

From: Ed Ketchum <aerieways@aol.com>
Sent: Saturday, February 10, 2024 1:14 AM
To: Ashley Hallock <ahallock@bargasconsulting.com>
Cc: vjltestingcenter@aol.com; Lily Arias <larias@bargasconsulting.com>
Subject: Re: Native American Outreach for the CalAm Meadowbrook Tank Booster Station Project, Merced County

Ashley, thank you for allowing me to comment.

In 1821 the Spanish sent a proselytizing group to the Tular (San Joaquin Valley). A young Quithrathre man, Canagianiths, accompanied them to Mission San Juan Bautista. On 21 April 1821 Canagianiths was christened Pinito. In May of 1821, his siblings Sujuyulut, Sipuacsa, and Chachalammage were respectively christened Eunomia, Sopatra, and Tesalonica. Once baptized the neophytes were now the property of the church and we're not allowed to return to Quithrathre. Nearly a year later in March of 1822, their parents Jayachu and Lihusate were christened Potamion and Potamiena respectively. Jayachu origin was listed as Quithrathre (present day Atwater), while his wife's origin was listed as Silelamne (present day Merced). Eunomia and Tesalonica died young. Pinito disappears from Mission records. Sopatra survived. She married the widower Junipero an Indian leader of Mission San Juan Bautista. This union united the people of the valley with the coastal peoples at Mission San Juan Bautista. Sopatra and Junipero had 11 children. Many of their descendants are members of the "Amah" tribe including me. We are honored to list Sopatra as our ancestor, unfortunately little of her heritage was passed down. I have no specific knowledge concerning the subject project lands.

Ed Ketchum

Sent from my iPad

On Feb 8, 2024, at 4:33 PM, Ashley Hallock <ahallock@bargasconsulting.com> wrote:

Dear Valentin Lopez:

Bargas has been retained to conduct a cultural resources assessment for the California American Water Company (CalAm) Meadowbrook Tank and Booster Station Project, which consists of installing pump related equipment and features in an approximately 0.72-acre lot located in unincorporated Merced County.

We are reaching out to as your name and contact information as Chairperson for the Amah Mutsun Tribal Band was provided to us by the Native American Heritage Commission (NAHC). Please find attached a project outreach letter with project maps for your reference. Please let us know if you have any comments or concerns regarding the proposed project or if you would like to share any knowledge you may have regarding potential impacts to sensitive cultural resources.

Sincerely,

Ashley Hallock

Ashley Hallock
Scientist IV – Cultural Resources
182
www.BargasConsulting.com
O: 916-993-9218 | **C:** 509-592-7322

Minority Woman-Owned Business
Sacramento • Orange • Pasadena • San Bernardino • Temecula • San Diego

From: Ashley Hallock
To: Kerri Vera
Cc: Lily Arias
Subject: RE: Native American Outreach for the CalAm Meadowbrook Tank Booster Station Project, Merced County
Date: Tuesday, March 12, 2024 4:36:00 PM

Hello Kerri,

Thank you for taking the time to review our project letter. We appreciate your response and will forward your request on to the client.

Thank you,

Ashley H.

From: Kerri Vera <Kerri.Vera@tulerivertribe-nsn.gov>
Sent: Tuesday, March 12, 2024 4:13 PM
To: Ashley Hallock <ahallock@bargasconsulting.com>
Subject: Re: Native American Outreach for the CalAm Meadowbrook Tank Booster Station Project, Merced County

Hello Ashley, thank you for your letter dated February 8, 2024 regarding this project. At this time, we do not have any information regarding sensitive cultural resources or sites within the planned project area. If however, during project planning or execution you should detect resources, please reach out again.

Thank you,

Kerri Vera - Director
Department of Environmental Protection
Tule River Tribe
POB 589, Porterville CA 93258
ph: 559/781-4271 ext: 5041
email(1): tuleriverenv@yahoo.com
email(2): kerri.vera@tulerivertribe-nsn.gov

From: Ashley Hallock <ahallock@bargasconsulting.com>
Sent: Thursday, February 8, 2024 4:46 PM
To: Kerri Vera <Kerri.Vera@tulerivertribe-nsn.gov>
Cc: Neil Peyron <Neil.Peyron@tulerivertribe-nsn.gov>; joey.garfield@tulerivertribe-nsn.gov <joey.garfield@tulerivertribe-nsn.gov>; Lily Arias <larias@bargasconsulting.com>
Subject: Native American Outreach for the CalAm Meadowbrook Tank Booster Station Project, Merced County

Dear Kerri Vera:

Bargas has been retained to conduct a cultural resources assessment for the California American Water Company (CalAm) Meadowbrook Tank and Booster Station Project, which consists of installing pump related equipment and features in an approximately 0.72-acre lot located in unincorporated Merced County.

We are reaching out to as your name and contact information as the Environmental Department for the Tule River Indian Tribe was provided to us by the Native American Heritage Commission (NAHC). Please find attached a project outreach letter with project maps for your reference. Please let us know if you have any comments or concerns regarding the proposed project or if you would like to share any knowledge you may have regarding potential impacts to sensitive cultural resources.

Sincerely,

Ashley Hallock

Ashley Hallock
Scientist IV – Cultural Resources

www.BargasConsulting.com
O: 916-993-9218 | **C:** 509-592-7322

Minority Woman-Owned Business
Sacramento • Orange • Pasadena • San Bernardino • Temecula • San Diego

Name	Position	Tribal Affiliation	Sent Via	Date	Follow-up via	Date	Comments
Ed Ketchum	Vice-Chairperson	Amah Mutsun Tribal Band	Email	2/8/2024			Copied on Lopez email
					Email	2/10/2024	Ketchum responded to Lopez's email with information pertaining to his ancestors but stated that he has no additional information regarding the project area. A response was sent to Mr. Ketchum via email on the same date thanking him for sharing his knowledge and family's history.
Valentin Lopez	Chairperson	Amah Mutsun Tribal Band	Email	2/8/2024	N/A		See above; comment previously received on 2/10/2024
Robert Ledger	Chairperson	Dumna Wo-Wah Tribal	Email	2/8/2024	Phone	3/12/2024	Left voicemail
Timothy Perez	Tribal Compliance	Northern Valley	Email	2/8/2024	Phone	3/12/2024	Left voicemail
Jazzmyn Gegere	Director of Cultural Resource Preservation	Southern Sierra Miwuk Nation	Email	2/8/2024	Phone	3/12/2024; 3/13/2024	Jazzmyn requested a call back on 3/13, at 1:30 PM; A return call was placed on 3/13/2024 but there was no answer and no voicemail was available.
Sandra Chapman	Chairperson	Southern Sierra Miwuk	Email		Phone	3/12/2024	Copied on Gegere email; Left voicemail
Bob Pennell	Cultural Resource Director	Table Mountain Rancheria	Email	2/8/2024	Phone	3/12/2024	Left a message with the front desk for Bob.
Michelle Heredia-Cordova	Chairperson	Table Mountain Rancheria	Email	2/8/2024	Phone	3/12/2024	Copied on Pennell email; Left voicemail. Front desk referred me to speak with Environmental Director Samuel Elizondo. A voicemail was left for Samuel a as well.
Kerri Vera	Environmental Department	Tule River Indian Tribe	Email	2/8/2024	Phone	3/12/2024	Kerri said she would review the project letter. On 3/12/2024, she responded via email stating no concerns with the project but wishes to be notified if anything is found.
Neil Peyron	Chairperson	Tule River Indian Tribe	Email	2/8/2024	Phone	3/12/2024	Copied on Vera email; When the front desk was contacted they directed a call be made to Kerri Vera by front desk. There was no answer, so a voicemail was left.
Joey Garfield	Tribal Archaeologist	Tule River Indian Tribe	Email	2/8/2024	Phone	3/12/2024	I was informed that Joey was deceased.
Kenneth Woodrow	Chairperson	Wuksachi Indian Tribe/Eshom Valley Band	Email	2/8/2024	Phone	3/12/2024; 3/13/2024	Phone kept ringing and no voicemail was available. An additional attempt was made on 3/13/2024 with the same result.